

RFinder[®]

PROFESSIONAL DIGITAL TWO-WAY RADIO

DMRoIP
RFinder Radio over IP

**ADVANCED
USER GUIDE**

V.68



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FOREWORD

Thank you for purchasing the **RFinder**[®] radio.

The **RFinder** VHF/UHF transceiver was designed and built with RFinder's custom Android Operating System and internal craftsmanship combining traditional analog RF technologies with new Digital Radio technology for a balanced design and optimum usage.

With proper care, the **RFinder** should provide you with years of enjoyment.

We thank you for making the **RFinder** your personal radio. Your purchase today helps fund the development efforts of tomorrow. The voice of everyone is important to our design and development efforts. Please feel comfortable to reach out to us with your feedback and ideas. Thank you!



WARNING!

DO NOT over tighten the antenna!

DO NOT use a solid barrel connector for the antenna connection!

DO NOT pry the battery clip off the battery! Squeeze the battery when releasing the clip!

DO NOT transmit in any mode without an antenna!

DO NOT set a SIM lock on your device!

DO NOT login to a preowned radio without following the steps to remove the device from the previous owner's account!



**If any of these things are done to your radio, warranty for your radio will be voided.
Out of Warranty Repair costs will range between \$250 - \$500.**

IMPORTANT INFORMATION

DANGER! Never short the battery pack terminals.

DANGER! Do not use third party battery packs. Use only the tested and approved batteries with your **RFinder B1/B1+** radio.

WARNING! The **RFinder** radios emits RF energy. Caution should always be exercised when using an RF emitting device.

WARNING! Ensure that no part of the antenna is touching an exposed part of your body while transmitting. Testing shows the **RFinder** radios will best perform if the microphone is roughly 2-4 inches way from your mouth and the radio is held in a vertical position.

WARNING! Do not insert the **RFinder B1/B1+** radio into the charging cradle while wet.

DO NOT push the PTT unless you intend on transmitting on the currently programmed frequency.

DO NOT operate any **RFinder** radio near unshielded electrical blasting caps or an explosive area.

DO NOT charge the battery outside the temperature range of 32°F to 104°F.

DO NOT push the PTT unless an antenna is firmly connected to the device.

DO NOT use an SD Flash formatted as internal... your updates will not work. We suggest NOT using an SD Card as there is ample memory in these devices for most situations.

RFinder Radio

FEATURES

RFinder

1. Android Platform (**Android 8 for B1 and P2; Android 9 for B1+, P7, and P10**)
2. Open Application system with Google Play Preinstalled
3. Full Multimedia Capabilities
4. Fast setup with Continuous Updates for lifetime of device.
5. 4G LTE
6. DMR/RF Radio
7. PTT Key + POC Key
8. 4 Inch Screen (**B1/B1+**), 10 Inch Screen (**P10**), 7 Inch Screen (**P2/P7**)
9. Camera: 5 MP Front, 13 MP Rear
10. 802.11 B/G/N Wireless Connectivity
11. 2 Watt Front Speaker
12. NFC 13.56 MHZ
13. IP67: Waterproof/Dustproof/Shockproof

SPECIFICATIONS

Connectivity

4G LTE Bands	B1/B2/B3/B4/B5/B7/B8/ B17/B20/B38/B39/B40/B41
Mobile Networks	UMTS/EDGE/GPRS Class 12/HSPA+/LTE Cat 4/EV- DO Rev A/TD-SCDMA/TD- HSDPA
Device Class	4

Radio

Frequency Bands	136-174, 400-490
RF Output Power	4 Watts (High) 2 Watts (Low)
Emmission Type	FM, DMR
Operations	Digital and Analog Conventional
Channel Spacing	12.5, 25 kHz
Frequency Stability	± 0.5 ppm
Spurious Rejection	70 dB

Bluetooth

Version	4.0
Range	Class 1.5, 33ft (10m)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Sim Cards

Card Type	Nano-SIM
Number of Sim Cards	2

Audio

Audio Output	Maximum 2 Watts
--------------	-----------------

Wi-Fi

Standards	802.11 a/b/g/n
Frequency Range	2.4 GHz

RFINDER B1

Hardware

Main Display	4 in. Color display, 640x1136 pixels, Resistant to false actuations
Memory	64GB Internal Storage 4GB RAM
SD Card	Supports up to 128GB
Camera	Front: 5 MP Rear: 13 MP

Ruggedness

Ingress Protection	IP67
Proofing	Waterproof Dustproof Shockproof

Physical

Size	5.83inx2.52inx1.9in
Weight	0.95 lbs

Environmental

Recommended Operating Temperature	-20 to +60°C (-4 to +140°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Packaging Test	Per MIL-STD 810

Battery

Capacity	2500/19WH mAh Li-ion
Power Supply	7.6 V (Nominal)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Software

Operating System	Android OS
------------------	------------

RFINDER B1+

Hardware

Main Display	4 in. Color display, 640x1136 pixels, Resistant to false actuations
Memory	64 GB Internal Storage 4GB RAM
SD Card	Supports up to 128GB
Camera	Front: 5 MP Rear: 13 MP

Ruggedness

Ingress Protection	IP67
Proofing	Waterproof Dustproof Shockproof

Physical

Size	5.83inx2.52inx1.9in
Weight	0.95 lbs

Environmental

Recommended Operating Temperature	-20 to +60°C (-4 to +140°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Packaging Test	Per MIL-STD 810

Battery

Capacity	2500/19WH mAh Li-ion
Power Supply	7.6 V (Nominal)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Software

Operating System	Android OS
------------------	------------

RFINDER P2

Hardware

Main Display	7 in. Color display, Resistant to false actuations
Memory	64GB Internal Storage 4GB RAM
SD Card	Supports up to 128GB
Camera	Front: 5 MP Rear: 13 MP

Ruggedness

Ingress Protection	IP67
Proofing	Waterproof Dustproof Shockproof

Physical

Size	9.34in×6.27in×1.14in
Weight	1.91 lbs

Environmental

Recommended Operating Temperature	-20 to +60°C (-4 to +140°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Packaging Test	Per MIL-STD 810

Battery

Capacity	4000 mAh Li-ion
Power Supply	7.6 V (Nominal)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Software

Operating System	Android OS
------------------	------------

RFINDER P7

Hardware

Main Display	7 in. Color display, Resistant to false actuations
Memory	64GB Internal Storage 4GB RAM
SD Card	Supports up to 128GB
Camera	Front: 5 MP Rear: 13 MP

Ruggedness

Ingress Protection	IP67
Proofing	Waterproof Dustproof Shockproof

Physical

Size	9.34in×6.27in×1.14in
Weight	1.91 lbs

Environmental

Recommended Operating Temperature	-20 to +60°C (-4 to +140°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Packaging Test	Per MIL-STD 810

Battery

Capacity	4000 mAh Li-ion
Power Supply	7.6 V (Nominal)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Software

Operating System	Android OS
------------------	------------

RFINDER P10

Hardware

Main Display	10.1 in. Color display, 1200x1920 pixels, Resistant to false actuations
Memory	64GB Internal Storage 4GB RAM
SD Card	Supports up to 128GB
Camera	Front: 5 MP Rear: 13 MP

Ruggedness

Ingress Protection	IP67
Proofing	Waterproof Dustproof Shockproof

Physical

Size	11.69in×7.05in×0.91in
Weight	2.76 lbs

Environmental

Recommended Operating Temperature	-20 to +60°C (-4 to +140°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Packaging Test	Per MIL-STD 810

Battery

Capacity	8400 mAh Li-ion
Power Supply	7.6 V (Nominal)

Location

GPS	GPS/A-GPS/GLONASS/ BeiDou
-----	------------------------------

Software

Operating System	Android OS
------------------	------------

DEFINITIONS

WORD	DEFINITION
DANGER!	Personal death, serious injury or an explosion may occur.
WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

IMPORTANT INFORMATION

READ ALL INSTRUCTIONS carefully and completely before using the **RFinder B1/B1+** radio.

View the **Advanced User Guide** at <https://manual.rfinder.net>
Do not download or print this manual as it changes often. We suggest bookmarking it so you can always get the latest.

SUPPLIED ACCESSORIES RFINDER HANDHELD



Device
B1



Battery
2500mAh@7.6V



PTT antenna



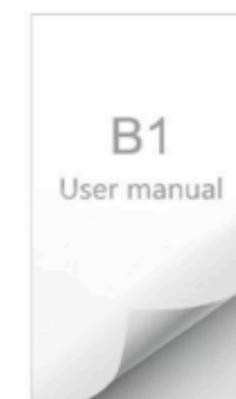
clip



charging dock A



Type-C
USB Cable



User manual

DEFINITIONS

WORD	DEFINITION
DANGER!	Personal death, serious injury or an explosion may occur.
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CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

IMPORTANT INFORMATION

READ ALL INSTRUCTIONS carefully and completely before using the **RFinder P2/P7/P10** radio.

View the **Advanced User Guide** at <https://manual.rfinder.net>
Do not download or print this manual as it changes often. We suggest bookmarking it so you can always get the latest.

SUPPLIED ACCESSORIES

RFINDER TABLETS



P2/P7/P10 Radio



PTT antenna



Speaker mic



Quick Charge Block



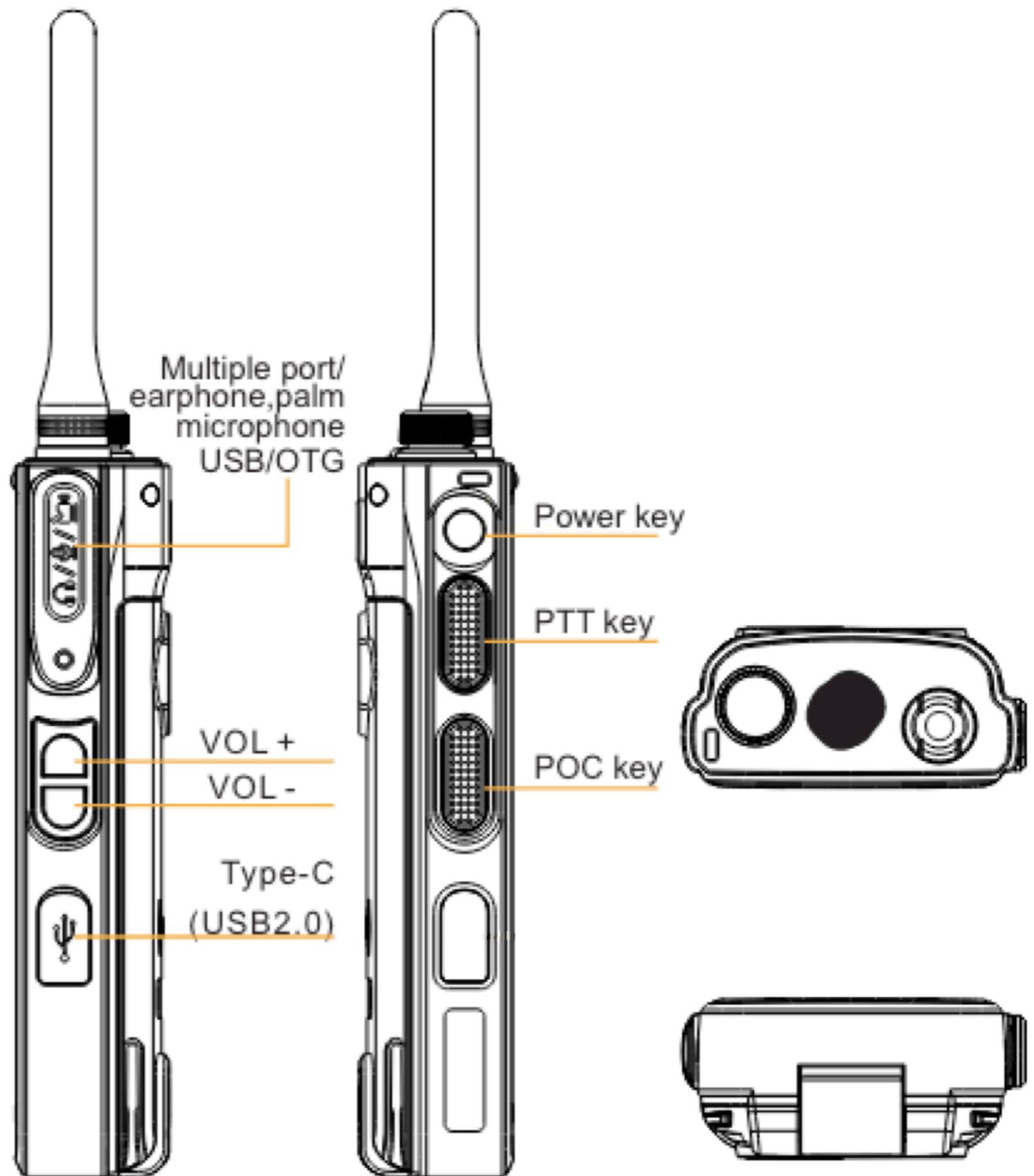
Type-C USB Cable



Dust Cover

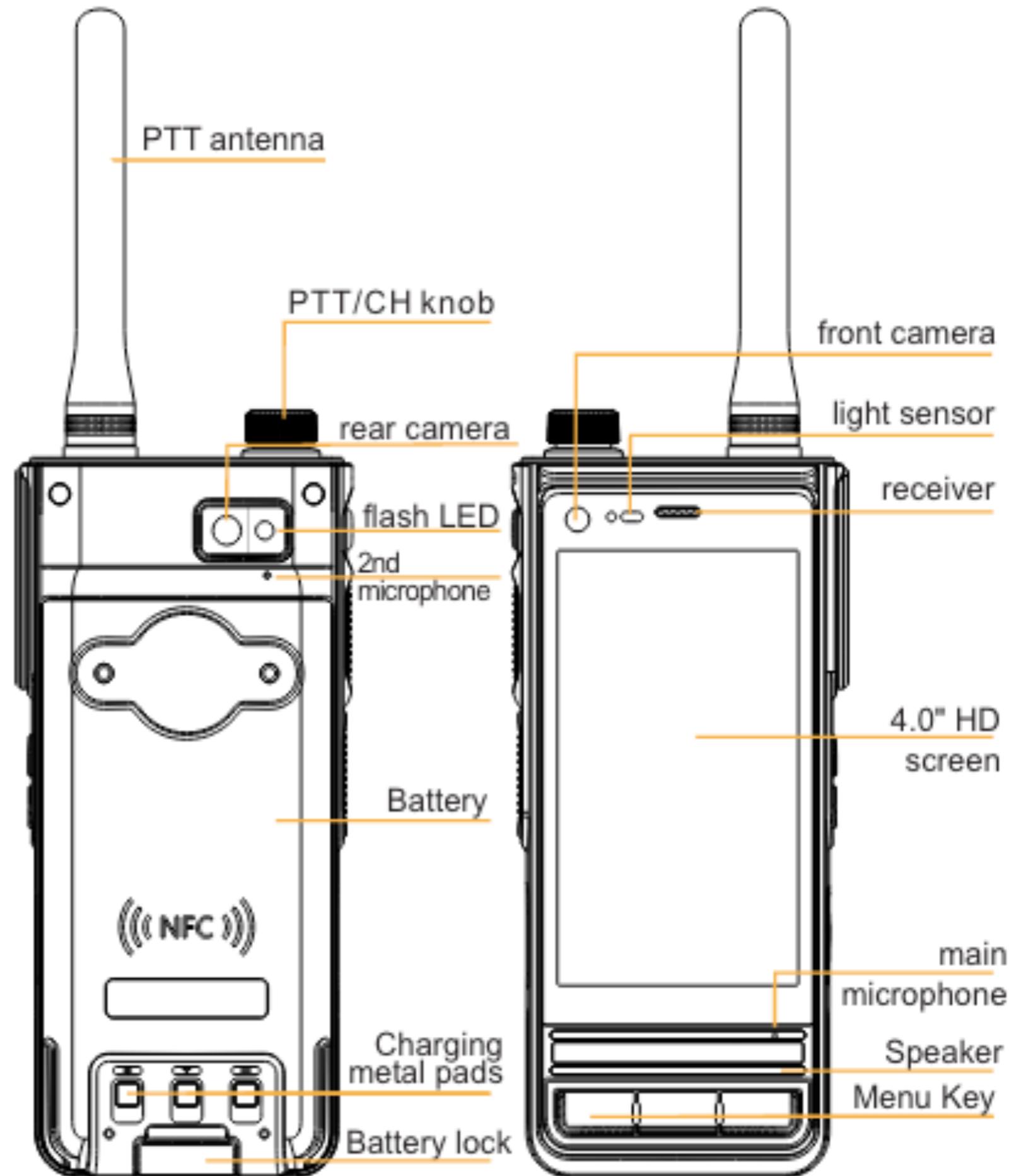
RFinder B1/B1+

CONTROLS



RFinder B1/B1+

CONTROLS



RFinder P2/P7

CONTROLS



RFinder P10

CONTROLS



ATTACHING YOUR BATTERY (B1/B1+)

Before booting up your **RFinder B1/B1+** radio, you must attach your LI-ON battery.

NOTE! It is important to squeeze the battery tightly against the radio while securing and removing the battery latch. Holding the battery tight will make the latch easy to operate.

Step 1: Attach the battery on to the back of the **RFinder B1/B1+** device.



Step 2: Squeeze the battery to the body while securing the latch on the bottom of the device



UNDERSTANDING 2 PTT BUTTONS

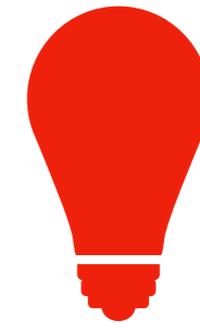
The **RFinder** in its modern engineering design contains two "Push to Talk" buttons for your use with different Android applications.

RFinder Application "Push To Talk" Button. This is your "RF" transmit button.

POC "Push to Talk" Button. This button can be assigned by you to be used as the "Push to Talk" with other applications such as Zello or EchoLink.



LED LIGHT



FM Radio	
No Red Light	Not Transmitting
Steady Red Light	Transmitting

Universal	
Green Light	Receiving RF
Blue Light	Sent by the Android OS for various types of messages and may be solid or flashing

DMR Radio - Split Frequency with Admit Mode On	
Flash Red (1x) then Black	<p>Transmitting on repeater mode but has not been admitted into the repeater.</p> <p><i>Note 1: This can happen for a number of reasons, such as out of range to the repeater, repeater down, repeater not configured for the talk group/timeslot combination, repeater has lost upstream internet access to the network for a non-local TG.</i></p> <p><i>Note 2: If you have been properly admitted on the initial transmission (see note above) and the repeater hang time has not dropped, you will see a solid red light during during DMR transmission.</i></p>
Flash Red (1x) then solid Red	Admitted into the repeater on the current DMR parameters.
Flash Red every second.	Indicates TimeSlot or Talkgroup is busy.

RFinder

Note: When first transmitting on a DMR Talkgroup there is a “handshake” that takes place called **DMR Admit**. This “handshake” requests permission from the DMR server to allow your DMR Radio ID to transmit on the DMR Talkgroup. Once permission is given, it will hold as long as the repeater carrier does not drop (usually 2-3 seconds after transmission). Once the carrier drops, the handshake must be made again.

GETTING STARTED CHECKLIST

To successfully provision your **RFinder** Android radio there are a few steps that must be followed. The next few pages will describe these steps.

- Acquire **DMR Radio ID** from RadiolD.net
- Connect device to **WIFI** or **Cellular Network** for Data
- Download the **RFinder application** from the link install.rfinder.net
- Launch **RFinder** and fill in **Registration Information**
- Select the version of **RFinder** you would like to use
- Allow RFinder to **always run in background**
- Provision your radio with your **DMR Radio ID** using the **Radio Setup** menu, and click **Initialize Radio**
- Setup frequencies for your **hotspot** or **local DMR repeater**
- Configure **DMRoIP** using the **DMRoIP Options** menu.
- Select Brandmeister Server
- Enter Brandmeister "Hotspot Security" password from the Brandmeister SelfCare page
- Return to the RFinder Home Screen
- Click the **DMRoIP Toggle Button** to Connect to DMRoIP

GETTING YOUR ID - SETUP

To use DMR, you must have a DMR Radio ID number. To acquire this number visit <http://radioid.net>
Once on the site, click the Login/Signup and follow the prompts.

The screenshot shows the Radioid.net website interface. A green arrow points to the 'Login/Signup' link in the left-hand navigation menu. The website features a dark blue header with a cookie notice, a navigation menu, and a main content area with sponsored ads and statistics. A green arrow points to the 'Login/Signup' link in the left-hand navigation menu.

Home
FAQ
Support
Database
Generator
Rptr Map
Login/Signup

Sponsored Ads

- Read This Before You Order A DMR Radio **CLICK HERE**
- RFinder** No Code Plug DMR!

Today:

- 21 New Accounts
- 50 New DMR ID's
- 2 New NXDN ID's
- 0 New Repeaters ID's

Last 7 days:

- 500 New Accounts
- 562 New DMR ID's
- 38 New NXDN ID's
- 14 New Repeaters ID's

Last 30 days:

- 2061 New Accounts
- 2192 New DMR ID's
- 126 New NXDN ID's
- 44 New Repeaters ID's

In total:

- We have 181342 users
- We have a global network of 204210 DMR ID's
- We have issued 4880 NXDN ID's
- There are 8446 repeaters world wide

Need some help?

- BridgeCom Systems has a 3 step DMR guide, a quick start for those who don't really know too much about DMR yet?
- There is also *DMR for dummies*, He does a good explanation on how DMR works.
- Join Jason (KC5HWB) on his YouTube Channel for some hands on product reviews.
- Check out the *AMATEUR RADIO GUIDE TO DIGITAL MOBILE RADIO*
- Radio Support & Information (Many Models) miklor.com

Check out our new Map, Showing almost all repeaters in our system with Coordinates. Talk Group info is also now available on Database Searches as well as links to Map Info.
Click the map image to the right to view in real time.

Try out our new Contact Generator! Easily generate as many personalized contact list as you like and associate them with all your different radios
We even are able to include the latest Brandmeister TG's if you so desire.
Don't see a format for a radio you have, NO PROBLEM!, We have a custom formatter so you can generate any kind of format you like!
Just click on the "Generator" menu link from the menu, Make that new radio function how it was intended.
As the Database size grows past what most modern Radios can handle, it will be more important than ever to have the ability to trim contact lists.

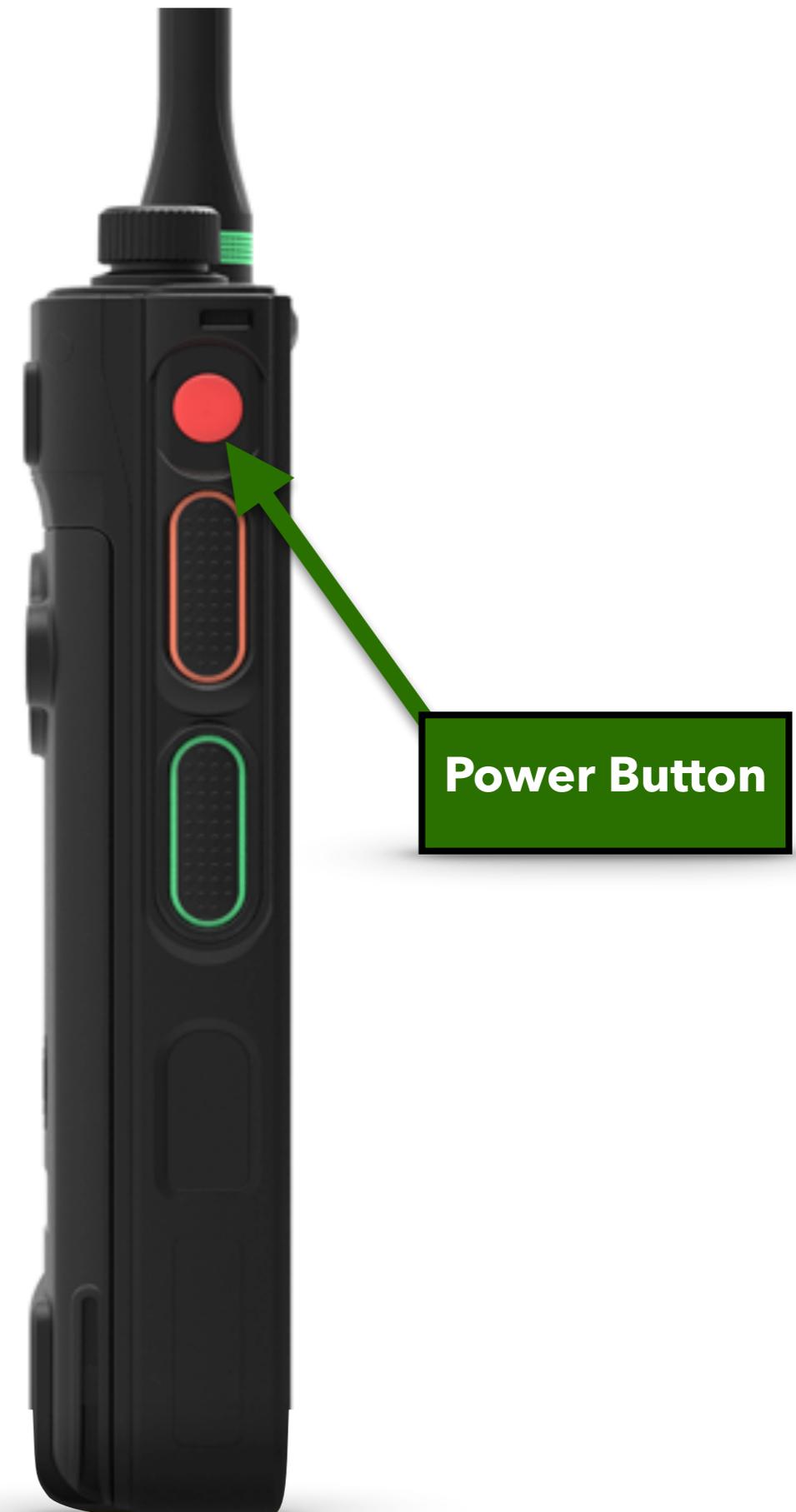
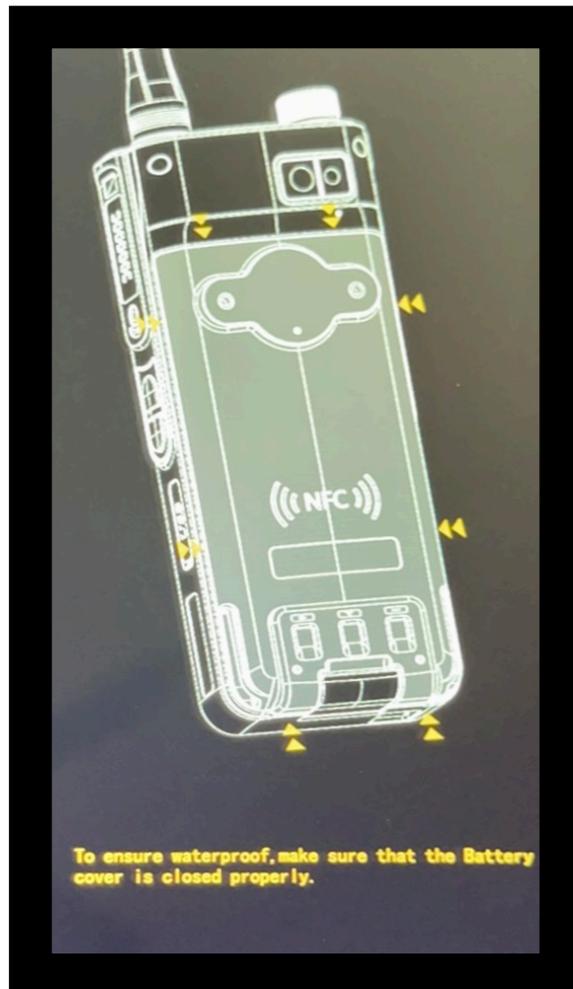
DMR CONTACT GENERATOR ONLY AT [HTTPS://WWW.RADIOID.NET](https://www.radioid.net)

Facebook
Privacy Policy
Terms and Conditions
Cookie Policy
Acceptable Use Policy

Monthly Reports

POWERING ON YOUR RFINDER

To power on your **RFinder**, Press and hold the **power button** for 2-3 seconds. Next, the images below will appear on the screen. This confirms that the radio is booting into its Android Operating System.

