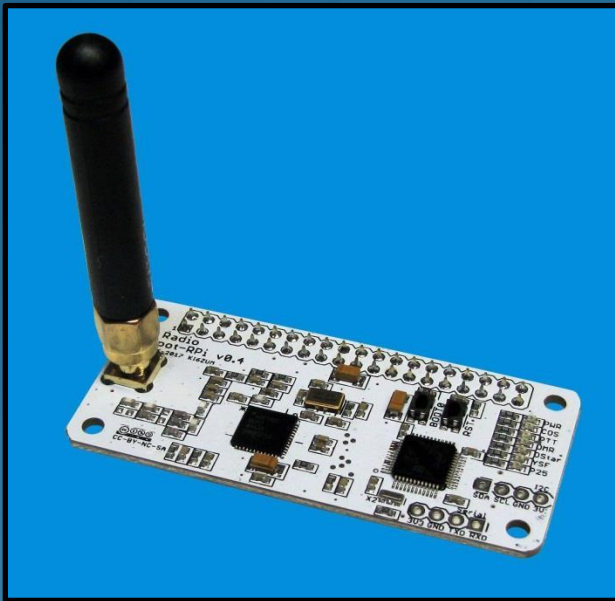


ZUMspot/PiStar

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

David Hull, KC6N



Preface

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

Contents

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

Note on SW versions:

Many of the screen shots in the first sections are based on release 3.4.11. Some of the material in the appendices are based on later versions.

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

ZUMspot/PiStar

Part I

Preparing a μ SD card with a Pi-Star Image

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

Download the Pi-Star Image (1)

Go to the following URL:

<http://www.pistar.uk/index.php>

Click: "Downloads", Click: "Download Pi-Star"

PiStar.UK - Pi-Star Digital Voice Software

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Pi-Star Tools

BrandMeister Tools

DMR+ Tools

D-Star Tools

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Links

Pi-Star Downloads

Images available to Download

Pi-Star NanoPi Air V3.4.11 06-Mar-2018.zip
Pi-Star NanoPi 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 24-Feb-2018.zip
Pi-Star RPi V3.4.11 06-Mar-2018.zip
dvmeiga-flash-tools.zip

Information

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 preferred 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 the setup your Pi-Star.

here: <http://pi-star/admin/>

Default Username: pi-star
Default Password: raspberry

For help getting started, see this *EXCELLENT* video by Craig (W1MSG): [Here](#)

Windows Imaging Guide: [Here](#)
Mac OS Imaging Guide: [Here](#)
Linux Imaging Guide: [Here](#)

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 - Pi-Star Digital Voice Software

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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 Digital Voice on Amateur radio in a way that makes it easily accessible to anyone just starting out, but make it configurable enough to be interesting for those of us who can't help but tinker.

Pi-Star can be what ever you want it to be, from a simple single mode hotspot running simplex providing 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!

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!

Pi-Star Digital Voice Dashboard for MW0MWZ

Active Starred Groups									
CollSign	LogOff	Info	UTOT	GTOT					
PISTAR 0	PISTAR U	Pi-Star User Group on D-Star	30	30					
CMGR 0	CMGR U	Blackwood Club Members Group	20	20					

Last 20 calls heard via this Gateway									
Time (GMT)	Mode	CollSign	Target	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)
2017-05-30 16:30:19	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.8	0%	0.2%			
2017-05-30 16:27:55	DMR Slot 2	UKAS	TG 91	Net: 0.5	0%	0.1%			
2017-05-30 16:25:15	DMR Slot 2	UKAS	TG 91	Net: 10.5	8%	0.0%			
2017-05-30 16:24:52	DMR Slot 2	UKAS	TG 91	Net: 18.1	0%	0.0%			
2017-05-30 16:19:35	DMR Slot 2	UKAS	TG 91	Net: 1.6	0%	0.0%			
2017-05-30 16:17:23	D-Star	PISTAR U	COCCQ via REF001 C	Net: 11.8	0%	0.0%			
2017-05-30 16:16:36	D-Star	PISTAR U	COCCQ via REF001 C	Net: 1.4	0%	0.0%			
2017-05-30 16:11:39	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.7	0%	0.0%			
2017-05-30 16:10:44	D-Star	PISTAR U	COCCQ via REF001 C	Net: 1.9	0%	0.2%			
2017-05-30 16:10:42	D-Star	PISTAR U	COCCQ via REF001 C	Net: 7.1	0%	0.0%			
2017-05-30 16:09:28	D-Star	PISTAR U	COCCQ via REF001 C	Net: 1.2	0%	0.0%			
2017-05-30 16:09:15	D-Star	PISTAR U	COCCQ via REF001 C	Net: 7.9	0%	0.0%			
2017-05-30 15:56:09	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.1	0%	10.3%			
2017-05-30 15:54:49	D-Star	PISTAR U	COCCQ via REF001 C	Net: 1.2	0%	0.0%			
2017-05-30 15:49:35	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.8	0%	0.0%			
2017-05-30 15:48:19	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.4	0%	0.0%			
2017-05-30 15:47:01	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.2	0%	0.0%			
2017-05-30 15:40:50	D-Star	PISTAR U	COCCQ via REF001 C	Net: 0.4	0%	0.0%			
2017-05-30 15:36:33	D-Star	PISTAR U	COCCQ via REF001 C	Net: 6.8	0%	0.0%			

Last 20 calls accessed this Gateway									
Time (GMT)	Mode	CollSign	Target	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)	Src (DunCS)
2017-05-30 16:18:42	D-Star	PISTAR U	1	Net: 0.7	0%	0.0%			

pistar.uk website designed and developed by Andy Taylor (MW0MWZ) - andy@mw0mwz.co.uk
© 2017-2018 MW0MWZ. All rights reserved. All trademarks acknowledged.
index.php last modified on 12/09/17 at 19:14 +0000

Download the Pi-Star Image (2)

1. Download the file with the name "Pi-Star_Rpi..." and save it somewhere that you will remember.
2. 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)
4. Note that there are some other interesting links on this page you may want to look at as well.

PiStar.UK - Pi-Star Digital Voice Software

Pi-Star Downloads

Images available to Download

- Pi-Star NanoPi_Air V3.4.11 06-Mar-2018.zip
- Pi-Star NanoPi_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_V3.4.11 06-Mar-2018.zip
- Pi-Star_RPi_V3.4.11 06-Mar-2018.zip
- dvmsys_Flash-tools_Zip

Information

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 preferred 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 the setup your Pi-Star.

here: <http://pi-star/admin/>

Default Username: pi-star
Default Password: raspberry

For help getting started, see this *EXCELLENT* video by Craig (W1MSG): [Here](#)

Windows Imaging Guide: [Here](#)
Mac OS Imaging Guide: [Here](#)
Linux Imaging Guide: [Here](#)

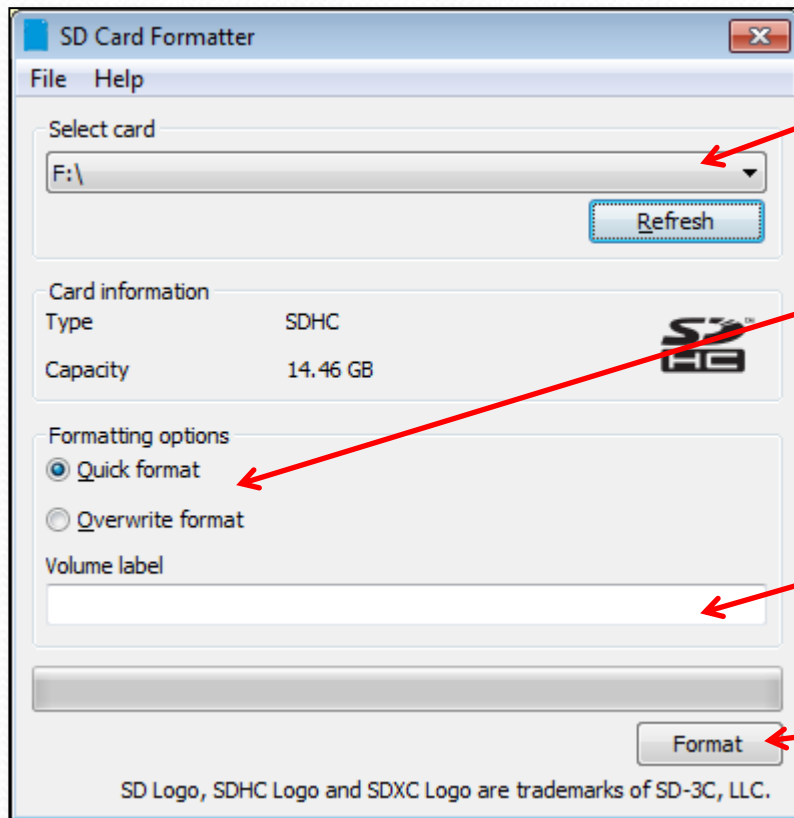
For support, please join our Facebook Support Group:
<https://www.facebook.com/groups/pistar/>
and/or make use of the Wiki: <http://wiki.pistar.uk>

Sidebar Links:

- Home
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- Links

Format a blank μ SD Card

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



1. Set the drive letter for your μ -SD card here

2. Select a format option

3. Leave this blank, the Pi-Star image will change it to “boot” when it loads.

4. Select “Format”

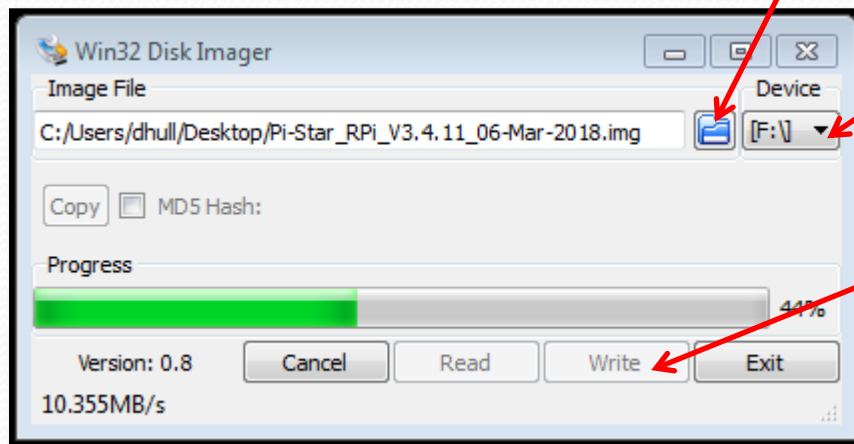
Transferring the image

- 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](#)



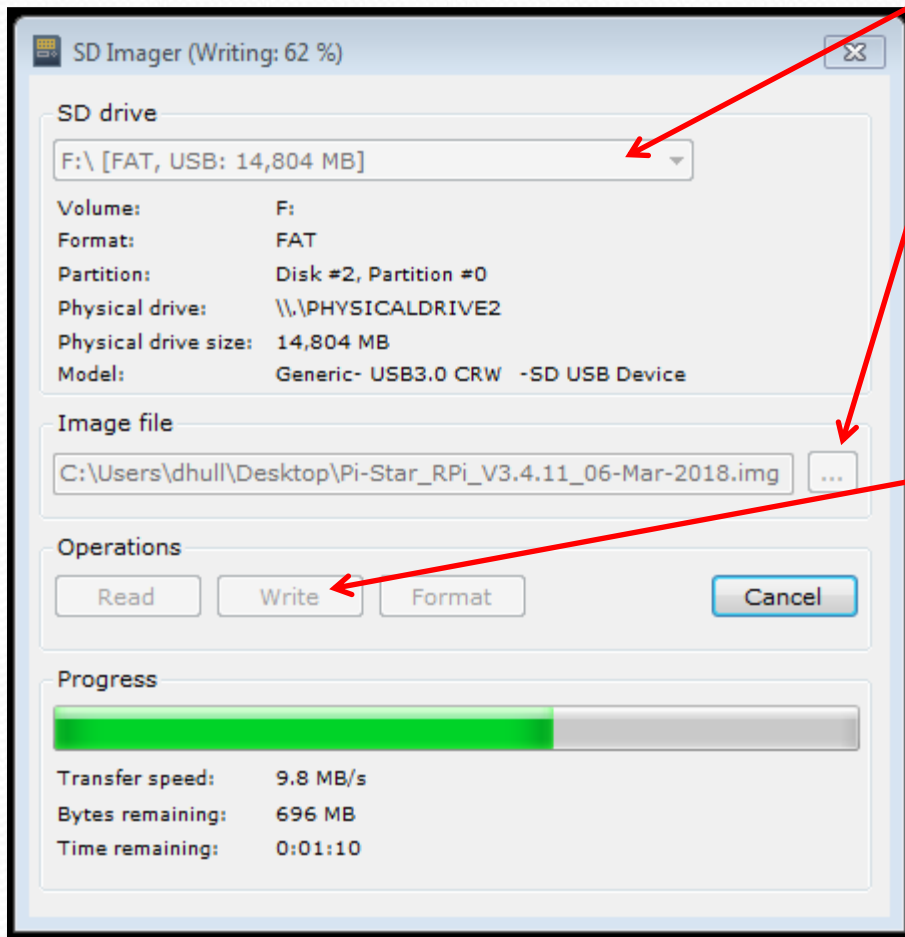
2. Set the drive letter of your μ -SD card: “F” (in this case)

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

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

Using SDImager

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



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

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

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

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

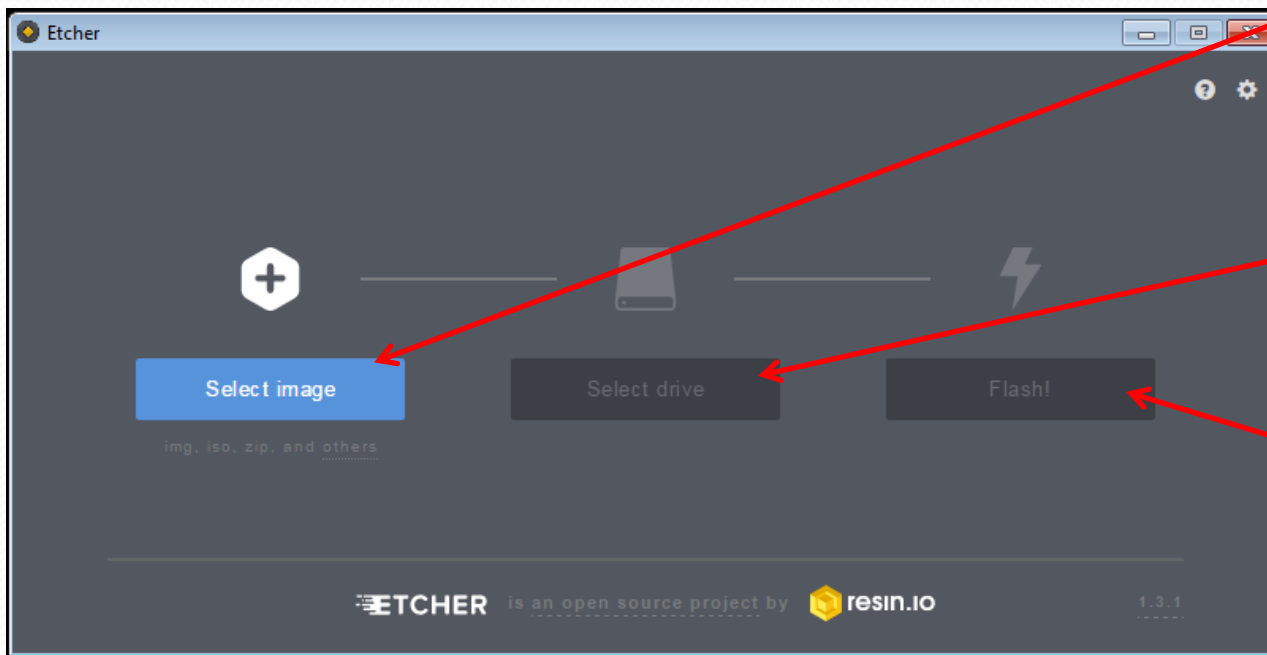
Using Etcher

Option 3: Writing an image to a μ -SD card using Etcher.

1. Click “Select image and Navigate to your image file (i.e.): [Pi-Star_RPi_V3.4.11_06-Mar-2018.img](#)”

2. Select the drive letter of your μ -SD card.

3. Click Flash and wait for the process to complete.



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: <https://etcher.io/>
- SDFormatter:
https://www.sdcard.org/downloads/formatter_4/

ZUMspot/PiStar

Part II

Bringing up ZUMspot/Pi-Star the first time

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

Gather up the following:

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

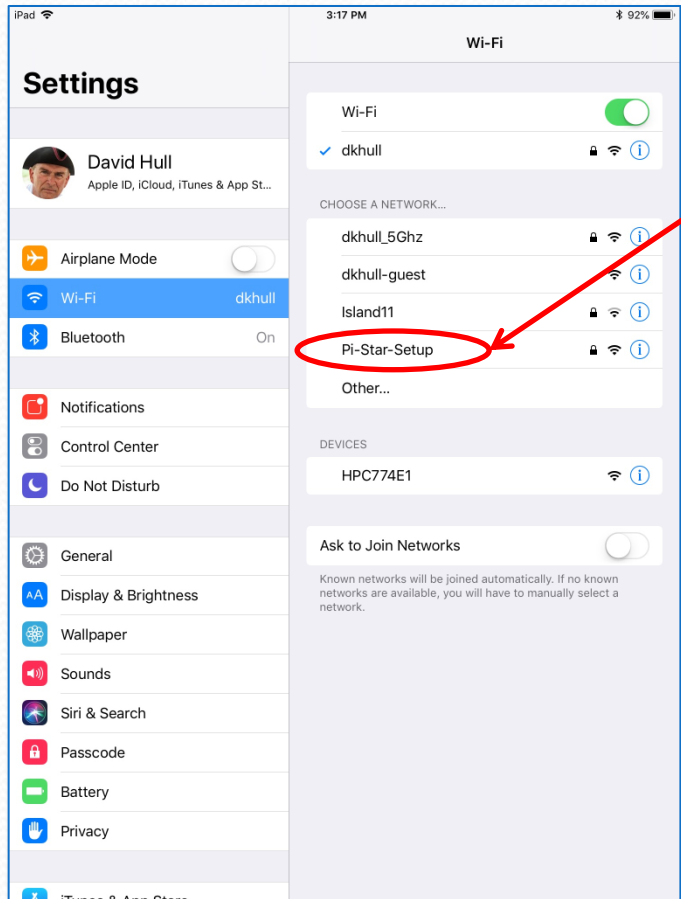
Before you start:

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

Pi-Star starts in AutoAP mode

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

Example: Pi-Star AutoAP



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

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

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

Initial Pi-Star Info Screen:

Hostname: pi-star Pi-Star:3.4.11 / Dashboard: 20180305

Pi-Star Digital Voice Dashboard for M1ABC

[Dashboard](#) | [Admin](#) | [Configuration](#)

No Mode Defined...

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

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

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

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

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

Windows Security Pop-Up:

The screenshot shows the Pi-Star Digital Voice Dashboard for M1ABC. The dashboard has a red header with the title "Pi-Star Digital Voice Dashboard for M1ABC" and navigation links "Dashboard | Admin | Configuration". The main content area displays "No Mode Defined..." and a message: "I don't know what mode I am in, you probaly just need to configure me." A Windows Security pop-up is overlaid on the dashboard. The pop-up title is "Windows Security" and it contains the following text: "The server pi-star is asking for your user name and password. The server reports that it is from Restricted." and "Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure." Below the text are input fields for "User name" and "Password", a checkbox for "Remember my credentials", and "OK" and "Cancel" buttons. Red arrows point from a yellow instruction box to the "User name" field, the "Password" field, and the "OK" button.

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

The server pi-star is asking for your user name and password. The server reports that it is from Restricted.

Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure.

User name

Password

☐ Remember my credentials

OK Cancel

10 secs
support
star/
18.

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

Pi-Star Configuration Screen:

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hostname	Serial	Platform	CPU Load	CPU Temp
pi-star	4-9-35*	Pi Zero W Rev 1.1 (512MB)	0.03 / 0.13 / 0.1	35.5°C / 95.9°F

Control Software

Setting	Value
Controller Software:	<input checked="" type="radio"/> DStarRepeater <input type="radio"/> SDVHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Mode <input type="radio"/> Duplex Repeater (see Half-Duplex on Notapota)

Apply Changes

General Configuration

Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Mode Callsign:	M1ABC
Radio Frequency:	431.075.000 MHz
Latitude:	50.000 degrees (positive value for North, negative for South)
Longitude:	0.000 degrees (positive value for East, negative for West)
Town:	A Town, LQ4TOR
Country:	Country, UK
URL:	http://www.qrz.com/db/M1ABC <input checked="" type="radio"/> Auto <input type="radio"/> Manual
Radio/Modem Type:	---
Mode Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	Europe/London
Dashboard Language:	english_uk

Apply Changes

D-Star Configuration

Setting	Value
RPT1 Callsign:	MCABC B
RPT2 Callsign:	MCABC G
Remote Password:	*****
Default Reflector:	REF001 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="radio"/> Startup <input type="radio"/> Manual
APRS Host:	england.aprs2.net
ircDDB Gateway Language:	English (UK)
Time Announcements:	<input checked="" type="checkbox"/>
Use DPLX for XRP:	<input type="checkbox"/> Note: Update Required if changed

Apply Changes

Firewall Configuration

Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDB Gateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off Note: Reboot Required if changed

Apply Changes

Wireless Configuration

Refresh | Reset WiFi Adapter | Configure WiFi

Wireless Information and Statistics

Interface Information	Wireless Information
Interface Name: wlan0	Connected To: dkhull
Interface Status: Interface is up	AP Mac Address: d8:f8:b3:d8:a5:07
IP Address: 192.168.1.134	Bitrate: 65.0 MB/s
Subnet Mask: 255.255.255.0	Signal Level: -29 dBm
Mac Address: b8-27-eb-55-8a-e0	Transmit Power: 31 dBm
	Link Quality: 70/70

Interface Statistics

Received Packets: 1041
Received Bytes: 204801 (200.0 KiB)
Transferred Packets: 816
Transferred Bytes: 213014 (208.0 KiB)

Information provided by ifconfig and iwconfig

Remote Access Password

User Name	Password
pi-star	Password: Confirm Password: Set Password

WARNING: This changes the password for this admin page AND the "pi-star" SSH account

Pi-Star web interface, © Andy Taylor (N0N0N0N) 2014-2018.
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

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
Mode Callsign:	M1ABC
Radio Frequency:	431.075.000 MHz
Latitude:	50.000 degrees (positive value for North, negative for South)
Longitude:	0.000 degrees (positive value for East, negative for West)
Town:	A Town, LQ4TOR
Country:	Country, UK
URL:	http://www.qrz.com/db/M1ABC <input checked="" type="radio"/> Auto <input type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Mode Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	Europe/London
Dashboard Language:	english_uk

Apply Changes

Pi-Star Apply Changes Notice

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

Pi-Star:3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.77 / 0.53 / 0.24	31.5°C / 88.7°F

Working...

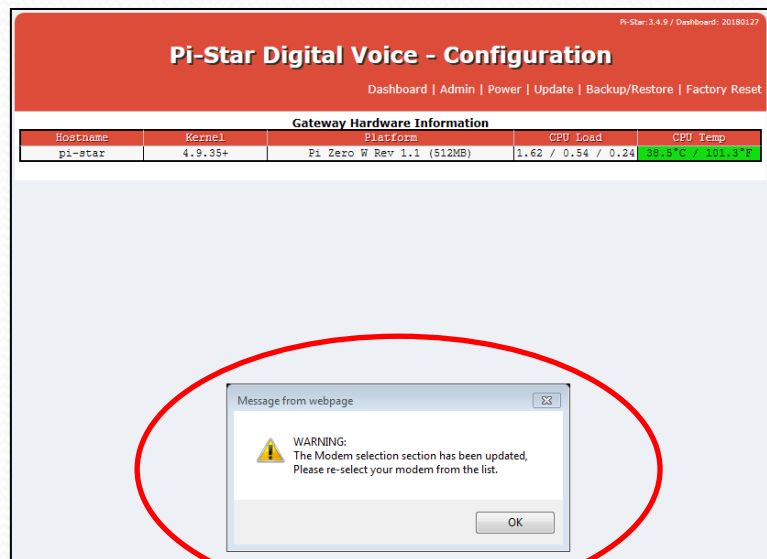
Stopping services and applying your configuration changes...

