**DVMEGA Raspberry PI Radio** 

## Installation manual

The DVMEGA RPI radio is a modem that fits direct onto the Raspberry PI GPIO connector.

## A. Mounting the DVMEGA RPI radio onto the Raspberry PI.

Step 1.

Place spacer on bottom of PCB. Place the 2 washers between spacer and PCB.





Step 2.

Place DVMEGA board on Raspberry Pl.



Step 3.

Raspberry B+ and later models do not have the hole to fix the DVMEGA on the Raspberry PCB, the spacer has to be fixed with some glue on the Raspberry PCB.



#### B. Enable serial port.

Next SD Card images have enabled the serialport by default. For these images you can skip Chapter B.

3Star (Dutch) : http://wiki.nlreflector.nl/index.php?title=Kzu-distributie Western D-Star : http://www.westerndstar.co.uk/html/downloads.html VK4TUX : dvrptr.net/vk4tux/od\_vk4tux\_images/RPI2/tux\_RPI2\_KDE\_FC21\_ultix.img.zip Maryland : http://maryland-dstar.org/html/raspiberry.html

If your image is not in the above list you have to enable the serial port for your own use first. There are two files that need to be modified.

- First, disable the boot up and diagnostic output to the serial port.

#### sudo nano /boot/cmdline.txt

- and remove the two options referring to the serial port.

So, this: dwc\_otg.lpm\_enable=0 console=ttyAMA0,115200 kgdboc=ttyAMA0,115200 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 elevator=deadline rootwait becomes this: dwc\_otg.lpm\_enable=0 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 elevator=deadline rootwait

- Press CTRL "X"
- Press "Y"
- Press enter
- Second, disable the login prompt.

sudo nano /etc/inittab

- find the line near the end.

T0:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100

- and delete it or comment it out by putting a # at the start of the line. #T0:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100

- Press CTRL "X"
- Press "Y"
- Press enter

- Reboot Raspberry and the serial port will now be free for your exclusive use.

#### C. Setting Ircddbgateway and D-Star repeater package

#### Download Ircddbgateway and D-Star repeater image

Software packages are available as an SD card image for Raspberry PI. These are available from next locations :

3Star (Dutch) : http://wiki.nlreflector.nl/index.php?title=Kzu-distributie Western D-Star : http://www.westerndstar.co.uk/html/downloads.html VK4TUX : dvrptr.net/vk4tux/od\_vk4tux\_images/RPI2/tux\_RPI2\_KDE\_FC21\_ultix.img.zip Maryland : http://maryland-dstar.org/html/raspiberry.html

Use always the latest version and check documentation of particular image for how to update to latest version.

#### Configuration D-Star repeater software..

For proper operation, at least the Callsign and Modem Tab has to be set. The other settings can be done as desired.

📃 🛛 D-Star Re	peater - modem1 - 20150213 🛛 🗖 💌	
File Help		
< Callsign Net	work Timers Announcement Beacon	
Callsign PE1PLM B >		
Gateway	PE1PLM G	
Mode	Simple ≎	
Ack	BER	
Restrict	Off 😂	
RPT1 Validation	On 🗢	
DTMF Blanking	On 🗢	
Error Reply	On 🗢	

 Callsign and module (B) must be identical in D-Star repeater and ircDDBGateway.
Module character depends on the frequency band in use.

- RPT1 Validation must be On.

D-Star Repeater - modem1 - 20150213 - • *	- Select DVMEGA as modem.
Network Timers Announcement Beacon Modem >	- Click the Configure button.
Type DVMEGA	
Configure	

	DVMEGA Settings
Port	/dev/ttyAMA0
Variant	Radio - 2m + 70( \$
TX Inversion	Off 🔷
RX Inversion	Off 🔷
Frequency (Hz)	431000000
TX Delay (ms)	150
Power (%)	100
	<u>●</u> <u>C</u> ancel

- Select comport AMA0. This is the comport available on the GPIO connector.
- Set Variant to Radio 2m + 70cm.
- Set desired frequency, in the 2m or 70cm band. In case of a Singleband Radio 2m frequencies will be accepted but will not work since it is a UHF Radio only.
- Set TX delay to approx. 150 ms.
- Make sure that you save the changes before you close the configurationwindow. FILE -> SAVE -> click OK.
- Detailed information related to the other settings can be found at : https://groups.yahoo.com/neo/groups/pcrepeatercontroller/files/Documentation/

## Configuration ircDDBGateway software.

For proper operation, at least next tabs has to be set. The other settings can be done as desired.

💼 ircDDB Gateway - 20150213 🛛 🗖 💌		
File Help		- At least Type and Callsign have to be set.
Gateway Repeater 1 Repeater 1 >		
Type Hotspot 😂		
Callsign	PE1PLM G	
Gateway Address		
Local Icom Address	172.16.0.20	
Local Icom Port	20000	
Local HB Address	127.0.0.1	
Local HB Port	20010	
Latitude	0.000000	
Longitude	0.000000	
QTH		
URL		

💼 ircDDB Gateway - 20150213 💶 💌 🗙		
File Help		
< Gatewa	y Repeater 1	Repeater 1 >
Band	B 🗘	
Туре	Homebrew	•
Address	127.0.0.1	
Port	20011	
Bands	0 0 0	
Reflector	DCS007	
Startup	Yes	
Reconnect	Never	•

- Band must be set to the same modules as set in the D-Star repeater software.

🔲 ircDDB Gateway - 20150213 🛛 🗖 🛪		
File Help		
< Repeater 4 ircDDB	D-PRS >	
D-PRS Enabled	\$	
Hostname rotate.aprs2.net		
Port 14580		

- Enable D-PRS when you like to pass GPS data to www.aprs.fi

💼 ircDDB Gateway - 20150213 💶 💌		
File Help		
< ircDDB D-PR	S DExtra D-Plus >	
D-Plus Ena	abled 🗢	
Max. Dongles 5	\$	
Login PE1	PLM	

- Enable D-Plus when you make use of REFXXX reflectors.
- Portforewarding of some ports i needed for propper functionality. You can find detailed info on : http://www.k6jm.com/portforwarding.htm

- Make sure that you save the changes before you close the configurationwindow. FILE -> SAVE -> click OK.
- Detailed information related to the other settings can be found at : https://groups.yahoo.com/neo/groups/ircDDBGateway/files
- Reboot the Raspberry.
- The hotspot is now ready to use.

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