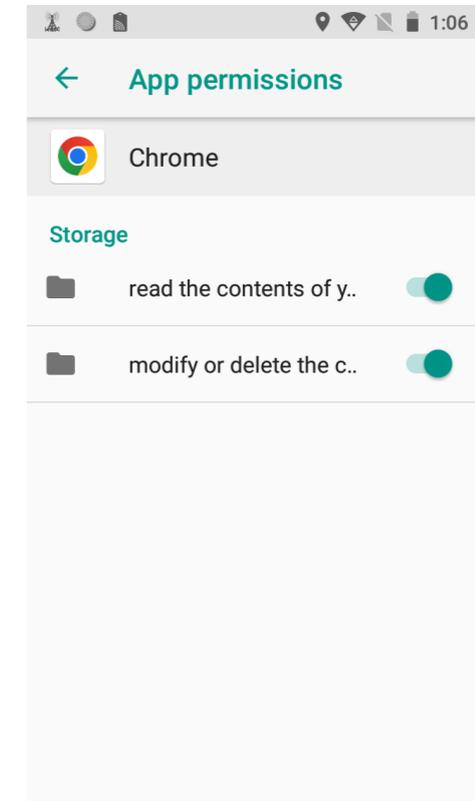
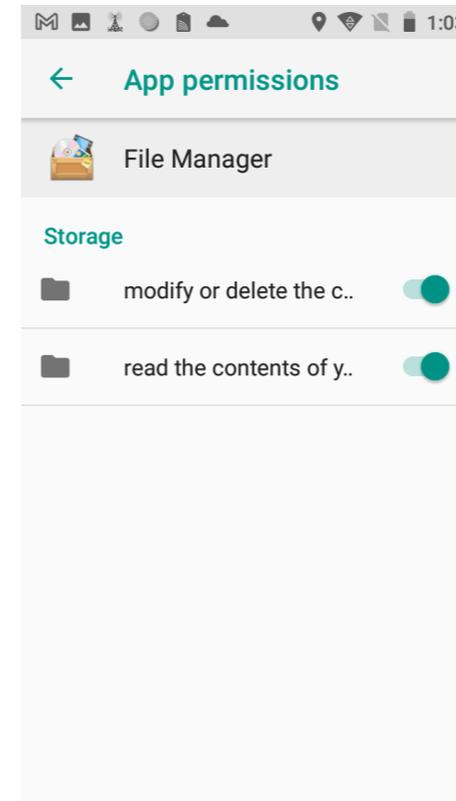
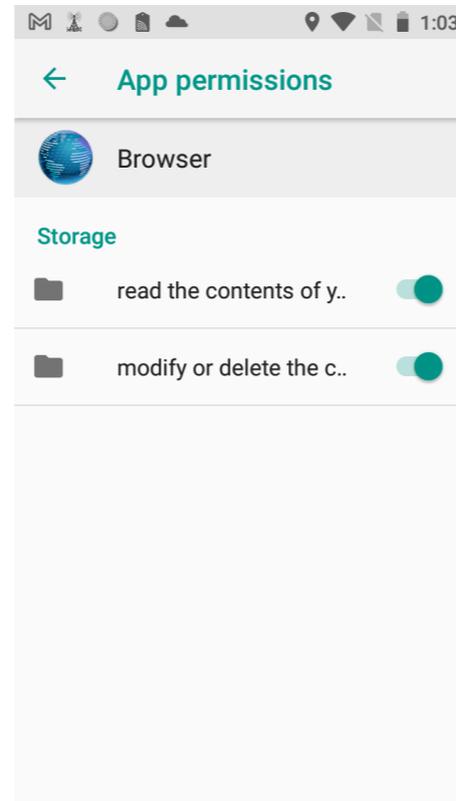


PREREQUISITES

In order to download the application from install.rfinder.net or to use any of our special internal updating features, you must set your browser's storage permissions to be completely enabled.

To do this, you must:

1. Go to the Android Settings application
2. Click on the "Apps and Notifications" menu
3. Click "See all apps"
4. Select your preferred browser
5. Select "Permissions" then select "Storage"
6. Enable both storage options
7. Repeat steps 5-6 for the File Manager Application

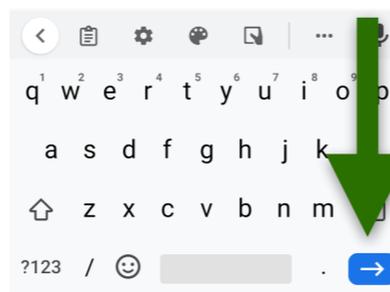
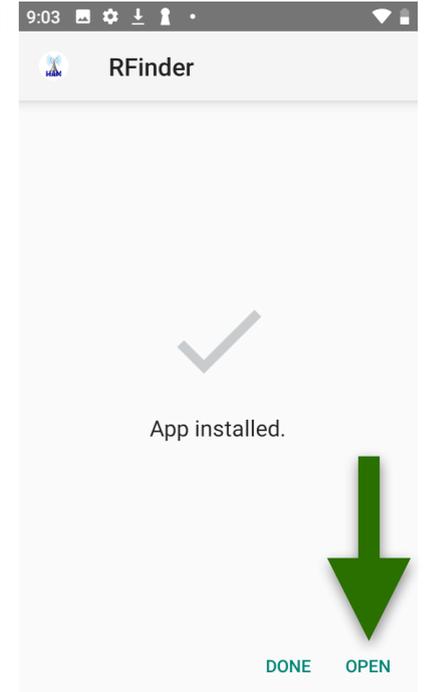
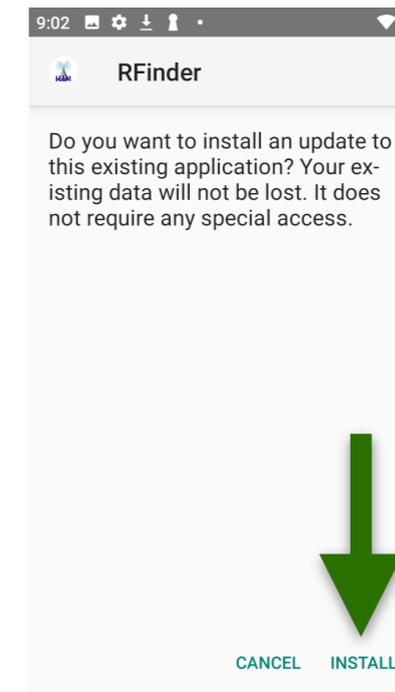
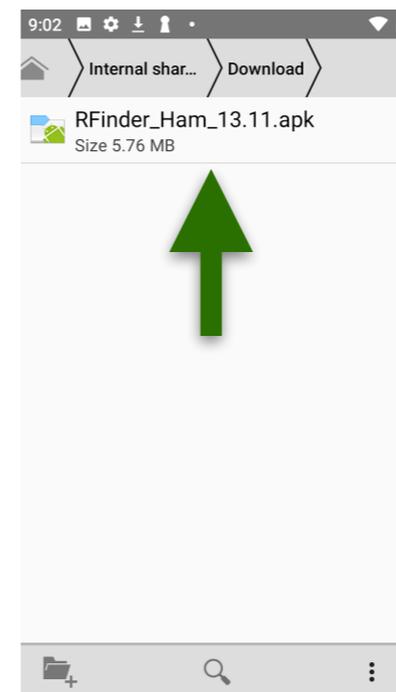
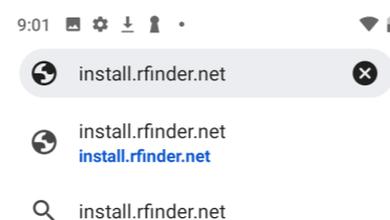
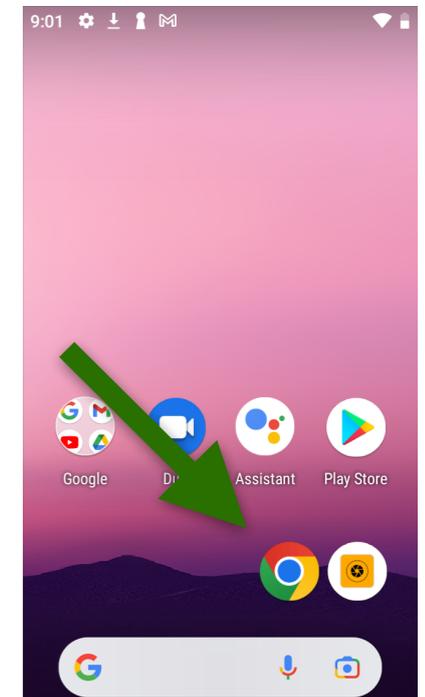
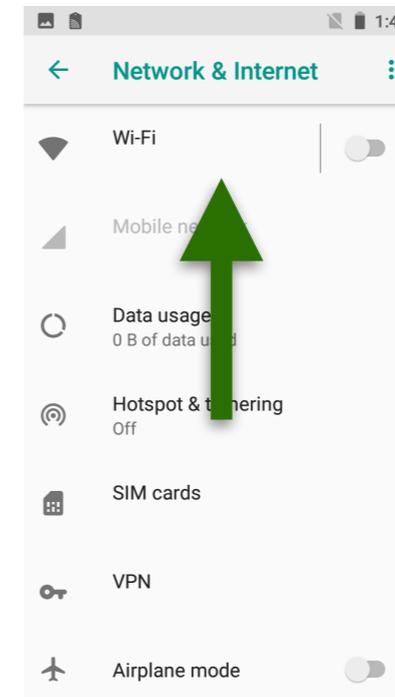
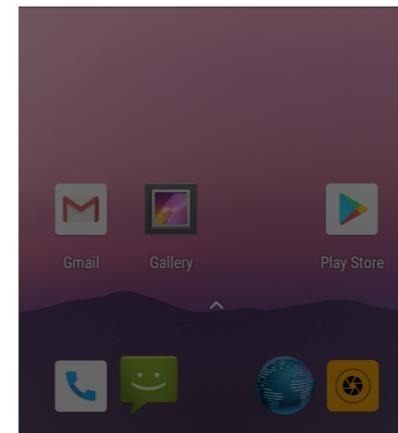
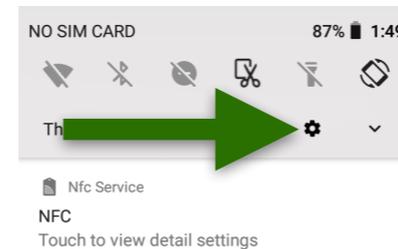


FIRST TIME SETUP - DOWNLOADING THE APP

As part of the initial setup, one must download the latest version of the RFinder software.

1. Go to **settings**.
2. Connect to your local WIFI network.
3. Return to the home screen.
4. Open your preferred browser.
5. Type in install.rfinder.net and click enter.
6. Go to File Manager and click the APK
7. Click **Install**.
8. Click **Open**.

Note: If you receive an "SD Card Not Found" error, go to the browser's permissions and enable all storage permissions.

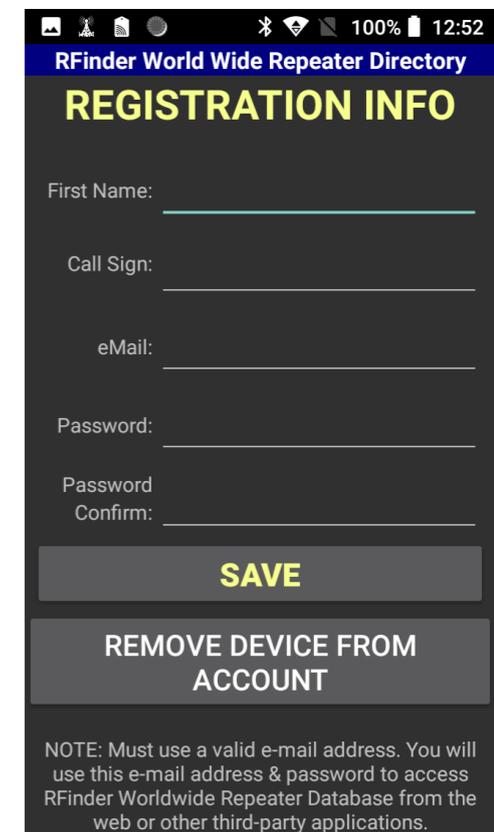
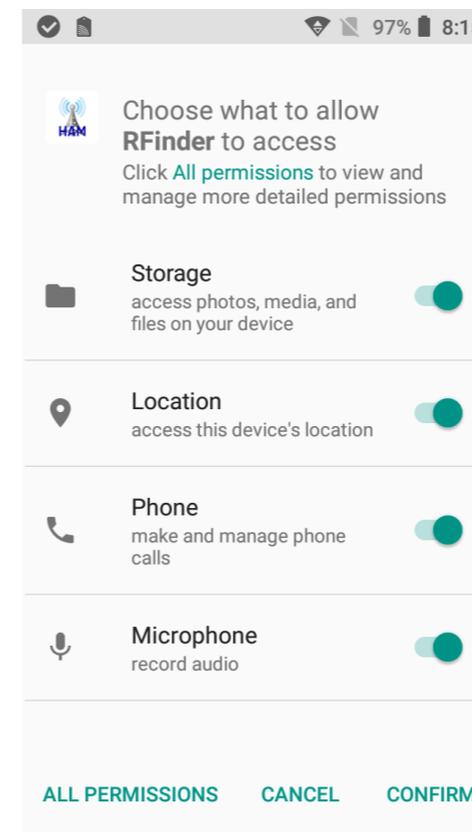
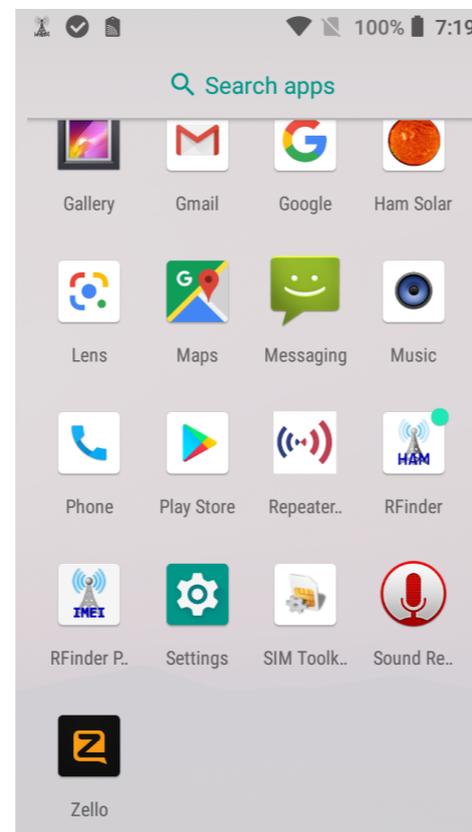


REGISTRATION - SETUP

Launching the RFinder application the first time requires certain steps to provision your radio for usage. Follow these steps to start using your radio.

1. Click the RFinder Application
2. Confirm the permissions
3. Enter the registration information

Note: If you are purchasing a pre-used **RFinder** radio or are selling an **RFinder** radio please remove the device from account before setting it up (pre-used) or selling it.

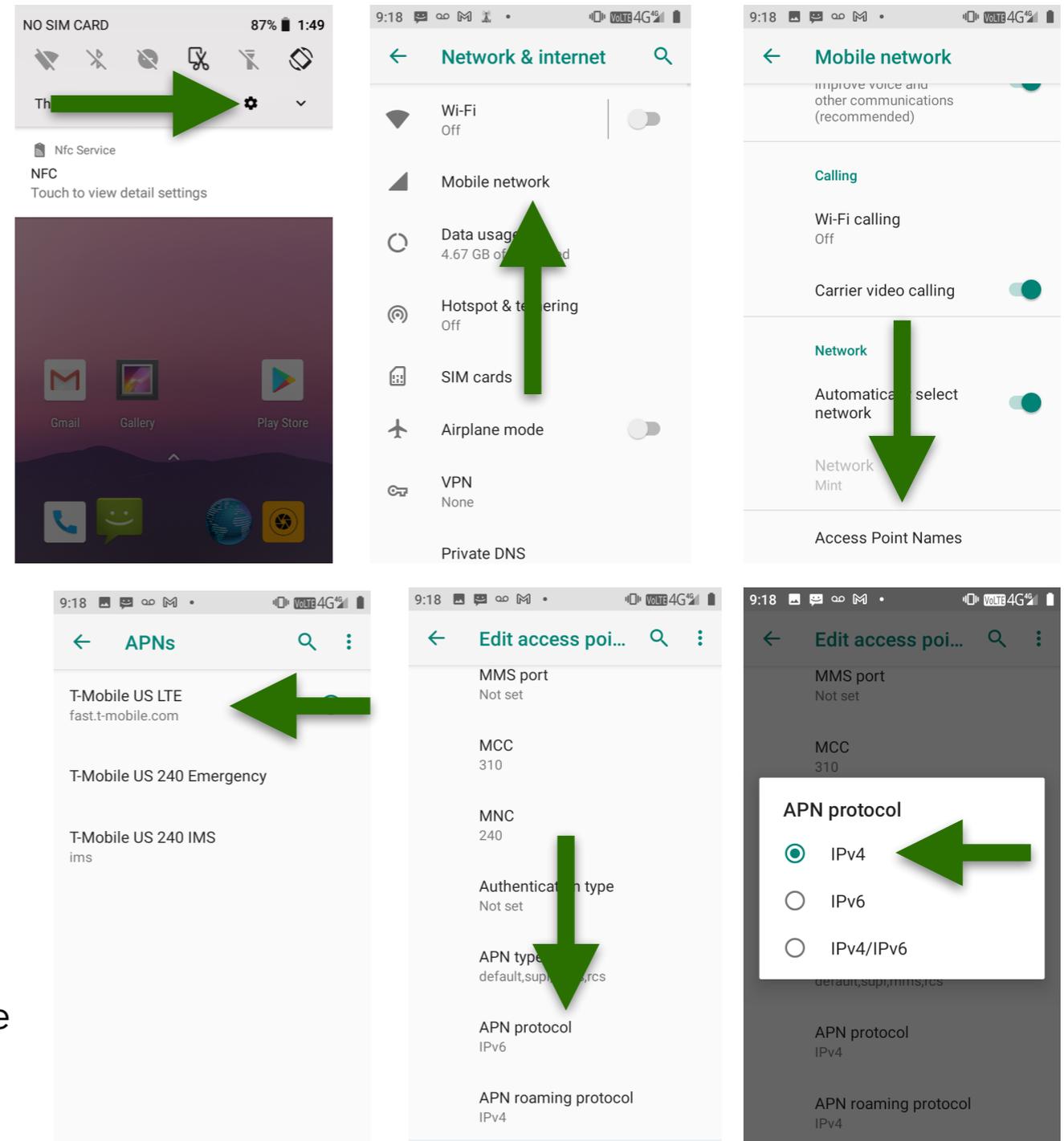


CELLULAR SETTINGS - IF DMROIP AUDIO SOUNDS SLOW

Before using your radio using a cellular provider, the user must:

1. Go to **settings**
2. Go to **Network & internet settings**
3. Click on **Mobile Network**
4. Scroll down and click on **Access Point Names**
5. Select your carrier
6. Scroll down and select **APN protocol**
7. Select **IPv4**
8. Click the three dots in the upper right hand side and click Save

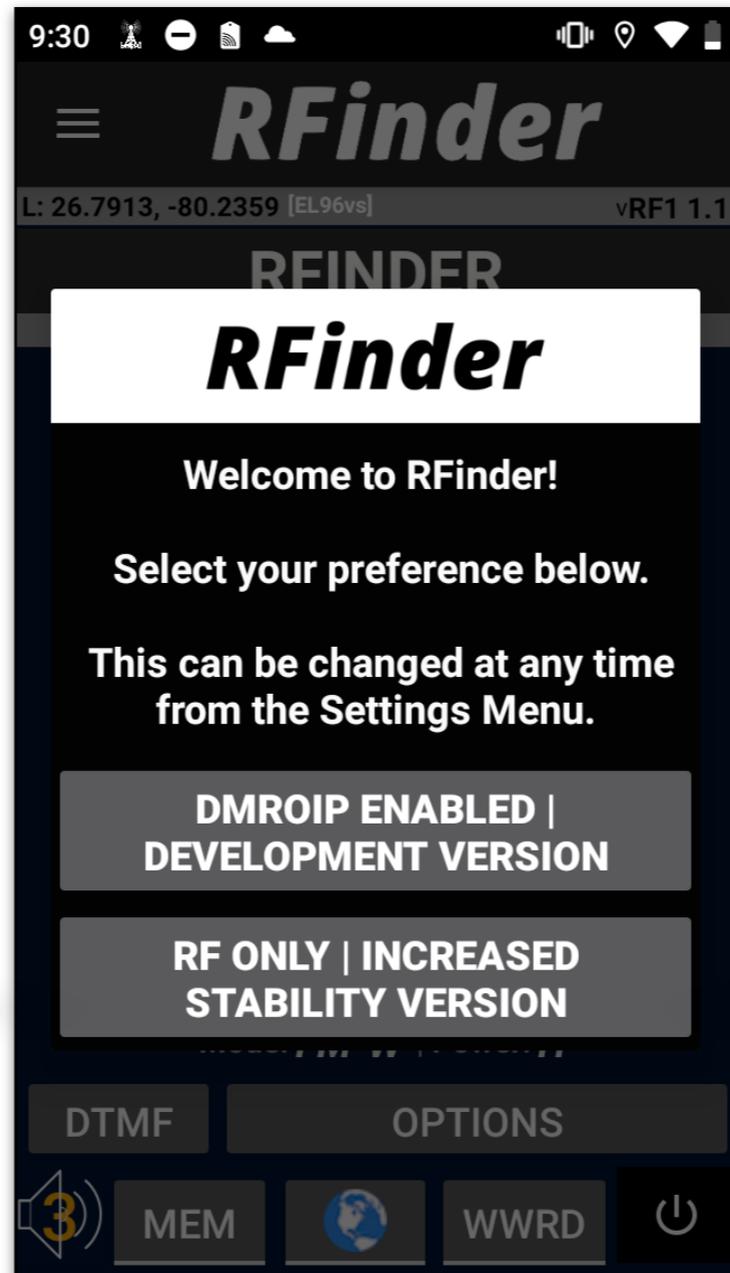
Note: Some cellular companies may not allow these settings to be adjusted, such as AT&T, whereas some companies like T-Mobile do allow modifications.



UNDERSTANDING THE DIFFERENCE

Development Version

In this mode, users can use features which are under development such as DMRoIP, at the risk of more frequent crashes and a higher chance of dropouts.



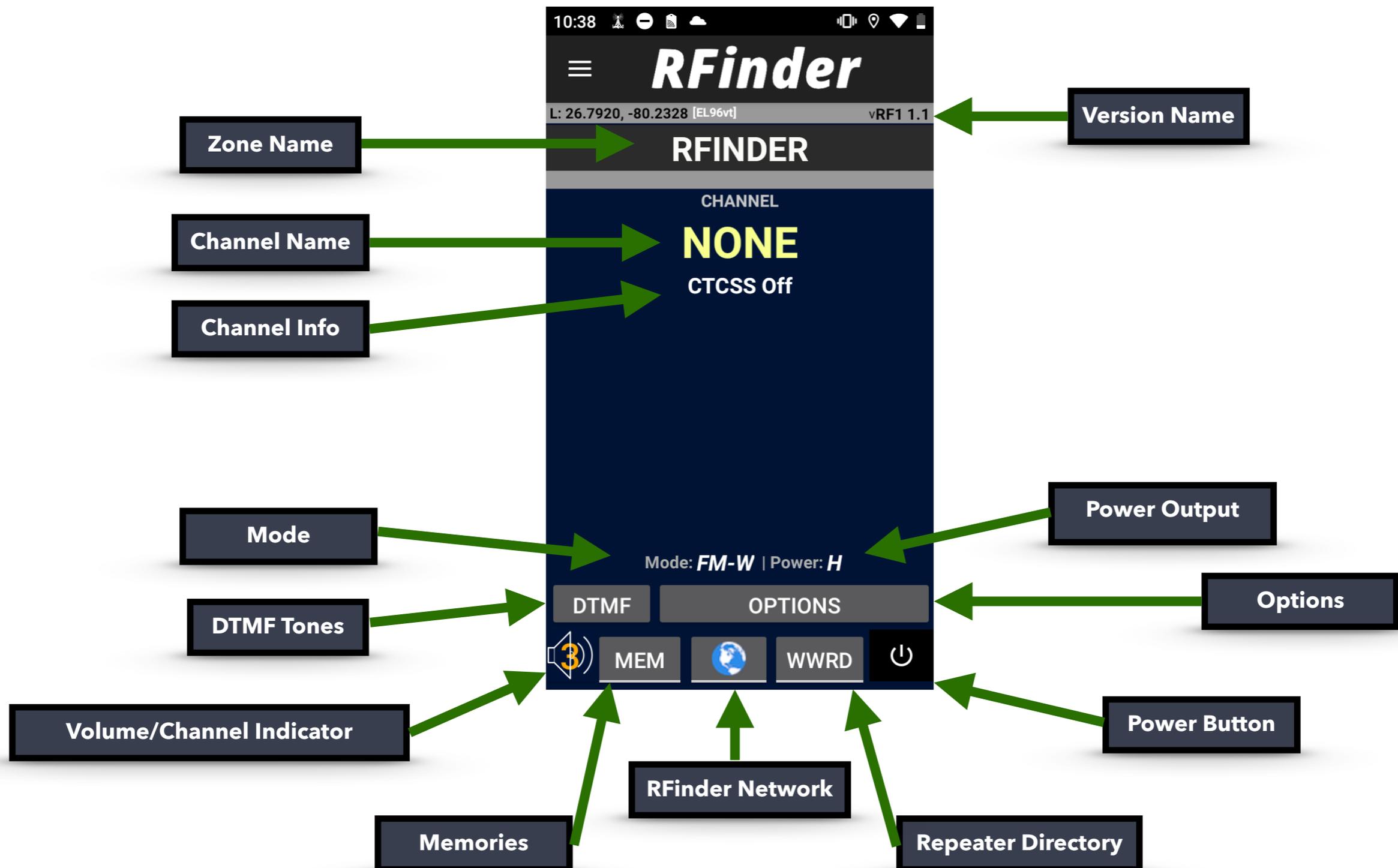
Increased Stability Version

In this mode, users only use RF. The mode tends to have a higher likelihood of stability and more consistent communication, with less frequent dropouts.