Done...

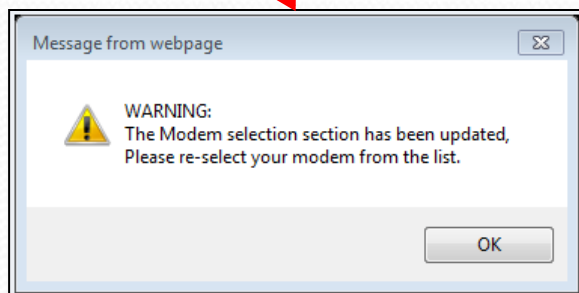
Changes applied, starting services...

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.

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 drop-down list. If so, select “ZUMspot – Raspberry Pi Hat (GPIO)” again.



The screenshot shows the 'General Configuration' page. It has a table with columns 'Setting' and 'Value'. The 'Radio/Modem Type' dropdown is highlighted with a red arrow. The dropdown menu is open, showing 'ZumSpot - Raspberry Pi Hat (GPIO)' selected. Other settings include Hostname (pi-star), Mode Callsign (M1ABC), Radio Frequency (431.075.000 MHz), Latitude (50.000 degrees), Longitude (0.000 degrees), Town (A Town, LOC4T0R), Country (Country, UK), URL (http://www.qrz.com/db/M1ABC), Node Type (Private selected), System Time Zone (Europe/London), and Dashboard Language (english_uk). An 'Apply Changes' button is at the bottom right.

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

Pi-Star Configuration Screen:

[illegible]

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

MMDVMHost Configuration			
Setting	Value		
DMR Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED <input type="button" value="v"/>	Port: /dev/ttyAMA0 <input type="button" value="v"/>	Nextion Layout: G4KLX <input type="button" value="v"/>

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-Star v3.11 - Copyright 2019

Pi-Star Digital Voice - Configuration

[Dashboard](#) | [Admin](#) | [Report](#) | [Power](#) | [Updates](#) | [Backup/Restore](#) | [History Recent](#)

Gateway Hardware Information			
Processor:	A9-35+	RAM: 512MB or more v1.11 (32MB)	CPU temp:
SYSmem:	4.0 GB		0.43 / 0.53 / 0.15

Control Software	
Setting:	VALUE
Controller Software:	<input type="radio"/> OpenStarMaster <input checked="" type="radio"/> openstar2 [orange minimum firmware 3.07 required]
Controller Mode:	<input type="radio"/> Analog mode <input checked="" type="radio"/> digital requires: (on call)Prigles on analog.
Apply Changes	

MMDVMHost Configuration	
Setting:	VALUE
DIG Mode:	<input checked="" type="radio"/> no simplex: 20 net simplex: 20
VHF Mode:	<input checked="" type="radio"/> no simplex: 20 net simplex: 20
UHF Mode:	<input checked="" type="radio"/> no simplex: 20 net simplex: 20
EIS Mode:	<input checked="" type="radio"/> no simplex: 20 net simplex: 20
HQDR Mode:	<input checked="" type="radio"/> no simplex: 20 net simplex: 20
PAPSM:	
MMDVM Display Type:	[None ▼] [warn ▼] [DUP/DX/AMC ▼] [version support ▼] [DPLX ▼]
Apply Changes	

General Configuration	
Setting:	VALUE
Hostname:	pi-star do not add suffixes such as .local
Local Callsign:	K1-DJWV
Country ID:	+31 070 000 000
Latitude:	50.000 degrees (positive value for north, negative for south)
Longitude:	0.000 degrees (positive value for east, negative for west)
Loc:	A Town LOCATOR
Country:	Country UK
URL:	http://www.g4comd.com/MBAC
SSID/Node Name:	<input type="text"/> <input type="button" value="NONE"/> <input type="button" value="RANDOM"/>
Mode Type:	<input checked="" type="radio"/> private <input type="radio"/> public
System Time Zone:	Europe/London
Keyboard Language:	english_us
Apply Changes	

DMR Configuration	
Setting:	VALUE
DIG Master:	DMRGateway
DIG Subsys Site:	1
DIG BroadcastChnl:	
Apply Changes	

D-Star Configuration	
Setting:	VALUE
DPST Callsign:	idiot [S ▼]
SPOT Callsign:	
Repeater Password:	xxxxxxxxxx
Remotc Reflector:	REFID= [C ▼] [connect none ▼] <input type="radio"/> startup <input type="radio"/> manual
Node Name:	england_uk
Node/Gateway Language:	english_UK
Time Announcements:	<input checked="" type="checkbox"/>
New Station for XRF:	
Apply Changes	

Firewall Configuration	
Setting:	VALUE
Dashboard Access:	<input checked="" type="radio"/> private <input type="radio"/> public
DMRGateway Remote:	<input checked="" type="radio"/> private <input type="radio"/> public
API Access:	<input checked="" type="radio"/> private <input type="radio"/> public
Note API:	NOTE: radios require if changed
Apply Changes	

Wireless Configuration	
Refresh Reset VDR Address Configure VDR	
Wireless Information and Statistics	
<div><div><div>Interface Name: wlan0 Interface Status: Interface is up IP Address: 192.168.1.134 Subnet Mask: 255.255.255.0 Net Address: 192.167.0.0/24 br+0</div><div>Interface Statistics Received Packets: 30951 Received Bytes: 805372 (646.0 KiB) Transferred Packets: 2770 Transferred Bytes: 120687 (908.5 KiB)</div></div><div>Wireless Info Connected To: g5wllf AP Mac Address: 48:f0:b3:d8:a5:07 Channel: 72.1 Signal Level: -28 dBm Transmission Power: 31 dBm Link Quality: 70/70</div></div>	
Information provided by dnsmity and dnsmity	

Remote Access Password	
DAK Date:	Password:
Pi-Star:	password:
WARNING: this changes the password for this admin page and the "root" SSH account	
Pi-Star was built by Andy Taylor, G4COMD, 2014-2018. and lots of help from the Support Group and your very Pi-Star friends here.	

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

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

Pi-Star MMDVM Host Setup:

Pi-Star Digital Voice - Configuration

Dashboard / Admin / Export / Power / Update / Backup/Restore / Factory Reset

Gateway Hardware Information

Hardware: pi-star 4.0.15+ | Software: MMDVMHost 3.4.15 | RF Mode: DMR | RF Hangtime: 20 | Net Hangtime: 20

Control Software

Controller Software: ☐ DMR2YSF ☒ MMDVMHost (MMDVMHost 3.07 required)

Controller Mode: ☐ Single mode ☒ Multi-processor (or multi-processor on network)

MMDVMHost Configuration

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

General Configuration

Hostname: pi-star (do not add suffixes such as .local)

Radio Callsign: G4KLX

Call/Net ID: G4KLX

Radio Frequency: 127.000 MHz

Latitude: 52.000 degrees (positive value for north, negative for south)

Longitude: 0.000 degrees (positive value for east, negative for west)

Timezone: A.TZ.LOCATOR

Country: Country, UK

URL: http://www.g4klx.com/MMDVM

Radio/Node Type: ☒ Auto ☐ Manual

Radio Type: ☒ DMR ☐ YSF ☐ P25

System Time Zone: Europe/London

Dashboard Language: english_us

DMR Configuration

DMR Number: DMRGateway

DMR Colour Code: 1

DMR Subaddress: 1

DMR Group/Slot: 1

D-Star Configuration

SPOT Callsign: G4KLX

SPOT Offset: 0

Default Repeater: REPT-1

DMR Repeater: english.spot.net

DMR Gateway Language: English_US

Time Measurements: ☒ Yes ☐ No (note: update required if changed)

DMR Slot for SPOT: 1

Firewall Configuration

Dashboard Access: ☒ Private ☐ Public

DMRGateway Access: ☒ Private ☐ Public

DMR Access: ☒ Private ☐ Public

DMR AP: ☒ On ☐ Off (note: reboot required if changed)

Wireless Configuration

Interface Name: wlan0

Interface Status: Connected to wlan0

IP Address: 192.168.1.134

Subnet Mask: 255.255.255.0

Mac Address: 98:37:45:55:5e:40

Connected to: wlan0

AP Mac Address: 98:37:45:55:5e:40

Signal: 72.5 dBm

Signal Level: -25 dBm

Received Packets: 3081

Transmitted Packets: 3081

Received Bytes: 163372 (164.0 KiB)

Transmitted Bytes: 163372 (164.0 KiB)

Link Quality: 70/70

Remote Access Password

pi-star Password: Confirm Password: Get Password

NOTE: this changes the password for this whole page and the "pi-star" API access.

Pi-Star can only be used with MMDVMHost 3.4.15 or later. See the Pi-Star Wiki for more information.

MMDVMHost Configuration

Setting	Value
DMR Mode:	<input checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>
YSF2NXDN:	<input type="checkbox"/>
YSF2P25:	<input type="checkbox"/>
DMR2YSF:	<input type="checkbox"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="checkbox"/> Uses 7 prefix on DMRGateway
MMDVM Display Type:	OLED Port: /dev/ttyAMA0 Nextion Layout: G4KLX

Apply Changes

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

Pi-Star General Config. Setup:

[illegible]



General Configuration			
Setting	Value		
Hostname:	<input type="text" value="pi-star"/>	Do not add suffixes such as .local	
Node Callsign:	<input type="text" value="KC6N"/>		
CCS7/DMR ID:	<input type="text" value="3106564"/>		
Radio Frequency:	<input type="text" value="439.025.000"/>	MHz	
Latitude:	<input type="text" value="32.717"/>	degrees (positive value for North, negative for South)	
Longitude:	<input type="text" value="-117.16"/>	degrees (positive value for East, negative for West)	
Town:	<input type="text" value="San Diego, CA"/>		
Country:	<input type="text" value="USA"/>		
URL:	<input type="text" value="http://www.qrz.com/db/KC6N"/>	<input checked="" type="radio"/> Auto	<input type="radio"/> Manual
Radio/Modem Type:	<input type="text" value="ZumSpot - Raspberry Pi Hat (GPIO)"/> ▼		
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public		
System Time Zone:	<input type="text" value="America/Los_Angeles"/> ▼		
Dashboard Language:	<input type="text" value="english_us"/> ▼		

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

Pi-Star DMR Config. Setup:

[illegible]

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 EmbeddedLOnly:	<input type="checkbox"/>
DMR DumpTAData:	<input checked="" type="checkbox"/>

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

Pi-Star DSTAR Config. Setup:

Pi-Star v3.1.1 - Copyright 2018

Pi-Star Digital Voice - Configuration

[Dashboard](#) | [Admin](#) | [Report](#) | [Power](#) | [Updates](#) | [Backup/Restore](#) | [History Recent](#)

Gateway Hardware Information			
Processor:	A8-35+	RAM: 512MB	OS Version: 3.1.1
System:	v3.1.1	PI Star v3.1.1 (31Jan)	CPU Usage: 0.33 / 0.50 / 0.15

Setting		Value
Controller Software:	<input checked="" type="radio"/> OpenStarMaster <input type="radio"/> mmsystem [Settings Minimum Firmware 3.07 Required]	
Controller Mode:	<input type="checkbox"/> Analog mode <input checked="" type="checkbox"/> Digital mode [On call/Prigles on analog]	
Apply Changes		

MMDVMHost Configuration			
DIG Mode	<input checked="" type="radio"/>	no samples: 20	max samples: 20
PST Mode	<input checked="" type="radio"/>	no samples: 20	max samples: 20
F4T Mode	<input checked="" type="radio"/>	no samples: 20	max samples: 20
D2S Mode	<input checked="" type="radio"/>	no samples: 20	max samples: 20
HQDR Mode	<input checked="" type="radio"/>	no samples: 20	max samples: 20
F4F2DMS:			
MMDVM Display Type:	None	▼	wave: 0x01/AMC ✓ version support: 0x01/FLX ▼
Apply Changes			

General Configuration			
Hostname:	pi-star do not add suffixes such as .local		
Node Callsign:	G3YRD		
Country ID:	GB		
Call Sign Prefix:	G3YRD		
Latitude:	50.00 degrees (positive value for north, negative for south)		
Longitude:	0.00 degrees (positive value for east, negative for west)		
Loc:	A Town LOCATOR		
Country:	United Kingdom		
URL:	http://www.g3yrd.com/pi-star		
SSID/Node Name:	<input type="text" value="pi-star"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/>		
Mode Type:	<input checked="" type="radio"/> private <input type="radio"/> public		
System Time Zone:	Europe/London		
Dashboard Language:	English_UK ▼		
Apply Changes			

DMR Configuration			
DIG Master:	OVRGateway ▼		
DIG Source Side:	1		
DIG BroadcastChnl:	-		
Apply Changes			

D-Star Configuration			
APPS Callsign:	idiot [B ▼]		
SDR Callsign:	-		
Remote Password:	xxxxxxxxxx		
Repeater Reflector:	REF001 [C ▼] <input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Startup"/> <input type="button" value="Manual"/>		
Link Name:	England_UK ▼		
Repeater/Digitizer Language:	English_UK		
Time Announcements:	<input checked="" type="checkbox"/>		
Use SDIO for XRF:	<input type="checkbox"/> Note: update required if changed		
Apply Changes			

Firewall Configuration			
Dashboard Access:	<input checked="" type="radio"/> private <input type="radio"/> public		
mmdvmGateway Remote:	<input checked="" type="radio"/> private <input type="radio"/> public		
API Access:	<input checked="" type="radio"/> private <input type="radio"/> public		
Note API:	Note: rebooting required if changed		
Apply Changes			

Wireless Configuration	
Refresh Reset VDR Address Configure VDR	
Wireless Information and Statistics	
Interface Information	
Interface Name: wlan0	Connected To: g5hnp
Interface Status: Interface is up	AP Mac Address: 48:f0:b3:d8:a5:07
IP Address: 192.168.1.134	Bssid: 72:12:8B:5A:00:00
Subnet Mask: 255.255.255.0	Signal Level: -28 dBm
Net Address: 192.168.1.0/24	Transmit Power: 31 dBm
Received Packets: 3051	Link Quality: 70/70
Received Bytes: 805372 (646.0 KiB)	
Transferred Packets: 2770	
Transferred Bytes: 120687 (908.5 KiB)	
Information provided by dnsmity and dnsmity	

Remote Access Password	
Old Pass:	New Pass:
Confirm New Pass:	Get Password

WARNING: this changes the password for this admin page and the "root" SSH account.

Pi-Star uses only 5 Anonymous Sessions (256-bit AES)
and your user's Pi-Star PIN code.
Set your user's Pi-Star PIN code.

Set up the DSTAR specifics here. Enter your RPT1 module letter ("B" in most cases). RPT2 will be generated for you. DO NOT change the Remote Password. 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 DPlus for XRF" off for now (there is info later on what to do with this switch). Click "Apply Changes" when done.

D-Star Configuration			
Setting	Value		
RPT1 Callsign:	KC6N	B	
RPT2 Callsign:	KC6N	G	
Remote Password:	<input type="password"/>		
Default Reflector:	REF012	A	<input checked="" type="radio"/> Startup <input type="radio"/> Manual
APRS Host:	<input type="text" value="social.aprs2.net"/>		
ircDDBGateway Language:	<input type="text" value="English_(US)"/>		
Time Announcements:	<input checked="" type="checkbox"/>		
Use DPlus for XRF:	<input type="checkbox"/>		Note: Update Required if changed

Apply Changes

Pi-Star Firewall Config. Setup:

[illegible]

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

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

Firewall Configuration

Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDGGateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off <div style="float: right;">Note: Reboot Required if changed</div>

Pi-Star Wireless Setup:

[illegible]

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

Wireless Configuration

Refresh
Reset WiFi Adapter
Configure WiFi

Wireless Information and Statistics

Interface Information	Wireless Information
Interface Name : wlan0 Interface Status : Interface is up IP Address : 192.168.1.134 Subnet Mask : 255.255.255.0 Mac Address : b8:27:eb:55:8a:e0	Connected To : dkhull AP Mac Address : 48:F8:B3:D8:A5:07 Bitrate : 65 Mb/s Transmit Power : 31 dBm
<div style="background-color: #f0f0f0; border: 1px solid black; padding: 5px;"> Interface Statistics Received Packets : 75681 Received Bytes : 7226054 (6.8 MiB) Transferred Packets : 19430 Transferred Bytes : 6062376 (5.7 MiB) </div>	Link Quality : 70/70 Signal Level : -33 dBm

Information provided by ifconfig and iwconfig

Pi-Star adding additional WiFi:

[illegible]

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.

WiFi Info

Network 0

Delete

SSID : dkhull

PSK : ●●●●●●●●

Scan for Networks (10 secs)

Add Network

Save (and connect)

The screenshot shows the 'Wireless Configuration' interface. At the top, there's a title 'Wireless Configuration'. Below it, there's a section for 'Network 1' which includes a 'Delete' button, an 'SSID' field, and a 'PSK' field. A red arrow points to the 'PSK' field. At the bottom of the screen, there are three buttons: 'Scan for Networks (10 secs)', 'Add Network', and 'Save (and connect)'. A red arrow points to the 'Save (and connect)' button.

Click “Save and Connect” when done.

Pi-Star Password Setup:

[illegible]

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

HostName: "pi-star"
Password: "raspberrry"

Here you can customize your log on credentials.

Remote Access Password			
User Name	Password		
pi-star	Password: <input type="password"/>	Confirm Password: <input type="password"/>	Set Password
WARNING: This changes the password for this admin page AND the "pi-star" SSH account			

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

Change Password here if you want something different.

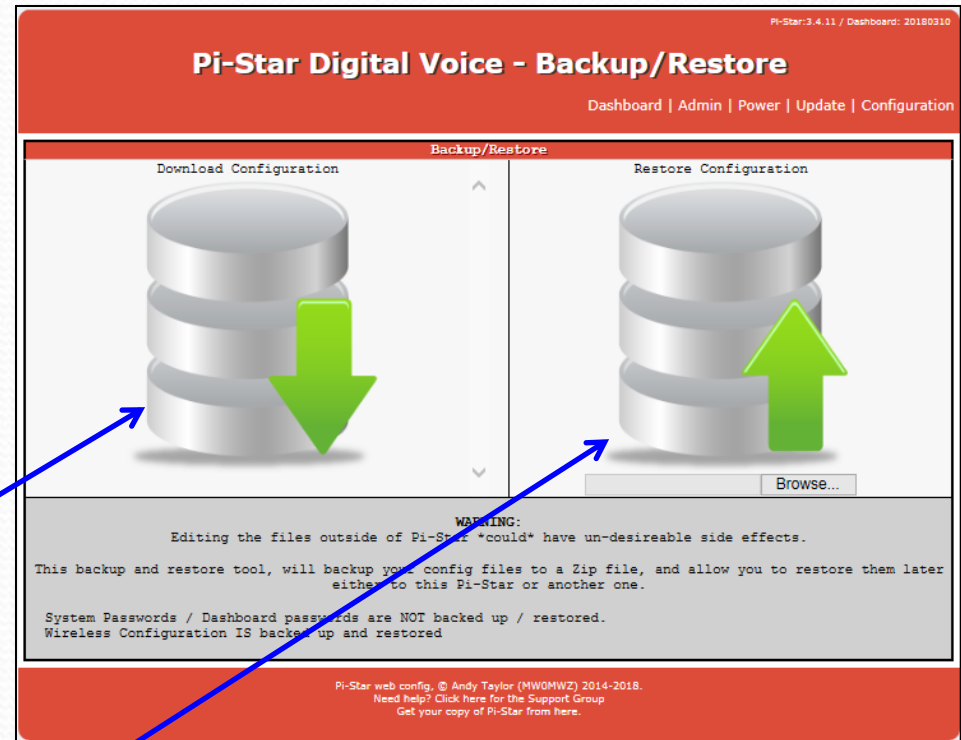
Pi-Star Backup/Restore:

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

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

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

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



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

Pi-Star Dashboard:

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

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

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

There is no “Log-In” needed for this page.

Hostname: pi-star

Pi-Star 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Modes Enabled

D-Star	DMR
YSF	P25
YSF2DMR	NXDN

Network Status

D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR Net	NXDN Net
Internet	

Radio Info

Trx	Listening YSF
Tx	439.025000 MHz
Rx	439.025000 MHz
FW	ZUMspot: v1.3.3

D-Star Repeater**D-Star Network****DMR Repeater****DMR Master****YSF Network**

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LTI	Net	0.8	0%	0.0%
14:46:42 Mar 16th	YSF	AA0RM	ALL at AA0RM	Net	0.1	0%	0.0%
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0%	0.4%
14:46:05 Mar 16th	D-Star	KC6N/IDS1	CQCQCQ	RF	2.1	0%	0.0%
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.2%
14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.0%
14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.0%
14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.0%
14:39:13 Mar 16th	D-Star	KC6N/INFO	CQCQCQ	Net	6.5	0%	0.0%
14:36:15 Mar 16th	D-Star	MLABC/INFO	CQCQCQ	Net	2.5	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0.4%	S9+46dB
14:46:05 Mar 16th	D-Star	KC6N/IDS1	CQCQCQ	RF	2.1	0.0%	S9+46dB
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0.2%	S9+46dB

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MHWZ) 2014-2018.
ircDDBGateway Dashboard by Hans-J. Berthien (DL50T),
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

Pi-Star Admin Dashboard:

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

UN: pi-star
PW: raspberry

Assuming you haven’t changed from the defaults.

