Troubleshooting guide

Heading 1

Some text.



ZUMspot USB specifications:

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Common Issues

Note: Testing should be done with a known good Raspberry Pi with a correctly configured image.

ZUMspot RPi:

- Board not found in Pi-Star or not working in a particular mode.
 - Go to *Configuration -> Modem* and make sure that "ZUMspot RPi GPIO" has been selected.
 - Reflash modem firmware
 - Go to Configuration -> Expert -> SSH
 - Login
 - Run following command: sudo pistar-zumspotflash rpi
 - Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.
 - Test Tx and Rx with the normal 433MHz frequency. If Tx and Rx work then any issues being experienced are due to a configuration problem or the Pi-Star image has been corrupted
- If the board has OLED issues go to the OLED Display section

ZUMspot USB:

- 1. No COM port found under Windows.
 - *a.* Go to "Device Manager" and check for USB devices with an exclamation point next to it.
 - *b.* Re-install Maple Drivers
- 2. Board not found in Pi-Star Suggestion 1.
 - a. Go to *Configuration -> Modem* and make sure that "ZUMspot USB" has been selected.
- 3. Board not found in Pi-Star Suggestion 2.
 - a. Go to Expert -> SSH
 - *b.* Login to pi-star
 - *c.* Type in "Isusb" in terminal
 - d. If a device named "1eaf:0004" is listed, then the Pi-Star image has been corrupted
- 4. Board not working in a particular mode.
 - a. Reflash firmware
 - *i.* Go to Configuration -> Expert -> SSH
 - ii. Login
 - iii. Run following command: sudo pistar-zumspotflash usb
 - b. Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.
 - i. Test Tx and Rx with the normal 433MHz frequency. If Tx and Rx work then any issues being experienced are due to a configuration problem or if under Pi-Star, the Pi-Star image has been corrupted.

ZUMspot RPi 3.5" LCD kit:

- Board not found in Pi-Star or not working in a particular mode.
 - Go to *Configuration -> Modem* and make sure that "ZUMspot RPi GPIO" has been selected.
 - Reflash firmware
 - Go to Configuration -> Expert -> SSH
 - Login
 - Run following command: sudo pistar-zumspotflash rpi
 - Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.
 - Test Tx and Rx with the normal 433MHz frequency. If Tx and Rx work then any issues being experienced are due to a configuration problem or the Pi-Star image has been corrupted
- 3.5" LCD screen not showing any user info or just displaying "Initializing"
 - Does the green LED on the Pi board flash after power is applied?
 - If not then it is likely a SD card image problem try to reflash the card with a new image from pistar.uk
 - Do all the LEDs on the top of the ZUMspot board flash twice after power is applied?
 - If not it is likely a power supply problem try to use a different power supply
 - Verify *Nextion* display has been selected
 - Go to Configuration
 - MMDVM Display Type should be set to Nextion
 - Port should be set to *modem*
 - Nextion Layout should be set to ON7LDS L3
 - NOTE: There is a known issue in Pi-Star that the IP address sometimes does not show up when connected via Ethernet



ZUMspot Dual Band:

- Board not found in Pi-Star or not working in a particular mode.
 - Go to Configuration -> Modem and make sure that "ZUMspot Dual Band Raspberry Pi Hat (GPIO)" has been selected.
 - If you can't find "ZUMspot Dual Band Raspberry Pi Hat (GPIO)" under the Modem list then you will need to reload the ZUMspot Dual Band Pi-Star image onto the SD card.
 - Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.
 - Test Tx and Rx with a UHF frequency and a VHF frequency. If both work then any issues being experienced are due to a configuration problem or the Pi-Star image has been corrupted
- If the board has OLED issues go to the **OLED Display** section



ZUMspot Duplex:

- Board not found in Pi-Star or not working in a particular mode.
 - Go to Configuration -> Modem and make sure that "ZUMspot Duplex Raspberry Pi Hat (GPIO)" has been selected.
 - If you can't find "ZUMspot Duplex Raspberry Pi Hat (GPIO)" under the Modem list then you will need to reload the ZUMspot Duplex Pi-Star image onto the SD card.
 - Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.
 - Test Tx and Rx with the normal 433MHz frequency. If Tx and Rx work then any issues being experienced are due to a configuration problem or the Pi-Star image has been corrupted
- If the board has OLED issues go to the **OLED Display** section

MMDVM-Pi:

- 1. Board not found in Pi-Star or not working in a particular mode
 - a. Go to *Configuration -> Modem* and make sure that "ZUM Radio-MMDVM for Pi (GPIO)" has been selected.
 - b. Reflash firmware
 - i. Follow instructions in the MMDVM-Pi Configuration Guide: <u>https://www.hamradio.com/images_managed/misc/H0-016486_MMDVM-Pi_Configuration.pdf</u>
 - c. Test using MMDVMCal. More information is found under the **Using MMDVMCal** section.