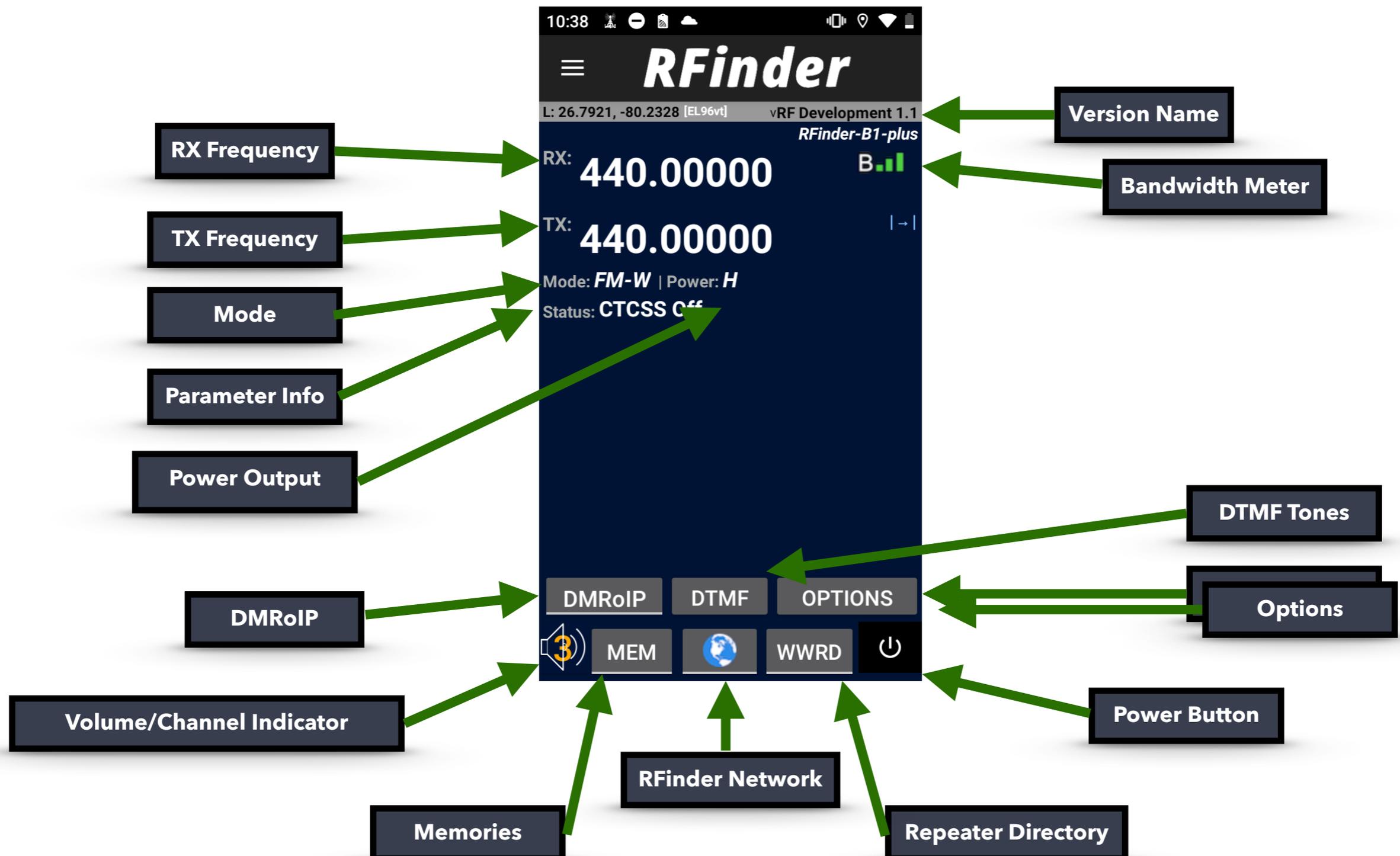
Note:

By going into the "Settings" menu option, you are able to switch between these modes if you wish to do so

UNDERSTANDING THE DISPLAY (STABILITY)



UNDERSTANDING THE DISPLAY (DEVELOPMENT)

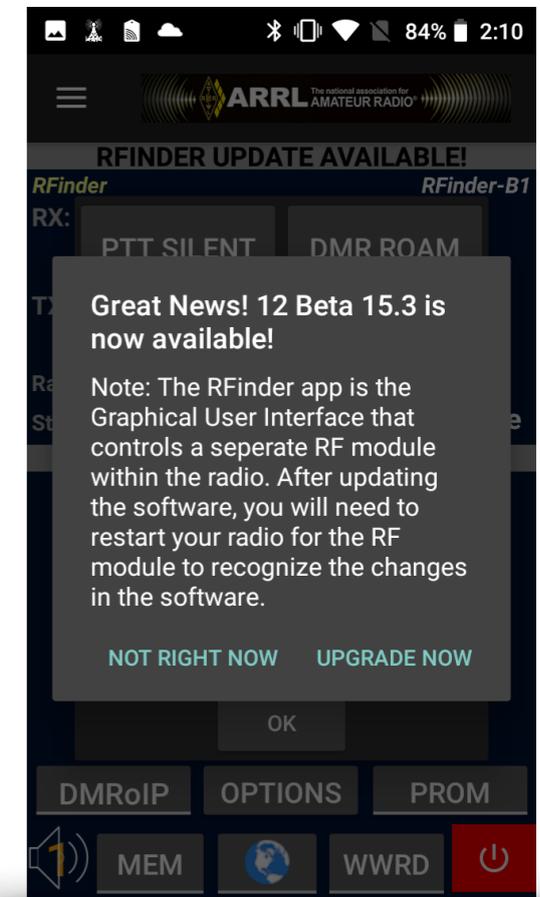
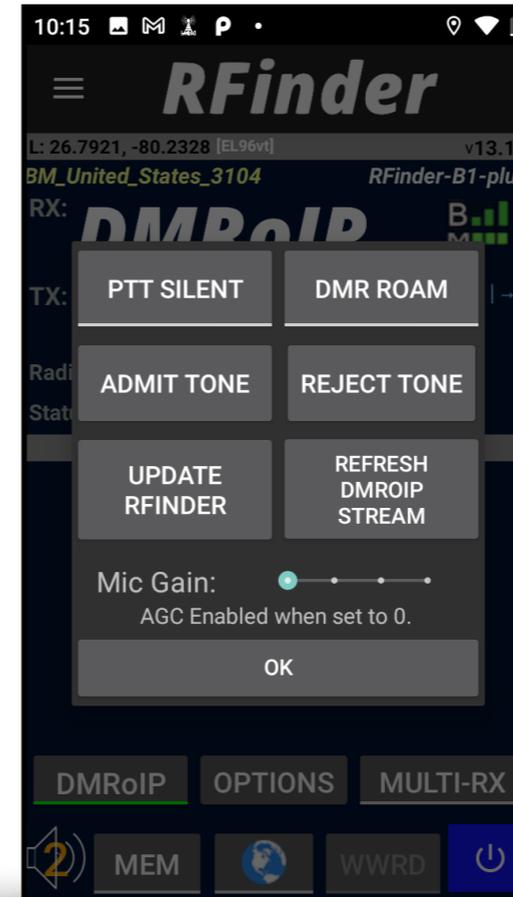
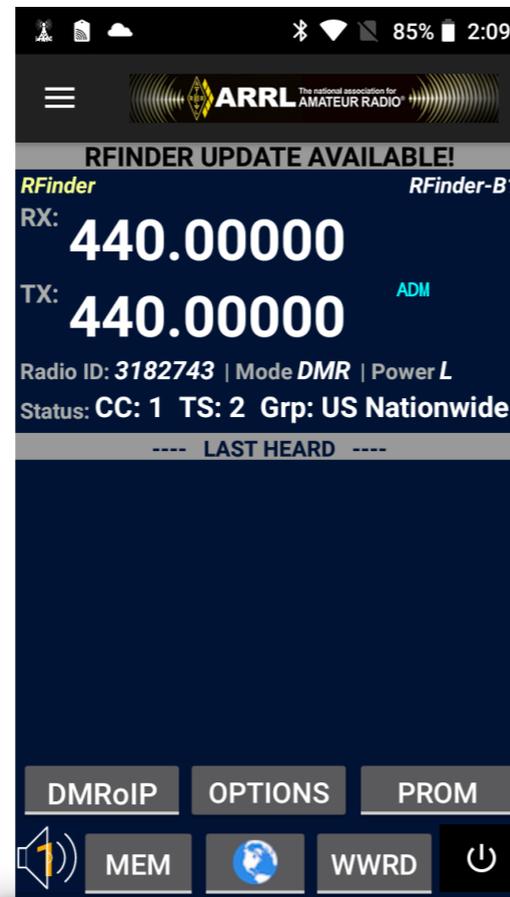


EASY UPDATES (SOFTWARE)

RFinder B1/B1+ radios have a new feature which allows them to update within the app, without needing to go to the app store, or upload from dropbox anymore.

All the user must do, is:

1. Click the **OPTIONS** button
2. Click the **UPDATE RFINDER** button
3. Click the **UPGRADE NOW** button



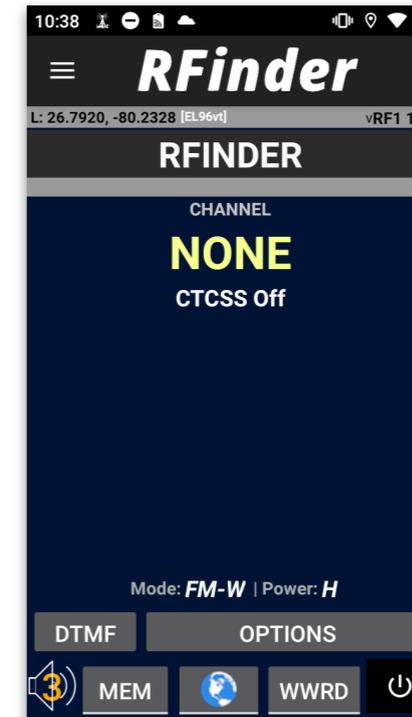
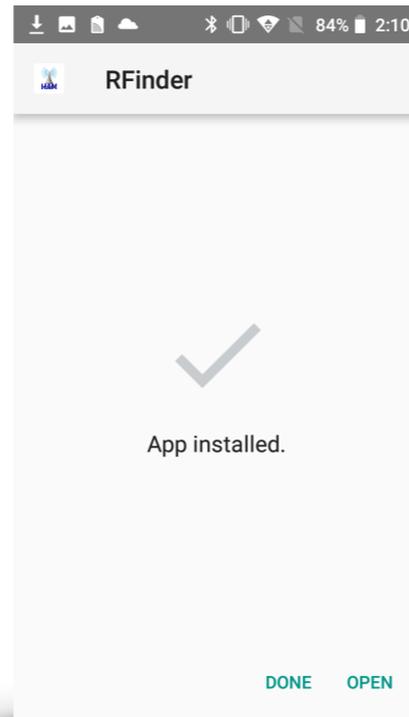
EASY UPDATES (SOFTWARE) CONTINUED

Next, you will be brought to a secondary page. To complete the download:

4. Click **OPEN** on the downloaded file, and you will be taken to the new software.

5. Please reboot your radio.

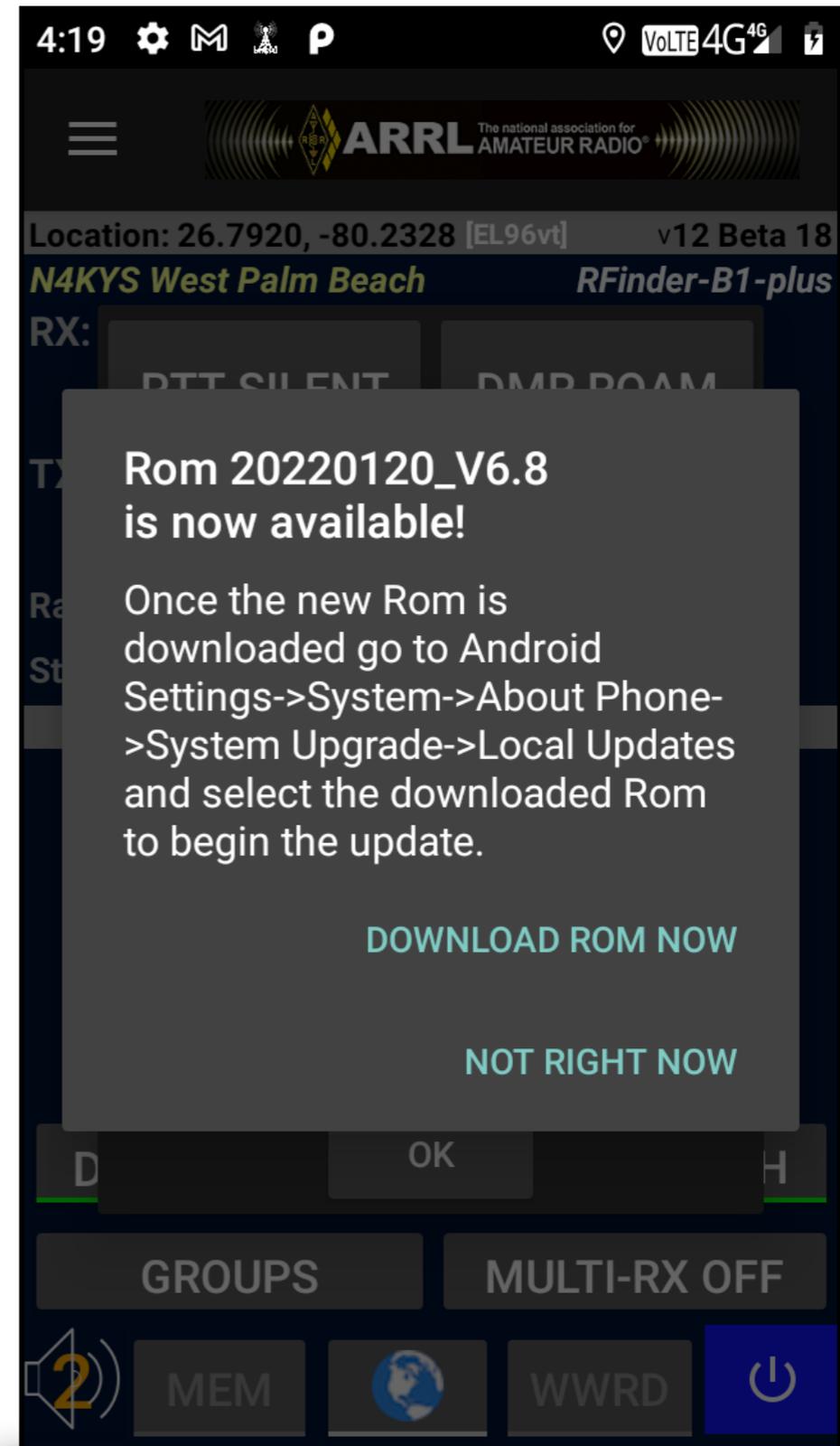
Now your software is up to date!



EASY UPDATES (ROM)

Once you hit the power button, if your ROM is out of date, you will get a notification. Within this notification, you are able to download the latest ROM .zip file.

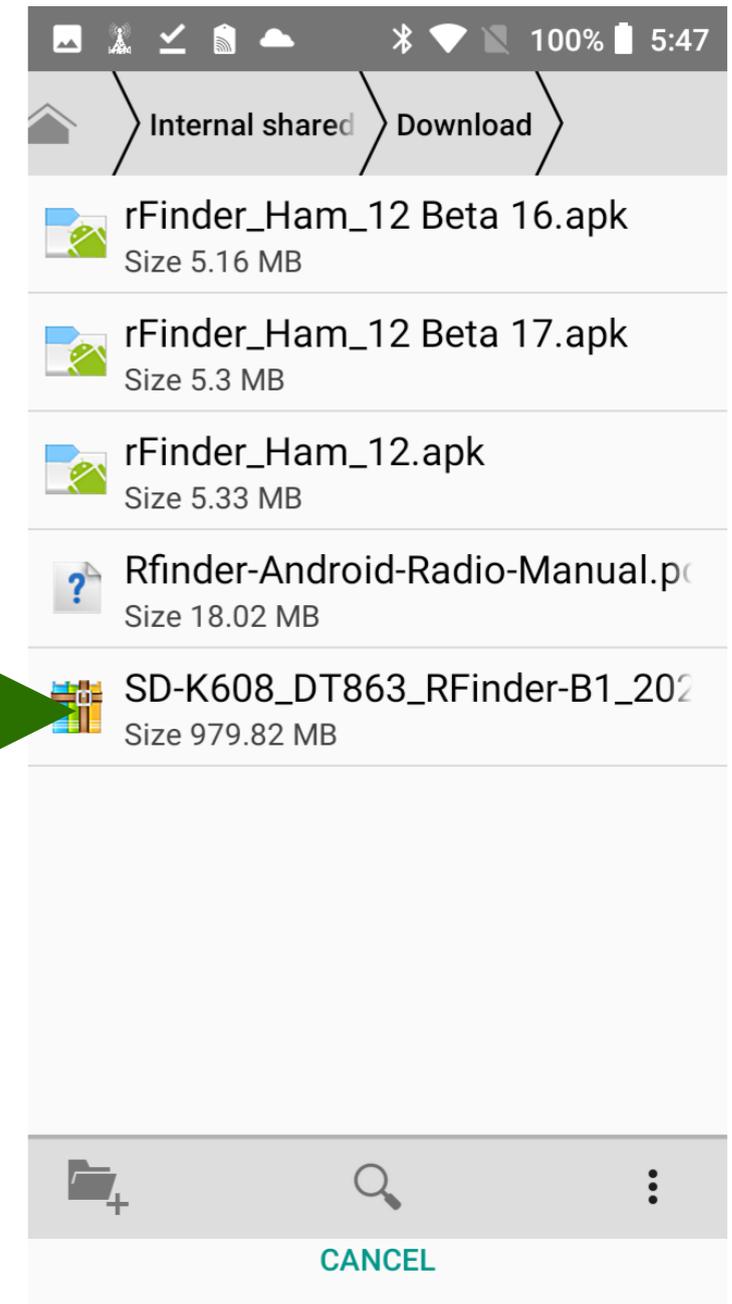
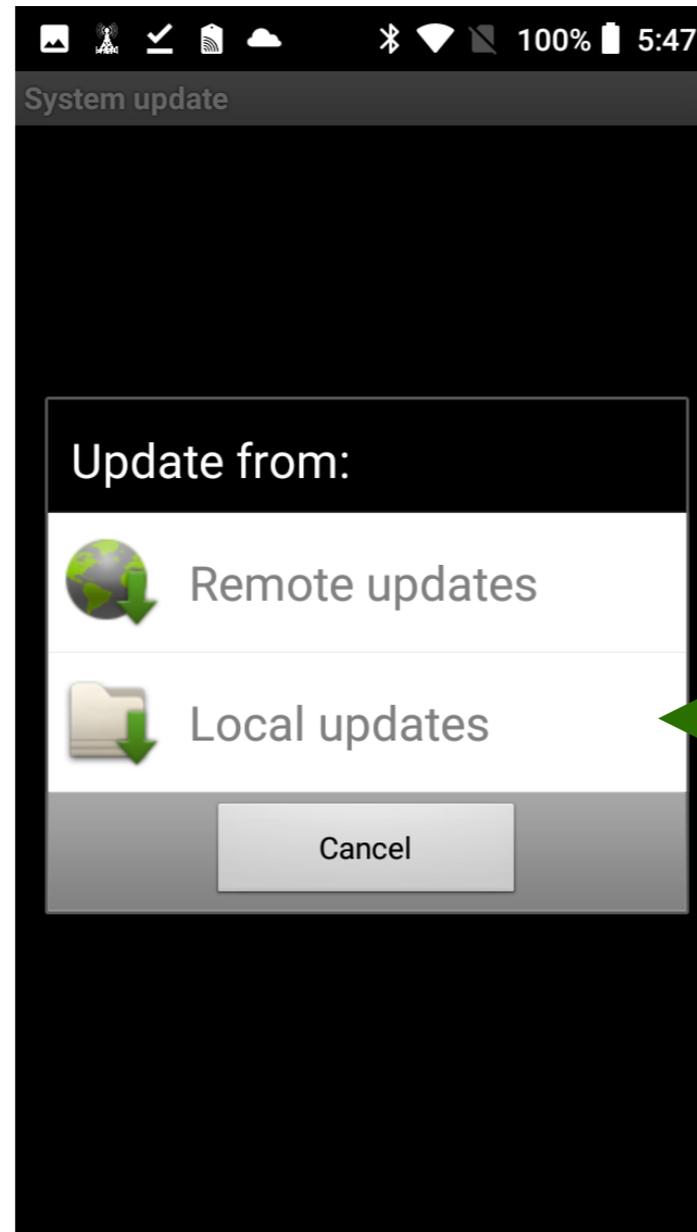
NOTE: Software and ROM are two very different things. The ROM is the actual firmware of the device itself, whereas the software is simply just the RFinder Application. Please do not choose to follow the following steps, using a software file, as this may brick your device.



EASY UPDATES (ROM)

Once the file is downloaded:

1. Go to the Android settings app
2. Go to System
3. Go to About Phone
4. Go to System Upgrade
5. Go to Local Updates
6. Go to either the Internal Shared Storage
7. Go to the Download folder
8. Click on the latest ROM
9. Click OK to reboot, then reboot again once again

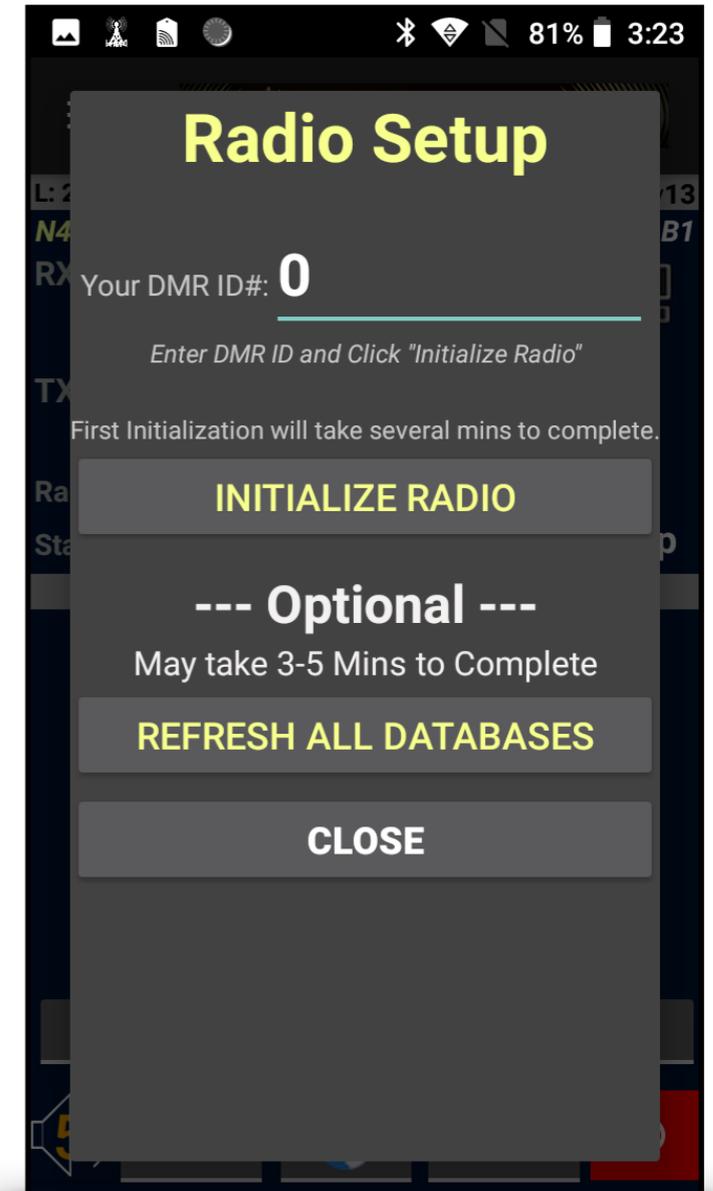


Your radio will now reboot, use the file to upgrade the ROM, and boot up with the new ROM.

PROVISIONING DMR ID - SETUP

To setup the **RFinder** radio to be registered to your DMR Radio ID from [Radioid.net](https://radioid.net) execute the following steps:

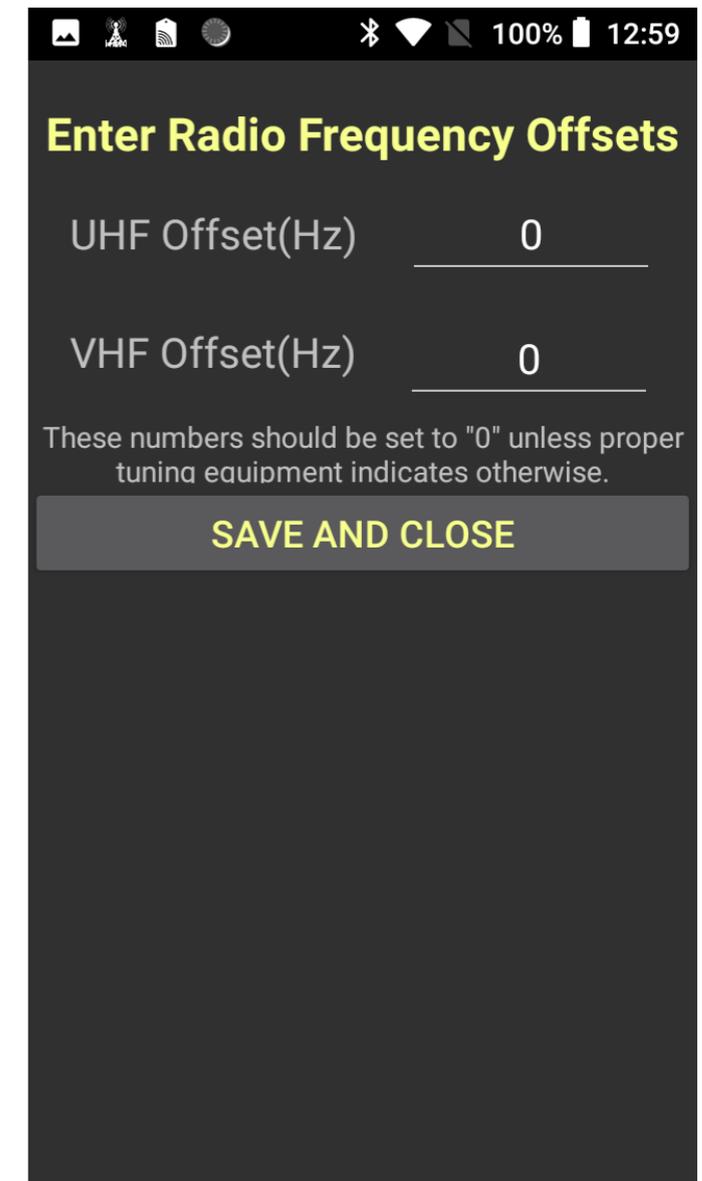
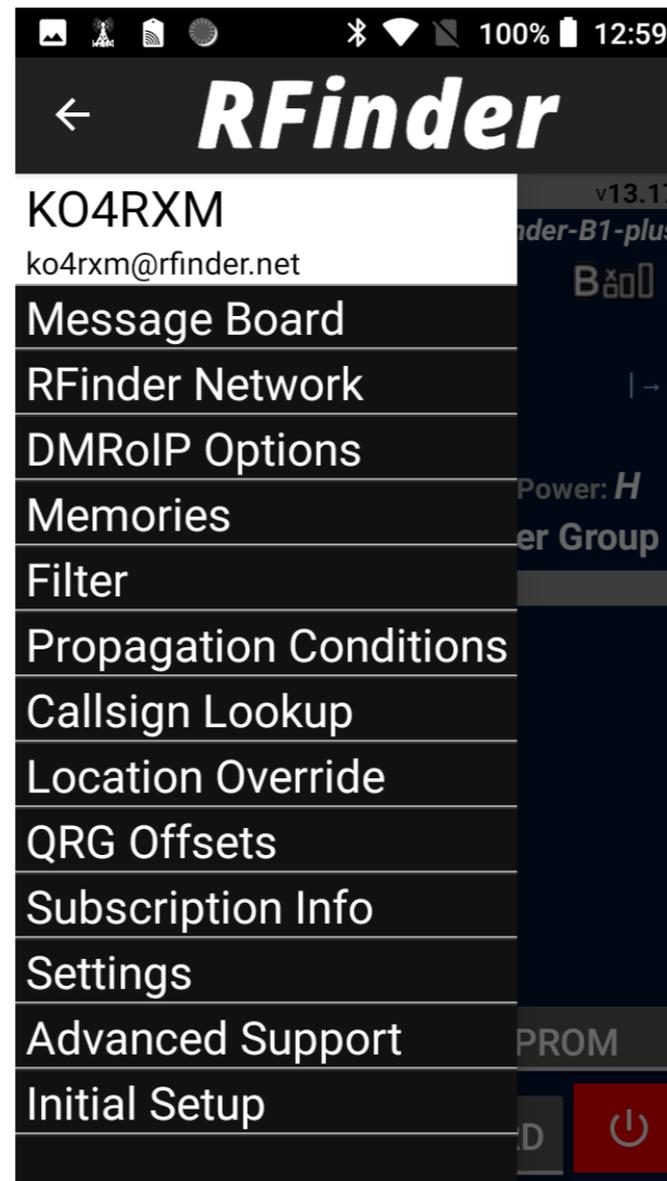
1. Power your RF Module down
2. Open the Menu
3. Go to **Initial Setup**
4. Enter **your** DMR ID
5. Click the **INITIALIZE RADIO** button
6. Hold down the power button.
7. Click **Restart** (to reboot device).