There are various other options:

Live Logs: allows you to start a log

Power let’s you power down and reboot

Update: initiates a SW refresh

Configuration: we already looked at

Hostname: pi-star Pi-Star 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Live Logs | Power | Update | Configuration

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	4.91 / 2.78 / 1.41	46.5°C / 115.7°F

Service Status

MMDVMHost	DMRGateway	YSFGateway	YSFParrot	P25Gateway	P25Parrot
DStarRepeater	ircDDBGateway	TimeServer	PiStar-Watchdog	PiStar-Remote	PiStar-Keeper

D-Star Link Information

Radio	Default	Auto	Timer	Link	Linked to	Mode	Direction	Last Change (UTC)
KC6N B	REF012 A	Auto	Never	Up	REF012 A	DPlus	Outgoing	21:39:09 Mar 16th

D-Star Link Manager

Radio Module	Reflector	Link / Un-Link	Action
KC6N B	REF012	A	<input checked="" type="radio"/> Link <input type="radio"/> UnLink <input type="button" value="Request Change"/>

Active BrandMeister Connections

BrandMeister Master	Default Ref	Timeout(s)	Active Ref	Static TGS	Dynamic TGS
BM United States 3103	REF0	0(s)	None	TG3106	TG31066

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
14:47:33 Mar 16th	D-Star	KI6KTG/D74A	CQCCQC	Net	1.9	0%	0.0%
14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LTT	Net	0.8	0%	0.0%
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%
14:46:05 Mar 16th	D-Star	KC6N/ID51	CQCCQC	RF	2.1	0%	0.0%
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.2%
14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.0%
14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.0%
14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.0%
14:39:13 Mar 16th	D-Star	KC6N/INFO	CQCCQC	Net	6.5	0%	0.0%
14:36:15 Mar 16th	D-Star	MIABC/INFO	CQCCQC	Net	2.5	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0.4%	S9+46dB
14:46:05 Mar 16th	D-Star	KC6N/ID51	CQCCQC	RF	2.1	0.0%	S9+46dB
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0.2%	S9+46dB

Pi-Star / Pi-Star Dashboard, © Andy Taylor (M0W0WZ) 2014-2018.
ircDBGateway Dashboard by Hans-J. Barthel (D5J01).
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

ZUMspot/PiStar

Part III

Setting up your radios

DSTAR (ID-51 example):

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

20: Hot Spots (Remain 7 memories)													
No.	Type	Name	Sub Name	Call Sign		Frequency				Tone		USE (FROM)	Posit
				Repeater Call Sign	Gateway Call Sign	Operating Freq	DUP	Offset Freq	Mode	Tone	Repeater Tone		
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													

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

DMR:

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

Yaesu System FUSION:

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

APCO Project 25 (P25):

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

NXDN:

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

ZUMspot/PiStar

Appendix A

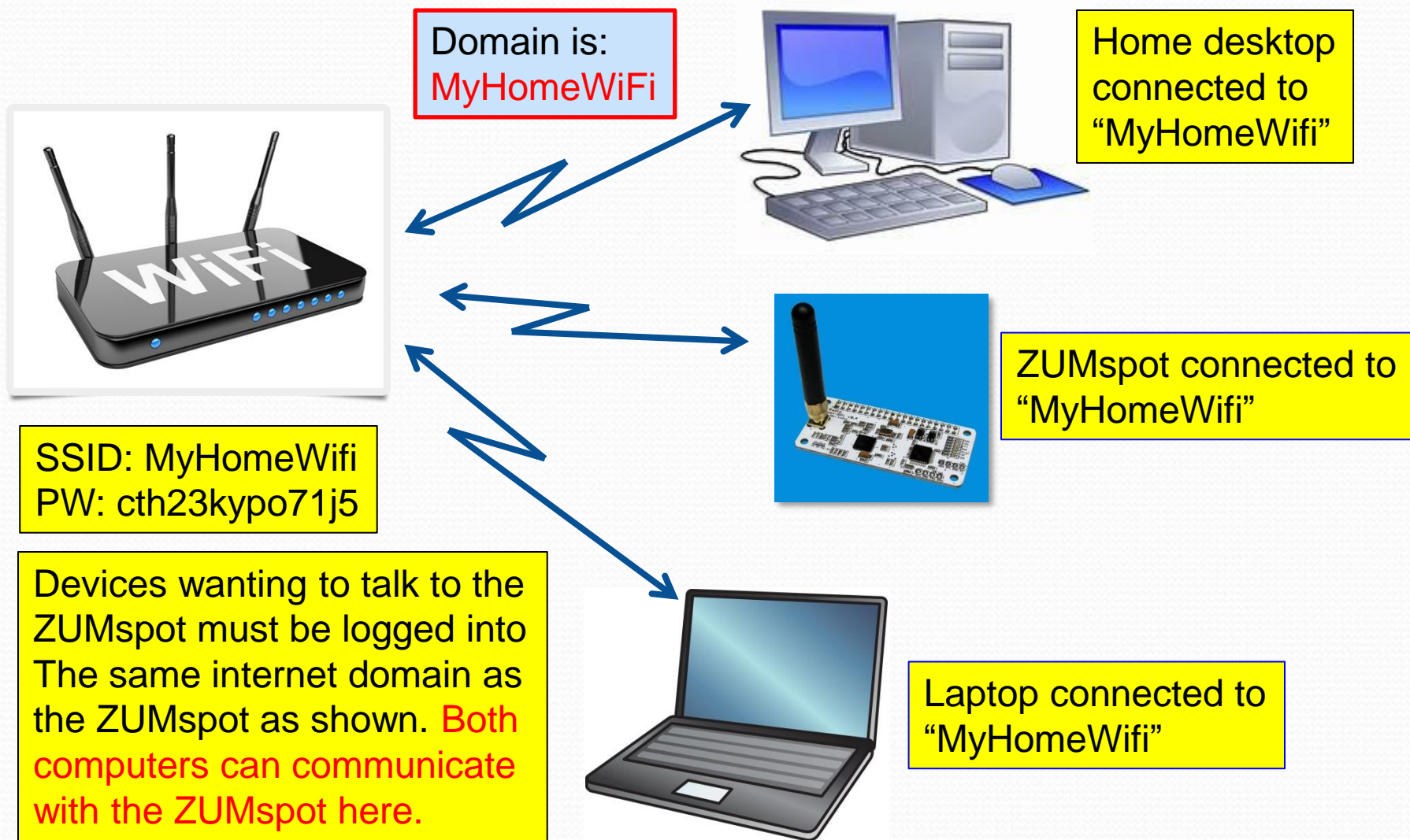
Communicating with your ZUMspot

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

Communicating with ZUMspot

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

Communicating with ZUMspot



Communicating with ZUMspot



Domain is:
MyHomeWiFi



Home Desktop
connected to
"MyHomeWiFi"
(cannot reach
ZUMspot)

SSID: MyHomeWifi
PW: cth23kypo71j5



SSID: My iPhone
PW: xyzzzy3256jjy

Domain is:
My iPhone



ZUMspot connected to
"My iPhone"



Laptop connected
to My iPhone
(can reach ZUMspot)

A couple other things:

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

ZUMspot/PiStar

Appendix B

Setting the “Use DPlus for XRF” switch

Pi-Star DSTAR XRF012A Setup:

[illegible]

To make sure that you can work “X” reflectors such as XRF012A (w/o the need for passing ports on your router), Turn on “Use Dplus for XRF” (this forces the system to use the “Dplus” protocol for the XRF reflectors). **You will need to do an “update” after applying this change.** Click “Apply Changes” when done 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	Value
RPT1 Callsign:	KC6N B
RPT2 Callsign:	KC6N G
Remote Password:	<input type="password"/>
Default Reflector:	REF012 A <input checked="" type="radio"/> Startup <input type="radio"/> Manual
APRS Host:	socal.aprs2.net
ircDBGateway Language:	English_(US)
Time Announcements:	
Use DPlus for XRF:	Note: Update Required if changed

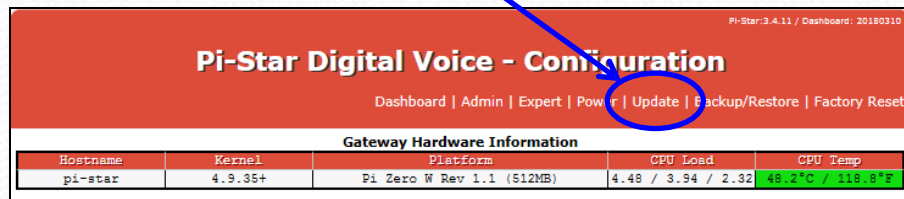
Apply Changes

Set “Use DPlus for XRF” to “ON”

Do an Update

Pi-Star Update:

Click “Update” at the top of the configuration page:



Pi-Star: 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | **Update** | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	4.48 / 3.94 / 2.32	46.2°C / 115.8°F

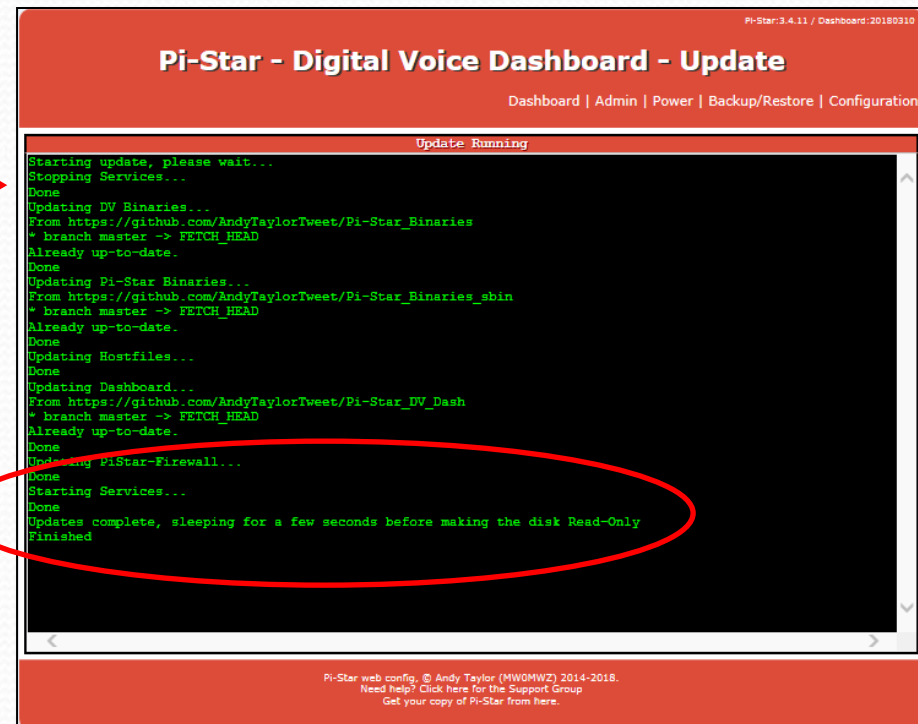
The update window will open and it will run for a while, depending on how long it has been since the image was built. Once done, you will see:

“Starting Services”

“Done”

“Update Complete, Sleeping....”

“Finished”.



Pi-Star: 3.4.11 / Dashboard: 20180310

Pi-Star - Digital Voice Dashboard - Update

Dashboard | Admin | Power | Backup/Restore | Configuration

Update Running

```
Starting update, please wait...
Stopping Services...
Done
Updating DV Binaries...
From https://github.com/AndyTaylorTweet/Pi-Star_Binaries
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating Pi-Star Binaries...
From https://github.com/AndyTaylorTweet/Pi-Star_Binaries_sbin
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating Hostfiles...
Done
Updating Dashboard...
From https://github.com/AndyTaylorTweet/Pi-Star_DV_Dash
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating PiStar-Firewall...
Done
Starting Services...
Done
Updates complete, sleeping for a few seconds before making the disk Read-Only
Finished
```

Pi-Star web config. © Andy Taylor (MW0MWWZ) 2014-2018.
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

Restoring from a backup:

Note that “Backup” (as described earlier) does not save the setting of this switch.

D-Star Configuration	
Setting	Value
RPT1 Callsign:	KC6N B
RPT2 Callsign:	KC6N G
Remote Password:
Default Reflector:	REF012 A <input checked="" type="radio"/> Startup <input type="radio"/> Manual
APRS Host:	socal.aprs2.net
ircDDBGateway Language:	English_(US)
Time Announcements:	<input checked="" type="checkbox"/>
Use DPlus for XRF:	<input checked="" type="checkbox"/> 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

The screenshot shows the Brandmeister website's front page with a red navigation bar containing 'Register', 'Login', 'EN', and 'Settings'. A yellow registration form is overlaid on the left side of the page. The form is titled 'Registration' and includes a blue banner asking if the user has a SelfCare account. The form is divided into several sections: 'General Account Details' with fields for 'Callsign' and 'Email Address'; 'Account type' with radio buttons for 'Personal User Account' and 'Repeater Account'; 'Security' with fields for 'Password' and 'Confirm Password'; 'Anti Spam' with a question about UHF band wavelength and a text input; and 'DMR ID' with a text input and a checkbox for 'I'm not a robot' next to a reCAPTCHA widget. A blue 'Register!' button is at the bottom of the form. Blue arrows point from the 'Register' link on the website to the form, and from the form sections to the numbered instructions on the right.

Registration

Do you already have a SelfCare account on [dstar.su?](#) [Login!](#)

General Account Details

Callsign

Callsign

Email Address

Email Address

Account type

☐ Personal User Account

☐ Repeater Account

Security

Password

Password

Confirm Password

Confirm Password

Anti Spam

What is the wavelength of the UHF band in centimeters?

Answer with a number

DMR ID

Enter one of your DMR IDs to validate your account

☐ I'm not a robot

reCAPTCHA
Privacy - Terms

Register!

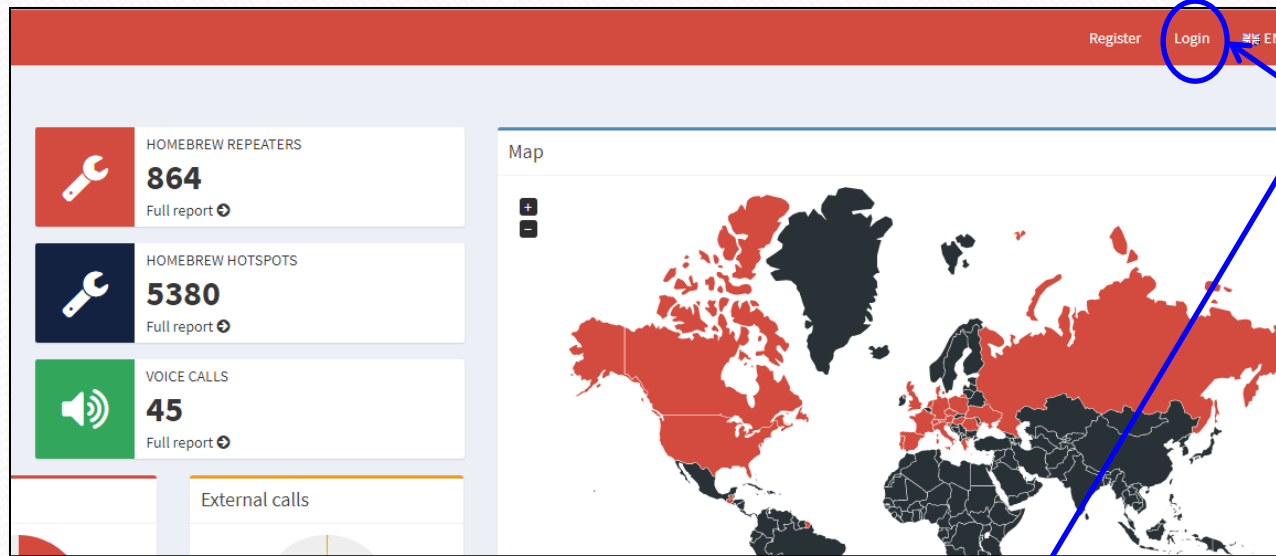
1. From the front page, Select "Register"

2. Fill out the registration form

3. Don't forget the CAPTCHA Question.

4. Select "Register"

Log onto your BM Account



1. Click “Login” to Log onto your BM account

Login with your SelfCare account

Callsign
KC6N

Password

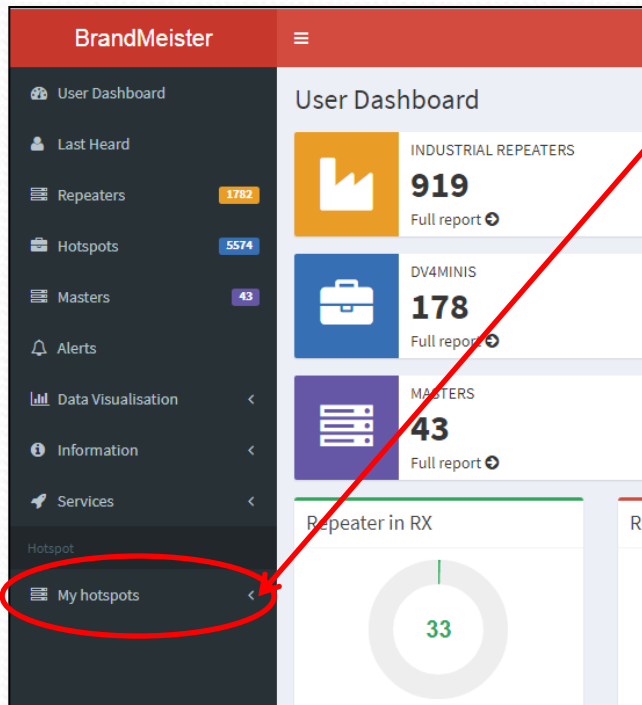
Login [Forgot your password?](#)

Not a member? Register!

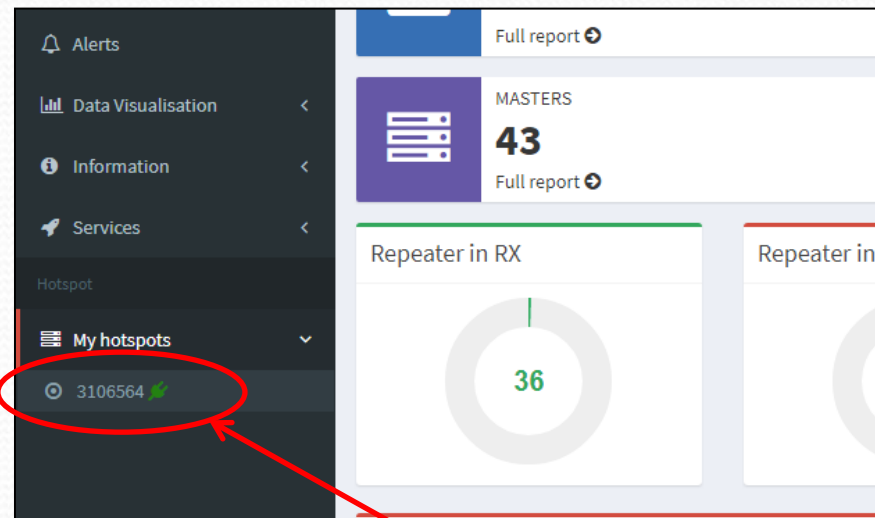
2. Enter Account Credentials

3. Click “Login”

Find your HotSpot settings page



1. Click the Left pointing arrow next to “My Hotspots”



2. Your hotspot will show up in the “drop down”

3. Click on the number of the hotspot

HotSpot settings page

BrandMeister

User Dashboard

Last Heard

Repeaters1778

Hotspots5570

Masters43

Alerts

Data Visualisation

Information

Services

Hotspot

My hotspots

3106564

Settings of KC6N (View)

General Settings

Priority Message

Priority Message

Description

Description

Website

http://www.qrz.com/db/KC6N

Location (City)

San Diego, CA

Latitude

32.716991

Longitude

-117.160004

Power (EIRP)

0

Gain (dBi)

0.00

Height AGL in m

0

Save changes

Sysops

Callsign	Read Settings	Write Settings	Manage Sysops
KC6N	✓	✓	✓

Actions

Get IP address

Drop 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

The screenshot shows the HotSpot settings management interface. At the top, there are three tabs: 'Callsign', 'Read Settings', and 'Write Settings'. Below these, there are three buttons: 'Get IP address', 'Drop call', 'Drop dynamic groups', and 'Reset connection'. These buttons are circled in red. Below the buttons, there is a 'Reflector Settings' section with two input fields: 'Active reflector' (set to 4000) and 'Default reflector' (set to 0). Below this is a 'Static Talkgroups' section with a list of talkgroups: 'California (3106)', 'SoCal (31066)', and 'SoCal (31066)'. Below this is a 'Scheduled static' section with a list of 'Active Timed Statics' and a 'Remove' button. Red arrows point from the yellow text boxes to the corresponding sections in the interface.

Callsign	Read Settings	Write Settings
KCGN	✓	✓

Actions

Get IP address Drop call Drop dynamic groups Reset connection

Reflector Settings

Active reflector 4000

Default reflector 0

Static Talkgroups

California (3106)
SoCal (31066)
SoCal (31066)

Scheduled static

Active Timed Statics:

Remove

Here you can add and drop active Calls drop dynamic talk groups etc.

Here is where you can set up and manage a reflector if you want one

Here is where you set up and manage static talk groups. I have "SoCal" (31066) and CA "StateWide" (3106) set in this example.

You can set timed static talk groups here which are talk groups you want to become static at particular 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

Static Talkgroups

3106

→

←

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.

Static Talkgroups

→

←

California (3106)

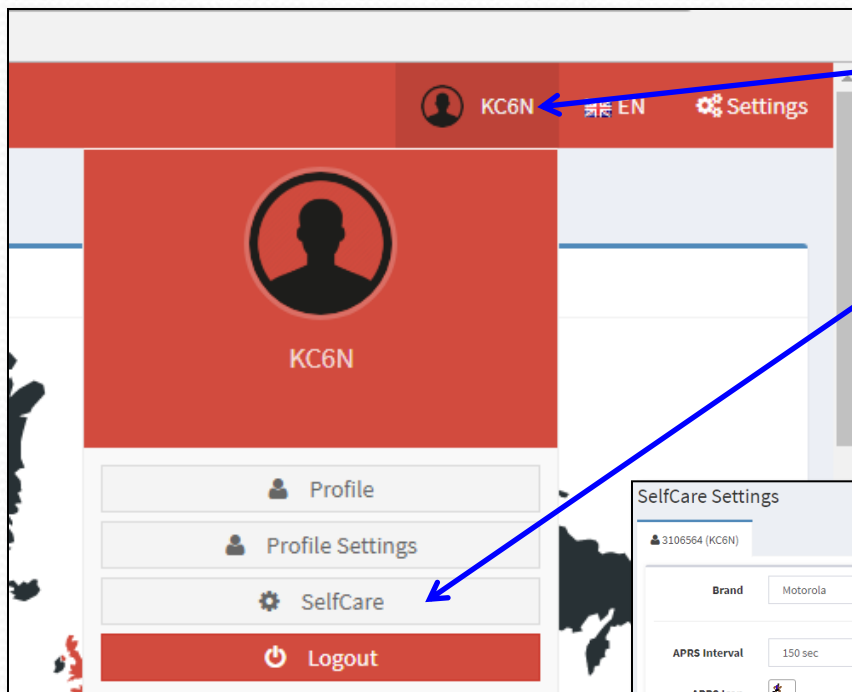
Managing Talk Groups

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

Setting up HotSpot Security

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

HotSpot Security Brandmeister



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

3. Turn on "Hotspot Security" here:
4. Enter a password for your HotSpot(s) here:
5. Click "Save"

A screenshot of the 'SelfCare Settings' page. The title 'SelfCare Settings' is at the top left. Below it, the user's ID '3106564 (KC6N)' is shown. The settings are organized into rows:

- 'Brand' is set to 'Motorola'.
- 'Language' is set to 'English'.
- 'APRS Interval' is set to '150 sec'.
- 'APRS Callsign' is set to 'KC6N'.
- 'APRS Icon' has a star icon.
- 'In Call GPS' is set to 'Off'.
- 'APRS Text' is set to 'David'.
- 'AirSecurity / TOTP' is set to 'Off'.
- 'Hotspot Security' is set to 'On'.
- 'Password' field is empty, with a placeholder text 'Enter new Hotspot Password'.

A blue 'Save' button is located at the bottom right. Blue arrows from the numbered list on the left point to the 'Hotspot Security' toggle, the password field, and the 'Save' button.