ZUM AMBE Server:

Troubleshooting the AMBE Server board is easier when using it with a 1.3" OLED

- 2. Device is not working with a Wi-Fi/Ethernet connection
 - a. Remove SD card from AMBE board, and connect AMBE board via USB cable to a computer.
 - i. Go to "Device Manager" to obtain the COM port number of the ZUM AMBE server.
 - ii. Open BlueDV and change settings in order to use the COM port of the ZUM AMBE server.
 - 1. NOTE: Make sure checkbox next to "Use AMBEServer" is unchecked
 - iii. Exit settings
 - iv. Turn ON *Serial* and then turn ON D-Star or DMR and connect to a reflector/talk group with activity on it.
 - v. If the audio starts coming through the speakers then the problem is a configuration issue.
 - Go to <u>http://ambeboard.zumradio.com/configurator/</u> to download a new configuration file
 - i. NOTE: When connecting via Wi-Fi or Ethernet it is easier to select a *Static* IP address so that there is no confusion as to what the IP address will be. Make sure to use an IP address with a high number (EX:192.168.1.80) so that it won't clash with any currently connected devices.
- 3. Device is not working under Wi-Fi
 - a. Double check the zum.ini file loaded onto the SD card.
 - i. Verify that *wifi=1*
 - ii. Double check the Wi-Fi SSID is correct in the *ssid*= section
 - iii. Double check the Wi-Fi password is correct int the *ssidpassword*= section

Bluetooth Boards:

- 1. BlueDV can't connect to ZUMspot after Bluetooth pairing.
 - a. Connect ZUMspot to known good working Pi-Star setup. Then follow the steps in *ZUMspot RPi* section.
 - b. If the ZUMspot board works under Pi-Star but not on the ZUM Bluetooth board, then an RMA should be requested for the ZUM Bluetooth board.

Using MMDVMCal

NOTE: MMDVMCal will test Tx/Rx on ZUMspot boards and the MMDVM-Pi boards. The ZUM AMBE Server board is not supported.

- 1. Turn on a radio and set it to 433.000 MHz and set it to analog mode.
 - a. If you want to test VHF (for ZUMspot Dual Band only) try using 145.615MHZ
- 2. Boot up pi-star
- 3. Go to Configuration -> Expert -> SSH Access
- 4. Login to pi-star
- 5. Type in the following command: sudo pistar-mmdvmcal

	Pi-Star:3.4.16 / Dashboard:20190205
	Pi-Star Digital Voice - Expert Editors
	Dashboard Admin Update Upgrade Backup/Restore Configuration
E.U.E.dia	uick Edit: DStarRepeater ircDDBGateway TimeServer MMDVMHost DMR GW YSF GW P25 GW NXDN GW
Full Euro	
	SSH - Pi-Star
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
T	Increase deviation
t	Decrease deviation
P	Increase RF power
р	Decrease RF power
C/c	Carrier Only Mode
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 lest Mode (FEC) for YSF
]]	BER lest Mode (FEC) for P25
n	BER lest Mode (FEC) for NXDN
S/s	RSSI Mode
1/1	Interrupt Counter Mode
V/V	Display version of MMDVMCal
<space></space>	Toggte transmit

- 6. You will see this menu
- 7. Press the spacebar on your keyboard to do the transmit test
- 8. The red PTT LED should turn on. You should hear a tone on the radio. This shows that the transmit function of the board is working
- 9. Press the spacebar to stop the transmit test.
- 10. Press the "s" key on your keyboard for the RSSI test (RX test)
 - a. RSSI test will not work on MMDVM-Pi board
- 11. Press the PTT button on the radio.