SETTING THE QRG OFFSET - SETUP

Adjusting the QRG offset can help ensure that your radio has a clean signal on the correct frequency.

1. Open the Menu
2. Click **QRG Offsets**
3. Make sure your UHF and VHF are 0 Hz unless told otherwise
By RFinder Support
4. Press and hold the Power button
5. Click Restart (to reboot device)



ANDROID RADIO - MENU

The **Android Radio** menu option is similar to a VFO menu option in other radios. From this screen you can manually tune to a frequency, or save a frequency to a memory slot.

3 modes can be accessed in this menu: **FM Narrow Band, FM Wide Band, DMR**

Once the frequency information is entered, you must **Set Parameters** to the RF module to be able to RX/TX on the entered frequency. You can also, select **Save to Memory**, to save the entered information to a memory slot within the radio.

TX<->RX allows you to reverse the RX and TX Frequencies, and Talkaround sets the TX to RX.

Power: Lo Hi Mode: FM Wide Band

RX: 440.00000 → TX: 440.00000

Transmit: Off Off
Receive: Off Off

Squelch: OFF ON

SET PARAMETERS

TALKAROUND SWAP TX <-> RX

SAVE TO MEMORY

CLOSE

Power: Lo | Hi
RX: Receive Frequency
TX: Transmit Frequency
Transmit: PL or DPL Tone
Receive: PL or DPL Tone
Squelch: Squelch level
Arrow: TX to RX freq

Power: Lo Hi Mode: DMR

RX: 440.00000 → TX: 440.00000

Color Code: 0 TS: 1 2

Call: 31770 Grp Pvt

SET PARAMETERS

TALKAROUND SWAP TX <-> RX

SAVE TO MEMORY

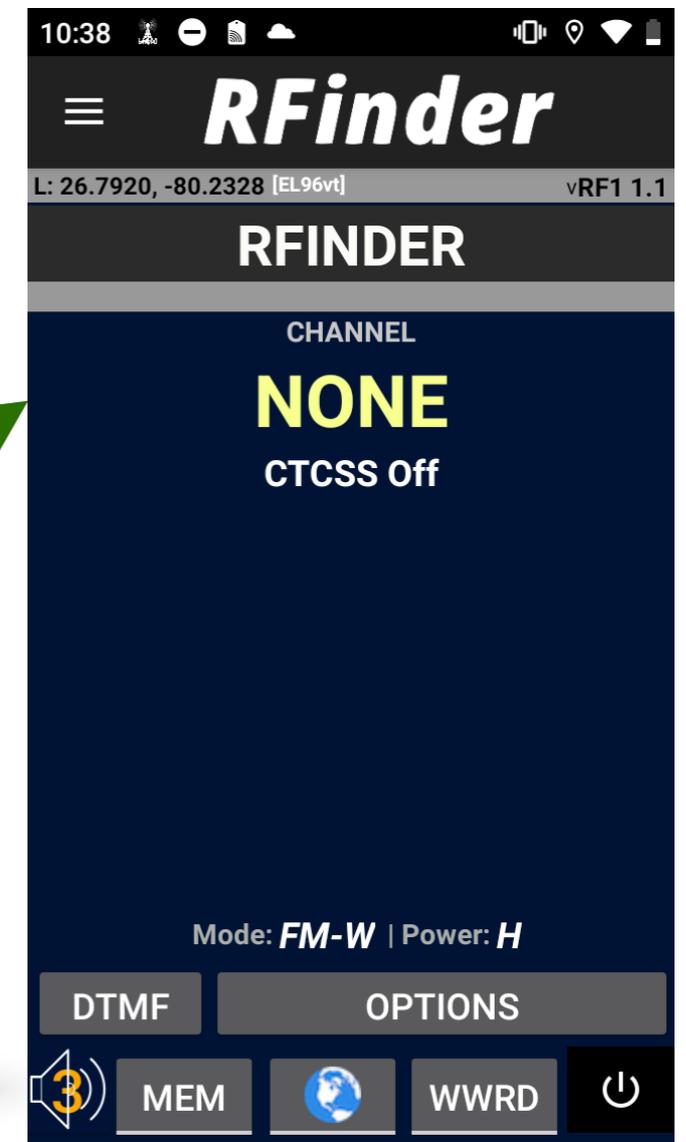
CLOSE

Power: Lo | Hi
RX: Receive Frequency
TX: Transmit Frequency
DMR ID: Your DMR ID
Color Code: Color Code
Call: Talkgroup #
GRP: Group Call
PVT: Private Call
TS: Time Slot

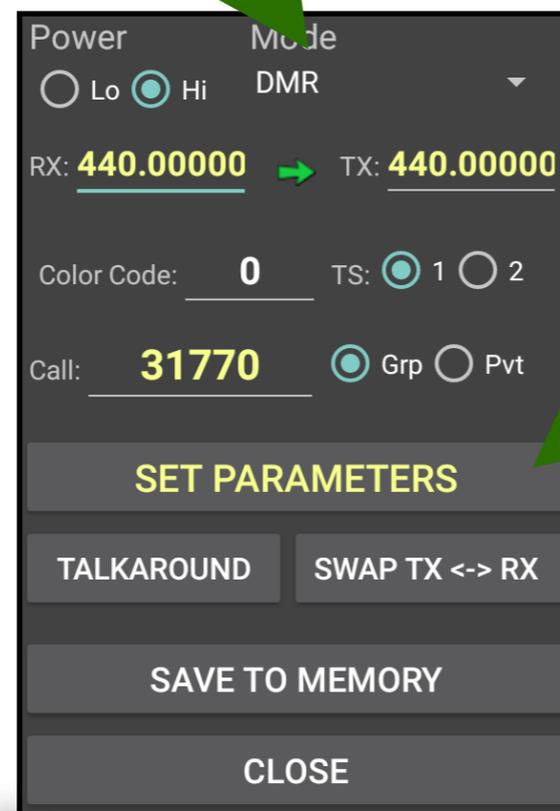
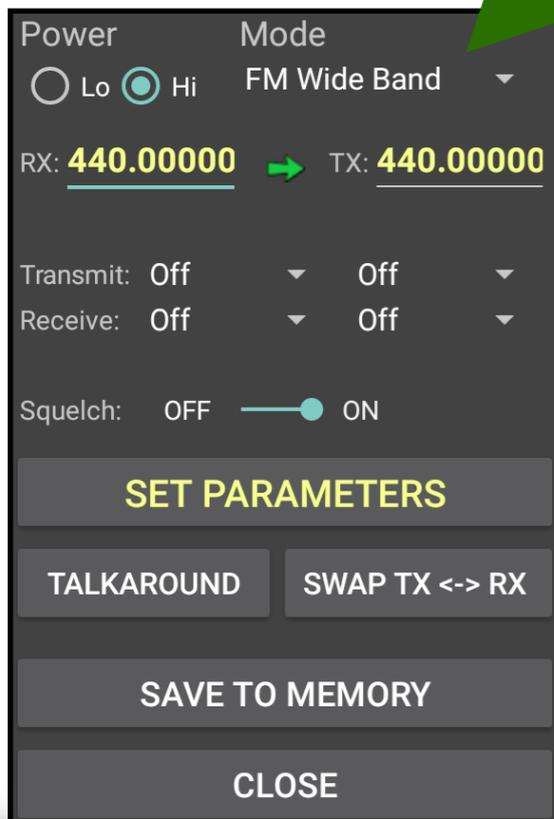
YOUR FIRST QSO

To begin your first QSO, the radio must be set up with your frequency parameters.

Step 1: Click the **Channel Display Area** to begin



Step 2: A New popup screen will display, set the Mode: FM Wide Band, FM Narrow Band, or DMR



Step 3: After information has been entered click "Set Parameters".

Step 4: Press you PTT to begin your QSO.

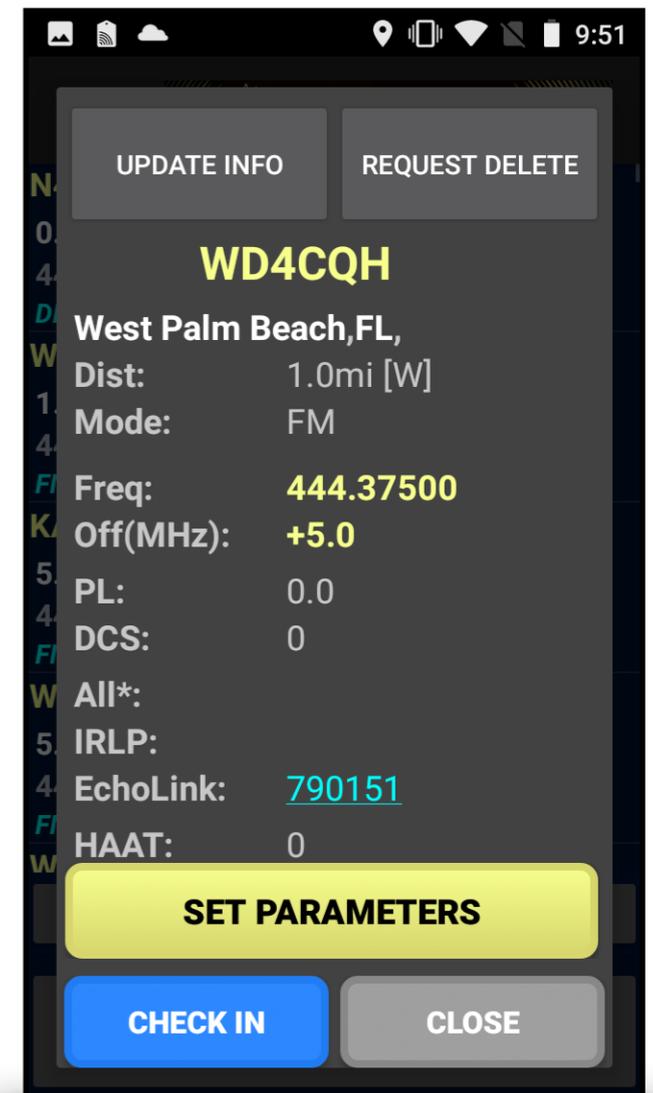
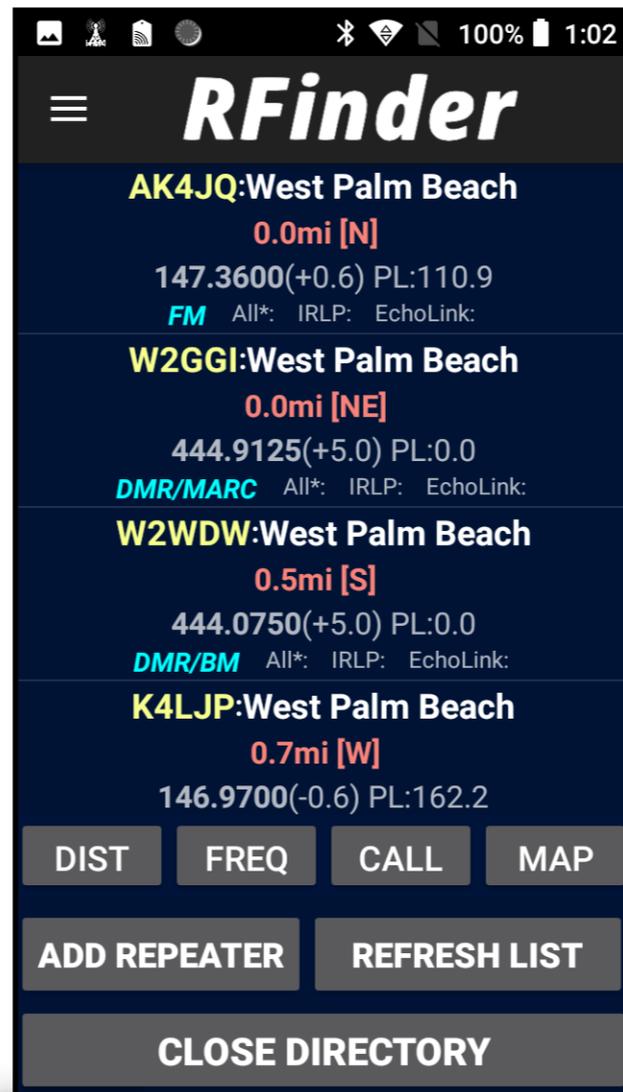
REVIEW, SELECT, TRANSMIT - FM

One of the best features of the **RFinder** radios are their internal database of local repeaters. Upon launching the **RFinder** app, the radio will use its GPS location to show you a list of local FM and DMR repeaters and Local Weather Transmitters. To operate on one of the local repeaters follow these steps:

Step 1: Select the local repeater

Step 2: Confirm the information on the screen and click:
SET PARAMETERS

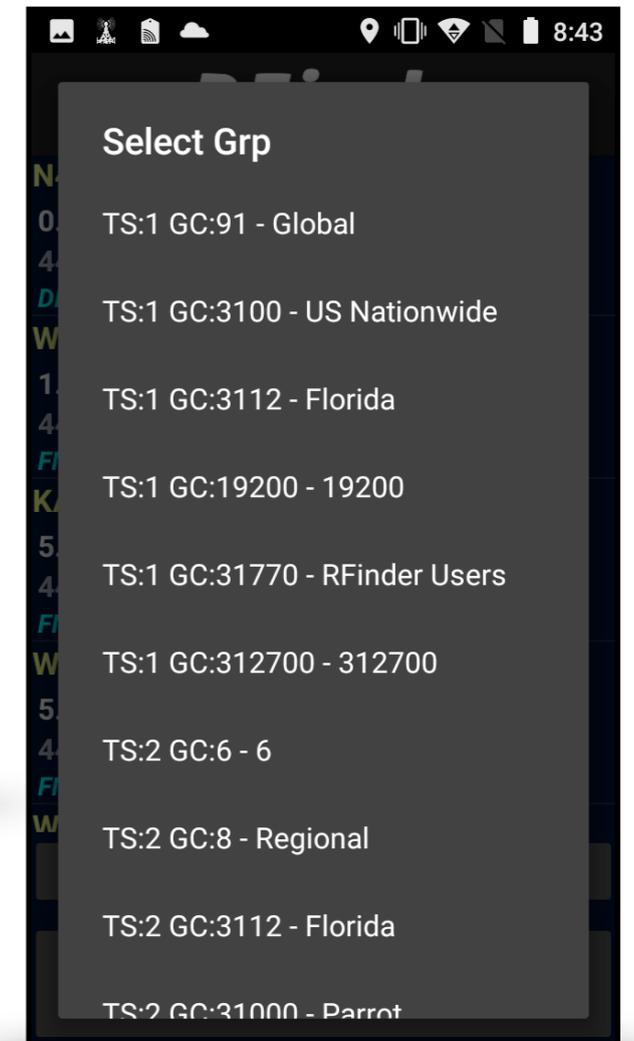
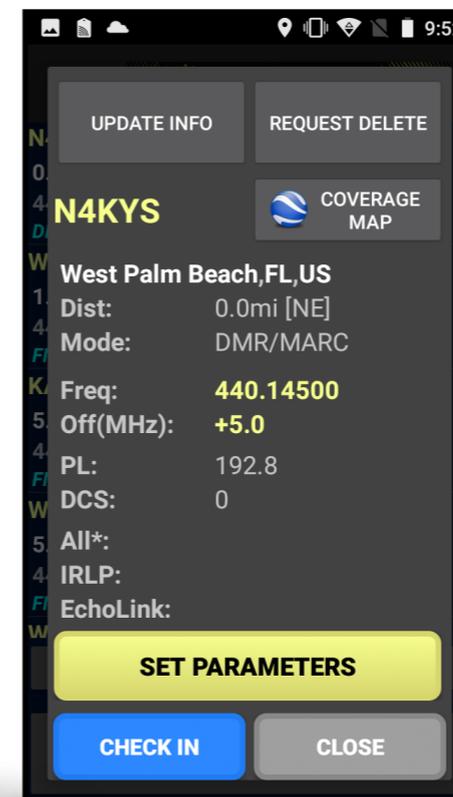
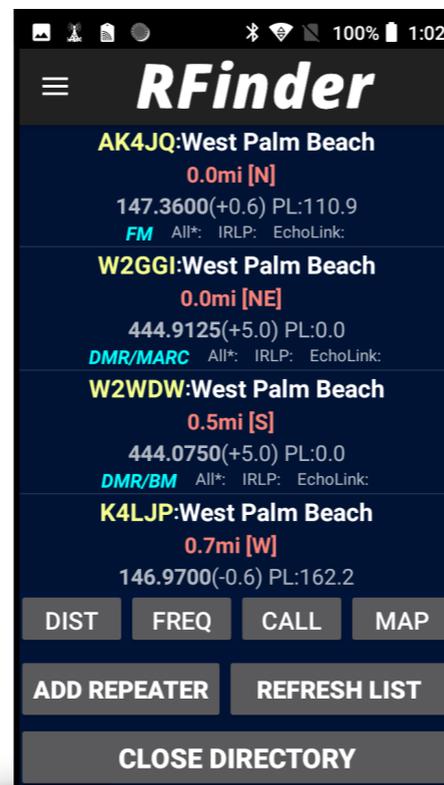
Step 3: Ensure RF Power is on and Press the PTT to begin your QSO.



REVIEW, SELECT, TRANSMIT - DMR

In a similar way to the FM repeaters, you can select a DMR repeater from the list and send the Parameters to your radio.

Step 1: Select the local repeater



Step 2: Confirm the information on the screen and click:
SET PARAMETERS

Step 3: Select the Talkgroup from the list.

Step 4: Ensure RF power is on and press your PTT to begin your QSO.

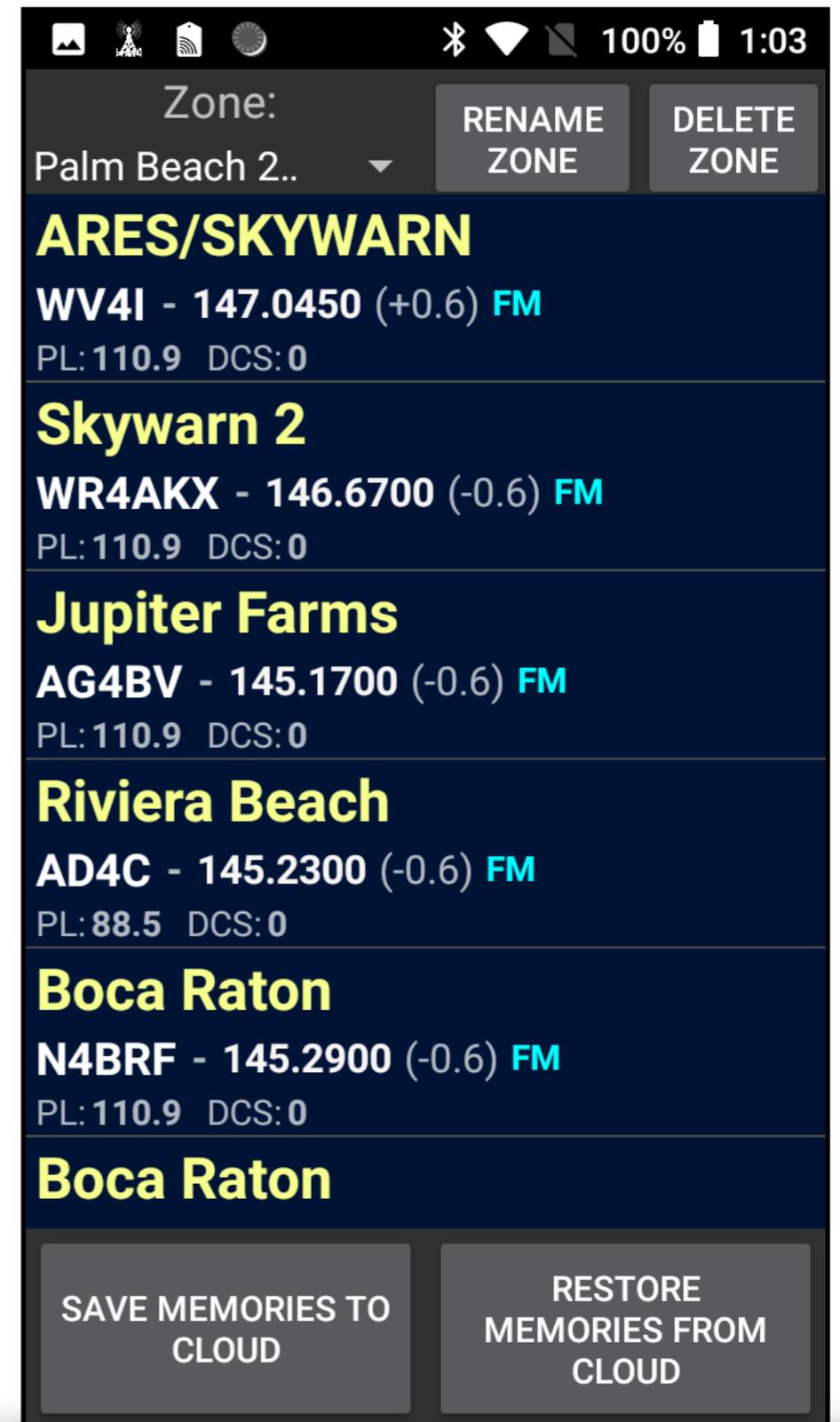
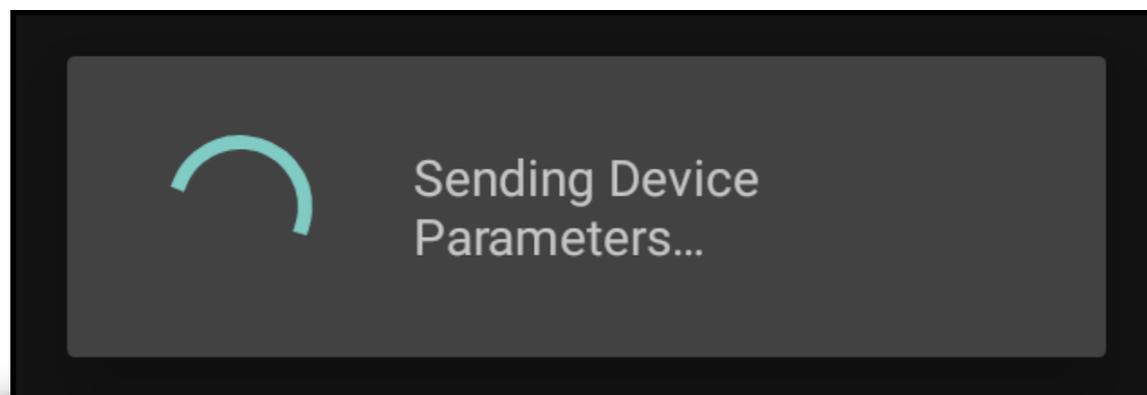
MEMORIES - MENU

The **RFinder** radio is capable of virtually unlimited stored memories.

From this Memories menu screen, you can:

1. Select your Zone (a grouping of memories),
2. Rename or Delete a Zone,
3. Save your memories to the Cloud (*SAVE MEMORIES TO CLOUD*), or
4. Import your Cloud memories into the radio (*RESTORE MEMORIES FROM CLOUD*).

Clicking a memory channel will send the stored parameters to the RF module in the radio to begin your QSO.

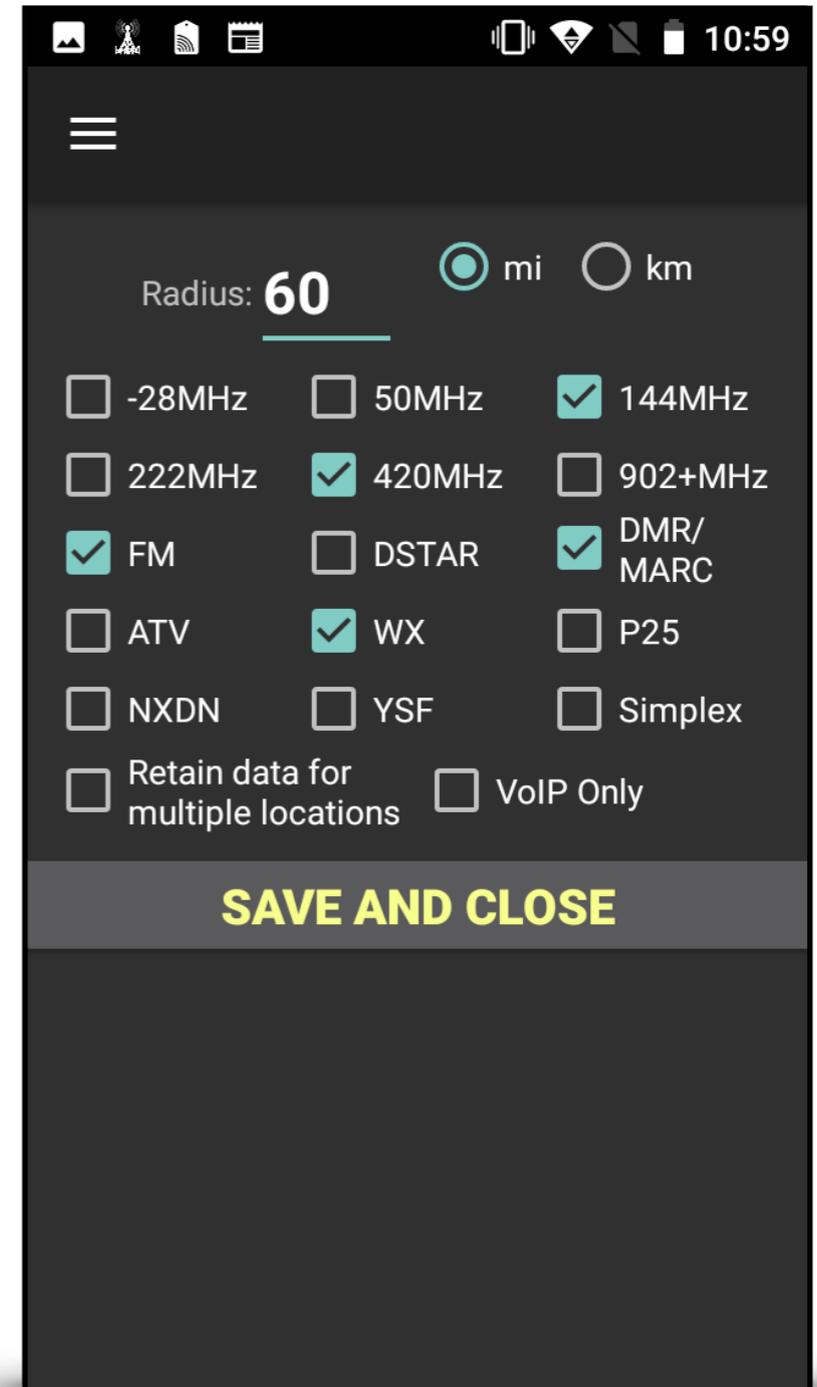


FILTER - MENU

The Review, Click, Transmit feature is based on a list populated near the GPS location of the **RFinder** radio. At times, you may want to narrow that list down to find more specific options.

The Filter menu option allows for this to happen. When the Filter menu option is selected you will be presented with different options. Based on these options the list of local repeaters will be filtered.