HotSpot Security Pi-Star

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star3	4.14.79+	Pi Zero W Rev 1.1 (512MB)	3.77 / 1.32 / 0.57	40.15 / 34.72

Control Software	
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MDVHost (DT-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Mode <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MDVHost Configuration	
DMR Mode:	<input checked="" type="radio"/> RF RangeTime: 20 Net Hangtime: 20
D-Star Mode:	<input type="radio"/> RF RangeTime: 20 Net Hangtime: 20
TET Mode:	<input type="radio"/> RF RangeTime: 20 Net Hangtime: 20
DSS Mode:	<input type="radio"/> RF RangeTime: 20 Net Hangtime: 20
MDV Mode:	<input type="radio"/> RF RangeTime: 20 Net Hangtime: 20
TET2DMR:	<input type="radio"/>
TET2MDM:	<input type="radio"/>
TET2DSS:	<input type="radio"/>
DMR2TET:	<input type="radio"/> Uses ? prefix on DMRGateway
DMR2MDM:	<input type="radio"/> Uses ? prefix on DMRGateway
POCSAG:	<input type="radio"/> POCSAG Paging Features
MDVHost Display Type:	OLED Port: /dev/ttyAMA0 Waveshare Layout: G4KLY

Apply Changes

General Configuration	
Hostname:	pi-star3 Do not add suffixes such as .local
Mode Callsign:	KC6N
CCP7/DMR ID:	3106504
Radio Frequency:	439.075.000 MHz
Latitude:	32.717 degrees (positive value for North, negative for South)
Longitude:	-117.16 degrees (positive value for East, negative for West)
Town:	San Diego, CA
Country:	USA
URL:	http://www.qrz.com/db/kc6n <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO) <input checked="" type="radio"/> <input type="radio"/> Manual
Mode Type:	<input type="radio"/> Private <input checked="" type="radio"/> Public
APRS Port:	social.aprs2.net
System Time Zone:	America/Los Angeles
Dashboard Language:	english_us

Apply Changes

DMR Configuration	
DMR Master:	BM_United_States_3103
Hotspot Security:	*****
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR ESSID:	3106504 03
DMR Color Code:	1
DMR EmbeddedLOOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>

Apply Changes

D-Star Configuration	
RPT1 Callsign:	KC6N <input checked="" type="radio"/>
RPT2 Callsign:	KC6N S
Remote Password:	*****
Default Reflector:	REF012 A <input checked="" type="radio"/> Startup <input type="radio"/> Manual
ircd08Gateway Language:	English_US
Time Announcements:	<input checked="" type="radio"/>
Use DPlus for XRP:	<input type="radio"/> Note: Update Required if changed

Apply Changes

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

DMR Configuration	
Setting	Value
DMR Master:	BM_United_States_3103
Hotspot Security:	*****
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR ESSID:	3106504 03
DMR Color Code:	1
DMR EmbeddedLOOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>

Apply Changes

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

HotSpot Security Pi-Star (cont)

Pi-Star Digital Voice - Expert Editors

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

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

General	
CallSign	KC6N
Id	3106564
Timeout	240
Duplex	0
RfModeHang	300
NetModeHang	300
Display	OLED
Damcon	1

Apply Changes

Info	
RxFrequency	439075000
TxFrequency	439075000
Power	1
Latitude	32.717
Longitude	-117.16
Height	0
Location	San Diego, CA
Description	USA
URL	http://www.qrz.com/db/kc

Apply Changes

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

Apply Changes

CW Id	
Enable	0
Time	10

Apply Changes

DMR Id Lookup	
File	/usr/local/etc/DMRids.dat
Time	24

Apply Changes

DMR Network

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

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

DMR Network

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

ZUMspot/PiStar

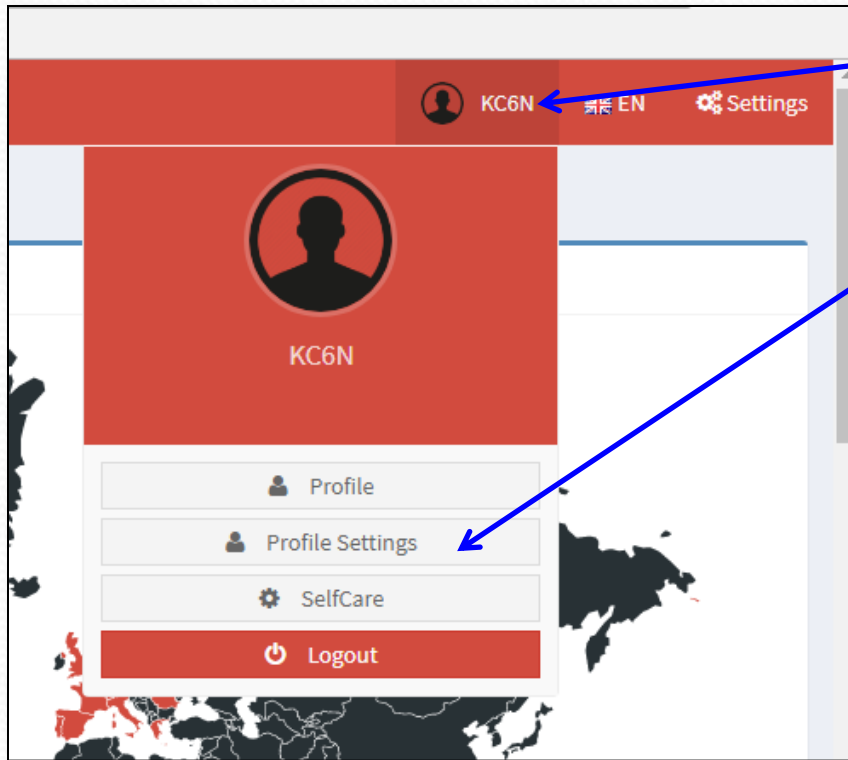
Appendix D

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



1. 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

BrandMeister

User Dashboard

KC6N's profile (Edit mode)

Information

Name	
Email Confirmed	NO
Created On	0000-00-00 00:00:00
Last Edit	TODD
Last Login	TODD

Profile Settings

Email Address

dhull1@san.rr.com

Save Changes

Security Settings

Password

Confirm Password

Update Password

API Keys

Click on the "API Keys" Button

BrandMeister

User Dashboard

API Keys

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

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

Active keys

Show 10 entries

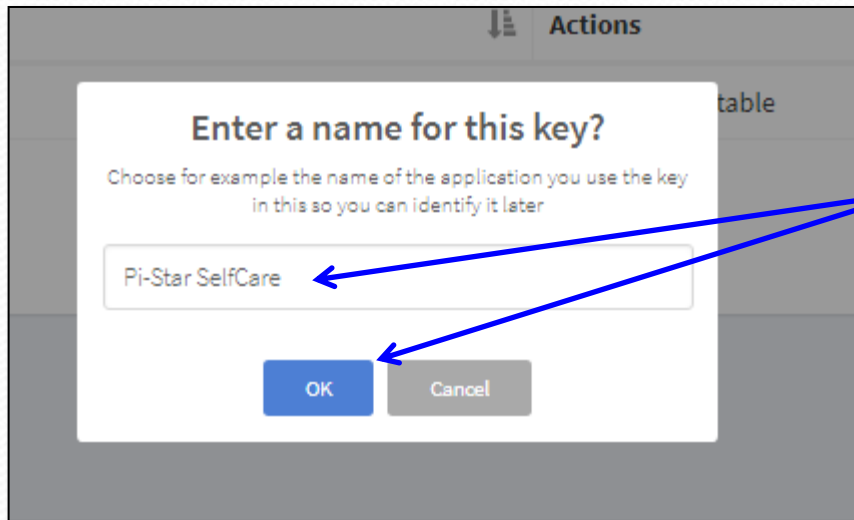
Name	Actions
No data available in table	

Showing 0 to 0 of 0 entries

Add

On the new page, Click "Add"

Adding BM Self Care to Pi-Star



The screenshot shows a dialog box titled "Enter a name for this key?". Below the title, it says "Choose for example the name of the application you use the key in this so you can identify it later". There is a text input field containing "Pi-Star SelfCare". At the bottom, there are two buttons: "OK" and "Cancel". A blue arrow points from the yellow text box to the input field, and another blue arrow points from the yellow text box to the "OK" button.

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

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"



The screenshot shows a dialog box titled "Your API key is:". Below the title, it says "This key will **not** be visible again:". There is a text box containing a long, unique API key. Below the text box, there is a "Copy" button. Below the "Copy" button, there is a QR code. At the bottom, there is an "OK" button. A blue arrow points from the yellow text box to the "Copy" button, and another blue arrow points from the yellow text box to the "OK" button.

Adding API key to Pi-Star

1. 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:20180510

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 Data | **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 experience.
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

The screenshot shows the Pi-Star Digital Voice - Expert Editors dashboard. At the top right, it says "Pi-Star: 3.4.11 / Dashboard: 20180310". The main header is "Pi-Star Digital Voice - Expert Editors". Below this is a navigation bar with links: "Dashboard | Admin | Update | Backup/Restore | Configuration". Underneath the navigation bar, there are two rows of links: "Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway" and "Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat" followed by "Tools: SSH Access". The main content area has a red header with the word "key". Below this is a text input field with the label "apikey" on the left. The input field contains a long alphanumeric string: "vLxGEvj5f6en6CyTh4goJZm9UfNd0nIw5daKIuPYA1jHDRxVWogCLDMCTwP UTvoZIyGo@tkAvDe5rM.kyeXgSGSI9FA07Y\$QuEbu4v1z5gFw0DRzSLPHpF nzhYzpTxck". Below the input field is a button labeled "Apply Changes". At the bottom of the dashboard, there is a footer with copyright information: "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."

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

key

apikey vLxGEvj5f6en6CyTh4goJZm9UfNd0nIw5daKIuPYA1jHDRxVWogCLDMCTwP UTvoZIyGo@tkAvDe5rM.kyeXgSGSI9FA07Y\$QuEbu4v1z5gFw0DRzSLPHpF nzhYzpTxck

Apply Changes

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.

2. Click on “Apply Changes”. Wait for the box to clear.

New BM Self Care Panel

You will see a new “BrandMeister Manager” panel here.

Hostname: pi-star Pi-Star 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Live Logs | Power | Update | Configuration

Gateway Hardware Information					
Hostname	Kernel	Platform	CPU Load		CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	4.39 / 4.71 / 4.52		42.8°C / 109°F

Service Status					
MMDVM/Host	DMRGateway	YSFGateway	YSFPParrot	P25Gateway	P25Parrot
DStarRepeater	ircDOBGateway	TimeServer	PiStar-Watchdog	PiStar-Remote	PiStar-Keeper

D-Star Link Information						
Radio	Default	Auto	Timer	Link	Linked to	Mode
KC6N B	REF012 A	Auto	Never	Up	REF012 A	DPlus

D-Star Link Manager			
Radio Module	Reflector	Link / Un-Link	Action
KC6N B	REF012 A	<input checked="" type="radio"/> Link <input type="radio"/> UnLink	Request Change

Active BrandMeister Connections					
BrandMeister Master	Default Ref	Timeout(s)	Active Ref	Static TGS	Dynamic TGS
BM United States 3103	REF0	0(s)	None	TG3106	None

BrandMeister Manager			
Tools	Active Ref	Link / Unlink	Action
Drop QSO Drop All Dynamic	None	<input type="radio"/> Link <input checked="" type="radio"/> UnLink	Modify Reflector
Static Talkgroup	Slot	Add / Remove	Action
	<input type="radio"/> TS1 <input checked="" type="radio"/> TS2	<input type="radio"/> Add <input type="radio"/> Delete	Modify Static

Gateway Activity									
Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER		
14:34:20 Mar 15th	YSF	W4QNE	ALL at W4QNE	Net	0.5	0%	0.0%		
14:32:40 Mar 15th	DMR Slot 2	W6FZA	TG 31066	Net	0.5	0%	0.0%		
14:28:11 Mar 15th	D-Star	CC6LDW	CQCCQ via REF012 A	Net	0.6	0%	0.0%		
14:26:12 Mar 15th	YSF	W4MT	ALL at BM-Bridge	Net	1.6	0%	0.0%		
14:24:59 Mar 15th	YSF	K74ROY-ALL	ALL at KE4LTT	Net	0.2	0%	0.0%		
14:21:29 Mar 15th	DMR Slot 2	W3SPK	TG 3106	Net	0.5	0%	0.0%		
14:16:48 Mar 15th	DMR Slot 2	K6MDE	TG 3106	Net	0.5	0%	0.0%		
14:07:55 Mar 15th	YSF	G3WGEKEITH	02034F06Bo at KE4LTT	Net	0.2	0%	0.0%		
14:03:00 Mar 15th	YSF	KD7AAT	ALL at KD7AAT	Net	11.8	0%	0.0%		
14:00:00 Mar 15th	D-Star	KC6N/TIME	CQCCQ via REF012 A	Net	3.6	0%	0.0%		
13:58:56 Mar 15th	DMR Slot 2	K7FAY	TG 31066	Net	5.9	0%	0.0%		
13:55:47 Mar 15th	D-Star	K6GQ/51PL	CQCCQ via REF012 A	Net	0.3	0%	0.0%		
13:54:56 Mar 15th	DMR Slot 2	K6RHL	TG 31066	Net	1.2	0%	0.0%		
13:46:14 Mar 15th	DMR Slot 2	N6B8F	TG 3106	Net	3.7	0%	0.0%		
13:45:20 Mar 15th	D-Star	KC7Z2N	CQCCQ via REF012 A	Net	0.1	0%	0.0%		
13:44:39 Mar 15th	DMR Slot 2	W4ENC	TG 3106	Net	0.1	0%	0.0%		
13:43:20 Mar 15th	D-Star	W6AAX	CQCCQ via REF012 A	Net	0.3	0%	0.0%		
13:39:56 Mar 15th	YSF	W4VVSU	ALL at KE4LTT	Net	0.2	0%	0.0%		
13:36:40 Mar 15th	D-Star	W6JFK T/ID31	CQCCQ via REF012 A	Net	0.3	0%	0.0%		
13:29:58 Mar 15th	YSF	W4FSH	ALL at BM-Bridge	Net	6.5	0%	0.0%		

Local RF Activity						
Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER
						RSSI

Pi-Star / Pi-Star Dashboard, © Andy Taylor (M0W0W2) 2014-2018.
ircDOBGateway Dashboard by Hans-J. Barthlen (DL501).
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group
Get your copy of Pi-Star from 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 carefully as they will allow programs and individuals to access and change your BrandMeister account information, as well as making any action on your behalf. By creating API key(s) below, you are taking full responsibility for their usage. API keys never expire but you can revoke them at anytime.

Active keys

Show entries

Name	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:

Hostname: pi-star

Pi-Star:3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Modes Enabled

D-Star	DMR
YSF	P25
YSF2DMR	NXDN

Network Status

D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR Net	NXDN Net
Internet	

Radio Info

Trx	Listening
Tx	439.025000 MHz
Rx	439.025000 MHz
FW	ZUMspot: v1.3.3

D-Star Repeater

RPT1	KC6N	B
RPT2	KC6N	G

D-Star Network

APRS	socal.aprs2.net
IRC	rr.openquad.net
Linked to REF012 A (DPlus Outgoing)	

DMR Repeater

DMR ID	3106564
DMR CC	1
TS1	disabled
TS2	enabled
TG 31066/not linked	

DMR Master

EM United States	3103
------------------	------

YSF Network

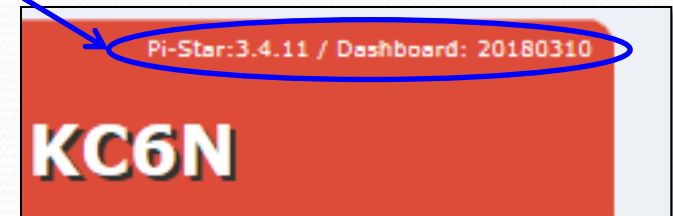
Room: Alabama-Link

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
15:41:41 Mar 15th	DMR Slot 2	K6WDE	TG 31066	Net	0.5	0%	0.0%
15:39:28 Mar 15th	DMR Slot 2	AG6PF	TG 31066	Net	0.5	0%	0.0%
15:36:55 Mar 15th	D-Star	KC7ZZN	CQCQCQ via REF012 A	Net	0.9	0%	0.0%
15:33:15 Mar 15th	DMR Slot 2	KE6GVK	TG 31066	Net	14.5	0%	0.0%
15:32:54 Mar 15th	DMR Slot 2	KN4KBL	TG 31066	Net	14.5	0%	0.0%
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	N1KN	TG 31066	Net	19.6	0%	0.0%
15:27:05 Mar 15th	DMR Slot 2	KC6KGE	TG 31066	Net	0.5	0%	0.0%
15:17:14 Mar 15th	YSF	KT4ROY-ALL	ALL at KT4ROY	Net	39.0	0%	0.0%
15:16:29 Mar 15th	DMR Slot 2	KD6AJG	TG 31066	Net	4.8	0%	0.0%
15:15:55 Mar 15th	DMR Slot 2	K6TFJ	TG 31066	Net	26.4	0%	0.0%
15:13:33 Mar 15th	DMR Slot 2	BX2AEK	TG 31066	Net	0.5	0%	0.0%
15:13:17 Mar 15th	DMR Slot 2	K2MJ	TG 31066	Net	0.5	0%	0.0%
15:13:05 Mar 15th	DMR Slot 2	WD6FOX	TG 31066	Net	5.2	0%	0.0%
15:08:41 Mar 15th	DMR Slot 2	W6TUX	TG 31066	Net	0.5	0%	0.0%
14:57:45 Mar 15th	YSF	N6USP	ALL at KE4LTT	Net	0.2	0%	0.0%
14:55:44 Mar 15th	DMR Slot 2	KK6GNC	TG 31066	Net	2.6	40%	0.0%
14:50:37 Mar 15th	D-Star	KM6QMY	CQCQCQ via REF012 A	Net	3.8	0%	1.0%
14:44:37 Mar 15th	YSF	W3ADC	*****H51RD at W3ADC	Net	1.0	0%	0.0%
14:40:33 Mar 15th	D-Star	KK6IDV	CQCQCQ via REF012 A	Net	2.7	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
------------	------	----------	--------	-----	--------	-----	------

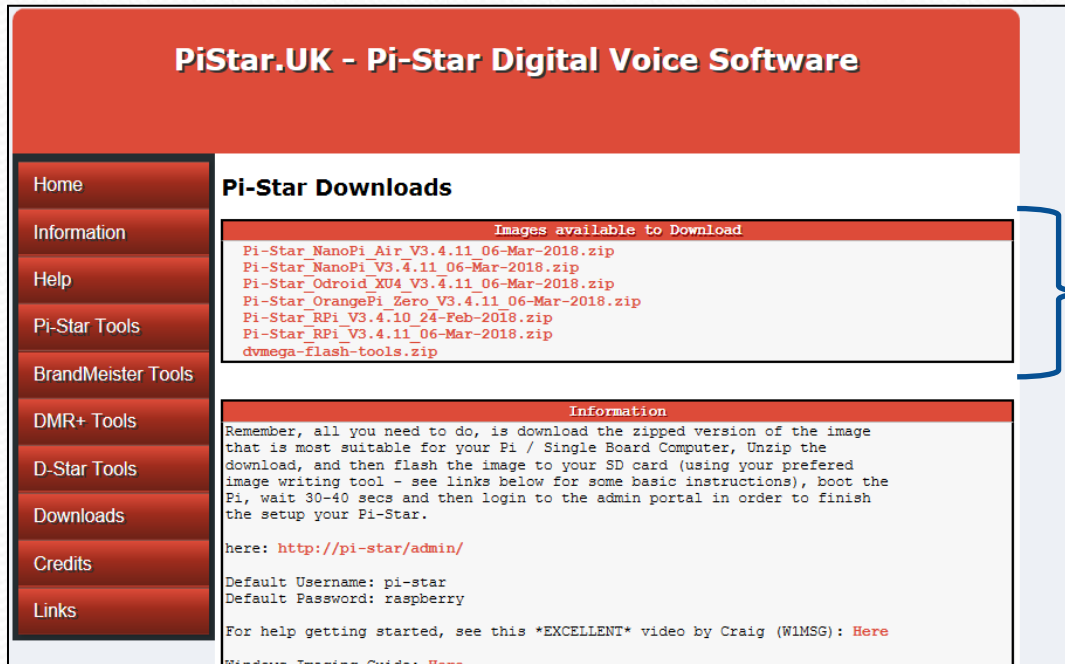
Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018.
ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI).
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group.
Get your copy of Pi-Star from here.

To find the latest firmware go here:

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

The quickest way to get there is by clicking “here” (literally ☺).

Updating Firmware (method 1):



The screenshot shows the PiStar.UK website. The header is red with the text "PiStar.UK - Pi-Star Digital Voice Software". On the left is a dark red sidebar with white text links: Home, Information, Help, Pi-Star Tools, BrandMeister Tools, DMR+ Tools, D-Star Tools, Downloads, Credits, and Links. The main content area has a white background. At the top of the main area is a red bar with the text "Pi-Star Downloads". Below this is a section titled "Images available to Download" with a list of zip files: Pi-Star_NanoPi_Air_V3.4.11_06-Mar-2018.zip, Pi-Star_NanoPi_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_24-Feb-2018.zip, Pi-Star_RPi_V3.4.11_06-Mar-2018.zip, and dvmeiga-flash-tools.zip. Below this is an "Information" section with text instructions on how to download and flash the image, and default login credentials (http://pi-star/admin/, pi-star, raspberry). A blue bracket on the right side of the image points from the list of zip files to a yellow callout box.

PiStar.UK - Pi-Star Digital Voice Software

Pi-Star Downloads

Images available to Download

- Pi-Star_NanoPi_Air_V3.4.11_06-Mar-2018.zip
- Pi-Star_NanoPi_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_24-Feb-2018.zip
- Pi-Star_RPi_V3.4.11_06-Mar-2018.zip
- dvmeiga-flash-tools.zip

Information

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 preferred 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 the setup your Pi-Star.

here: <http://pi-star/admin/>

Default Username: pi-star
Default Password: raspberry

For help getting started, see this *EXCELLENT* video by Craig (W1MSG): [Here](#)

[Windows Imaging Guidet Here](#)

The current release versions are shown here. Pick the latest one that starts with "Pi-Star RPI".

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

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 | DMRGateway
Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Data | **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.

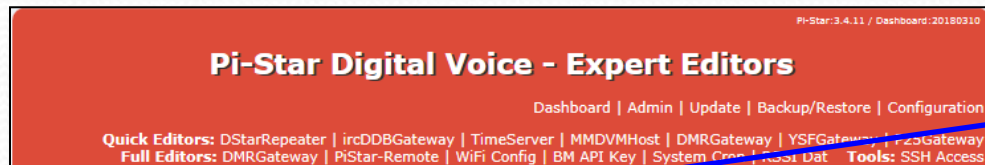
With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it.
73 and enjoy your Pi-Star experience.
Pi-Star UK Team.

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

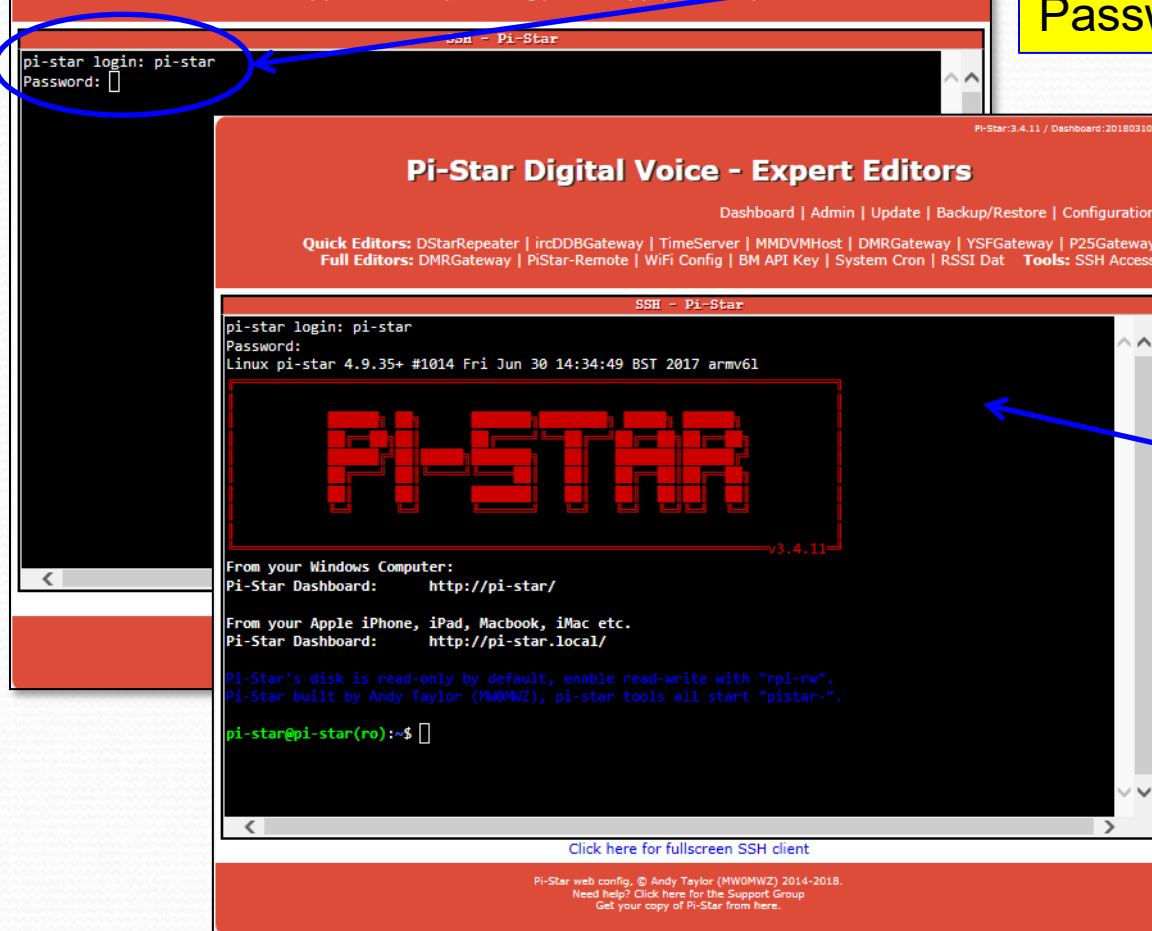
Click
“Tools: SSH Access”
To bring up the built in SSH Editor. If you don’t see it, try a different browser.