12. You should see the RSSI drop to around 47-48. This shows that the receive function of the board is working.

Pi-Star:3.4.16 / Dashboard:20190205
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
SSH - Pi-Star
K/kBER Test Mode (FEC) for D-StarbBER Test Mode (FEC) for DMR Simplex (CC1)BBER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)JBER Test Mode (FEC) for YSFjBER Test Mode (FEC) for P25
n BER Test Mode (FEC) for NXDN S/s RSSI Mode I/i Interrupt Counter Mode V/v Display version of MMDVMCal <space> Toggle transmit</space>
Set transmitter ON Set transmitter OFF RSSI Mode RSSI: max: 101, min: 95, ave: 97 RSSI: max: 106, min: 90, ave: 99 RSSI: max: 112, min: 96, ave: 101 RSSI: max: 106, min: 47, ave: 56 RSSI: max: 47, min: 47, ave: 47
RSSI: max: 106, min: 47, ave: 56 RSSI: max: 47, min: 47, ave: 47 RSSI: max: 47, min: 47, ave: 47

13. Press the "q" key on your keyboard to exit out of MMDVMCal.

OLED Display

1. If you see **lines in the display**, then the OLED glass is broken. The image on the left has broken glass while the image on the right is working correctly.





Here is a close up example of broken glass:



1. If you see many dots on the display, then the settings in PiStar have not been configured correctly. Follow the directions below to correct the setup.



- 2. If the display comes up **blank**:
 - *a.* The settings in Pi-Star may have been configured incorrectly. Follow the directions below to correct the setup.
 - b. Make sure correct ZUMspot modem was selected under Configuration -> Modem



Configure OLED:

On the "Configuration" screen of Pi-Star, set the "MMDVM Display Type" to "OLED". Make sure the "Radio/Modem Type" is set to "ZumSpot – Raspberry Pi Hat (GPIO)". Next, click "Apply Changes".

KI6ZUM - Digital Voice	e Dashboari 🗙 🕂						-	
→ C ① No	ot secure pi-star/admin/configure.p	hp				☆	New	
				Pl-Star: 3	.4.13 / Dashboard: 20180522			
		Pi-Star Di	gital Voice - Co	nfiguration				
			Dashboard Admin Expert	Power Update Backup/Res	store Factory Reset			
			Gateway Hardware Informatio	n				
	Hostname	Kernel	Platform Di Zana N Day 1 1 (512MB)	CPU Load	CPU Temp			
	pi-star	4.9.35+	P1 2000 W REV 1.1 (51200)	0.02 / 0.19 / 0.15	55.2°C / 95.4°F			
			Control Software					
	Controller Software:	Opena	Va	Lue				
	Controller Mode:	Simplex Nor	te Opunley Receiter (or Half-F	Junley on Hotsoots)				
		- Simplex nor	Apply Changes	suprex on nocepocey				
	Setting		MMDVMHost Configuration	lue				
	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:							
	MMDVM Display Type:	OLED 🔻	Airt: Hockingram to - hex ion	Layout: G4KLX 🔻				
			Apply Changes					
			General Configuration					
	Setting		Va	lue				
	Hostname:	pi-star	Do not add suffixes such a	s .local				
	Node Callsign:	KI6ZUM						
	Radio Frequency:	434.600.000	MHz					
	Latitude:	50.00	degrees (positive value fo	r North, negative for South)				
	Longitude:	-3.00	degrees (positive value fo	r East, negative for West)				
	Town:	Town, L0C4T0	R					
	Country:	Country						
	URL:	http://www.mw	0mwz.co.uk/pi-star/	O Auto 🔍 Ma	inual			
	Radio/Modem Type:	Europet Ta	apicenty Titlian (OFTO)					
	Node Type:	• Private C	Public					
	System Time Zone:	Amorica/Loc	Angolas T					

Next, select "Expert"