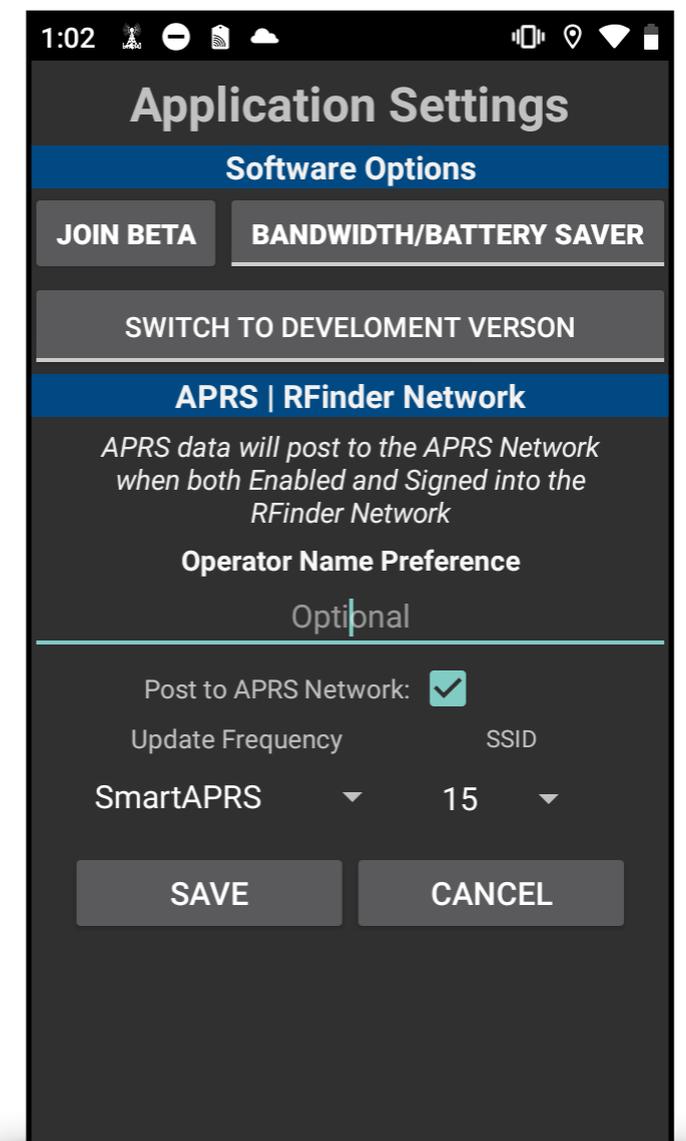
RFinder



SETTINGS (SOFTWARE OPTIONS)- MENU

All new in RF1 1.0, was the changing between the increased stability version of the RFinder application, and the side that is still under development. By going to the **Settings** menu, you can press the **Switch To** button, to toggle between the two modes. The two modes are the **Development Version** and the **Increased Stability Version**.

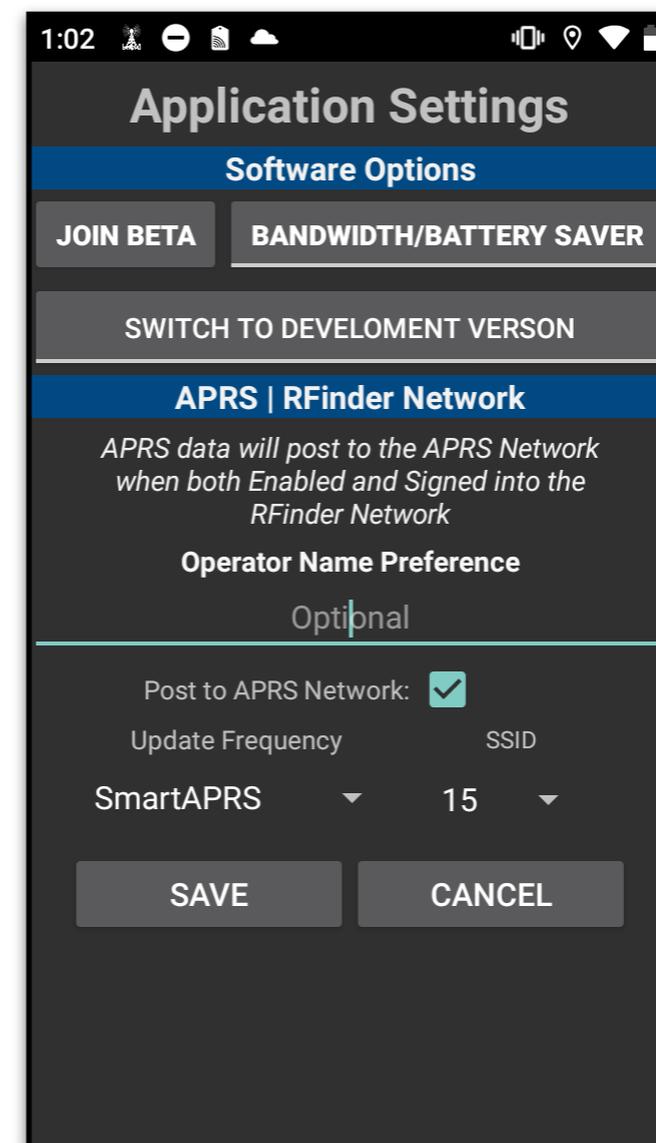
There is now also a **Battery Saver** option, which allows many background tasks to be slowed down. Please do not use this option unless absolutely necessary.



SETTINGS (APRS | RFINDER NETWORK)- MENU

Within the **Settings** menu, there is also now the option to activate APRS(TX) over IP. To do so, you must also have the RFinder Network active on your **RFinder** radio. You can view your APRS track data at **<http://aprs.fi/callsign-SSID>**.

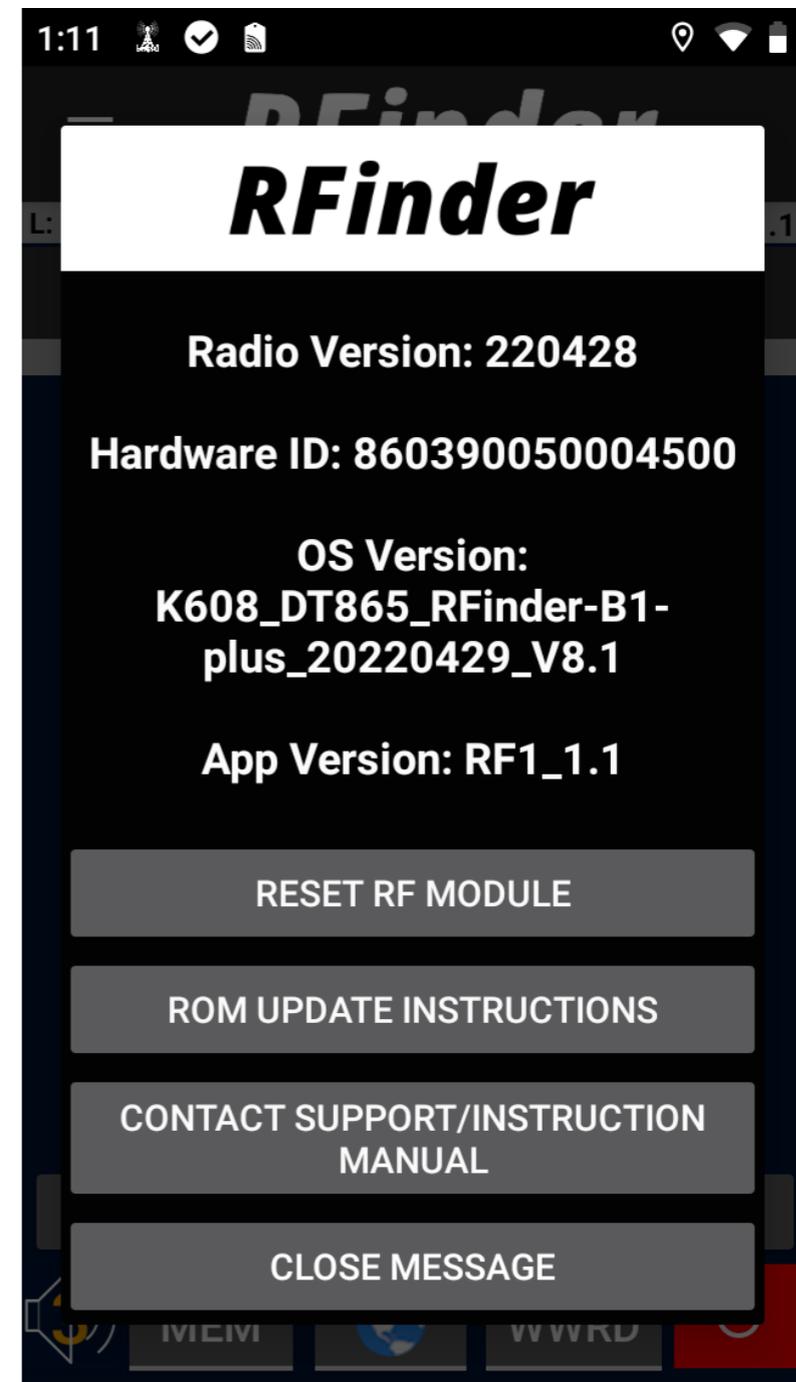
SmartAPRS - This option will resend information to APRS whenever a user has been moved a certain distance within a short period of time.



ADVANCED SUPPORT (MAIN)- MENU

If a user reaches out to **RFinder** Support, they may be asked for some information. The majority of the information that the support team needs in order to help a user with an issue, will be within the **ADVANCED SUPPORT** menu option. This menu option shows all of the necessary radio information, such as Radio Version, ROM Version, and Software Version.

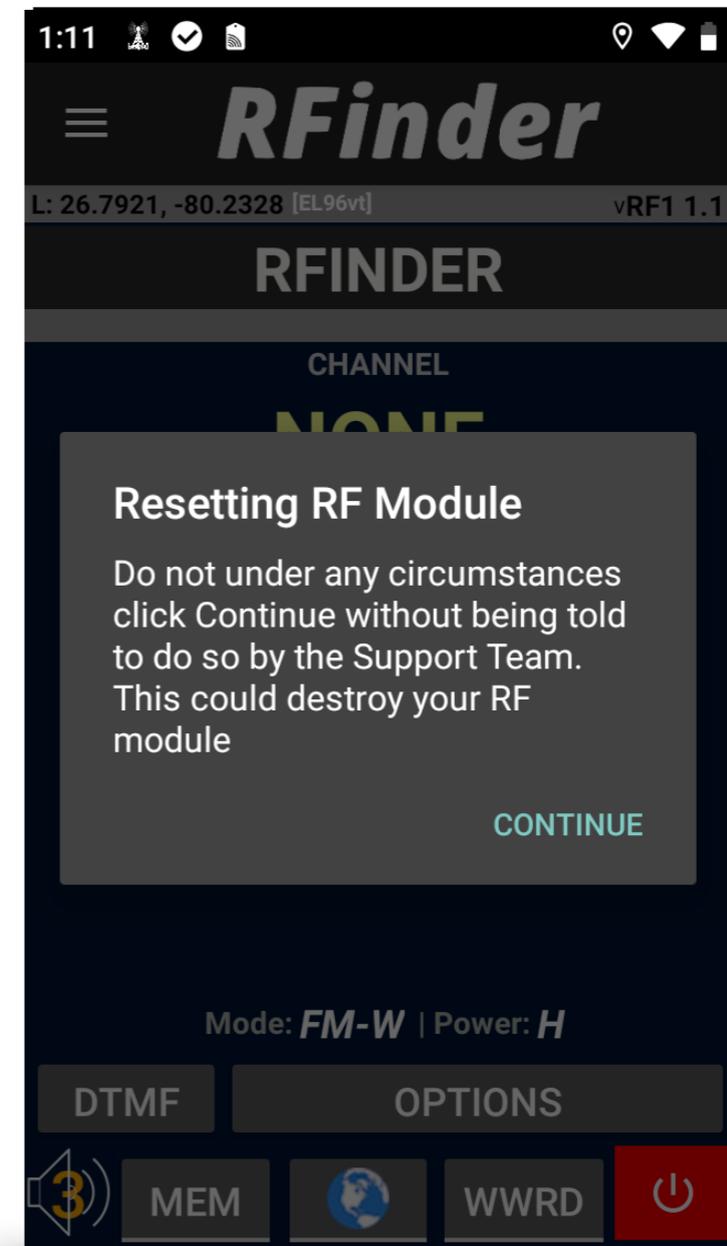
From this menu, there are three sub-menus, which take you to very specific places.



ADVANCED SUPPORT (RESET RF MODULE)- MENU

Sometimes when a user contacts **RFinder** Support, they will be asked to do an RF Module reset. This is **NOT** to be done without very specific instructions from **RFinder** Support to do so. Failure to follow **RFinder** Support advice can result in a user causing their radio to become unusable.

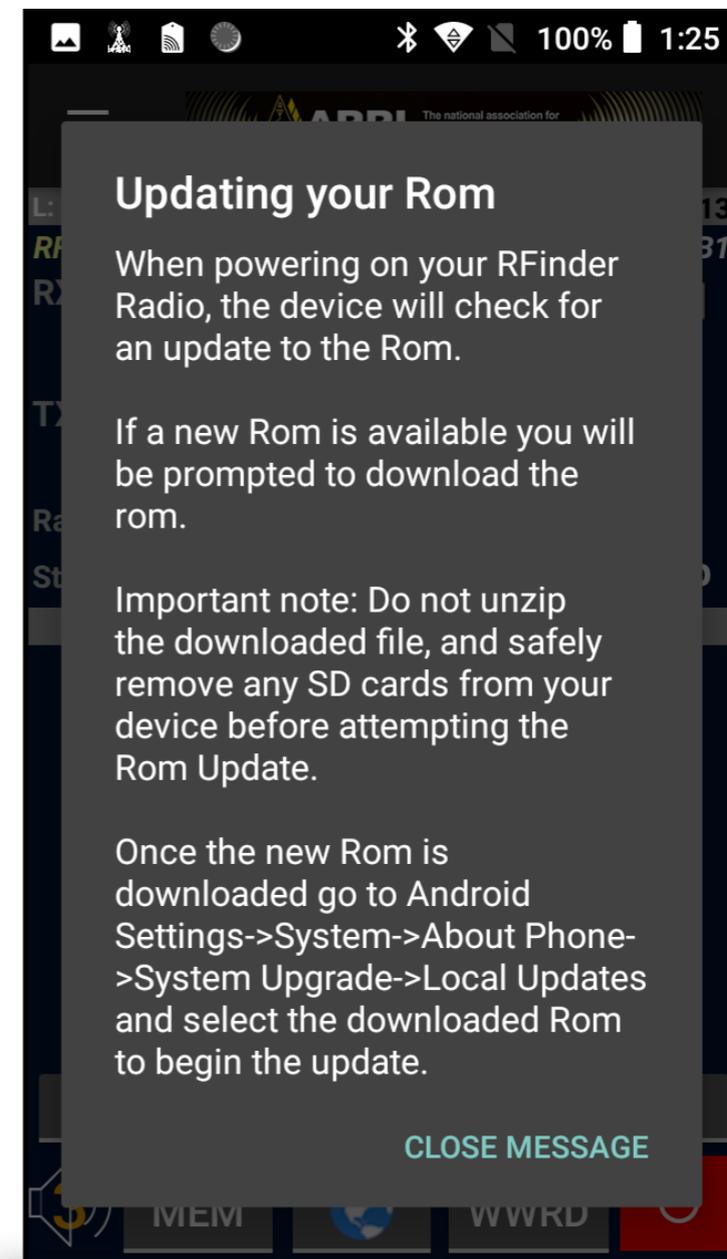
Note: If a person on the Facebook group, or elsewhere, who is not a part of **RFinder** Support, says to do a reset of the RF Module, do **NOT** follow their instructions. Only an **RFinder** Support agent is authorized to suggest this action.



ADVANCED SUPPORT (ROM UPDATE)- MENU

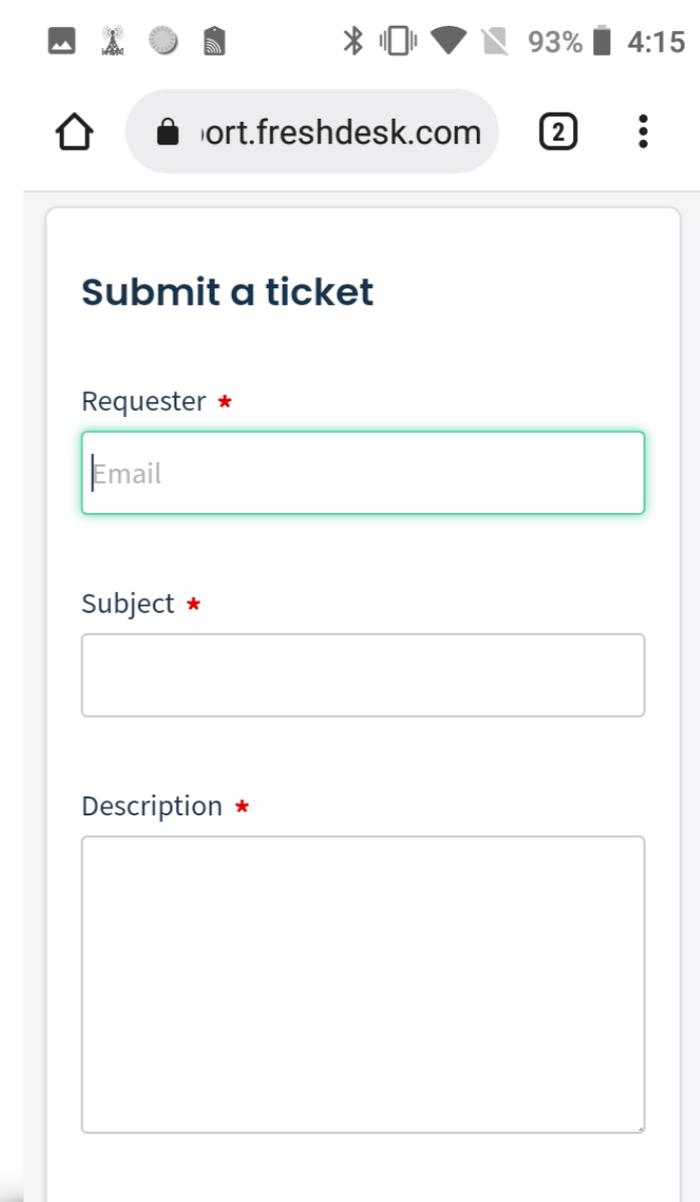
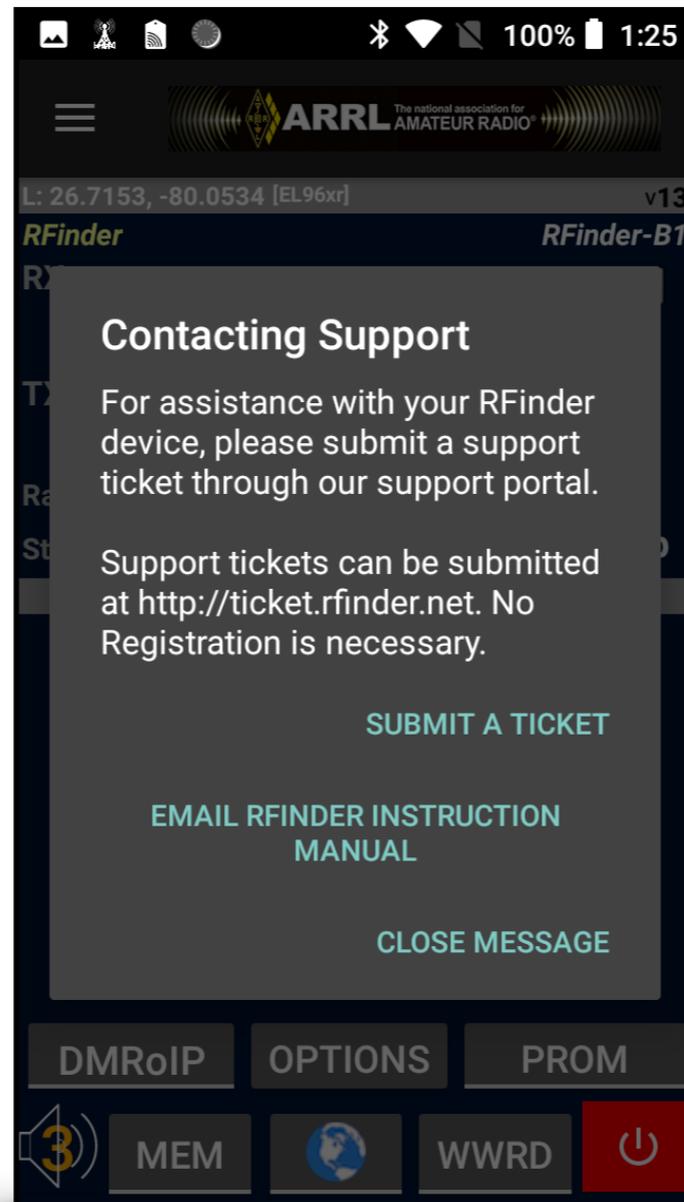
In the **RFinder** application, there is a separate way to download the ROM. If connected to the internet when booting up the RF module, if your ROM is out of date, you will have the option to download the latest ROM right there. Once it is downloaded, follow the instructions given by following this sequence:

**MENU -> Advanced Support ->
ROM UPDATE INSTRUCTIONS**



ADVANCED SUPPORT (SUPPORT)- MENU

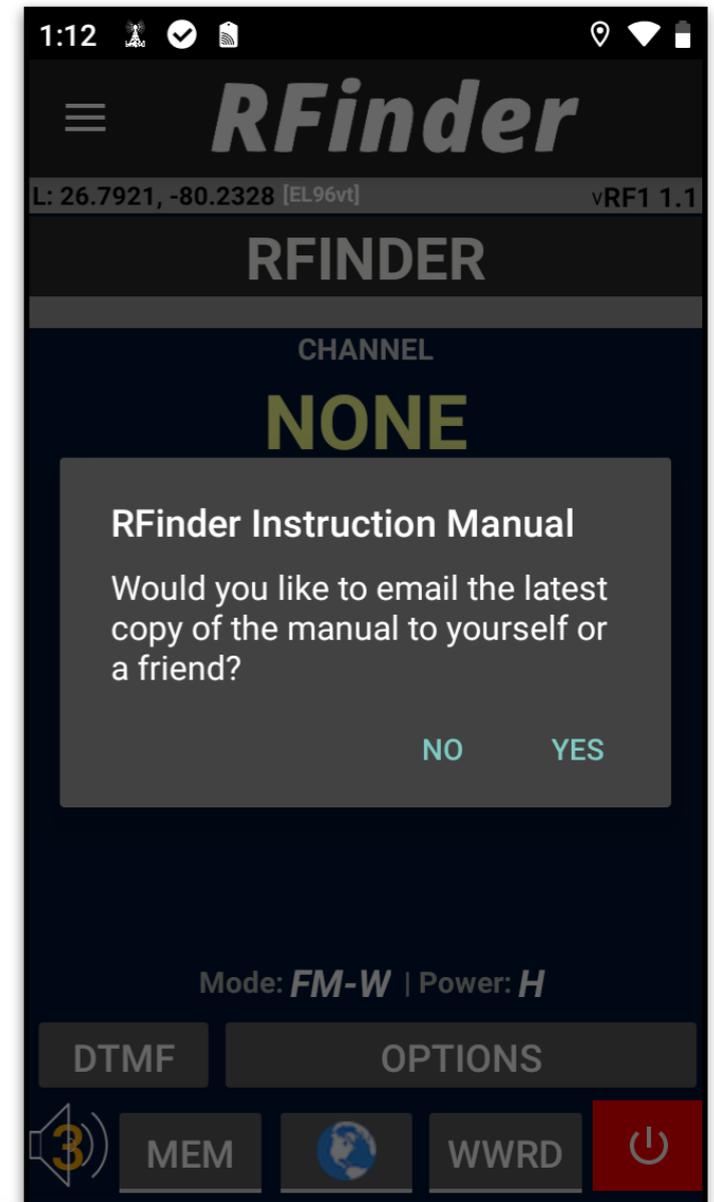
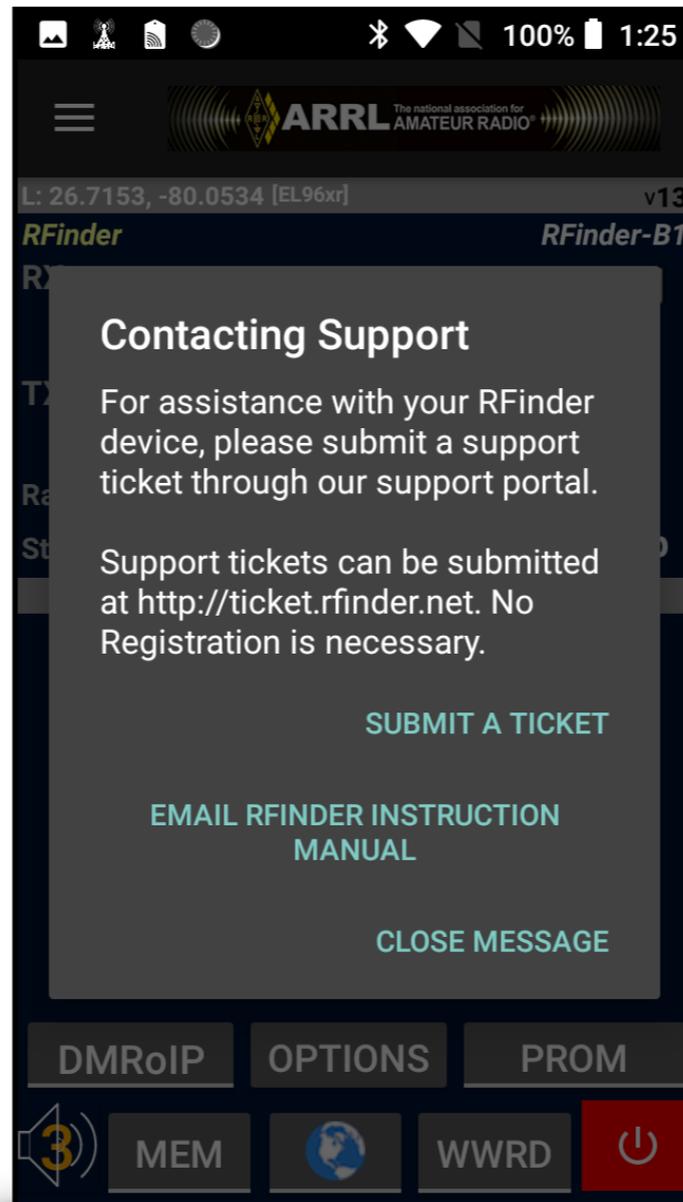
When going into the Advanced Support Menu option, if you click on the **CONTACT SUPPORT & INSTRUCTION MANUAL** button, you will be brought to a page that allows you to submit a support ticket. If there are any issues with your radio, or with the software, or even if you just have an idea that the **RFinder** Development team may want to hear, we are always happy to hear from our users, and help in any way that we can!



ADVANCED SUPPORT (MANUAL)- MENU

When going into the Advanced Support Menu option, if you click on the **CONTACT SUPPORT & INSTRUCTION MANUAL** button, you will be brought to a page that allows you to email the latest manual to yourself, or to a friend!