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:



Log into the SSH Editor:
User “pi-star” <enter>
Password: “raspberry” <enter>

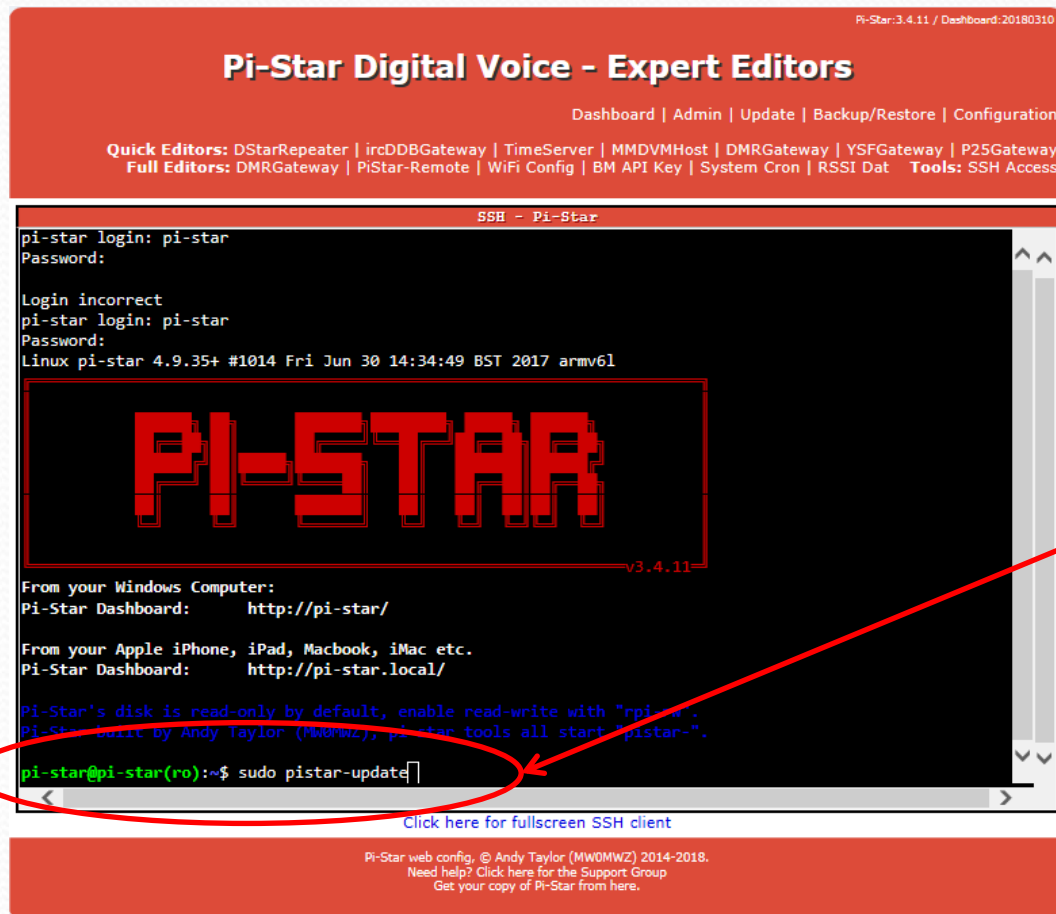


The Pi-Star SSH editor
will open up as shown
Here, with the
command prompt:
`pi-star@pi-star(ro):=$`

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 raspbian OS, the second line upgrades Pi-Star.

Enter the “update” command:



The screenshot shows the Pi-Star Digital Voice interface. At the top, there's a red header with the title "Pi-Star Digital Voice - Expert Editors" and a navigation bar with links: Dashboard | Admin | Update | Backup/Restore | Configuration. Below this, there are lists of "Quick Editors" and "Full Editors". The main content area is a terminal window titled "SSH - Pi-Star". It shows a login attempt for "pi-star" which failed. The terminal then displays the "PI-STAR" logo in large red letters. Below the logo, there are instructions for accessing the Pi-Star Dashboard from a Windows Computer and an Apple iPhone/iPad/Macbook/iMac. At the bottom of the terminal, the command "pi-star@pi-star(ro):~\$ sudo pistar-update" is entered and highlighted with a red circle. A red arrow points from a yellow text box on the right to this command. At the bottom of the terminal window, there is a link: "Click here for fullscreen SSH client".

```
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 armv6l

PI-STAR

From your Windows Computer:
Pi-Star Dashboard: http://pi-star/

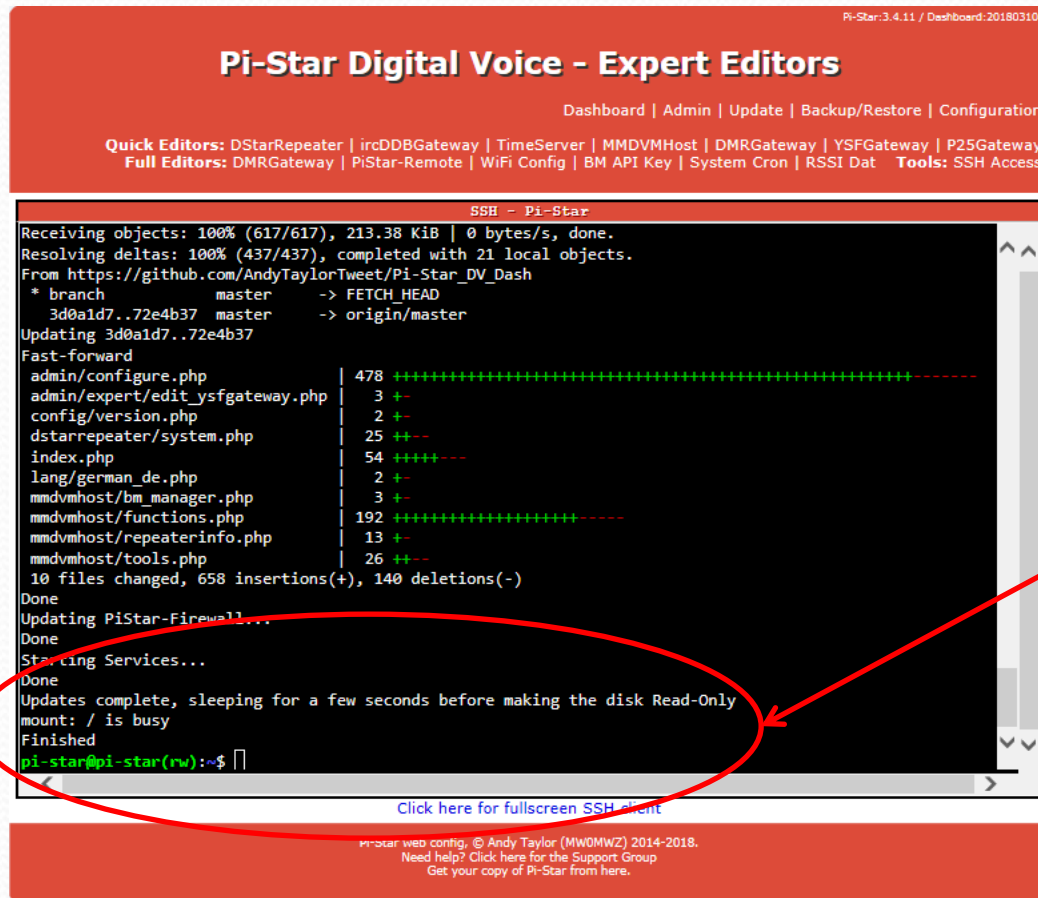
From your Apple iPhone, iPad, Macbook, iMac etc.
Pi-Star Dashboard: http://pi-star.local/

Pi-Star's disk is read-only by default, enable read-write with "rpi-w".
Pi-Star built by Andy Taylor (MW0MWZ), pi-star tools all start "pistar-".

pi-star@pi-star(ro):~$ sudo pistar-update
```

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 / 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
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
   3d0a1d7..72e4b37 master    -> origin/master
Updating 3d0a1d7..72e4b37
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 ++++++
 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):~$
```

[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.

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

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
   3d0a1d7..72e4b37 master  -> origin/master
Updating 3d0a1d7..72e4b37
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 ++++++-----
 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
```

[Click here for fullscreen SSH client](#)

Pi-Star web config. © Andy Taylor (M0W0MWZ) 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 Digital Voice - Expert Editors

Pi-Star:3.4.11 / Dashboard:20180310

Dashboard | Admin | Update | Backup/Restore | Configuration

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

SSH - Pi-Star

```
dstarrepeater/system.php 25 +---
index.php 54 +-----
lang/german_de.php 2 +-
mmdvmhost/bm_manager.php 3 +-
mmdvmhost/functions.php 192 +-----
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 Pi-Star 3.4.11 running on RPi hardware, attached to zumspotgpio modem...
Created symlink from /etc/systemd/system/multi-user.target.wants/nxdngateway.timer to /lib/systemd/system/nxdngateway.timer.
Created symlink from /etc/systemd/system/multi-user.target.wants/nxdnpa_rot.timer to /lib/systemd/system/nxdnpa_rot.timer.
Upgraded from 3.4.11 to 3.4.12...
Sleeping a few seconds before making the disk Read-Only...
mount: / is busy
Finished
pi-star@pi-star(rw):~$
```

[Click here for full-screen 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.

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

Pi-Star:3.4.13 / Dashboard: 20180506

or KC6N

Dashboard | Admin | Configuration

et	Src	Dur (s)	Loss	BER
	Net	0.1	0%	0.0%
	Net	0.5	0%	0.0%

Version 3.4.15 and forward:

Pi-Star: 3.4.15 / Dashboard: 20180623

Pi-Star Digital Voice - Configuration

Dashboard | Admin | **Expert** | Pi-Star Updates | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.34 / 0.28 / 0.23	41.7°C / 107.1°F

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Mode <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input checked="" type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input checked="" type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20

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

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

Pi-Star: 3.4.15 / Dashboard: 20180623

Pi-Star Digital Voice - Expert Editors

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

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

Expert Editors

****WARNING****

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

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

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.

Hostname: pi-star Pi-Star 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Modes Enabled

D-Star	DMR
YSF	P25
YSF2DMR	NXDN

Network Status

D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR Net	NXDN Net
Internet	

Radio Info

Trx	Listening YSF
Tx	439.025000 MHz
Rx	438.025000 MHz
FW	ZUMspot: v1.3.3

D-Star Repeater

RPT1	KC6N	B
RPT2	KC6N	G

D-Star Network

APRS	socal.aprs2.net
IRC	rr.openquad.net
Linked to REF012 A (DPlus Outgoing)	

DMR Repeater

DMR ID	3106564
DMR CC	1
TS1	disabled
TS2	enabled
TG 31066/not linked	

DMR Master

EM United States	3103
------------------	------

YSF Network

Room:	Alabama-Link
-------	--------------

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LIT	Net	0.8	0%	0.0%
14:46:42 Mar 16th	YSF	AA0RM	ALL at AA0RM	Net	0.1	0%	0.0%
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0%	0.4%
14:46:05 Mar 16th	D-Star	KC6N/IDS1	CQCCQ	RF	2.1	0%	0.0%
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.2%
14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.0%
14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.0%
14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.0%
14:39:13 Mar 16th	D-Star	KC6N/INFO	CQCCQ	Net	6.5	0%	0.0%
14:36:15 Mar 16th	D-Star	MLABC/INFO	CQCCQ	Net	2.5	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0.4%	S9+46dB
14:46:05 Mar 16th	D-Star	KC6N/IDS1	CQCCQ	RF	2.1	0.0%	S9+46dB
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0.2%	S9+46dB

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 | DMRGateway
Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Data | **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.

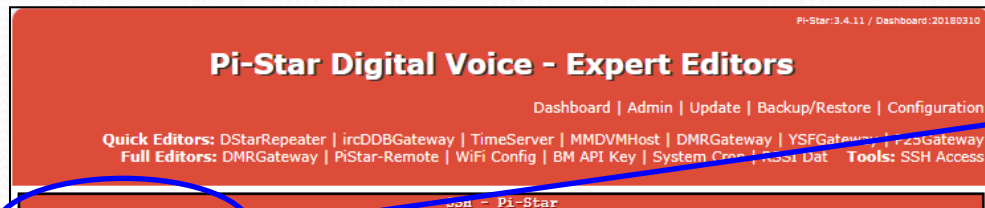
Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

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 experience.
Pi-Star UK Team.

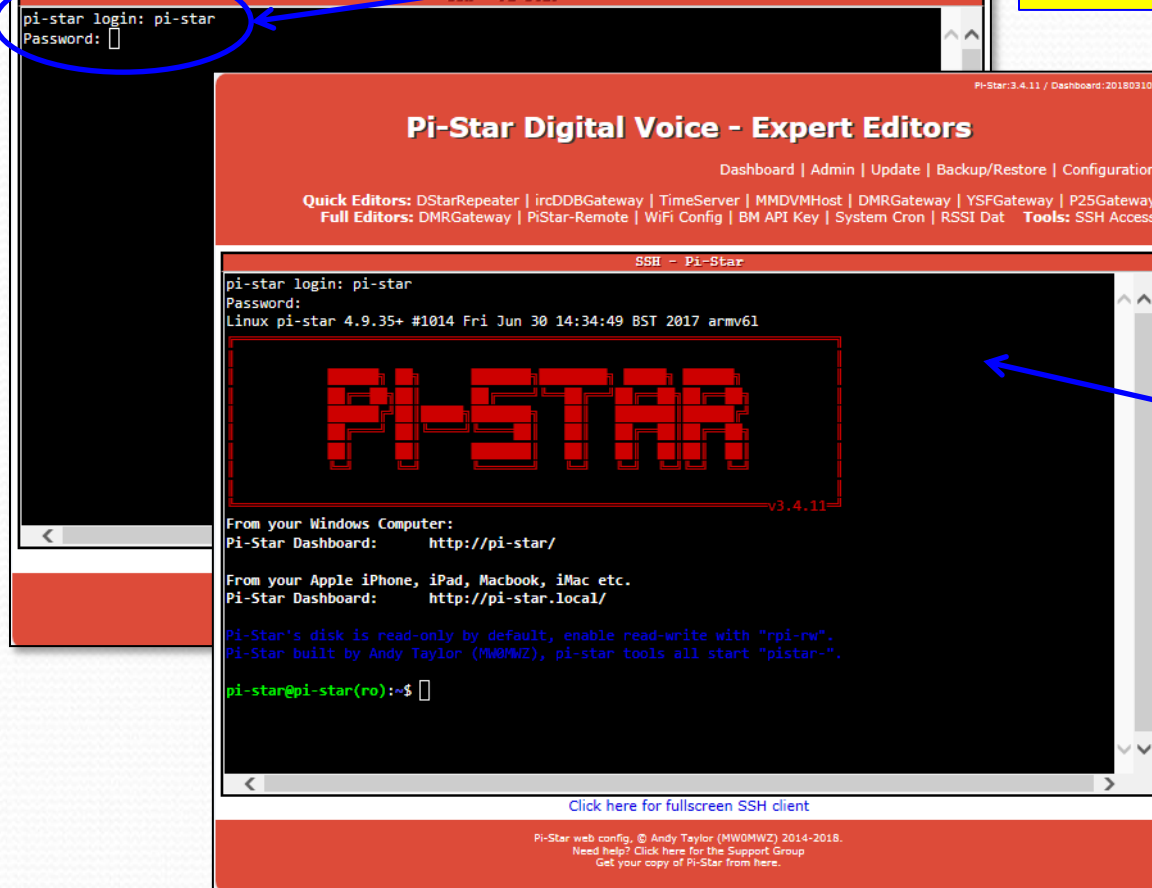
Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018.
ircDDBGateway Dashboard by Hans-J. Berthen (DLSDI),
MMDVMDash developed by Kim Huebel (DG9VH),
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

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:



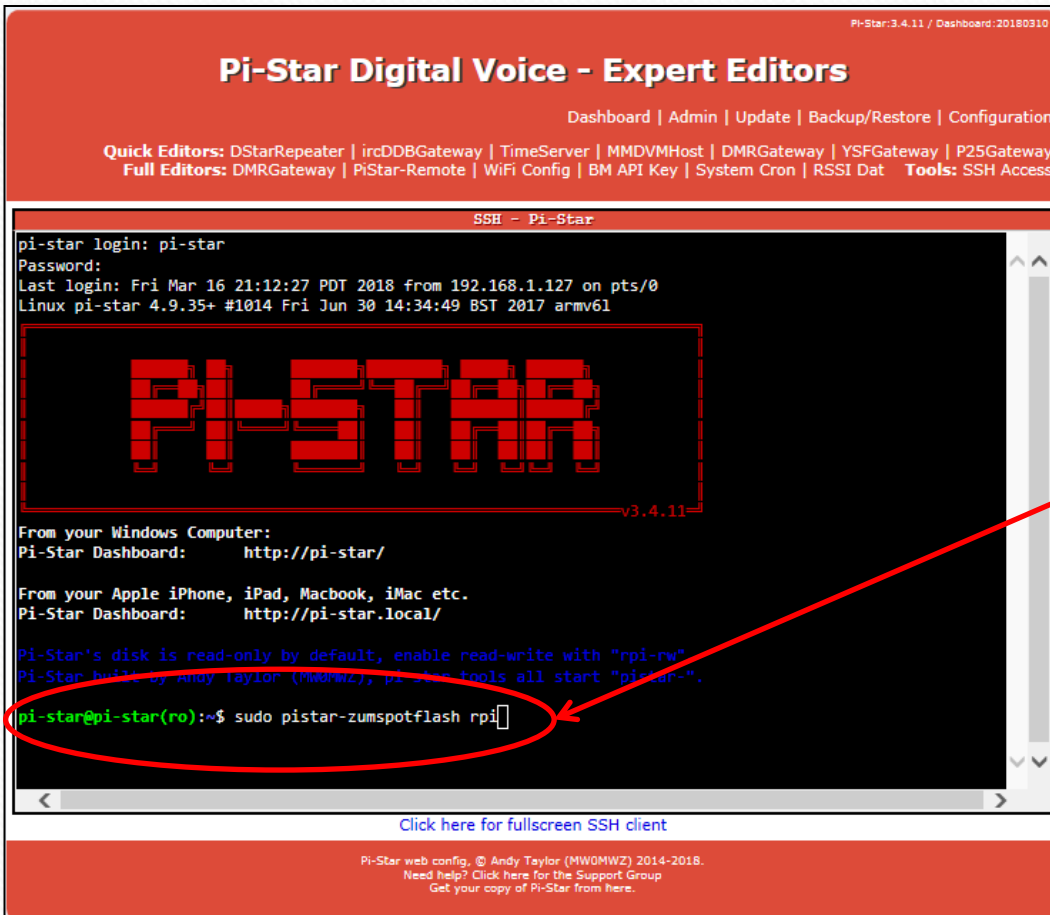
Log into the SSH Editor:
UserName: "pi-star" <enter>
Password: "raspberry" <enter>



The Pi-Star SSH editor will open up as shown Here, with the command prompt:
`pi-star@pi-star(ro):=$`

Enter the flash command:

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



```
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:
Last login: Fri Mar 16 21:12:27 PDT 2018 from 192.168.1.127 on pts/0
Linux pi-star 4.9.35+ #1014 Fri Jun 30 14:34:49 BST 2017 armv6l

Pi-STAR v3.4.11

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/

Pi-Star's disk is read-only by default, enable read-write with "rpi-rw"
Pi-Star built by Andy Taylor (MW0MWZ), pi-star tools all start "pistar-".

pi-star@pi-star(ro):~$ sudo pistar-zumspotflash rpi
```

[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.

Wait for flash complete:

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.