(1) KI6ZUM - Digital Voice Dashboar X	< +							-		×
← → C ① Not secure p	oi-star/admin/configure.php						☆		θ	:
	Pi-	Star Digit	al Voice	- Conf	P-Sar:34.1	3 / Dashboerd: 20180522				-
			Dashboard Admi	Expert	ower Update Backup/Resto	re Factory Reset				
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	Hostname Ker	el l	Platform	E12MP)	CPU Load	CPU Temp				
L	p1-500 4.5.	,	1 2010 W NOV 1.1 (512/10/	0.02 / 0.19 / 0.19	7.2 C 7 53.4 1				
_	Catalon		Control Softwa	re						
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Co	ontroller Mode:	Simplex Node	Duplex Repeater (or Half-Dup	lex on Hotspots)					
		,	Apply Change	3	/					
			MDVMHost Config	uration						
	Setting	P	movemost Config	Value	•					
DM	IR Mode:		RF Hangtime:	20	Net Hangtime: 20					
D-	-Star Mode:		RF Hangtime:	20	Net Hangtime: 20					
YS	SF Mode:		RF Hangtime:	20	Net Hangtime: 20					
P2	25 Mode:		RF Hangtime:	20	Net Hangtime: 20					
NX	KDN Mode:		RF Hangtime:	20	Net Hangtime: 20					
YS	SF2DMR:									
YS	SF2NXDN:									
YS	SF2P25:									
100	MDVM Display Type:	OLED V Port	: /dev/ttyAMA0 🔻	Nextion Lay	rout: G4KLX 🔻					
			Apply Changes	5						
			General Configur	ation						
	Setting		3	Value	2					
Ho	ostname:	pi-star	Do not add suffixe	s such as .	local					
No	ode Callsign:	KI6ZUM								
Ra	adio Frequency:	434.600.000	MHz							
La	atitude:	50.00	degrees (positive	value for N	lorth, negative for South)					
Lo	ongitude:	-3.00	degrees (positive	value for E	ast, negative for West)					
То	own :	Town, L0C4T0R								
Co	ountry:	Country								
UR	RL:	http://www.mw0mwz	z.co.uk/pi-star/		🔿 Auto 🔍 Manu	al				
Ra	adio/Modem Type:	ZumSpot - Raspber	rry Pi Hat (GPIO)		•					
No	ode Type:	• Private O Publ	ic							
Sy	/stem Time Zone:	America/Los_Ange	les 🔻							Ŧ

Next, select "MMDVMHost"

→ C (i) Not secure pi-star/a	dmin/expert/	4	•	A	
y O O Not secure pr starys	unnivexpery	А	New	0	
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	Pi-Star Digital Voice - Expert Editors				
	Quick Editors: DStarRepeater incDDBGateway TimeSen r MMDVMHost D RGateway YSFGateway P25Gateway Full Editors: DMRGateway P35Gateway				
	Expert Editors				
	WARNING				
	Pi-Star Expert editors have been created to make editing some of the extra settings in the conrig 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 mainteined by the dashboard.				
	With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.				
	P Sar / Except Instantiant, B / Ani/ Trake (INPROVID) 2014-2018. P Sar / Except Instantiant, B / Ani/ P Sar / Sa / Sar /				

Scroll to the bottom of the page to the "OLED" section.

For 0.96" OLED screen, select "Type" "3". Next, click on "Apply Changes".

- > C (i) Not secure	pi-star/admin/expert/edit_mmdvmhos	t.php		\$	<u>^</u>	Θ	,
	·	Apply Chan	ges	-	Lieu I		
		HD44786					
	Rows	2					
	Columns	16					
	Pins	11,10,0,1,2,3					
	I2CAddress	0x20					
	PWM	0					
	PWMPin	21					
	PWMBright	100					
	PMMDim	16					
	DisplayClock	1					
	UTC	0					
		Apply Chan	iges				
		Nextion	1	•			
	Port	/dev/ttyAMA0					
	Brightness	50		-			
	DisplayClock	1		-			
	UTC	0		-			
	ScreenLayout	0		-			
	IdleBrightness	20		J			
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	Port	13666					
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	υτο	0					
		Apply Chan	iges	-			
		Pi-Star / Pi-Star Dashboard, © Andy Ti ircDDBGateway Dashboard by Hi MMDVMDash developed by Ki Need bala? Click boos for t	aylor (MW0MWZ) 2014-2018. ans-J. Barthen (DLSDI), m Huebel (DG9VH),				

For 1.3" OLED screen, select "Type" "6". Next, click on "Apply Changes"

→ C ① Not secure pi-star/a	admin/expert/edit_mmdvmhost	php	\$	New	0	-
		Apply Changes				
		HD44780				
	Rows					
	Columns	6				
	Pins	1,10,0,1,2,3				
	I2CAddress	x20				
	PWM					
	PWMPin	1				
	PWMBright	00				
	PWMDim	6				
	DisplayClock					
	UTC					
		Apply Changes				
		Nextion				
	Port	lev/ttyAMA0				
	Brightness	0				
	DisplayClock					
	UTC					
	ScreenLayout					
	IdleBrightness					
		Apply Changes				
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		L Changes				
	Address	calhost				
	Port	3666				
	DimOnIdle					
	DisplayClock					
	UTC					
		Apply Changes				

Scroll back up to the top of the page and select "Configuration".