Alternatively you can view and download the manual at **<http://manual.rfinder.net>**

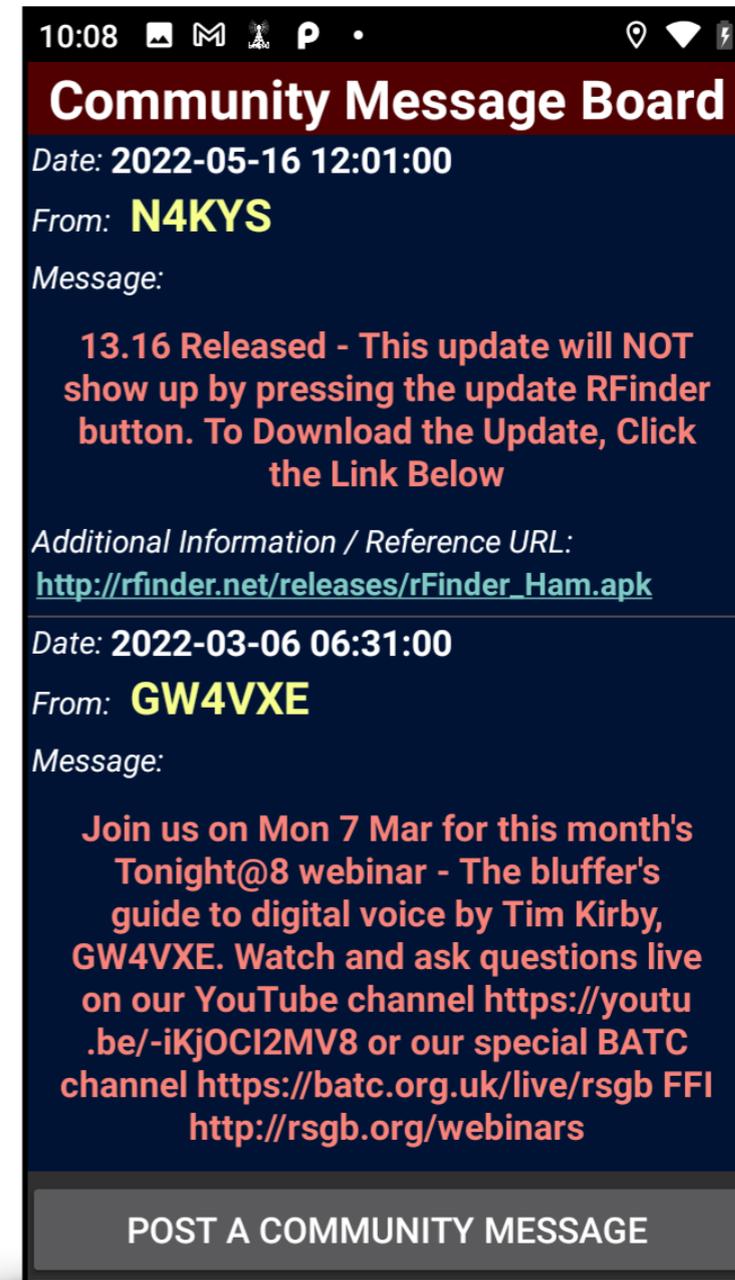


SECURE MESSAGING - MENU

As of RFinder 12, we now have a secure messaging system built into our application. To access this, go to the RFinder Menu and click on Secure Messages. This will initiate a popup message, which will ask you to input a pin. The pin you create will be used every time you attempt to go back into this menu option, so make sure it is something that you can remember.

Once you have reached the secure messaging menu, you will have the ability to see the Community Message Board, and see all of the user posted messages, in order of time, with the newest being on top. You may also send in a message to Support@rfinder.net, to input your message on the board as well!

There will be user to user messaging in RFinder 14!



RFINDER NETWORK - MENU

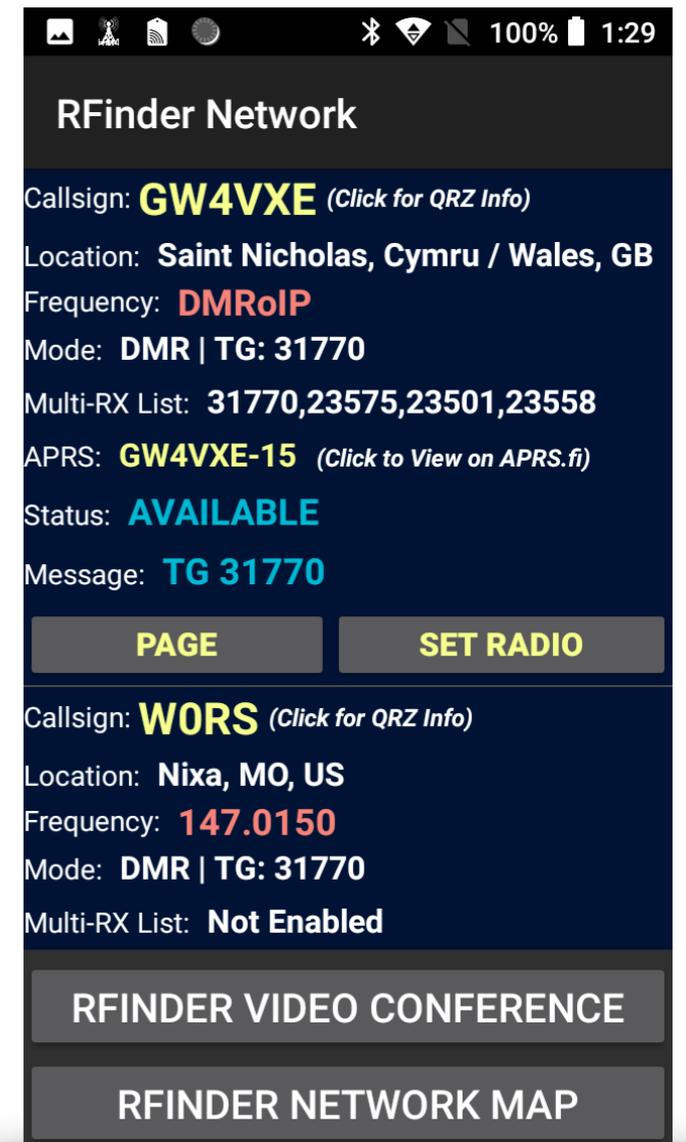
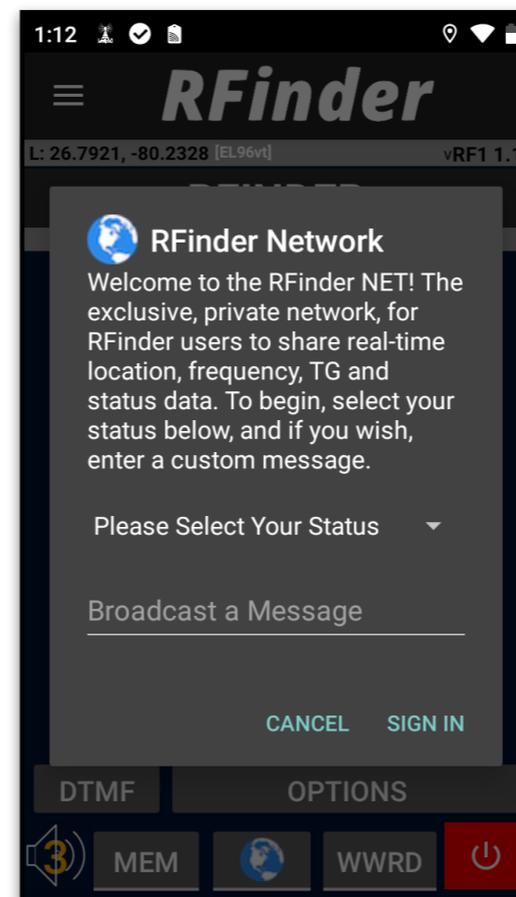
The **RFinder** radios have the ability to connect with other **RFinder** users and share with them which repeater you are currently monitoring, and what city they are currently in.

The **RFinder** Network menu option will display the **RFinder** Users who have enabled this feature. Knowing other **RFinder** Users and what frequency and talkgroup they are on can be helpful for an emergency event or a social gathering (i.e. Ham Fest).

To take advantage of this feature, when in the main screen, click the globe at the bottom of the screen, and choose a status!

You can turn off this feature by clicking this globe again and clicking sign out.

The RFinder Video Conference button will take users to a Jitsi Meet, which will allow users to have a video conference.



RFINDER NETWORK - USER LIST

When a user is on the RFinder Network, there are many categories visible for people to observe. To see what each item means, see the list below:

Callsign: - The user's callsign. You can click this, and you will be taken to their QRZ (if they have one)

Location: - The user's City/State/Country

Frequency: - The frequency that the user is on (if in FM) or if the user is in DMRoIP, the display will say DMRoIP

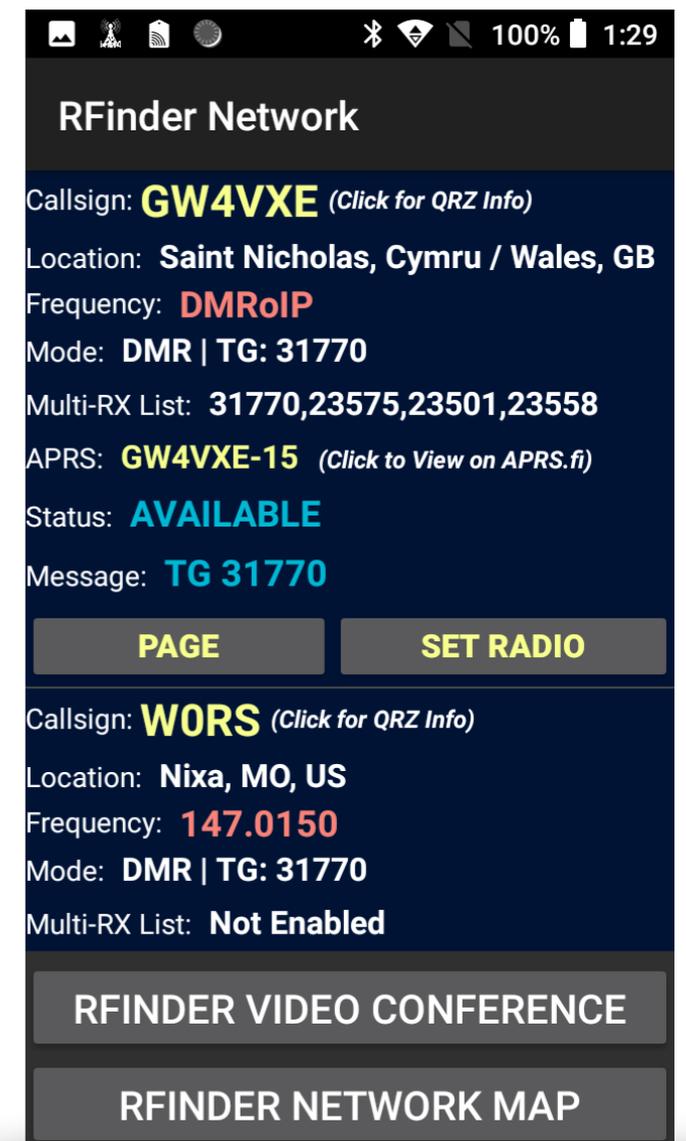
Mode: - The mode the user is in (FM or DMR)

Multi-RX List: - If in Multi-RX, there will be a list of talkgroups that the user is listening to

APRS: - Click here to view user on APRS

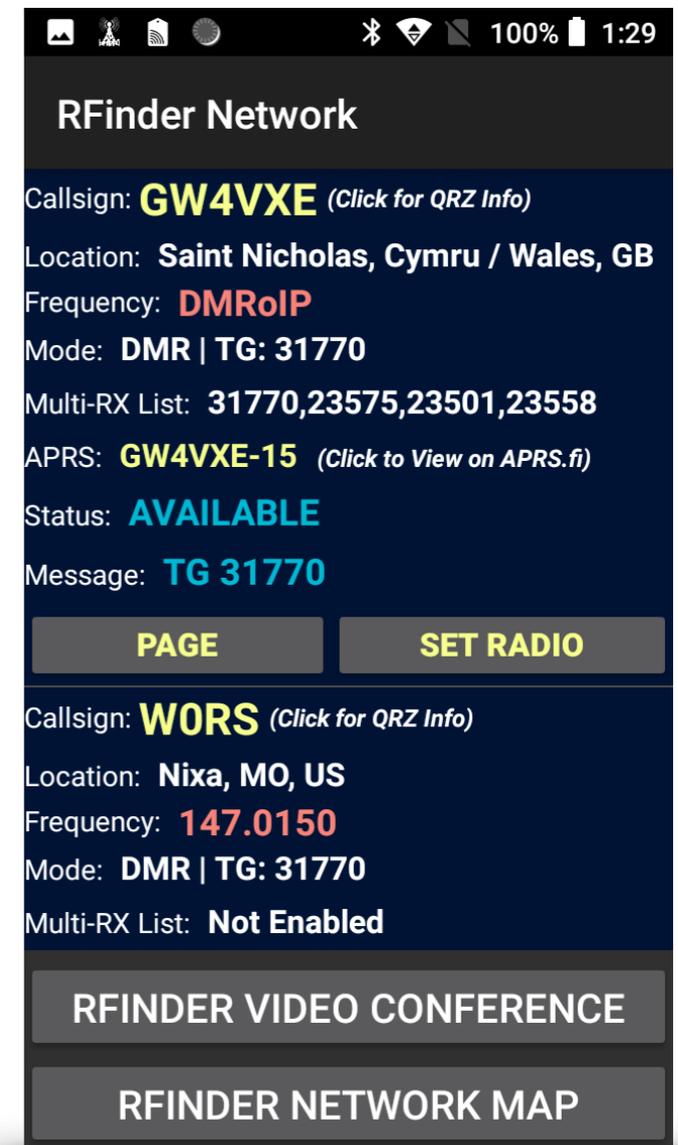
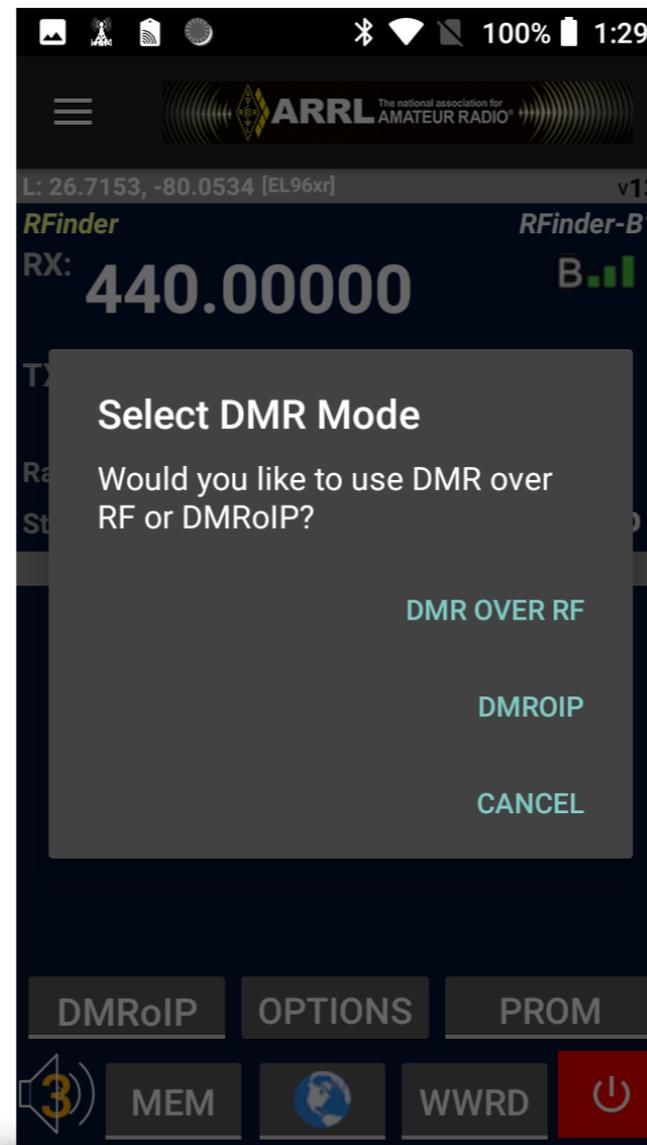
Status: - The selection the user chose to set their status to when activating the RFinder Network

Message: - The user's custom message they chose to write when activating the RFinder Network



RFINDER NETWORK - SET RADIO

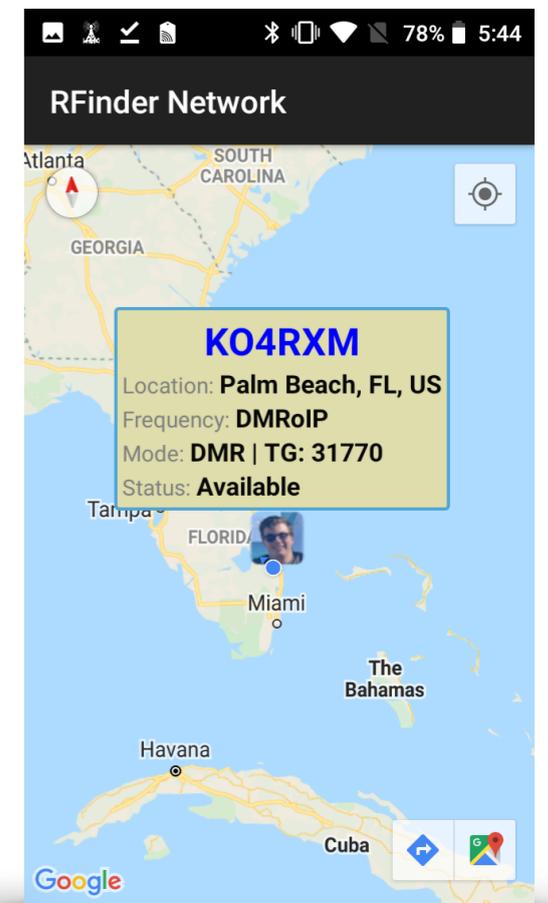
The **RFinder** radios have an amazing feature that exists in no other radios. It allows our users to communicate with one another and exchange parameter information over our secure network. When scrolling the **RFinder** Network list, you are able to set your radio to another one of our user's DMR Talkgroups or frequency, using the **SET RADIO** button.



RFINDER NETWORK - MAP

Our **RFinder** radios have a game shaking feature; its access to our **RFinder** Network. Our **RFinder** Network Map shows every user who has activated the **RFinder** Network on their radio. When in the map, a user can see other **RFinder** users, their callsign, their status, and frequency/Talkgroup they are monitoring.

To view the map online, you may go to <http://map.rfinder.net>.



RFINDER NETWORK - RFINDER LIVE

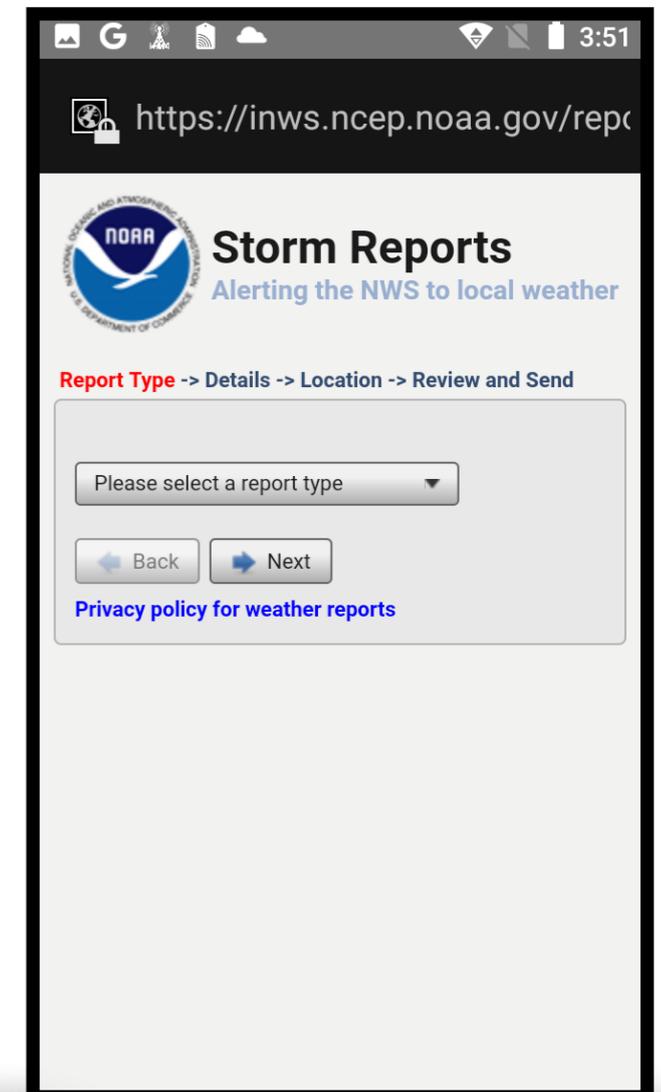
RFinder offers an **RFinder** Network option called **RFinder Live**. This **RFinder** Network option sends live updates to the **RFinder** servers, and allows the user to be seen in real time on our **RFinder** Network Map. The user's location and what station they are connected, will be updated automatically, and sent to the **RFinder** Network Map for other user's to see and communicate with one another.



RFINDER NETWORK - SKYWARN (UNITED STATES)

Another specialty feature offered by **RFinder** is the SKYWARN Mode. When you activate SKYWARN within the **RFinder** Network Status Menu, a button will pop up on top, which says "Submit Weather Report." This allows users who are doing weather watching activities to submit their weather report from their device.

NOTE: This button only appears when Multi-RX is disabled.



PROPAGATION CONDITIONS

New to RFinder 13 is Propagation conditions. This will allow users to check propagation for nearly all bands. As long as the user has an internet connection, their radio can check conditions, instead of needing to search online.

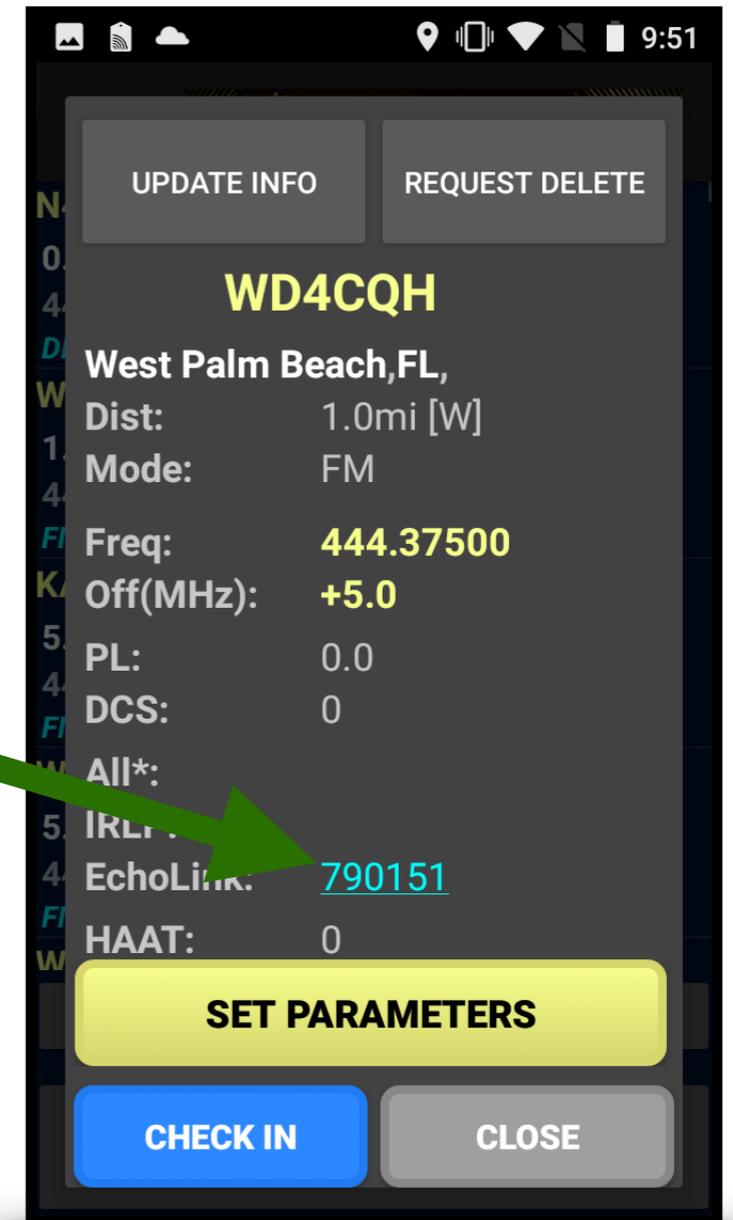
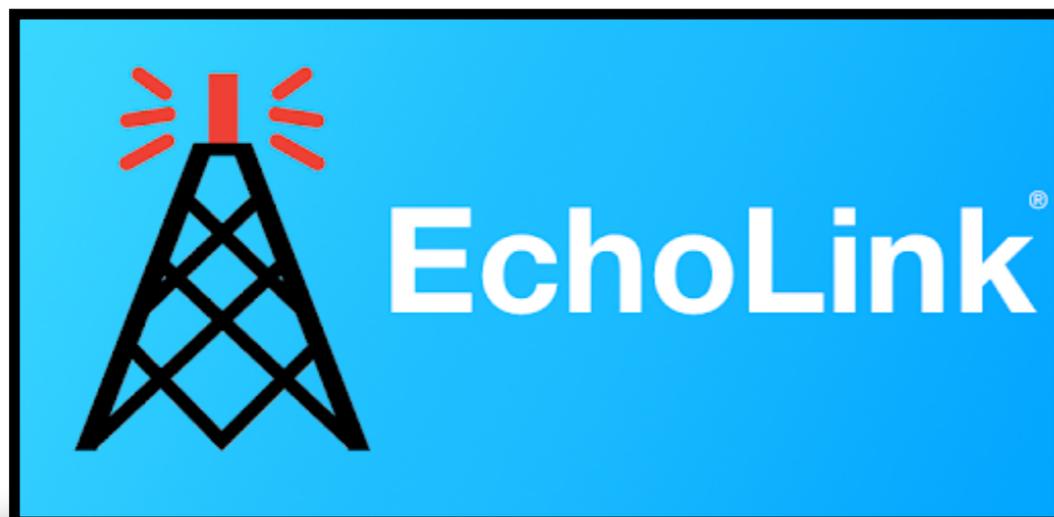


ECHOLINK

Are you an EchoLink user? If you have EchoLink installed on your **RFinder** radio, you can use our **RFinder** to EchoLink pathway. *How does it work?*

When looking through the Repeater List, if you see a number next to **EchoLink**, this indicates that there is an EchoLink node registered with that repeater. Here is how to access that node:

1. Select the repeater from the Repeater List.
2. Click the EchoLink node number.
3. This will launch the EchoLink application and connect you to that node.



CALLSIGN LOOKUP - MENU

The callsign lookup menu option allows for you to enter an amateur radio callsign and pull the latest information from the FCC's Database.

The returned information will display:

1. **Callsign**
2. **Address**
3. **License Class**

Note: Clicking on the alias of a person (in the **Last** section) will also display their Callsign Lookup details.