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

```
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 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.

Verify new ZUMspot FW ver.

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

That's it, all done.

Hostname: pi-star Pi-Star 3.4.11 / Dashboard: 20180310

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Modes Enabled

D-Star	DMR
YSF	P25
YSF2DMR	NXDN

Network Status

D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR Net	NXDN Net
Internet	

Radio Info

Trx	Listening YSF
Tx	439.025000 MHz
Rx	439.025000 MHz
FW	ZUMspot:v1.3.3

D-Star Repeater

RPT1	KC6N	B
RPT2	KC6N	G

D-Star Network

APRS	social.aprs2.net
IRC	rr.openquad.net
Linked to REF012 A (DPlus Outgoing)	

DMR Repeater

DMR ID	3106564
DMR CC	1
TS1	disabled
TS2	enabled
TG 31066/not linked	
DMR Master	
EM United States 3103	

YSF Network

Room	Alabama-Link
------	--------------

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LTT	Net	0.8	0%	0.0%
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%
14:46:05 Mar 16th	D-Star	KC6N/ID51	CQCCQ	RF	2.1	0%	0.0%
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.2%
14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.0%
14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.0%
14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.0%
14:39:13 Mar 16th	D-Star	KC6N/INFO	CQCCQ	Net	6.5	0%	0.0%
14:36:15 Mar 16th	D-Star	MIABC/INFO	CQCCQ	Net	2.5	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0.4%	S9+46dB
14:46:05 Mar 16th	D-Star	KC6N/ID51	CQCCQ	RF	2.1	0.0%	S9+46dB
14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0.2%	S9+46dB

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

ZUMspot/PiStar

Appendix G

Alternative bring up methodology

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

Note:

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

Gather up the following:

- Basic ZUMspot kit
 - ZUM Board (w/ Antenna)
 - Raspberry Pi ZeroW (w/ connector)
 - μ SD card (w/ Image)
 - Case (Optional)
- Windows PC with Internet access
- USB μ SD 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:

<http://www.pistar.uk/index.php>

Click Pi-Star Tools, select "WiFi Builder"

PiStar.UK - Pi-Star Digital Voice Software

- Home
- Information
- Help
- Pi-Star Tools
 - WiFi Builder**
 - Pi-Star Usage Stats
- BrandMeister Tools
- DMR+ Tools
- D-Star Tools
- Downloads
- Credits
- Links

Pi-Star WiFi Builder

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 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.

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.

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.

Once the Pi-Star system boots up, it will add the config file for the WiFi and reboot.

SSID:	
PSK:	
<input type="button" value="Submit Query"/>	

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wifi_builder.php last modified on 23/10/17 at 20:12 +0000

PiStar.UK - Pi-Star Digital Voice Software

- Home
- Information
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- Pi-Star Tools
- WiFi Builder
- Pi-Star Usage Stats
- BrandMeister Tools
- DMR+ Tools
- D-Star Tools
- Downloads
- Credits
- Links

Home

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 Digital Voice on Amateur radio in a way that makes it easily accessible to anyone just starting out, but make it configurable enough to be interesting for those of us who can't help but tinker.

Pi-Star can be what ever you want it to be, from a simple single mode hotspot running simplex providing 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!

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!

Pi-Star Digital Voice Dashboard for MW0MWZ

Dashboard | Admin | Config

Mode	Enabled	Active StarNet Groups
DMR	Yes	
YSF	Yes	
YSF Net	Yes	
Internet		

Time (GMT)	Mode	Collig	Target	Src	Dur	CS	BER
2017-05-30 16:10:10	D-Star	MW0MWZ/DAVS	COCQ via REF001 C	Net	0.8	0%	0.2%
2017-05-30 16:27:55	DMR	Slot 2	TC 91	Net	0.5	0%	0.1%
2017-05-30 16:25:15	DMR	Slot 2	TC 91	Net	10.3	0%	0.0%
2017-05-30 16:19:15	DMR	Slot 2	TC 91	Net	1.6	0%	0.0%
2017-05-30 16:17:56	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	11.4	0%	0.0%
2017-05-30 16:17:23	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	1.4	0%	0.0%
2017-05-30 16:16:36	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.7	0%	0.0%
2017-05-30 16:11:30	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	1.9	0%	0.0%
2017-05-30 16:10:44	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	7.1	0%	0.0%
2017-05-30 16:10:42	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.7	0%	0.0%
2017-05-30 16:09:28	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	1.2	0%	0.0%
2017-05-30 16:05:55	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	7.9	0%	0.0%
2017-05-30 15:56:00	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.1	0%	0.0%
2017-05-30 15:54:49	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	1.2	0%	0.0%
2017-05-30 15:49:35	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.8	0%	0.0%
2017-05-30 15:48:20	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.4	0%	0.0%
2017-05-30 15:47:40	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.2	0%	0.0%
2017-05-30 15:40:50	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	0.4	0%	0.0%
2017-05-30 15:36:33	D-Star	MW0MWZ/DL08	COCQ via REF001 C	Net	6.8	0%	0.0%

Time (GMT)	Mode	Collig	Target	Src	Dur	CS	BER
2017-05-30 16:10:42	D-Star	MW0MWZ/DL08	I	Net	0.7	0%	0.0%

Pi Star - Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2017.
Pi-Star is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Foundation).
Pi-Star can be what ever you want it to be, from a simple single mode hotspot running simplex providing 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!
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!

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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.

PiStar.UK - Pi-Star Digital Voice Software

[Home](#)[Information](#)[Help](#)[Pi-Star Tools](#)[BrandMeister Tools](#)[DMR+ Tools](#)[D-Star Tools](#)[Downloads](#)[Credits](#)[Links](#)

Pi-Star WiFi Builder

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 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.

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.

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.

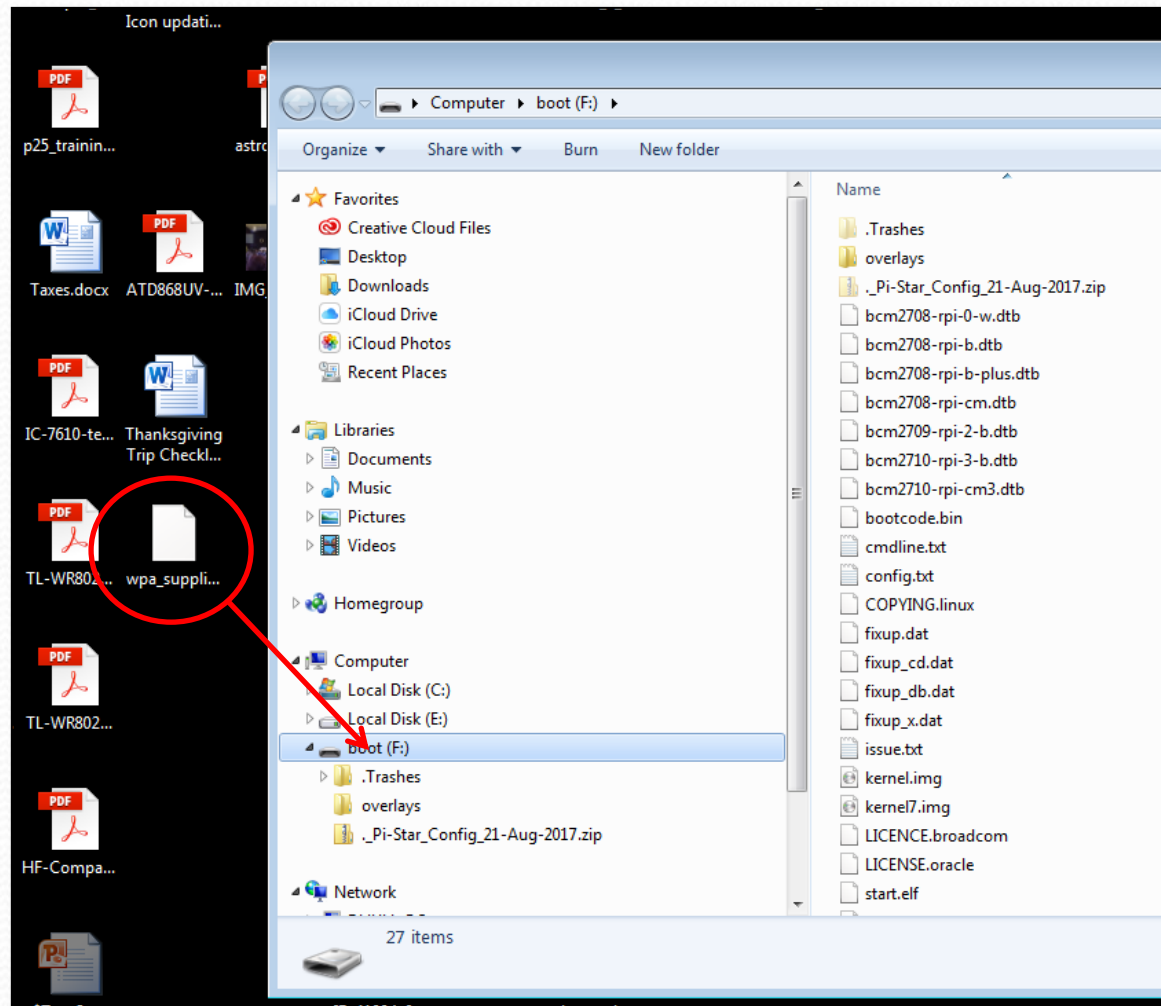
Once the Pi-Star system boots up, it will add the config file for the WiFi and reboot.

SSID:	<input type="text"/>
PSK:	<input type="text"/>
<input type="button" value="Submit Query"/>	

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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 μ SD card.
3. Install the μ SD card containing your image and the wpa_suplicant file into your Raspberry Pi Zero W.
4. Power the hot spot, wait about three minutes then proceed with bring-up as described in Part III



ZUMspot/PiStar

Appendix H

Cross Mode Operation

Cross-mode operation

- Pi-Star offers the ability to operate cross-mode 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:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/> ←	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input checked="" type="checkbox"/> ←		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED ▾	Port: /dev/ttyAMA0 ▾	Nextion Layout: G4KLX ▾
<div>Apply Changes</div>			

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 ▾ ←
<div>Apply Changes</div>	

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

Cross-mode YSF to DMR

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

MMDVMHost Configuration			
Setting	Value		
DMR Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/> ←	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input checked="" type="checkbox"/> ←		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED ▾	Port: /dev/ttyAMA0 ▾	Nextion Layout: G4KLX ▾

Apply Changes

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

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

Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF00002 - YSF2DMR - YSF2DMR Bridge ▾ ←
APRS Host:	socal.aprs2.net ▾ ←
(YSF2DMR) CCS7/DMR ID:	3106564 ←
DMR Master:	BM_United_States_3103 ▾ ←
DMR TG:	31066

Apply Changes

The DMR TG entry (last line here) determines which DMR talk group you will be using on DMR.

Cross-mode YSF to P25

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

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/> ←	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input checked="" type="checkbox"/> ←		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED ▾	Port: /dev/ttyAMA0 ▾	Nextion Layout: G4KLX ▾
<input type="button" value="Apply Changes"/>			

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

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

Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF00004 - Link YSF2P25 ▾ ←
UPPERCASE Hostfiles:	<input checked="" type="checkbox"/> Note: Update Required if changed
WiresX Passthrough:	<input type="checkbox"/>
(YSF2P25) CCS7/DMR ID:	3106564 ←
P25 Startup Host:	31077 - 216.240.173.55 ▾ ←
<input type="button" value="Apply Changes"/>	

The “P25 Startup Host” selection determines your talk group 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:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input checked="" type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED	Port: /dev/ttyAMA0	Nextion Layout: G4KLX
<input type="button" value="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	Value
DMR Master:	DMR2YSF
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="checkbox"/>
DMR DumpTADData:	<input checked="" type="checkbox"/>
<input type="button" value="Apply Changes"/>	

Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF02034 - Alabama-Link - Alabama-Link
APRS Host:	socal.aprs2.net
<input type="button" value="Apply Changes"/>	

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

Cross-mode DMR to NXDN

Turn “on” DMR mode and DMR2NXDN as shown Below.

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input checked="" type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="radio"/>		
YSF2NXDN:	<input type="radio"/>		
YSF2P25:	<input type="radio"/>		
DMR2YSF:	<input type="radio"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input checked="" type="radio"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED	Port: /dev/ttyAMA0	Nextion Layout: G4KLX
<input type="button" value="Apply Changes"/>			

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

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

DMR Configuration	
Setting	Value
DMR Master:	DMR2NXDN
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>
<input type="button" value="Apply Changes"/>	

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

NXDN Configuration	
Setting	Value
NXDN Startup Host:	None
NXDN RAN:	1
<input type="button" value="Apply Changes"/>	

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:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input checked="" type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED	Port: /dev/ttyAMA0	Nextion Layout: G4KLX

Apply Changes

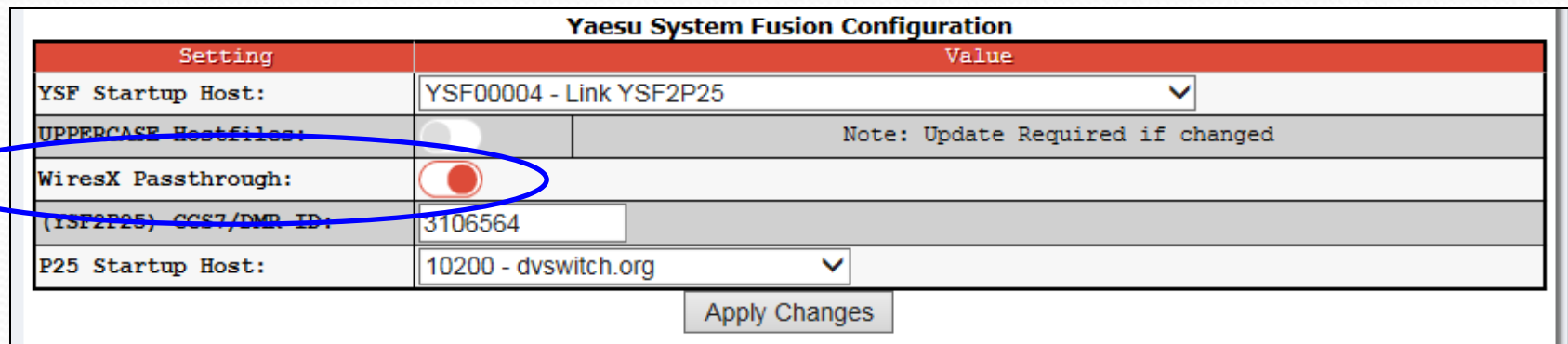
Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF00004 - YSF2P25 - YSF2P25 Bridge
APRS Host:	socal.aprs2.net
(YSF2P25) CCS7/DMR ID:	3106564
P25 Startup Host:	10200 - dvswitch.org

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).

Control via WiresX Commands

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



The screenshot displays the 'Yaesu System Fusion Configuration' window. It features a table with two columns: 'Setting' and 'Value'. The 'WiresX Passthrough' setting is highlighted with a blue oval, showing a red toggle switch in the 'on' position. Other settings include 'YSF Startup Host' (YSF00004 - Link YSF2P25), 'UPPERCASE Hostfiles' (disabled), '(YSF2P25) CCS7/DMR ID' (3106564), and 'P25 Startup Host' (10200 - dvswitch.org). A note for 'UPPERCASE Hostfiles' states 'Note: Update Required if changed'. An 'Apply Changes' button is located at the bottom right.

Setting	Value
YSF Startup Host:	YSF00004 - Link YSF2P25
UPPERCASE Hostfiles:	<input type="checkbox"/> Note: Update Required if changed
WiresX Passthrough:	<input checked="" type="checkbox"/>
(YSF2P25) CCS7/DMR ID:	3106564
P25 Startup Host:	10200 - dvswitch.org

Apply Changes

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

WiresX Pass-through setup

MMDVMHost Configuration			
Setting	Value		
DMR Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input checked="" type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/> Uses 7 prefix on DMRGateway		
DMR2NXDN:	<input type="checkbox"/> Uses 7 prefix on DMRGateway		
POCSAG:	<input type="checkbox"/> POCSAG Paging Features		
MMDVM Display Type:	OLED <input type="checkbox"/>	Port: /dev/ttyAMA0 <input type="checkbox"/>	Nextion Layout: G4KLX <input type="checkbox"/>
Apply Changes			

Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF00004 - Link YSF2P25 <input type="checkbox"/>
UPPERCASE Hostfiles:	<input type="checkbox"/> Note: Update Required if changed
WiresX Passthrough:	<input checked="" type="checkbox"/>
(YSF2P25) CCS7/DMR ID:	3106564
P25 Startup Host:	10200 - dvswitch.org <input type="checkbox"/>
Apply Changes	

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

How to use it

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

Yaesu FT-3

1. Give your HotSpot a quick kerchunk using the PTT key

2. Once your HS is sitting on Fusion, press the “**X**” key



3. Touch “Search & Direct”

Note: The reflector you are currently on is shown here. In this case 10200, N. America.

Making WX Pass-through work

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



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



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

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

Where to find the reflector ID's

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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 Digital Voice on Amateur radio in a way that makes it easily accessible to anyone just starting out, but make it configurable enough to be interesting for those of us who can't help but tinker.

Pi-Star can be what ever you want it to be, from a simple single mode hotspot running simplex providing 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!

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!

Pi-Star Digital Voice Dashboard for MW0MWZ

Dashboard | Admin | Config

Modes Enabled		Active StarNet Groups	
D-Star	DMR	Collig	LogPFT
YSF	FCS	PISTAR 0	PISTAR 1
		DMR 0	DMR 1
Network Status		Info	
D-Star Net	D-Star Net	PI-Star User Group on D-Star	
YSF Net	YSF Net	Blackwood Club Members Group	
Internet	Internet		
Last 20 calls heard via this Gateway			
Time (CST)	Mode	Collig	Target
2017-05-30 16:30:19	D-Star	W0GVE	CCQCLQ via REF001 C
2017-05-30 16:27:35	DMR Slot 2	W0GVE	TG 91
2017-05-30 16:25:15	DMR Slot 2	W0GVE	TG 91
2017-05-30 16:24:52	DMR Slot 2	W0GVE	TG 91
2017-05-30 16:19:35	DMR Slot 2	W0GVE	TG 91

Most of these modes operate in reflector mode. This includes P25, NXDN, DMR+ and YSF/FCS (yea, they call them “rooms”). Pi-Star maintains updated lists for these reflectors on the home page.

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P25 Reflector List

Note: This table of P25 reflectors is pulled from the Pi-Star P25 Database (updated hourly).

P25 TG Number	Description
TG 10100	World Wide, 1010x
TG 10200	North America, 1020x
TG 10201	North America TAC1
TG 10300	Europe, 1030x
TG 10301	Europe TAC1
TG 10400	Pacific, 1040x
TG 10401	Pacific TAC1
TG 10402	pacific TAC2
TG 10403	pacific TAC3
TG 28299	America-Ragchew, 28299
TG 31010	Alabama Link
TG 31665	31665 P25-DMR Gateway
TG 31672	31672 P25 Pi-Star chat
TG 50525	50525 Bridge to YSF, NXDN and DMR
TG 9999	Disconnect

Go to: <http://www.pistar.uk/> and check the “Tools” pulldown specific to the mode you are interested in. There you are likely to find an option to list the reflectors currently available for the mode. Select the reflector list option to see what is available (updated regularly).

Final note on cross mode

- I have tried to show the simplest connection method in this section, I did not show the use of the “DMR Gateway” which is somewhat more complicated.
- There is an excellent paper on the use of the DMRGateway by John Fields titled “XLX and XRF Reflectors, DMR and use with DMRGateway” which can be found on the web.

ZUMspot/PiStar

Appendix I

DMR+ Setup and Operation

DMR+ Background Info

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

DMR+ Background Info

General Configuration		
Setting		Value
Hostname:	DMR+_EA-DISTRITO-5	such as .local
Node Callsign:	DMR+_EA-DISTRITO-7	
CCS7/DMR ID:	DMR+_EA-GLOBAL-MASTER	
	DMR+_EA-MASTER-CAT	
Radio Frequency:	DMR+_EA-NAVARLIK	
	DMR+_EA-RC-VELETA	
Latitude:	DMR+_FRANCE-ATLANTIQUE	lue for North, negative for South)
	DMR+_FRANCE_ALSACE	
Longitude:	DMR+_FRANCE_SUD-EST	lue for East, negative for West)
	DMR+_FREMONT	
Town:	DMR+_GR-DMRPLUS2021	
Country:	DMR+_HU-MASTER1	
	DMR+_IT-CAMPANIA	
URL:	DMR+_IT-MASTER	<input checked="" type="radio"/> Auto <input type="radio"/> Manual
Radio/Modem Type:	DMR+_ITALY5-TUSCANYSERVER	
	DMR+_IT_PUGLIA	
Node Type:	DMR+_JAPAN-MASTER	
System Time Zone:	DMR+_KC9UHI-1	
	DMR+_OE-VIENNA	
Dashboard Language:	DMR+_OH-MASTER	
	DMR+_PEPEPLUS	
	DMR+_PHOENIX-F	
	DMR+_PL-MASTER	
	DMR+_REUNION	
	DMR+_SWEDEN-DMR	
DMR Master:	DMR+_USA-CALIFORNIA	
DMR+ Network:	DMR+_USA-DALLAS	serLink=1;TS1_1=9;
	DMR+_USA-FLORIDA	
DMR Color Code:	DMR+_USA-MINNESOTA	
	DMR+_USA-MINNESOTA2	
DMR EmbeddedLOOnly:		
DMR DumpTADData:	<input checked="" type="checkbox"/>	

Apply Changes

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

I would suggest picking one close to your geographical area.

Pi-Star DMR+ Setup

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

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED <input type="button" value="v"/>	Port: /dev/ttyAMA0 <input type="button" value="v"/>	Nextion Layout: G4KLX <input type="button" value="v"/>
<input type="button" value="Apply Changes"/>			

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

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

DMR Configuration	
Setting	Value
DMR Master:	DMR+_USA-CALIFORNIA <input type="button" value="v"/>
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;
DMR Color Code:	1 <input type="button" value="v"/>
DMR EmbeddedLOnly:	<input type="checkbox"/>
DMR DumpTADData:	<input checked="" type="checkbox"/>
<input type="button" value="Apply Changes"/>	

Set “DMR DumpTADData to “ON” to if you use talker alias. Make sure the color code is correct.

Linking to a DMR+ Reflector

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

Using the DMR+ Reflector

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

Where to find the reflector ID's

PiStar.UK - Pi-Star Digital Voice Software

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

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DMR+ Reflector List

No.	Reflector	ID
0	4000 No Link	4000
1	4001 Germany	4001
2	4002 Hamburg	4002
3	4003 Elbe-Weser	4003
4	4004 Hessen	4004
5	4005 Rhein-Main	4005
6	4006 Ruhrgebiet	4006
7	4007 NRW	4007
8	4008 Wuerttemberg	4008
9	4009 Baden	4009
10	4010 DMRplus-Chat	4010
11	4011 Heide	4011
12	4012 DSTAR DCS001_V	4012
13	4013 Rheinland-Pfalz	4013
14	4014 Test	4014
15	4015 Bayern	4015
16	4016 Berlin	4016
17	4017 Niedersachsen-Ost	4017
18	4018 DL-Mitte	4018
19	4019 Germany test	4019
20	4020 Weserbergland	4020
21	4021 Neuwied-Mayen-Koblenz	4021
22	4022 White-Sticker	4022
23	4023 Rhein-Neckar	4023
24	4025 Bayern-Ost	4025
25	4026 Franken	4026
26	4027 Inntal	4027
27	4028 Thueringen	4028
28	4029 Sachsen-Anhalt	4029
29	4030 Harz	4030
30	4031 Niedersachsen-Sued	4031
31	4033 Geestland	4033
32	4034 Workshop-Digital-	4034
33	4035 DV4mini-Treff	4035
34	4037 DL-Nordwest	4037
35	4040 Osthessen & MKK	4040
36	4041 Marklandshagen/Vorwarnung	4041

pistar.uk website designed and developed by Andy Taylor (MW0MWZ) - andy@mw0mwz.co.uk
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 dmr_dmr+_reflectors.php last modified on 17/09/17 at 22:16 +0100

A few more DMR+ notes

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

ZUMspot/PiStar

Appendix J

XLX, XRF Reflectors, DMR and DMRGateway

DMR Gateway Operation (1)

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

DMR Gateway Operation (2)

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

DMR Gateway Operation (3)

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

DMR Gateway Operation (4)

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

DMR Gateway Operation (5)

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

DMR Gateway Operation (6)

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

DMR Gateway Operation (7)

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

DMR Gateway Setup

Turn on DMR Mode in the MMDVM Host Dialog

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

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

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

DMR Configuration	
Setting	Value
DMR Master:	DMRGateway
BrandMeister Master:	BM_United_States_3103
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR+ Master:	DMR+_USA-CALIFORNIA
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;
XLX Master:	XLX_210
XLX Master Enable:	<input checked="" type="radio"/>
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>
Apply Changes	

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

DMR Gateway Examples

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

DMRGateway DMR to NXDN

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

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

DMR Configuration	
Setting	Value
DMR Master:	DMRGateway
BrandMeister Master:	BM_United_States_3103
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR+ Master:	DMR+_USA-CALIFORNIA
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;
XLX Master:	XLX_210
XLX Master Enable:	<input checked="" type="radio"/>
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>
Apply Changes	

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

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

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

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

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

DMRGateway DMR to YSF/FCS

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

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input checked="" type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="radio"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="radio"/>		
YSF2NXDN:	<input type="radio"/>		
YSF2P25:	<input type="radio"/>		
DMR2YSF:	<input checked="" type="radio"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="radio"/>	Uses 7 prefix on DMRGateway	
MMDVM Display Type:	OLED	Port: /dev/ttyAMA0	Nextion Layout: G4KLX
<input type="button" value="Apply Changes"/>			

DMR Configuration	
Setting	Value
DMR Master:	DMRGateway
BrandMeister Master:	BM_United_States_3103
BrandMeister Network:	<input type="button" value="Repeater Information"/> <input type="button" value="Edit Repeater (BrandMeister Selfcare)"/>
DMR+ Master:	DMR+_USA-CALIFORNIA
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;
XLX Master:	XLX_210
XLX Master Enable:	<input checked="" type="radio"/>
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>
<input type="button" value="Apply Changes"/>	

Yaesu System Fusion Configuration	
Setting	Value
YSF Startup Host:	YSF02034 - Alabama-Link - Alabama-Link
APRS Host:	socal.aprs2.net
<input type="button" value="Apply Changes"/>	

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

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

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

ZUMspot/PiStar

Appendix K

Controlling Pi-Star from your radio

Pi-Star Remote Control

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

Pi-Star remote control modes

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

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

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** | Wiki Config | BM API Key | System Cron | RSSI Data | 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 experience.
Pi-Star UK Team.

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

Pi-Star remote control modes

Pi-Star 3.4.11 / Dashboard:20180323

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 designed 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=REBOOTFI
shutdown=SHUTDOWN

[dmr]
# TG commands
svckill=9999999
svcrestart=99999998
reboot=9999997
shutdown=9999996

[ysf]
# ROOM Ccommands
svckill=99999
svcrestart=99998
reboot=99997
shutdown=99996
```

Apply Changes

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.