Pi-Star - Digital Voice Dashboard 🗙	+				-		×
← → C ③ Not secure pi-	-star/admin/expert/edit_mmdvmhos	t.php		☆	New	Θ	:
	Pi-Sta	r Digital Voic	P45ar:14.13 / Dwebowed:20130532 e - Expert Editors Dashboard Admin Update Backup/Restore Configuration				-
	Quick Editors: DStarRepeat Full Editors: DMRGatewa	ter ircDDBGateway TimeS y PiStar-Remote WiFi Cor	ierver MMDVMHost DMRGateway YSFGateway P25Gateway nfig BM API Key System Cron RSSI Dat Tools: SSH Access				
		Genera	al				
	Callsign	KI6ZUM					
	Id	1234567					
	Timeout	240					
	Duplex	0					
	RFModeHang	300					
	NetModeHang	300					
	Display	OLED					
	Daemon	1					
		Apply Cha	inges				
		Info					
	RXFrequency	434600000					
	TXFrequency	434600000					
	Power	1					
	Latitude	50.00					
	Longitude	-3.00					
	Height	0					
	Location	Town, L0C4T0R					
	Description	Country					
	URL	http://www.mw0mwz.co.uk/pi					
		Apply Cha	inges				
		Log					
	DisplayLevel	0					
	FileLevel	2					
	FilePath	/var/log/pi-star					
	FileRoot	MMDVM					
		Apply Cha	inges				
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Next, select "Power"

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What secure pi-star/admin/config	ure.pnp				ਪ	New
			PI-Star:	3.4.13 / Dashboard: 20180522		
	Di-Star I	Digital Voice - Cor	figuration			
	PI-Stall I					
		Dashboard Admin Expe	Power U date Backup/Re	estore Factory Reset		
		Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp		
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.02 / 0.19 / 0.15	35.2°C / 95.4°F		
		Control Software				
Setting		Va	lue			
Controller Software:	O DStarRe	peater 🖲 MMDVMHost (DV-Mega Minimu	m Firmware 3.07 Required)			
Controller Mode:	Simplex	Node ODuplex Repeater (or Half-D	uplex on Hotspots)			
		Apply Changes				
		MMDVMHost Configuration				
Setting		Val	ue			
DMR Mode:		RF Hangtime: 20	Net Hangtime: 20			
D-Star Mode:		RF Hangtime: 20	Net Hangtime: 20			
YSF Mode:		RF Hangtime: 20	Net Hangtime: 20			
P25 Mode:		RF Hangtime: 20	Net Hangtime: 20			
NXDN Mode:		RF Hangtime: 20	Net Hangtime: 20			
YSF2DMR:						
YSF2NXDN:						
YSF2P25:						
MMDVM Display Type:	OLED	▼ Port: /dev/ttyAMA0 ▼ Nextion L	ayout: G4KLX 🔻			
		Apply Changes				
		General Configuration				
Setting		Val	ue			
Hostname:	pi-star	Do not add suffixes such as	.local			
Node Callsign:	KI6ZUM					
Radio Frequency:	434.600.00	0 MHz				
Latitude:	50.00	degrees (positive value for	North, negative for South)		
Longitude:	-3.00	degrees (positive value for	East, negative for West)			
Town:	Town, LOC	4TOR				
Country:	Country					
URL:	http://www.	mw0mwz.co.uk/pi-star/	O Auto 🔍 M	anual		
Radio/Modem Type:	ZumSpot -	Raspberry Pi Hat (GPIO)	•			
Node Type:	Private	O Public				
System Time Zone:	America/L	os Angeles 🔹				

Next, select "Reboot"



OLED/Shim Kit:

- 2. Lines on the display.
 - a. See section for OLED display on ZUMspot RPi
- 3. Dots on the display:
 - a. See section for OLED display on ZUMspot RPi
- 4. If the display comes up **blank**:
 - *a.* The settings in Pi-Star have been configured incorrectly. Follow steps for "dots on the display"
 - b. A wire has come loose on the back of the OLED or on the shim board

Customer Support

There are a number of ways for customers to get support in addition to HRO staff:

MMDVM Yahoo group: https://groups.yahoo.com/neo/groups/mmdvm/info

ZUM Radio Facebook page: https://www.facebook.com/groups/249802742395450/

PiStar support forum: <u>https://forum.pistar.uk/</u>

PiStar Facebook page: <u>https://www.facebook.com/groups/pistarusergroup/</u>

Hardware support email: support@zumradio.com