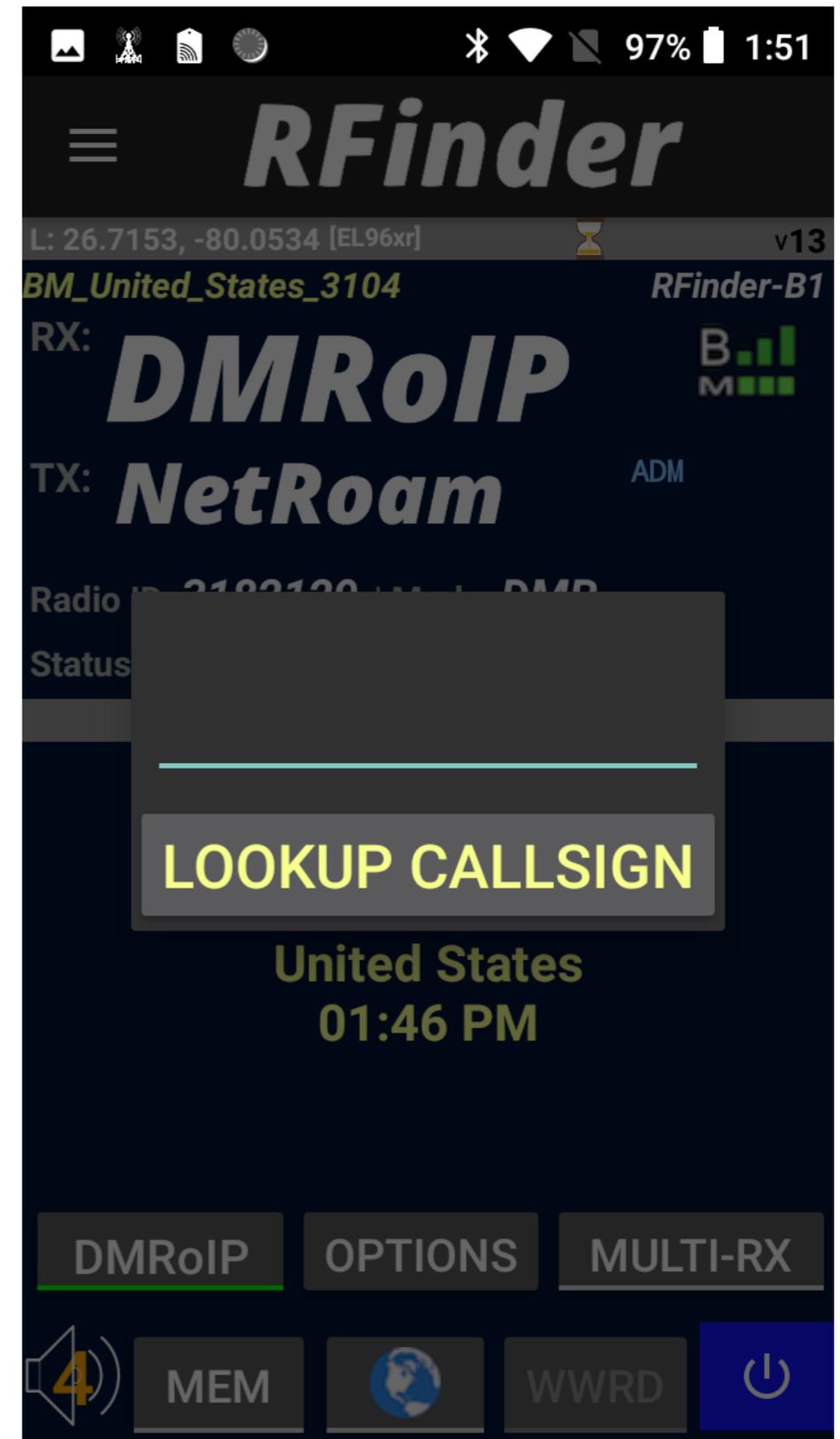


RFinder

NA1SS
INTERNATIONAL SPACE
STATION AMATEUR RADIO
CLUB 1
1804 Hopefield Rd
Silver Spring MD 20905
United States
Class: Club

QRZ

CLOSE LOOKUP



RFinder

L: 26.7153, -80.0534 [EL96xr] v13

BM_United_States_3104 RFinder-B1

RX: **DMRoIP**

TX: **NetRoam** ADM

Radio ID: 2182120

Status

LOOKUP CALLSIGN

United States
01:46 PM

DMRoIP OPTIONS MULTI-RX

MEM WWRD

LOCATION OVERRIDE - MENU

There may be times when you are wanting to find the local repeaters for secondary location. Using the Location Override, you can manually set your device location. This will allow you to view the local repeaters in the area of your choice.

To override the location, do the following:

1. Enter the full address, city name, or zip code in the top line. Or enter the Latitude and Longitude of the location.
2. Uncheck *Allow Rfinder to Use Device Location*.
3. Click SET LOCATION.

NOTE: When finished with location override, return to this menu screen and check *Allow Rfinder to Use Device Location*.

A screenshot of a mobile application interface. At the top, there's a status bar with icons for signal, Wi-Fi, and battery, and the time 8:46. Below that is a dark grey header with a hamburger menu icon on the left and the title "LOCATION OVERRIDE" in yellow. Underneath the title is the subtitle "Manually Set your Location" in a smaller, lighter font. A horizontal line separates the header from the main content area. The main content area has a dark grey background. It features a large, light grey button labeled "LOCATION LOOKUP". Below this button is the text "OR Enter Manually:". Underneath that are two input fields labeled "Latitude" and "Longitude". At the bottom of the main content area are two buttons: "SET LOCATION" and "CANCEL". Below the buttons is a checkbox labeled "Allow RFinder to Use Device Location" which is checked.

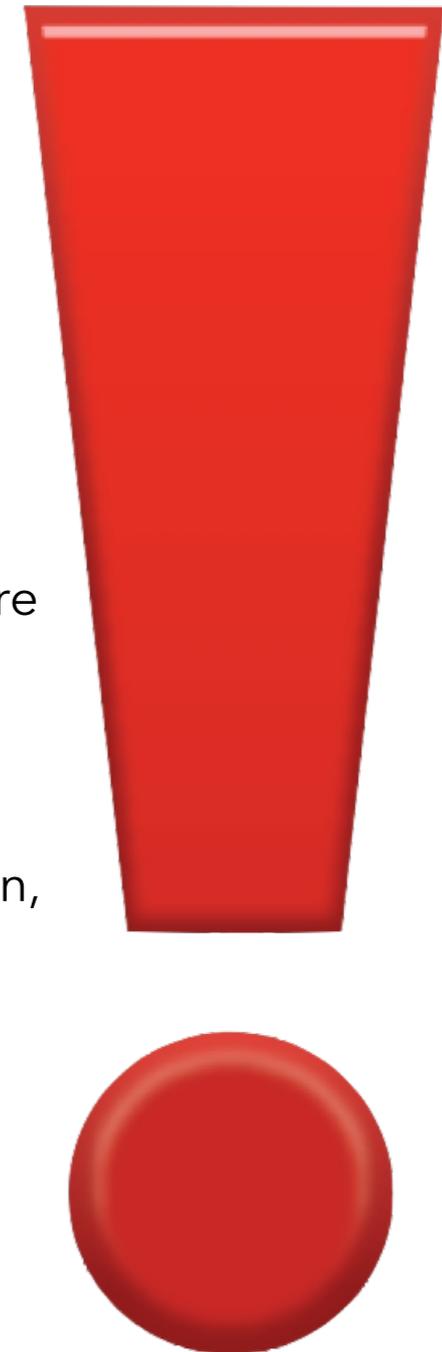
DMR OVER IP - INITIAL SETUP



DMR over IP (*DMR over IP*) allows the **RFinder** radio user to connect to over 200,000 DMR users from all over the world by using your device's internal network connection!

The quality of this connection is dependent upon your network connection, the connection of the other person, and the quality of the Brandmeister Server you are connected to at the moment of the QSO.

If audio packets are lost from either of the three sources due to a weak connection, audio may sound garbled until the connection improves.



DMR OVER IP - INITIAL SETUP

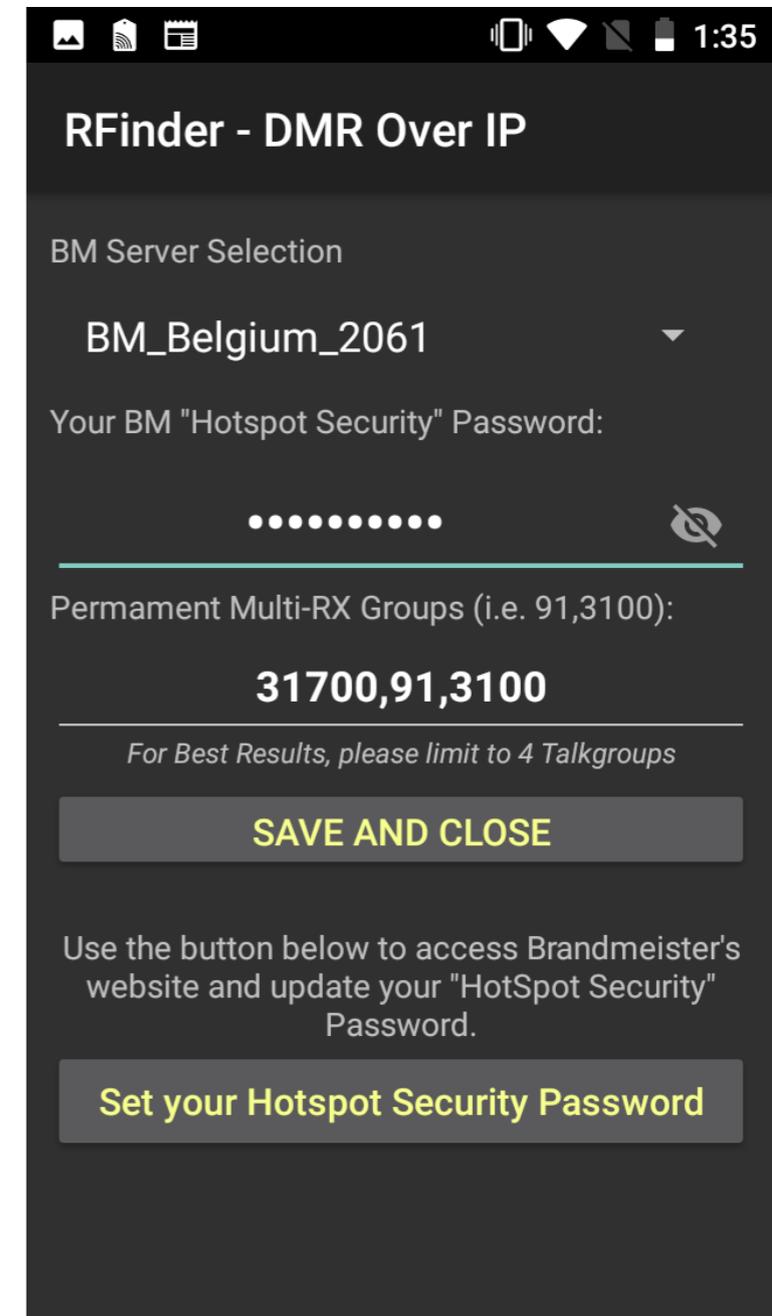


DMR over IP (*DMRoIP*) allows the **R Finder** user to connect to Brandmeister's DMR network using the device's internet connection (i.e. 802.11 WiFi, or Cellular).

Once **DMRoIP** is enabled on the radio, the user can talk on any of the 1500+ Brandmeister Talkgroups without needing a Hotspot or a local DMR repeater.

To begin the setup, complete the following steps:

1. Go to menu and select RoIP Options.
2. Select your preferred Brandmeister server.
3. Enter the BM Password from <http://Brandmeister.network> SelfCare settings page.



DMR OVER IP



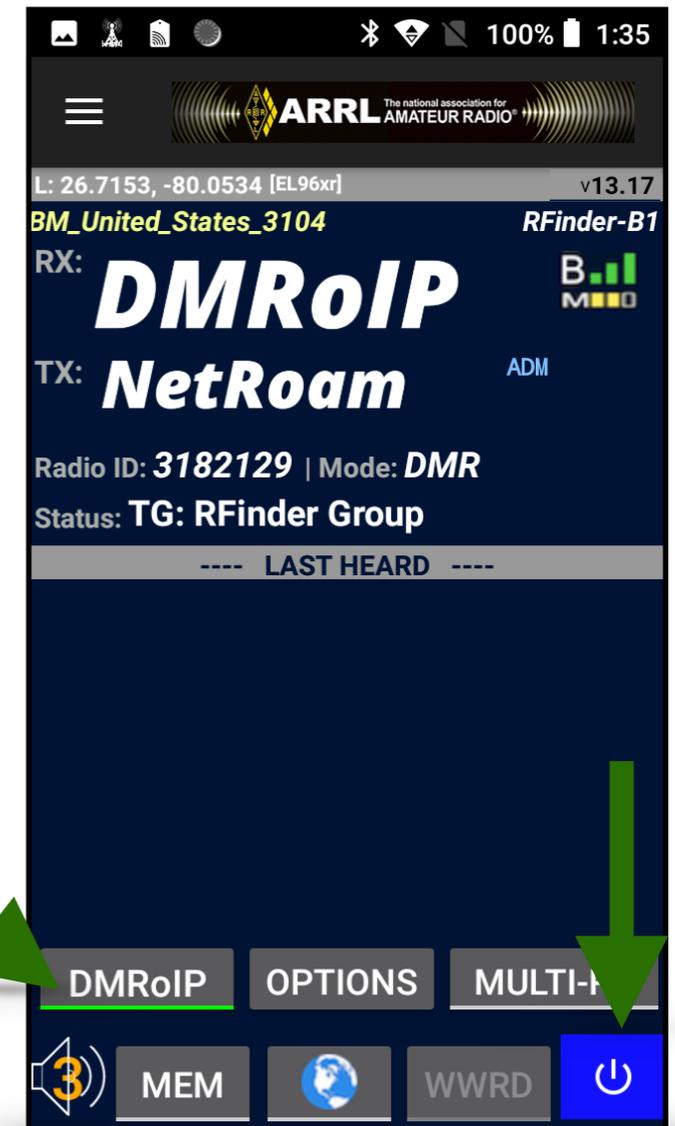
When using DMRoIP, The *RX and TX frequencies, Color Code and Time Slot* is irrelevant to the operation. The only setting that is necessary is the Talkgroup.

Clicking the **DMRoIP** button will activate the radio's **DMRoIP** operation.

When DMRoIP is activated the following will change:

DMRoIP button will be checked on/off

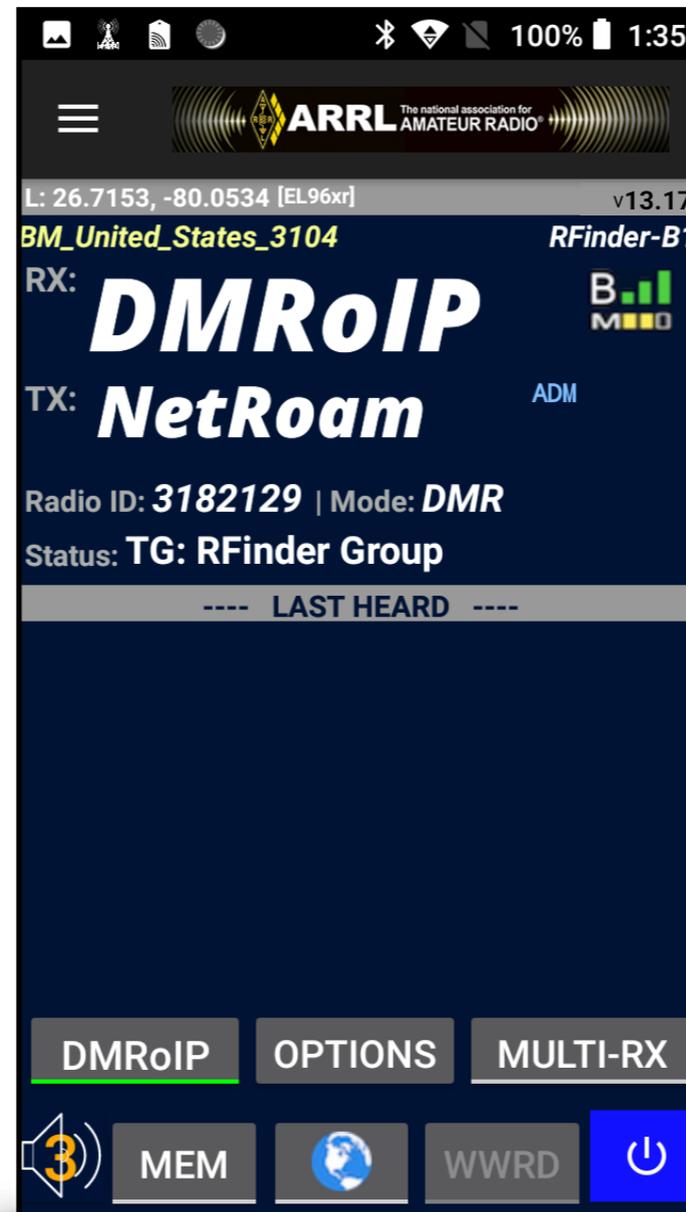
RF Power button will change from **Red** to **BLUE**



DMROIP NETROAM



DMRoIP NetRoam allows a user to reconnect to DMRoIP automatically, upon the internet connection being dropped. The **R Finder** radio will go into an internet searching mode, attempting to reconnect to the internet, and will automatically turn DMRoIP back on once there is a valid internet connection. If the user does not want to wait for an internet connection though, the user may click **LOG OUT OF NETROAM**, and the radio will go back to DMR mode.

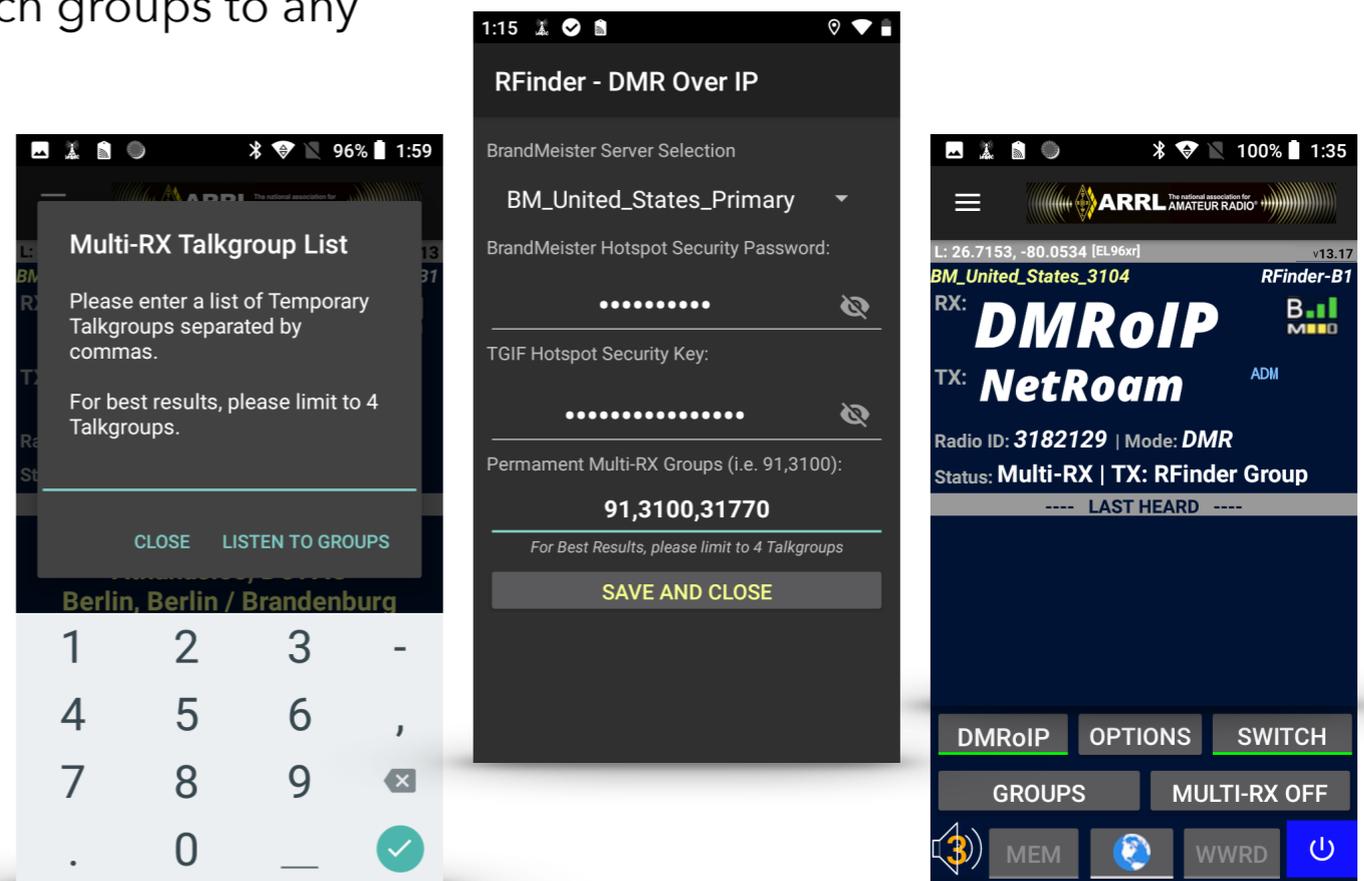


DMROIP MULTI-RX



DMRoIP Multi-RX is one of many features offered for the **RFinder** radios. **Multi-RX** allows the user to tune in to multiple DMR talkgroups. The user's radio will automatically switch groups to any selected channels that are talking, once the current group stops broadcasting audio. To set permanent groups, the user must add the groups through the DMRoIP menu. To set temporary groups, the user may add groups through the **GROUPS** button when Multi-RX is enabled. To switch to the current talking talkgroup, click the **SWITCH** button. To turn off Multi-RX, click the **MULTI-RX OFF** button.

Note: Both the Memories button and the World Wide Repeater Directory (WWRD) buttons are disabled during **Multi-RX** operations.



OPTIONS MENU

The Options Menu can be accessed by clicking OPTION on your main screen.

PTT SILENT: Turns off the Push to Talk Tone.

ADMIT TONE: Changes the PTT tone.

DMR ROAM: Allows you to change the frequency while maintaining the same TG, TS, and CC.

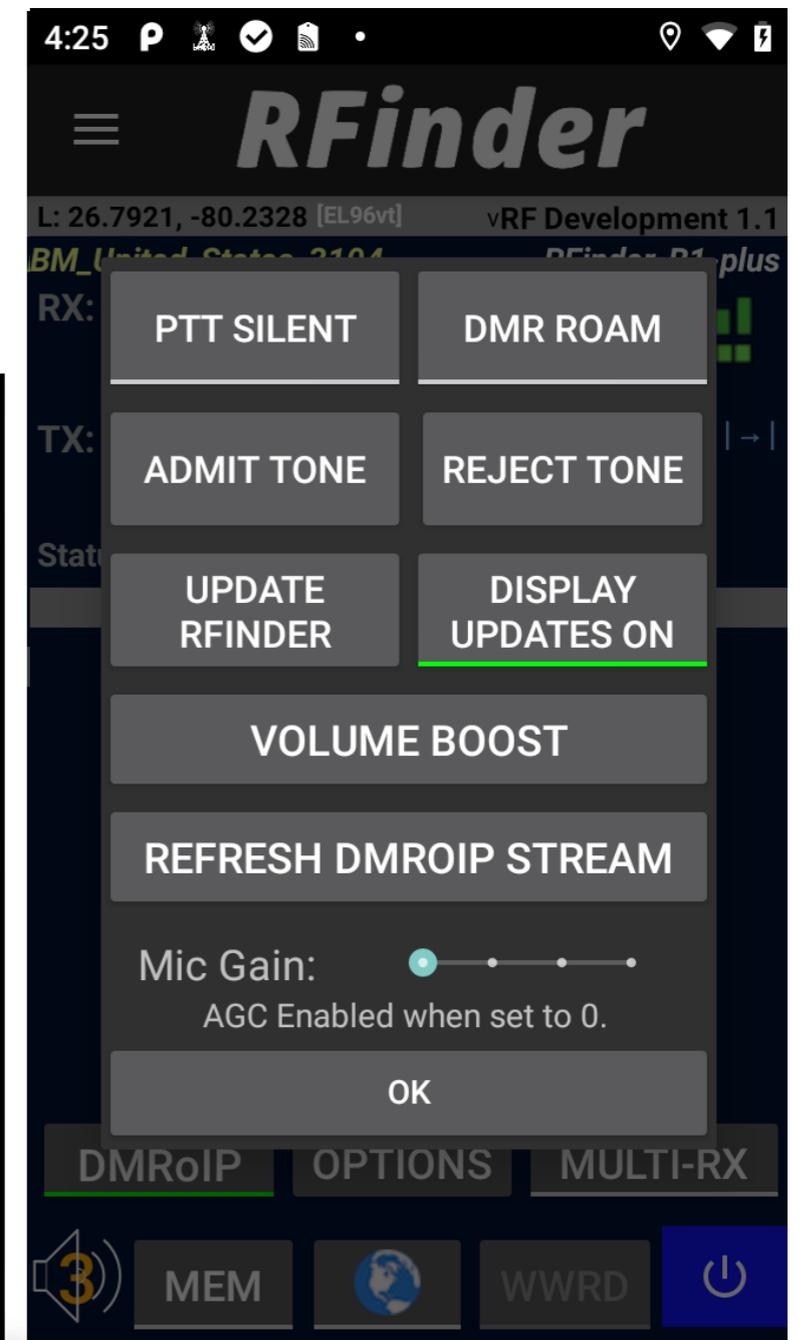
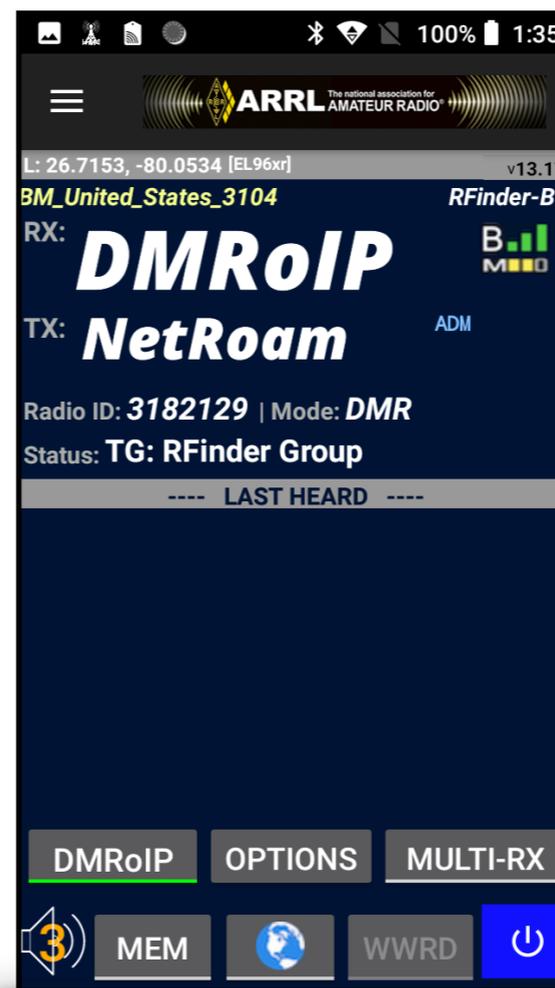
REJECT TONE: Changes the Reject tone.

UPDATE RFINDER: This checks for new software or ROM updates.

DISPLAY UPDATES: Allows the RFinder application to automatically check for updates.

VOLUME BOOST: Increases the volume to the maximum that it can go based on the volume knob's setting.

REFRESH DMROIP STREAM: This refreshes the DMRoIP stream.



LAST HEARD

By clicking on the words LAST HEARD, on your main screen, you will see a list previous incoming transmissions.

This menu will display the callsign and name of the individual. The most recent call is at the top of the list.