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

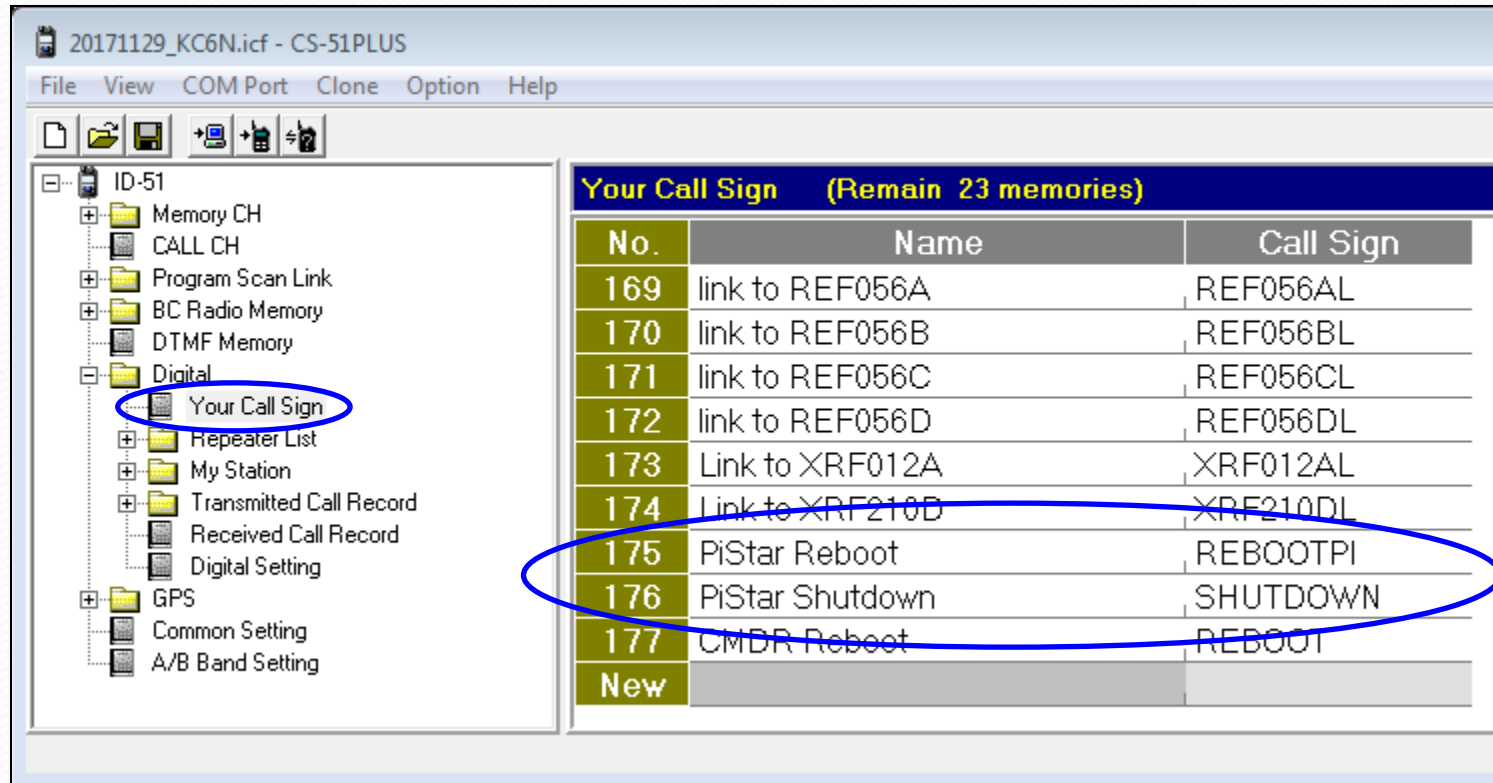
Make sure that “Keeper” is enabled here, make sure that your callsign is set as the “Keeper” in UPPER CASE.

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

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

Fusion uses “room codes” of course

Pi-Star remote control DSTAR



Add the commands to the “UR Call” (or Your Call) memory of your DSTAR radio so that they are accessible 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:3.4.11 / Dashboard:20180323

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 designed for the Pi-Star Keeper remote control
# The remote control system is designed to give repeater keepers an
# RF KillSwitch for their repeaters.

[enable]
# Is the Keeper Enabled? (true|false)
enabled = true

[keeper]
# Keepers Information
callsign=KC6N

[d-star]
# UR fields
svckill=SVCKILL
svcrestart=SVCRSTRT
reboot=REBOOTPI
shutdown=SHUTDOWN

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

[ysf]
# ROOM Ccommands
svckill=99999
svcrestart=99998
reboot=99997
shutdown=99996
```

Apply Changes

Pi-Star / Pi-Star Dashboard, © Andy Taylor (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.

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=89999997
 - PiStar Shutdown, PCID=89999996
- Access these in whatever way works best for you.
 - I create a couple PC ID's as shown above
 - You can add these to a zone or just search for them in your contact list. You can also “Manual Dial” the numbers if you remember them.

Pi-Star Remote Control FUSION

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

ZUMspot/PiStar

Appendix L

Solving BER problems. Offsets and Hot Spot Calibration

Pi-Star Offset adjustments

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

Pi-Star Offset adjustments

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

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



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** | D-Star Gateway | YSFGateway | P25Gateway
Full Editors: DMRGateway | PiStar-Remote | WiFi Config | DM API Key | System Cron | RSSI Data | **Tools:** SSH Access

Expert Editors

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ircDDBGateway Dashboard by Hans-J. Berthen (DLSDI),
MMDVMDash developed by Kim Huebel (DG9VH),
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Get your copy of Pi-Star from here.

Pi-Star Offset adjustments

Modem	
Port	/dev/ttyAMA0
TXInvert	1
RXInvert	0
PTTInvert	0
TXDelay	100
RXOffset	0
TXOffset	0
DMRDelay	100
RXLevel	50
TXLevel	100
CWidTXLevel	50
D-StarTXLevel	50
DMRTXLevel	50
YSPTXLevel	50
P25TXLevel	50
RSSIMappingFile	/usr/local/etc/RSSI.dat
Trace	0
Debug	0
RFLLevel	100
RXDCOffset	0
TXDCOffset	0
NXDNTXLevel	50
Apply Changes	
TMP	

In the “Modem” section you will probably see:

RXOffset = 0


TXOffset = 0

As shown here.

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

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

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



RXOffset	-250
TXOffset	-250
TXDelay	100

Calibration Program

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

Performing Calibration

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

Pi-Star:4.1.3 / Dashboard:20201205

Pi-Star Digital Voice - Expert Editors

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

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

Expert Editors

****WARNING****

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

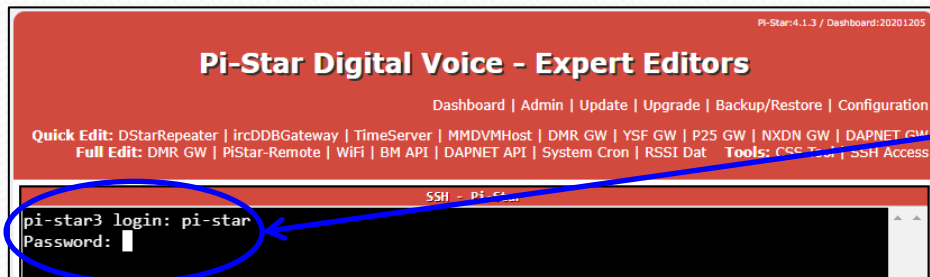
With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it.
73 and enjoy your Pi-Star experience.
Pi-Star UK Team.

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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
“Tools: SSH Access”
To bring up the built
in SSH Editor. If you
don’t see it, try a
different browser.

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

Preparing for Calibration (SSH)



Log into the SSH Editor:
UserName: "pi-star" <enter>
Password: "raspberry" <enter>



The Pi-Star SSH editor will open up as shown Here, with the command prompt:
`pi-star@pi-star(ro):=$`

Launch mmdvmcal via SSH

Pi-Star Digital Voice - Expert Editors

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

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

SSH - Pi-Star

Last login: Sat Jan 9 15:39:58 PST 2021 from 192.168.1.114 on pts/0
Linux pi-star3 4.19.97+ #1294 Thu Jan 30 13:10:54 GMT 2020 armv6l

PI-STAR

The Pi-Star Dashboard can be found at one of the following locations:
<http://pi-star3/> <http://pi-star3.local/> <http://192.168.1.137/>

Pi-Star's disk is read-only by default, enable read-write with "rpi-rw".
Pi-Star built by Andy Taylor (MW0MWZ), pi-star tools all start "pistar-".

Welcome to Pi-Star: v4.1.3

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

[Click here for fullscreen SSH client](#)

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

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

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

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

ZUM board Calibration Setup

Pi-Star Digital Voice - Expert Editors

Pi-Star:4.1.3 / Dashboard:20201205

[Dashboard](#) | [Admin](#) | [Update](#) | [Upgrade](#) | [Backup/Restore](#) | [Configuration](#)

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

SSH - Pi-Star

```
Starting Calibration...
Version: 1, description: ZUMspot-v1.5.2 20201108 14.7456MHz ADF7021 FW by CA6JAU GitI
D #89daa20
The commands are:
H/h      Display help
Q/q      Quit
W/w      Enable/disable modem debug messages
E/e      Enter frequency (current: 433000000 Hz)
F        Increase frequency
f        Decrease frequency
Z/z      Enter frequency step
T        Increase deviation
t        Decrease deviation
P        Increase RF power
p        Decrease RF power
C/c      Carrier Only Mode
K/k      Set FM Deviation Modes
D/d      DMR Deviation Mode (Adjust for 2.75Khz Deviation)
M/m      DMR Simplex 1031 Hz Test Pattern (CC1 ID1 TG9)
K/k      BER Test Mode (FEC) for D-Star
b        BER Test Mode (FEC) for DMR Simplex (CC1)
B        BER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)
J        BER Test Mode (FEC) for YSF
```

[Click here for fullscreen SSH client](#)

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

As can be seen by the menu, there are all sorts of things that can be “adjusted” here.

H/h (upper/lower case) re-loads the command list menu.

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

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

HotSpot RX offset optimization

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

Optimizing RX Offset using BER

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

Optimizing RX Offset using BER

1. Enter “E” or “e” to enable frequency entry.
2. Enter the frequency in Hz as shown and hit <Return>
3. Select the BER test mode, that you want to calibrate.
4. I’ll select ‘j’ for P25 to calibrate P25

Pi-Star Digital Voice - Expert Editors
Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

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

SSH - Pi-Star

```
Z/z Enter frequency step
T Increase deviation
t Decrease deviation
P Increase RF power
p Decrease RF power
C/c Carrier Only Mode
K/k Set FM Deviation Modes
D/d DMR Deviation Mode (Adjust for 2.75Khz Deviation)
M/m DMR Simplex 1031 Hz Test Pattern (CC1 ID1 TG9)
K/k BER Test Mode (FEC) for D-Star
b BER Test Mode (FEC) for DMR Simplex (CC1)
B BER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)
J BER Test Mode (FEC) for YSF
j BER Test Mode (FEC) for P25
n BER Test Mode (FEC) for NXDN
g POCSAG 600Hz Test Pattern
S/s RSSI Mode
I/i Interrupt Counter Mode
V/v Display version of MMDVMCal
<space> Toggle transmit
```

Enter frequency (current 433000000 Hz):
439075000

[Click here for fullscreen](#)

Pi-Star web config. © Andy Taylor
Need help? Click here for the Support Group
Get your copy of Pi-S

Pi-Star Digital Voice - Expert Editors
Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

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

SSH - Pi-Star

