

Rugged Radios

Summer 2016

Hugh Dougherty, hughd@mit.edu
Carter Fendley, carter.fendley@gmail.com
Department of Mechanical Engineering, CSAIL
MIT, Cambridge MA 02139

1	Programming a Rugged Radio	1
1.1	Installing CHIRP	1
1.2	Installing Needed Drivers	1
1.3	Programming	1
2	Radio Operation	3
2.1	Basic operation	3
2.2	Changing Channels	4

1 Programming a Rugged Radio

Programming is used in order to have preset channels and set for ease of use for all users.

1.1 Installing CHIRP

Download and install KK7DS Python runtime from:

http://www.d-rats.com/download/OSX_Runtime/KK7DS_Python_Runtime_R10.pkg

Download the CHIRP radio programmer from:

<http://chirp.danplanet.com/projects/chirp/wiki/Download>

1.2 Installing Needed Drivers

1. Navigate to: <http://www.prolific.com.tw/US/CustomerLogin.aspx>
2. Login (Username: GUEST, Password: GUEST)
3. Select the link titled "Click here for PL2303 USB to Serial Drivers"
4. Download and install the latest "Mac OS X Universal Binary Driver"

1.3 Programming

Cloning exiting settings:

Plug the programming cable into your and the radio that you wish to program. Make sure that the plugged into the radio all the way.

Launch the CHIRP application. Select "Radio -> Download From Radio" and configure to look like the picture below

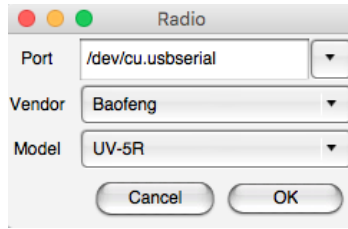


Figure 1: The correct settings for a RH-5R radio

Click okay and follow the instructions given by the prompts that pop up. Once the settings have been cloned you can proceed to edit the configurations however you like.

Editing

Below is what the PavLab currently uses for presets on all radios.

Memory Range: <input type="text" value="0"/> - <input type="text" value="127"/>		Refresh	Special Channels	Show Empty	Properties			
Loc	Frequency	Name	Tone Mode	Tone	ToneSql	DTCS Code	DTCS Rx Code	DTX
0	0.000000		(None)					
1	462.562500	FRS1	(None)					
2	462.587500	FRS2	(None)					
3	462.612500	FRS3	(None)					
4	462.637500	FRS4	(None)					
5	462.662500	FRS5	(None)					
6	462.687500	FRS6	(None)					
7	462.712500	FRS7	(None)					
8	467.562500	FRS8	(None)					
9	467.587500	FRS9	(None)					
10	467.612500	FRS10	(None)					
11	467.637500	FRS11	(None)					
12	467.662500	FRS12	(None)					
13	467.687500	FRS13	(None)					
14	467.712500	FRS14	(None)					
15	156.475000	SEA 69	(None)					
16	156.675000	SEA 73	(None)					
17	0.000000		(None)					
18	0.000000		(None)					
19	0.000000		(None)					
20	0.000000		(None)					
21	0.000000		(None)					
22	0.000000		(None)					

Figure 2: The correct settings for a RH-5R radio

Uploading

After you are done editing the settings you can simply select "Radio -> Upload To Radio" in order to put the new configured settings on to the radio.

2 Radio Operation

2.1 Basic operation

Turning the radio on

In order to turn on the radio you turn the nob on the top of the radio clockwise until you feel a click. This same nob can be turned further to adjust the volume.



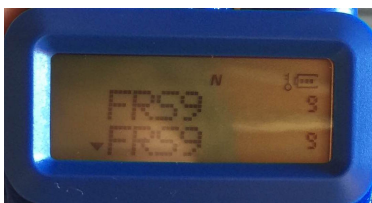
Talking on the radio

To transmit on the radio you need to push the push to talk or "PTT" button on the left side of the radio. If you are having issues with being heard on the radio, it might be a good idea to hold down the PTT button for about 1 second before and after you talk.

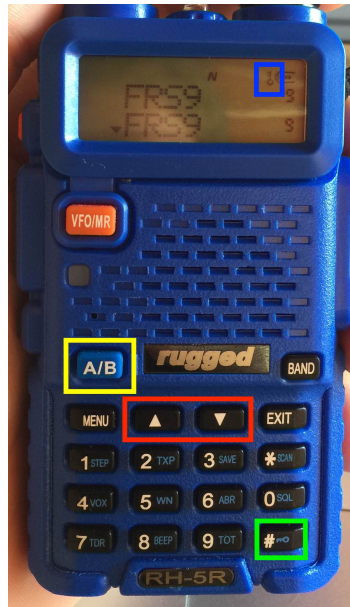


2.2 Changing Channels

Once you turn on the radio you should see a screen similar to the one below



In order to switch channels you must first unlock the keypad by holding down the lock button (*shown in green*). Once the lock icon (*shown in blue*) disappears from the screen you are ready to change the channel. Select the frequency you wish to change by pushing the "A/B" button (*shown in yellow*). After you have selected the frequency you wish to change you can switch between preset by pushing the up and down buttons (*shown in red*).



In the picture above you can see that the radio has two "FRS9" channels. These channels do not have to be the same in order for the radio to operate. You can set one to "FRS9" and one to "SEA 69", for example, and then switch between the two on the fly with the "A/B" button on the radio.