```
Z/z Enter frequency step
T Increase deviation
t Decrease deviation
P Increase RF power
p Decrease RF power
C/c Carrier Only Mode
K/k Set FM Deviation Modes
D/d DMR Deviation Mode (Adjust for 2.75Khz Deviation)
M/m DMR Simplex 1031 Hz Test Pattern (CC1 ID1 TG9)
K/k BER Test Mode (FEC) for D-Star
b BER Test Mode (FEC) for DMR Simplex (CC1)
B BER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)
J BER Test Mode (FEC) for YSF
j BER Test Mode (FEC) for P25
n BER Test Mode (FEC) for NXDN
g POCSAG 600Hz Test Pattern
S/s RSSI Mode
I/i Interrupt Counter Mode
V/v Display version of MMDVMCal
<space> Toggle transmit
```

BER Test Mode (FEC) for P25

[Click here for fullscreen SSH client](#)

Pi-Star web config. © Andy Taylor (M0GMMW2) 2014-2021.
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Get your copy of Pi-Star from here.

Optimizing RX Offset using BER

Pi-Star Digital Voice - Expert Editors

Pi-Star:4.1.3 / Dashboard:20210111

[Dashboard](#) | [Admin](#) | [Update](#) | [Upgrade](#) | [Backup/Restore](#) | [Configuration](#)

Quick Edit: [DStarRepeater](#) | [IrcDDBGateway](#) | [TimeServer](#) | [MMDVMHost](#) | [DMR GW](#) | [YSF GW](#) | [P25 GW](#) | [NXDN GW](#) | [DAPNET GW](#)
Full Edit: [DMR GW](#) | [PiStar-Remote](#) | [WiFi](#) | [BM API](#) | [DAPNET API](#) | [System Cron](#) | [RSSI Dat](#) **Tools:** [CSS Tool](#) | [SSH Access](#)

SSH - Pi-Star

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

[Click here for fullscreen SSH client](#)

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

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

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

Optimizing RX Offset using BER

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

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

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

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

ZUMspot/PiStar

Appendix M

Customizing Pi-Star Dashboard Colors

Customizing PiStar 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: <http://pi-star/admin/expert/> , logging into Pi-Star and selecting “**Tools: CSS Tool**” from the expert options.
- This will open the CSS menu shown on the following page.

Customizing Pi-Star Colors

Pi-Star: 3.4.13 / Dashboard: 20180527

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 Data | **Tools: CSS Tool** | SSH Access

Expert Editors

****WARNING****

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

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

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 experience.
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.

Click
“Tools: CSS Tool”
To bring up the CSS Tool page.

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).

Pi-Star: 3.4.13 / Dashboard: 20180527

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 Data | **Tools: CSS Tool** | SSH Access

Background

Page	edf0f5
Content	ffffff
Banners	dd4b39

Apply Changes

Text

Banners	ffffff
BannersDrop	303030

Apply Changes

Tables

HeadDrop	8b0000
BgEven	f7f7f7
BgOdd	d0d0d0

Apply Changes

Content

Text	000000
------	--------

Apply Changes

BannerB2

Enabled	0
Text	Some Text

Apply Changes

BannerExtText

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.
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.

Customizing PiStar Colors

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

Customizing Pi-Star Colors

1. Pick a color you like here


2. See your selected color here

HTML Color Picker

< Previous

Next >

Pick a Color:



Or Enter a Color:

Colorvalue OK

Selected Color:

Black Text

Shadow

White Text

Shadow

#6699ff

rgb(102, 153, 255)

hsl(220, 100%, 70%)

Lighter / Darker:

100%	#ffffff
95%	#e6eeff
90%	#ccddff
85%	#b3ccff
80%	#99bfff
75%	#80aaff
70%	#6699ff
65%	#4d88ff
60%	#3377ff
55%	#1a66ff
50%	#0055ff
45%	#004de6
40%	#0044cc
35%	#003cb3
30%	#003399
25%	#002b80
20%	#002266
15%	#001a4d
10%	#001133
5%	#00091a
0%	#000000

3. The “Hex” number you need is here. (type this into the appropriate Pi-Star field to set your color)

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

Customizing Pi-Star Colors

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

Pi-Star 3.4.13 / Dashboard: 20180527

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 Data | Tools: CSS Tool | SSH Access

Background	
Page	edf0f5
Content	ffffff
Banners	dd4b39
Apply Changes	

Text	
Banners	ffffff
BannersDrop	303030
Apply Changes	

Tables	
HeadDrop	8b0000
BgEven	f7f7f7
BgOdd	d0d0d0
Apply Changes	

Content	
Text	000000
Apply Changes	

BannerB2	
Enabled	0
Text	Some Text
Apply Changes	

BannerExtText	
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 (M0M0WZ) 2014-2018.
ircDDBGateway Dashboard by Hans-J. Barthel (DL501),
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

Pi-Star 3.4.13 / Dashboard: 20180527

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 Data | Tools: CSS Tool | SSH Access

Background	
Page	edf0f5
Content	ffffff
Banners	6699ff
Apply Changes	

Text	
Banners	ffffff
BannersDrop	303030
Apply Changes	

Tables	
HeadDrop	8b0000
BgEven	f7f7f7
BgOdd	d0d0d0
Apply Changes	

Content	
Text	000000
Apply Changes	

BannerB2	
Enabled	0
Text	Some Text
Apply Changes	

BannerExtText	
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 (M0M0WZ) 2014-2018.
ircDDBGateway Dashboard by Hans-J. Barthel (DL501),
MMDVMDash developed by Kim Huebel (DG9VH).
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

Customizing Pi-Star Colors

Hostname: pi-star

Pi-Star:3.4.13 / Dashboard: 20180527

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Modes Enabled

D-Star

DMR

YSF

P25

YSF XMode

NXDN

Network Status

D-Star Net

DMR Net

YSF Net

P25 Net

YSF2DMR

NXDN Net

YSF2NXDN

YSF2P25

Radio Info

Tx

Listening DMR

Rx

439.025000 MHz

Rx

439.025000 MHz

FM

ZUMspot:v1.3.3

D-Star Repeater

RPT1

KC6N

B

RPT2

KC6N

G

D-Star Network

APRS

social.aprs2.net

IRC

rr.openquad.net

Linked to REF012 A

(DPlus Outgoing)

DMR Repeater

DMR ID

310656401

DMR CC

1

TS1

disabled

TS2

enabled

TG 31066/not linked

DMR Master

BM United States 3103

YSF Network

Linked to: FCS003-16

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
13:29:48 May 28th	DMR Slot 2	N2JHJ	TG 31066	Net	0.8	0%	0.0%
13:23:30 May 28th	D-Star	KC6ESW/IDS1	CQCQCQ	Net	2.2	0%	0.0%
13:23:14 May 28th	D-Star	WD6F2A/IDS1	CQCQCQ	Net	13.0	0%	0.0%
13:17:21 May 28th	DMR Slot 2	W6AAX	TG 31066	Net	12.7	0%	0.0%
13:17:08 May 28th	DMR Slot 2	KC6ESW	TG 31066	Net	8.4	0%	0.0%
13:12:33 May 28th	DMR Slot 2	WD6FOX	TG 31066	Net	2.6	0%	0.0%
13:07:34 May 28th	DMR Slot 2	KB9YYN	TG 31066	Net	0.1	0%	0.0%
13:06:33 May 28th	DMR Slot 2	N1KN	TG 31066	Net	1.2	0%	0.0%
13:04:09 May 28th	D-Star	W0NWA R	CQCQCQ	Net	0.3	0%	0.0%
13:00:00 May 28th	D-Star	KC6N/TIME	CQCQCQ	Net	3.7	0%	0.0%
12:52:37 May 28th	DMR Slot 2	KK6LDW	TG 31066	Net	0.5	0%	0.0%
12:41:33 May 28th	DMR Slot 2	KEBOS	TG 31066	Net	0.5	0%	0.0%
12:36:47 May 28th	DMR Slot 2	N6ARP	TG 31066	Net	0.5	0%	0.0%
12:33:04 May 28th	DMR Slot 2	KC6N	TG 31066	Net	5.9	0%	0.0%
12:32:55 May 28th	DMR Slot 2	W6MAT	TG 31066	Net	7.7	0%	0.0%
12:25:05 May 28th	D-Star	W6AAX	CQCQCQ	Net	2.7	0%	0.0%
12:17:49 May 28th	DMR Slot 2	K1NRA	TG 31066	Net	0.5	0%	0.0%
12:12:30 May 28th	DMR Slot 2	N6YN	TG 31066	Net	0.5	0%	0.0%
12:11:23 May 28th	D-Star	A16KJ/IDS1	CQCQCQ	Net	2.0	0%	0.0%
12:07:48 May 28th	DMR Slot 2	KE6GVK	TG 31066	Net	0.8	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI
------------	------	----------	--------	-----	--------	-----	------

Changed your mind? Click "Factory F

from the CSS tool page to restore the

color scheme. Not to worry – it affect

page only, other ZUMspot programm

remains unchanged. Don't forget to

New dashboard with new colors.

Pi-Star 3.4.13 / Dashboard:20180227

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

Background

Page	edf0f5
Content	fffff
Banners	6699ff

Apply Changes

Text

Banners	fffff
BannersDrop	303030

Apply Changes

Table

HeadDrop	8b0000
BgEven	f7f7f7
BgOdd	d0d0d0

Apply Changes

Content

Text	000000
------	--------

Apply Changes

BannerB2

Enabled	0
Text	Some Text

Apply Changes

BannerF4157x41

Enabled	0
Text	Some long text entry

Apply Changes

you took it all too far and now it makes you feel sick, click below to reset.

Factory Reset

Pi-Star / W-Star Development Dashboard by Hans-J. Barthol (D503)
 ircDDBGateway Dashboard by Hans-J. Barthol (D503)
 MMDVMDash developed by Kim Huelber (OC99VH).
 Need help? Click here for the Support Group
 Get your copy of Pi-Star from here.

Changed your mind? Click “Factory Reset” from the CSS tool page to restore the default color scheme. Not to worry – it affects this page only, other ZUMspot programming remains unchanged. Don’t forget to back up.

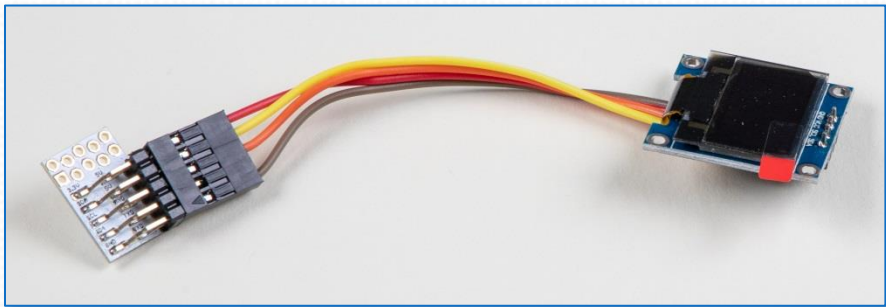
ZUMspot/PiStar

Appendix N

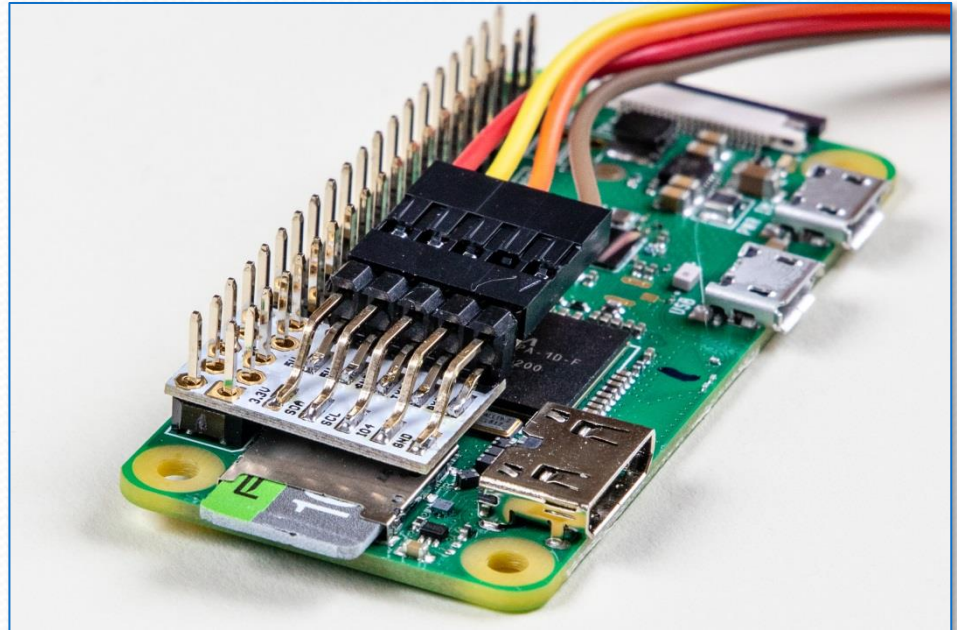
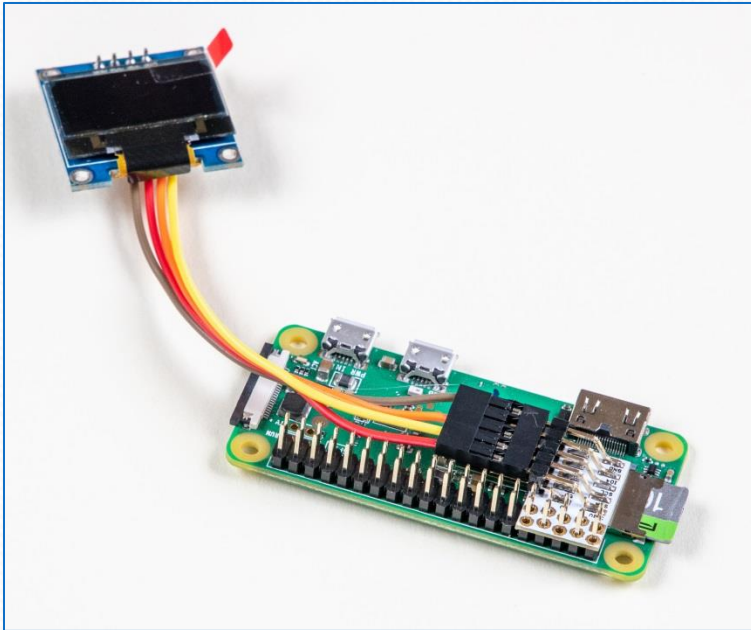
Adding an OLED Display

Adding an OLED Display (1)

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

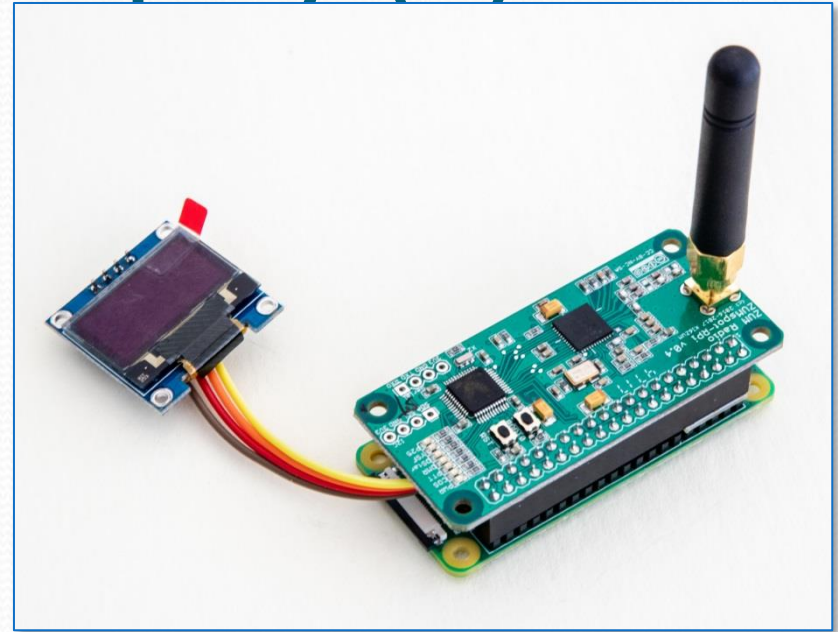
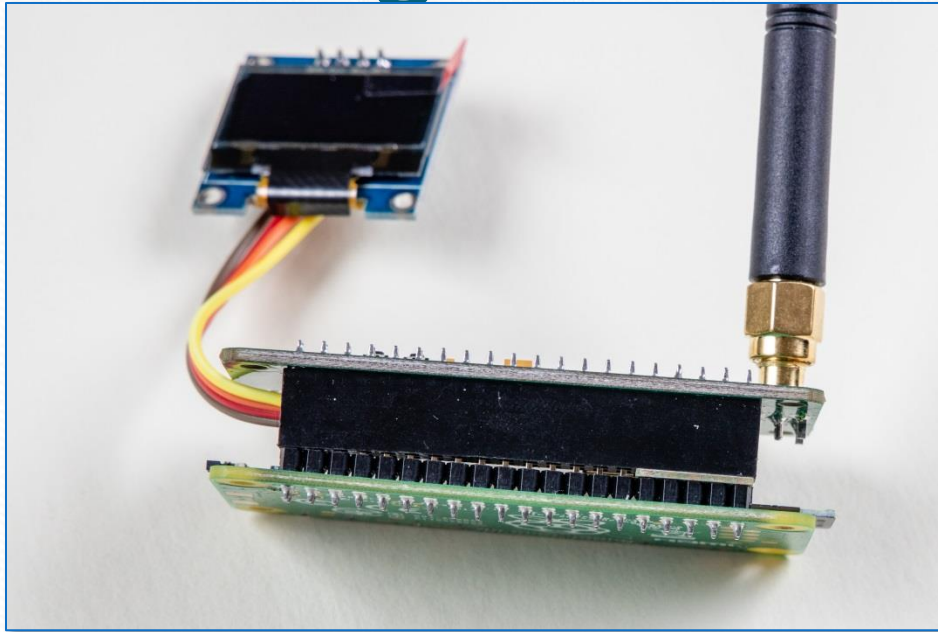


Adding an OLED Display (2)



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

Adding an OLED Display (3)



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

Setting up Pi-Star

Pi-Star Digital Voice - Configuration
Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hardware	Kernel	Platform	CPU Load	CPU Temp
Pi-Star	4.9.35+	Pi Zero V Rev 1.1 (3120B)	0.9 / 0.81 / 0.29	35.1°C / 95.1°F

Control Software

Setting: ☐ StartRepeater ☒ MMDVMHost (D-Star Mode Minimum Firmware 3.07 Required)

Controller Mode: ☒ Simplex Mode ☐ Duplex Repeater (or Half-Duplex on Rotapota)

MMDVMHost Configuration

Setting	Value
DMR Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="radio"/>
YSF2NXDN:	<input type="radio"/>
YSF2P25:	<input type="radio"/>
DMR2YSF:	<input type="radio"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="radio"/> Uses 7 prefix on DMRGateway
POCSAG:	<input type="radio"/> POCSAG Paging Features
MMDVM Display Type:	<input checked="" type="radio"/> OLED <input type="radio"/> None <input type="radio"/> Nextion Layout: G4KLX

General Configuration

Username: pi-star Do not add suffixes such as .local

Node Callsign: KC0N

CCP/DMR ID: 310866403

Radio Frequency: 438.025.000 Hz

Latitude: 32.717 Degrees (positive value for North, negative for South)

Longitude: -117.16 Degrees (positive value for East, negative for West)

From: San Diego, CA

Country: USA

URL: http://www.arz.com/ds/KC0N

Radio/Modem Type: ZumoSpot-Raspberry Pi Hat (GPIO)

Mode Type: ☐ Private ☒ Public

System Time Zone: America/Los_Angeles

Dashboard Language: english_us

DMR Configuration

DMR Repeater: BM_United_States_3103

BrandMaster Network: ☒ Repeater Information ☐ Edit Repeater (BrandMaster Software)

DMR Color Code: 1

DMR EmbeddedOnly: ☐

DMR DumpTACata: ☒

D-Star Configuration

SP1 Callsign: KC0N ☒ B ☐ S

SP2 Callsign: KC0N ☒ S

Remote Password: *****

Default Reflector: REF012 ☒ A ☐ B ☐ Startup ☐ Manual

APRS Port: socat:aprs2.net

LocalGateway Language: english_us

Time Announcements: ☒

Use DFlux For XDF: ☒

Yaesu System Fusion Configuration

YSF Startup Port: YSF2024-Absorb-Link-Absorb-Link

APRS Port: socat:aprs2.net

MMDVMHost Configuration

Setting	Value
DMR Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="radio"/>
YSF2NXDN:	<input type="radio"/>
YSF2P25:	<input type="radio"/>
DMR2YSF:	<input type="radio"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="radio"/> Uses 7 prefix on DMRGateway
POCSAG:	<input type="radio"/> POCSAG Paging Features
MMDVM Display Type:	<input checked="" type="radio"/> OLED <input type="radio"/> None <input type="radio"/> Nextion Layout: G4KLX

Apply Changes

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

OLED Display Expert settings

Pi-Star:3.4.16 / Dashboard: 20181111

Pi-Star Digital Voice - Configuration

Dashboard | Admin | **Expert** | PoS | Update | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star2	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.31 / 0.26 / 0.22	37.9°C / 100.2°F

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

Pi-Star:3.4.16 / Dashboard:20181111

Pi-Star Digital Voice - Expert Editors

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

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

Expert Editors

****WARNING****

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

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

To set up your display:

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

Apply Changes

OLED	
Type	3
Brightness	0
Invert	0
Scroll	0
Rotate	0
Cast	0

Apply Changes

LCDproc

OLED Display settings (cont.)

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

OLED	
Type	6
Brightness	0
Invert	0
Scroll	0
Rotate	0
Cast	0
LogoSaver	1

Don't forget to click "Apply Changes"

Apply Changes

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

Brightness: Adjusts the display brightness (slightly on OLED)

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

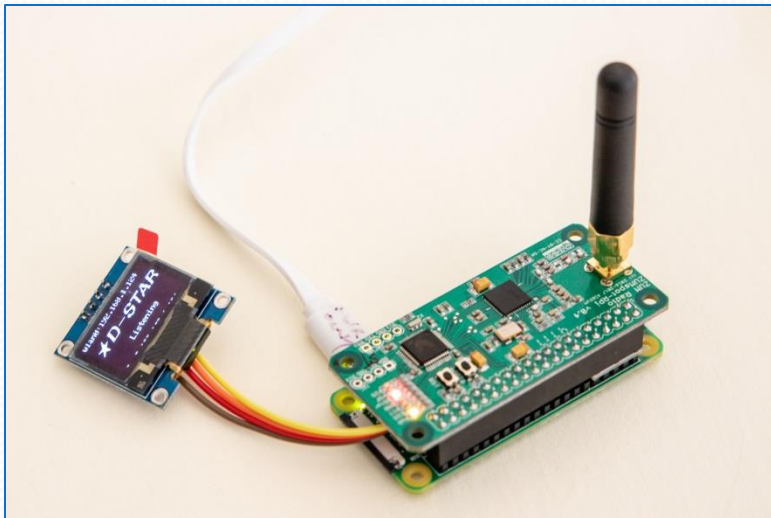
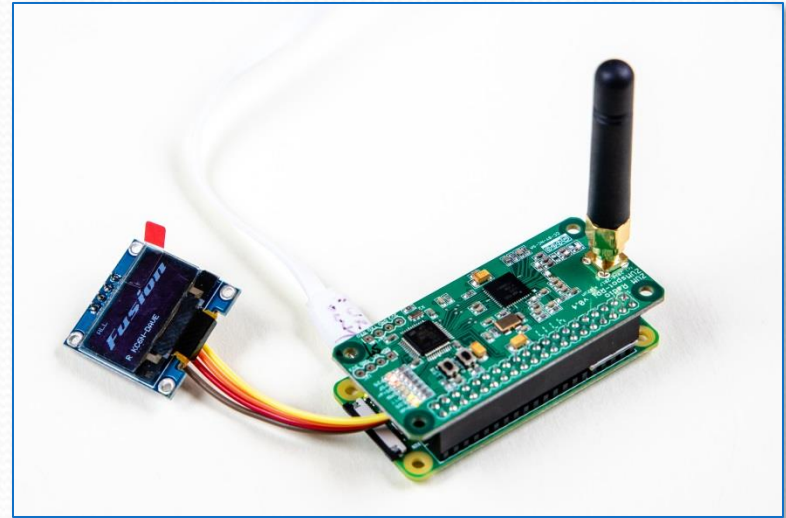
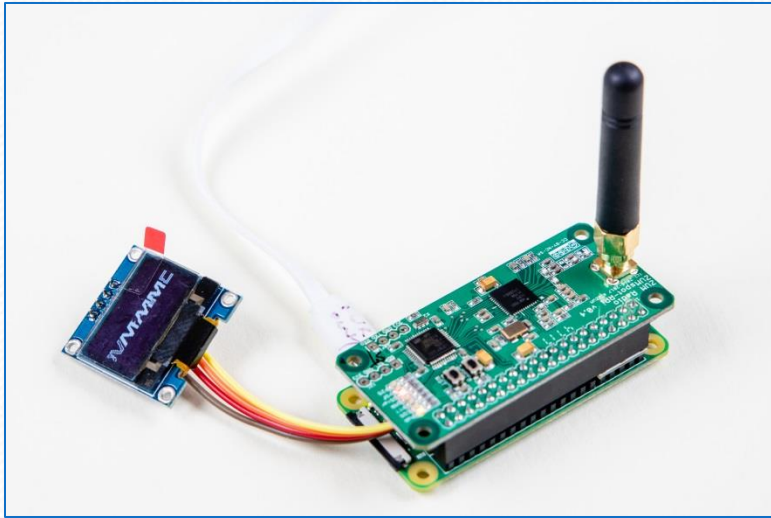
Scroll: No effect seen

Rotate: Flips display test 180 degrees

Cast: No effect seen

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

Check out and operation



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

ZUMspot/PiStar

Appendix O

Using Multiple ZumSpots

Create unique DMR ID's (1)

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

Create unique DMR ID's (2)

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

Give each a unique Host Name

General Configuration		
Hostname:	pi-star3	Do not add suffixes such as .local
Node Callsign:	K0CRN	
CCS7/DMR ID:	3106584	
Radio Frequency:	439.075.000	MHz
Latitude:	32.717	degrees (positive value for North, negative for South)
Longitude:	-117.16	degrees (positive value for East, negative for West)
Town:	San Diego, CA	
Country:	USA	
URL:	http://www.qrz.com/db/k0crn	<input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)	
Node Type:	<input type="radio"/> Private <input checked="" type="radio"/> Public	
APRS Host:	socal.aprs2.net	
System Time Zone:	America/Los_Angeles	
Dashboard Language:	english_us	
<input type="button" value="Apply Changes"/>		

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

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

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

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

Setting the unique hotspot ID

Pi-Star Digital Voice - Configuration
Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star3	4.14.79+	Pi Zero W Rev 1.1 (512MB)	3.77 / 1.32 / 0.57	40.75 / 114.77

Control Software	
Controller Software:	<input type="radio"/> DMRRepeater <input checked="" type="radio"/> MDVMDMHost (DM-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Mode <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

MDVMDMHost Configuration				
DMR Mode:	<input checked="" type="radio"/>	RF Bandtime:	20	Net Bandtime:
D-Star Mode:	<input checked="" type="radio"/>	RF Bandtime:	20	Net Bandtime:
YSF Mode:	<input type="radio"/>	RF Bandtime:	20	Net Bandtime:
DPS Mode:	<input type="radio"/>	RF Bandtime:	20	Net Bandtime:
DMR Mode:	<input type="radio"/>	RF Bandtime:	20	Net Bandtime:
YSF DMR:	<input type="radio"/>			
YSF DMR:	<input type="radio"/>			
DMR2TSP:	<input type="radio"/>	Uses ? prefix on DMRGateway		
DMR2DMR:	<input type="radio"/>	Uses ? prefix on DMRGateway		
POCSAG:	<input type="radio"/>	POCSAG Paging Features		
MDVMDM Display Type:	OLED	Port:	/dev/ttyAMA0	Waveshare Layout:

General Configuration	
Hostname:	pi-star3 Do not add suffixes such as .local
Mode Callsign:	KC6N
CCP/DMR ID:	3105504
Radio Frequency:	430.075.000 MHz
Latitude:	32.717 degrees (positive value for North, negative for South)
Longitude:	-117.16 degrees (positive value for East, negative for West)
Town:	San Diego, CA
Country:	USA
URL:	http://www.qrz.com/db/kc6n <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Mode Type:	<input type="radio"/> Private <input checked="" type="radio"/> Public
APRS Port:	social.aprs2.net
System Time Zone:	America/Los Angeles
Dashboard Language:	english_us

DMR Configuration	
DMR Master:	BM_United_States_3103
Hotspot Security:	*****
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR ESSID:	3105504 03
DMR Color Code:	1
DMR EmbeddedLocOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>

D-Star Configuration	
RPT1 Callsign:	KC6N C
RPT2 Callsign:	KC6N S
Remote Password:	*****
Default Reflector:	REF012 A <input checked="" type="radio"/> Startup <input type="radio"/> Manual
ircd08Gateway Language:	English_US
Time Announcements:	<input checked="" type="radio"/>
Use DPlus for XRP:	<input checked="" type="radio"/>

Note: Update Required if changed

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

DMR Configuration	
DMR Master:	BM_United_States_3103
Hotspot Security:	*****
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR ESSID:	3105504 03
DMR Color Code:	1
DMR EmbeddedLocOnly:	<input type="radio"/>
DMR DumpTADData:	<input checked="" type="radio"/>

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

BM Multiple HotSpot Example

The screenshot shows the BrandMeister User Dashboard. The left sidebar contains navigation links: User Dashboard, Last Heard, Repeaters (3447), Hotspots (9621), Masters (45), Alerts, Data Visualisation, Information, Services, and Hotspot. The main content area displays 'User Dashboard' with two summary cards: 'REPEATERS 3447' and 'MASTERS 45'. Below these is a 'Repeater in RX' section with a green '39' and a green plug icon. At the bottom, there is a 'Latest BrandMeister News' section with a date '6/11/2019' and a news item about 'BrandMeister DMR at Ham Radio Friedrichshafen 2019'. A red circle highlights the 'My hotspots' list in the sidebar, which contains five entries with call signs and status icons: 3106564 (red plug), 31065401 (red plug), 310656401 (red plug), 310656402 (red plug), and 310656403 (green plug). A red arrow points from the text in the yellow box to the green plug icon of the last entry.

BrandMeister

User Dashboard

REPEATERS
3447
Full report

MASTERS
45
Full report

Repeater in RX

39

Latest BrandMeister News

6/11/2019

BrandMeister DMR at Ham Radio Friedrichshafen 2019 - S

BrandMeister will be present at the Ham Radio Friedrichshafen 201

My hotspots

- 3106564
- 31065401
- 310656401
- 310656402
- 310656403

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

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

The last one (3106564**03**) is the only ZUMspot which is on-line at the moment (note the little green “plug” symbol).

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

Multiple ZumSpots for DSTAR

D-Star Configuration

Setting	
RPT1 Callsign:	KC6N B
RPT2 Callsign:	KC6N G
Remote Password:
Default Reflector:	REF012 A
APRS Host:	socal.aprs2.net
ircDDBGateway Language:	English_(US)
Time Announcements:	<input checked="" type="checkbox"/>
Use DPlus for XRF:	<input checked="" type="checkbox"/>
<input type="button" value="Apply Changes"/>	

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

KC6N_20181222.icf - CS-51PLUS

File View COM Port Clone Option Help

ID-51

- Memory CH
- CALL CH
- Program Scan Link
- BC Radio Memory
- DTMF Memory
- Digital
- Your Call Sign
- Repeater List
 - Group Name
 - 01: Africa
 - 02: Asia
 - 03: Australia
 - 04: Canada
 - 05: Europe Eastern
 - 06: Europe Northern
 - 07: Europe Southern
 - 08: Europe Western
 - 09: Germany
 - 10: Italy
 - 11: Japan
 - 12: Latin America
 - 13: Netherlands
 - 14: Oceania
 - 15: United Kingdom
 - 16: USA Midwest
 - 17: USA Northeast
 - 18: USA Southeast
 - 19: USA West
 - 20: Hot Spots
 - 21:

20: Hot Spots (Remain 7 memories)

No.	Type	Name	Sub Name	Call Sign	Frequency	Tone
				Repeater Call Sign	Gateway Call Sign	Operating Freq DUP Offset Freq Mode Ton
0	DV Repeater	ZumSpt 1 438.050		KC6N A	KC6N G	438.050000 -DUP 0.000000 DV —
1	DV Repeater	ZumSpt 2 439.025		KC6N B	KC6N G	439.025000 -DUP 0.000000 DV —
2	DV Repeater	ZumSpt 3 439.075		KC6N C	KC6N G	439.075000 -DUP 0.000000 DV —
New						

Multiple ZumSpot channels in an ICOM ID-51. Note different Module ID's A, B and C

ZUMspot/PiStar

Appendix P

Using Configuring for the TGIF Network

Using the TGIF DMR Network

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

Pi-Star DMR TGIF Config. Setup:

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Export | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Interface: eth0
Firmware: 4.0.35+
Pi Model: RPi 3 B+
OS: Raspbian Stretch
CPU Load: 0.03 / 0.02 / 0.01
CPU Temp: 35.1°C / 95.2°F

Control Software

Setting **Value**

Controller Software: ☐ dmrcc (recommended) ☐ dmrcc (requires minimum 3.07 required)
Controller Mode: ☐ singlemode ☐ multiple (requires separate or multi-program on separate)

DMR Configuration

Setting **Value**

DMR Master: **TGIF Network**
DMR Color Code: 1
DMR EmbeddedLCOnly: ☐
DMR DumpTADData: ☒

Apply Changes

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

DMR Configuration

Setting	Value
DMR Master:	TGIF Network
DMR Color Code:	1
DMR EmbeddedLCOnly:	<input type="checkbox"/>
DMR DumpTADData:	<input checked="" type="checkbox"/>

Apply Changes

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

TGIF Last Heard List:

TGIF LastheardActive TalkersTalkgroupsSelf CareServer Status

NEW! Key talkgroup 777 for SCAN

Toggle column: Callsign - Name - DMR ID - Talkgroup - Timestamp

Show 10 entries

Search:

Callsign	Name	DMR ID	Talkgroup	Timestamp
KF6S	James R Valle	1107132	TGIF (31665)	16:49:11
K4WZV	Robert B Bretzman	1112526	TGIF (31665)	16:48:55 (9 seconds)
KF6S	James R Valle	1107132	TGIF (31665)	16:48:41 (7 seconds)
KG5RDF	David D Houser	1148168	North Central Texas Connection (189)	16:48:28 (3 seconds)
WW6E	Ed Sierra Amateur Radio Dx And Contest Club	3161050	NorCalBridge-Multimode (30639)	16:48:11 (6 seconds)
W7TOA	ArthurB	3116653	YLSYSTEMS (319)	16:48:07 (1 seconds)
K4WZV	Robert B Bretzman	1112526	TGIF (31665)	16:47:51 (5 seconds)
WW6E	Ed Sierra Amateur Radio Dx And Contest Club	3161050	NorCalBridge-Multimode (30639)	16:47:35 (0 seconds)
N5OGD	Gerald G Dugan	3148922	TGIF (31665)	16:47:34 (2 seconds)
N5OGD	Gerald G Dugan	3148922	TGIF (31665)	16:47:24 (9 seconds)

Showing 1 to 10 of 65 entries

Previous1234567Next

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

TGIF Active Talkers/Talk Groups

TGIF Lastheard

Active Talkers

Talkgroups

Self Care

Server Status

Search..

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

TGIF Lastheard

Active Talkers

Talkgroups

Self Care

Server Status

103 Talkgroups

Name	Talkgroup Number
Parrot (PRIVATE CALL)	100
TAC-101	101
TAC-102	102
TAC-103	103
North America	110
Europe	111
Asia Pacific	112
World Wide English	113
World Wide	114
Over The Road	115
United Kingdom	116
Celtic Cluster	117
The Milliron Suffolk	118
North West Radio Group	120
North Central Texas Connection	189
RWK	190
TEST 201	201
TEST 202	202
DigiComm Cafe	203
Technology First	204
New York Link	212
Philadelphia	215

One popular talk group to try is “TGIF” which is TG ID = 31665

One popular talk group to try is "TGIF" which is TG ID = 31665

That's all!

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

Dave Hull, KC6N
dhull1@san.rr.com

Revision List:

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

Revision List:

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