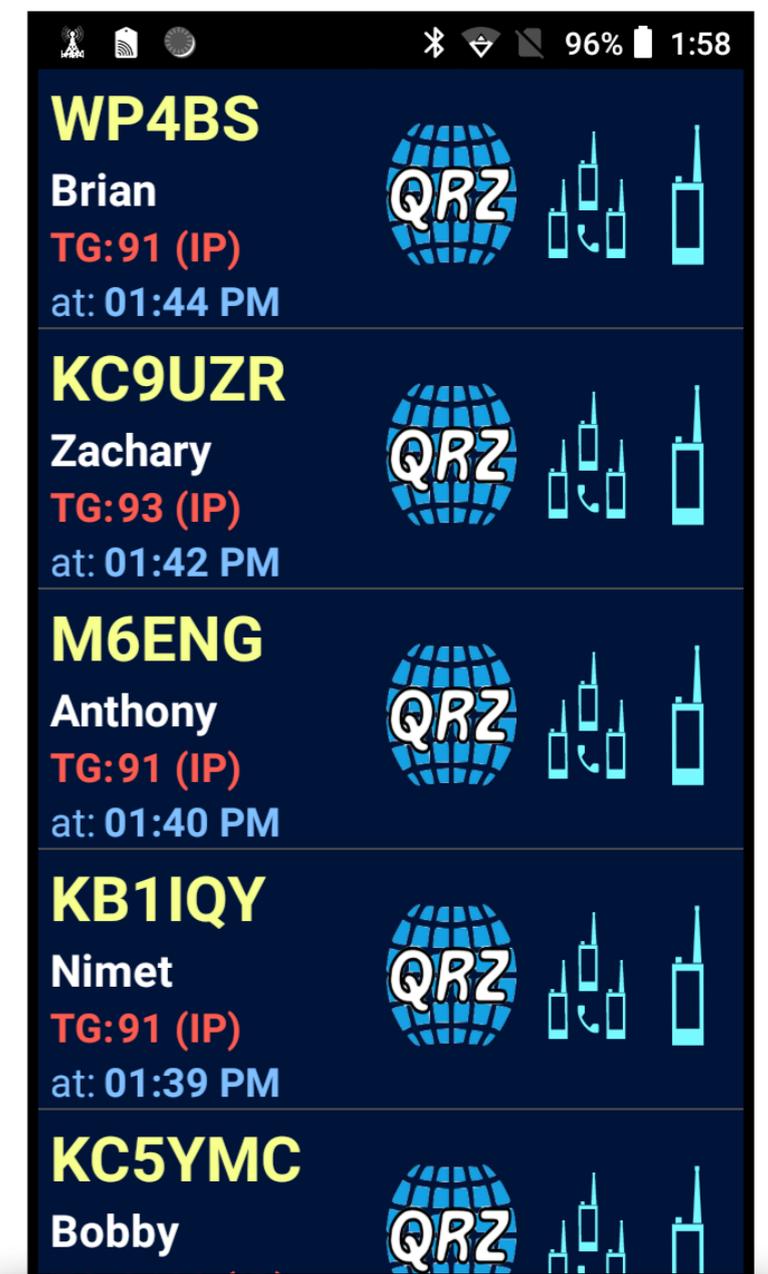
Clicking on the **grouping of radios** and then clicking the **back button** on your device will change the radio to the talkgroup that this call originated on the current frequency.



Clicking the **single radio**, and then clicking the **back button** on your device will set the radio to a private call to the user's DMR ID.



Clicking the **QRZ button** will send you to the user's QRZ page (if they have

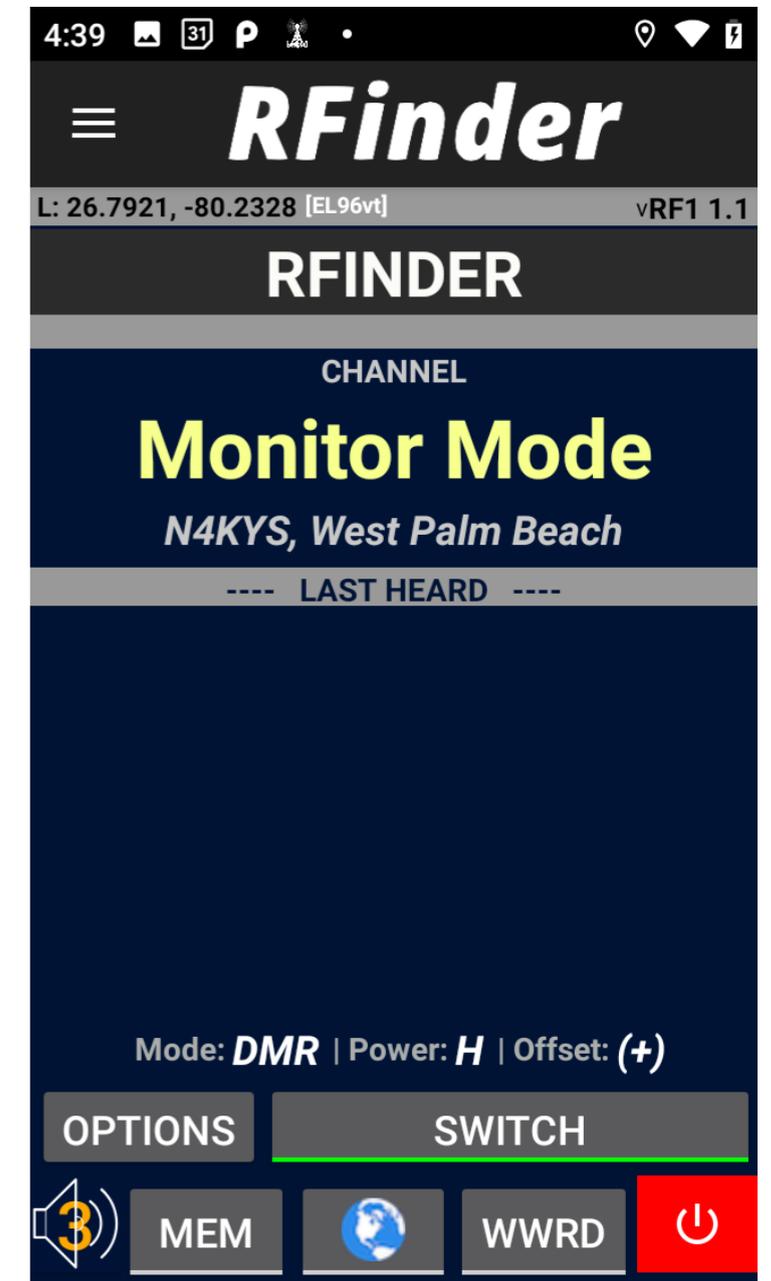
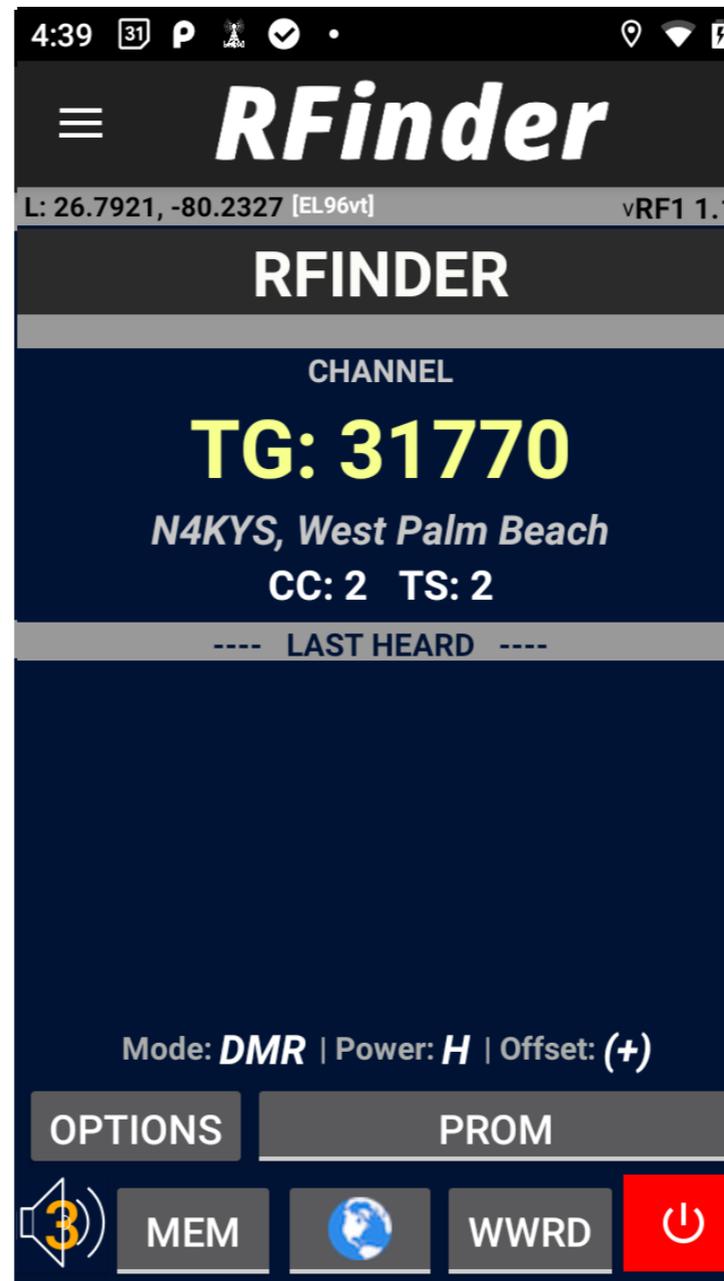


PROMISCUOUS MODE

The Promiscuous mode allows for the user to hear all DMR activity on a frequency. **All Talkgroups** on **any TimeSlot** with **any Color Code**.

To enter into Promiscuous mode, click the PROM button next to Options. The **Channel** will change from the Talkgroup information to **DMR Prom. Mode**.

When you receive a signal and you want to switch to that time slot/talk group combination, you just press the **SWITCH** button on the **RFinder** radio and the radio changes..



DIRECTORY TOOLBAR

The WWRD toolbar contains 3 repeater listing sorting options, and the Repeater Map button.

DIST

-Sorts the list by Distance

FREQ

- Sorts the list by Frequency

CALL

- Sorts the list by repeater call sign.

MAP

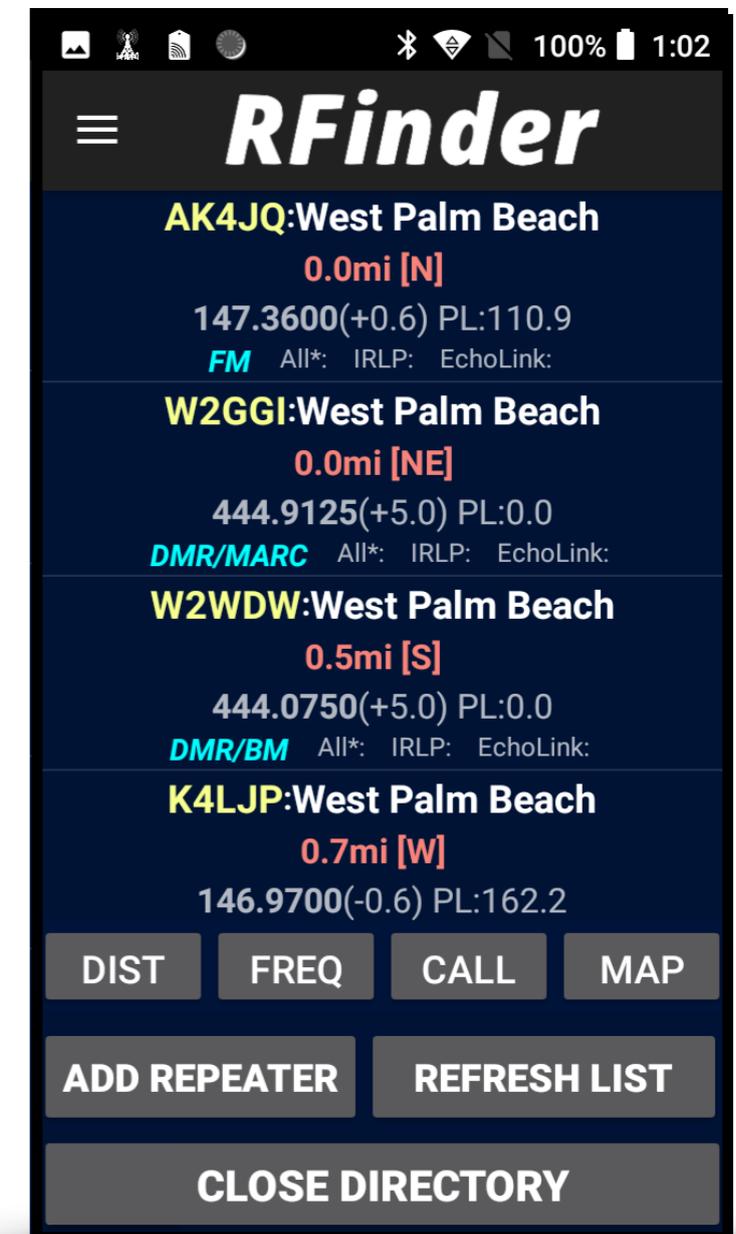
-The MAP button displays the Map of nearby repeaters.

ADD REPEATER

-Allows users to add a repeater to the directory

REFRESH LIST

-Refreshes the Repeater Directory



Note: Any submissions to the repeater database are manually verified before being added

BOTTOM TOOLBAR

The bottom toolbar contains 5 buttons, including the RF Module Power button, the Volume/Channel Selector, the World Wide Repeater Directory (WWRD) button, the Memories button, and finally the **RFinder** Network Status Button.



This set of buttons displays the current volume level and channel selection.



Clicking the volume changes it to Channel Selector.
Clicking the Channel Selector will change it to Volume.



Clicking the Memories and Directory Buttons will take you to their respected menus.



The **RFinder** Network Status button will open up a menu that you can use to set your status on the **RFinder** Network, and allows your radio to be seen on the **RFinder** Network map, and is visible to other **RFinder** users.



The RF Module Power button. This button must be either Red or Blue for your radio to transmit/receive.



REQUESTING TO ADD A REPEATER TO RFINDER

Our list of local repeaters is one of the best resources because it is constantly being updated by the amateur radio community. If you discover a repeater that is not on the list, you can add the repeater to the public database right from the **RFinder** application.

You can also add a repeater by visiting: <http://add.rfinder.net>

The information will be sent to our moderators for review and added into the public database.

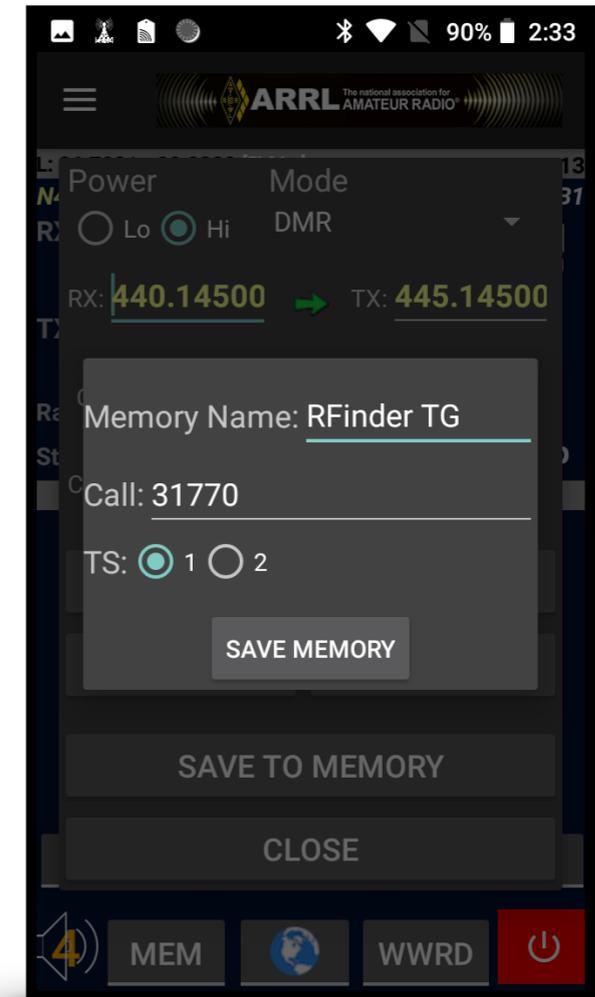
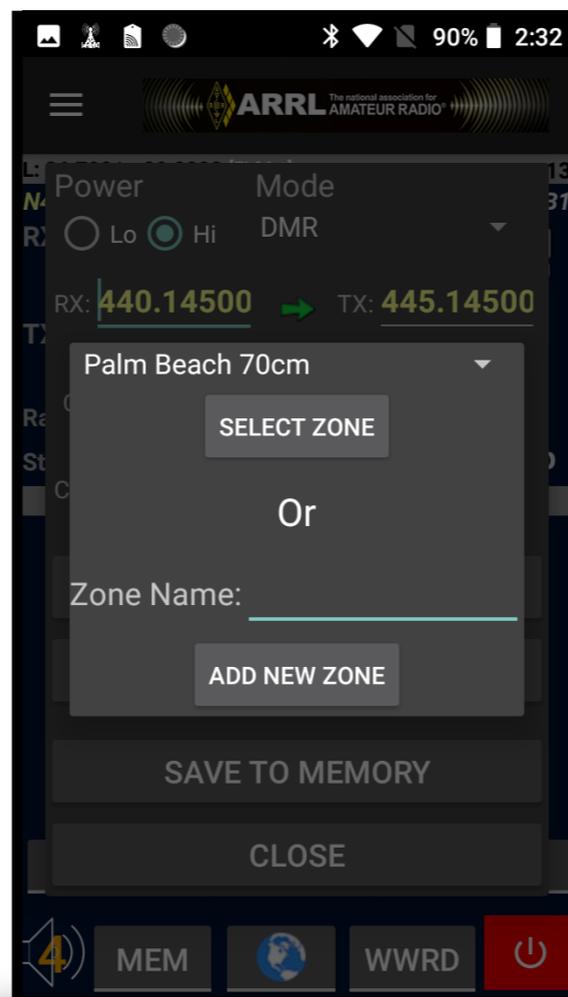
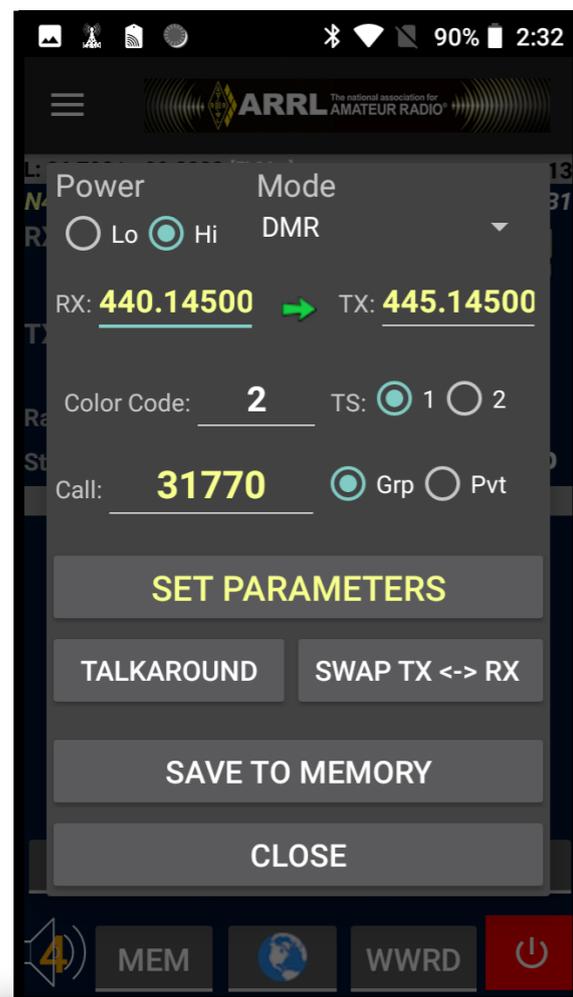


Submitter Callsign: <input type="text"/>	Submitter EMail: <input type="text"/>
Repeater Callsign: <input type="text"/>	Freq (MHz)*: <input type="text"/>
Operator: <input type="text"/>	Type: <input type="text" value="FM"/>
Latitude**: <input type="text"/>	Offset Sign: <input type="text" value="Simplex"/>
Longitude**: <input type="text"/>	Offset (MHz)***: <input type="text"/>
City/Location: <input type="text"/>	PL Tone*: <input type="text" value="N/A"/>
State: <input type="text"/>	DCS Tone*: <input type="text" value="N/A"/>
Country (2 Letter): <input type="text"/>	IRLP Node: <input type="text"/>
Range (mi.)*: <input type="text"/>	Echolink Node: <input type="text"/>
Color Code: <input type="text" value="0"/>	ASL (ft.): <input type="text"/>
Power (Watts): <input type="text"/>	Gain (dB): <input type="text"/>
Club: <input type="text"/>	Description: <input type="text"/>
Notes: <input type="text"/>	

* - Please use periods as decimal separators only. Do not use commas or thousands separators.
** - Please use absolute Latitudes and Longitudes in signed degrees decimal format (e.g.: 40.771, -72.995). Do not use N,S,E,W qualifiers or DMS notation. West Longitudes and South Latitudes must be entered as negative numbers. Use periods as decimal separators.
*** - Do not include a sign here, enter the offset sign (+ , - , or blank for simplex) in the 'Offset Sign' field. Use periods as decimal separators.

SAVING YOUR MEMORIES

To save a memory into a memory slot, click the **SAVE TO MEMORY** button. Next, choose your zone from the drop down and click **SELECT ZONE**. If you are adding a new zone, enter the name of the new zone and click **ADD NEW ZONE**. Lastly, enter the name, confirm the information and click **SAVE MEMORY**.



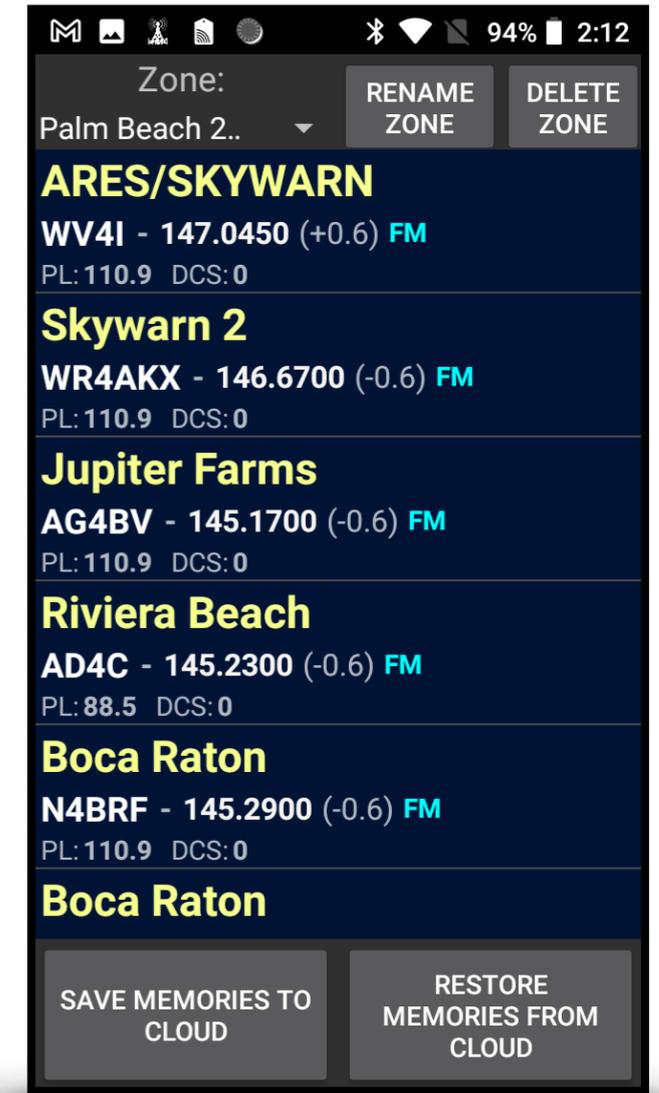
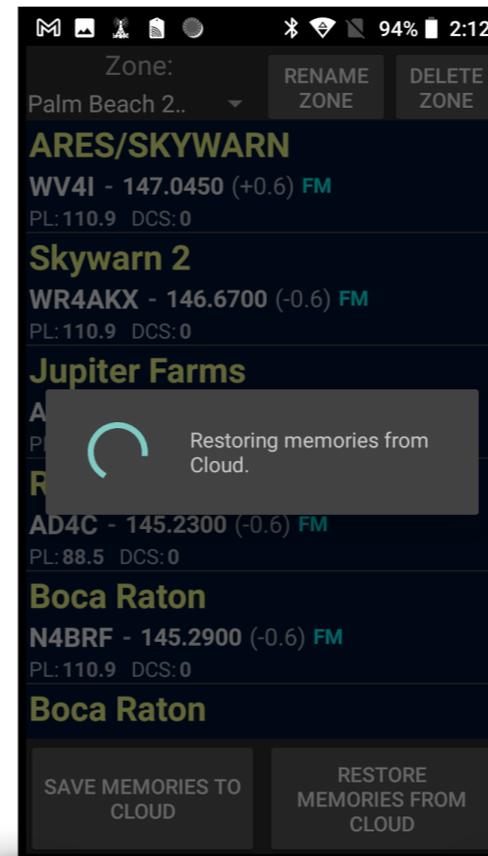
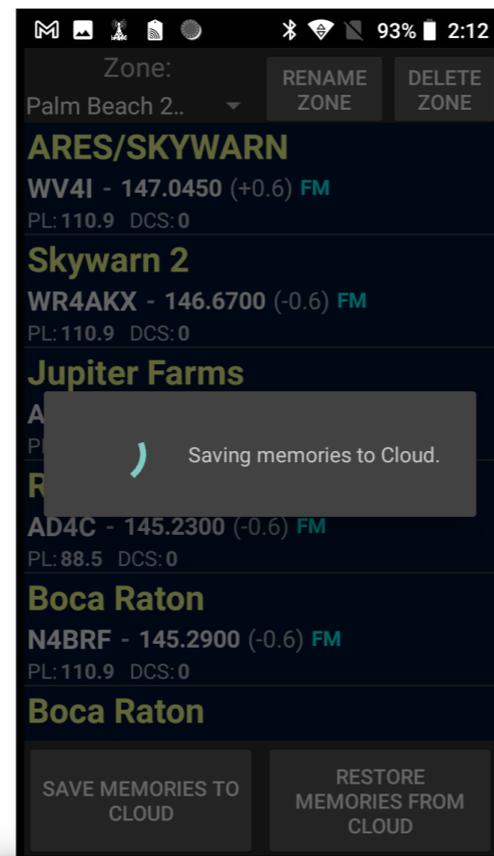
CLOUD MEMORIES - BACKUP AND RESTORE

One of our most appreciated features is the ability to backup and manage the radios memories in the cloud. This ensures the safety of all your memories so that if you reset the device, upgrade to a newer model, or purchase a **RFinder** tablet, all your memory channels can be instantly transferred over.

To Backup your radios memories to the cloud, click **CLOUD SAVE MEMORIES**.

To transfer the memory channels from the Cloud to your **RFinder** radio, click **CLOUD RESTORE MEMORIES**.

NOTE: New users **must** click **"Save Memories To Cloud"** in order to connect with our servers, and allow memories to be retrieved later on.



ONLINE PROGRAMMING - CLOUD MEMORIES

Online programming allows for your **RFinder** memories to be stored in the **RFinder Cloud**. This storage will allow memories to be backed up to the cloud and restored to your radio at any time.

Step 1: Go to <http://web.rfinder.net>

Step 2: Enter your **Username** and **Password** used to log into the RFinder application on your device.

Step 2: Click: **Manage RFinder Android Radio Memories**

Your Source for Amateur Radio Repeater Data Worldwide!

RFinder

The Worldwide Repeater Directory
www.rfinder.net

LOCATION SEARCH

[Search along a route instead](#)
[Manage RFinder Android Radio Memories](#)

User E-Mail

Password

 Remember me on this computer
[Forgot your password? Click Here](#)
[Don't have a password? Register Now!](#)

Location Lookup
Place:
(zip, city, landmark, address, etc.)
[Location Lookup](#)

Latitude **Longitude**

Band Selection
 -28MHz 144MHz 420MHz
 50MHz 222MHz 902+MHz

Mode Selection
 FM DSTAR DMR/TRBO
 ATV WX P25
 YSF NXDN

Search Square Radius
20 miles km

[Get Repeater List](#)

[Add Repeater](#)

RFinder Worldwide Repeater Directory Web - Location Search

Enter your credentials* and search criteria to the left, then click 'Get Repeater List'.
Please be patient after clicking the button.

*If you have any version of our smartphone app, use the e-mail address and password that you registered in the app.
*If you have not yet registered by either purchasing our RFinder smartphone app or a yearly subscription to the Worldwide Repeater Directory, please visit www.rfinder.net

ONLINE PROGRAMMING CONT.

Once logged in you can manage your "Cloud Memories".

Choose Zone - Select the Zone you would like to edit.

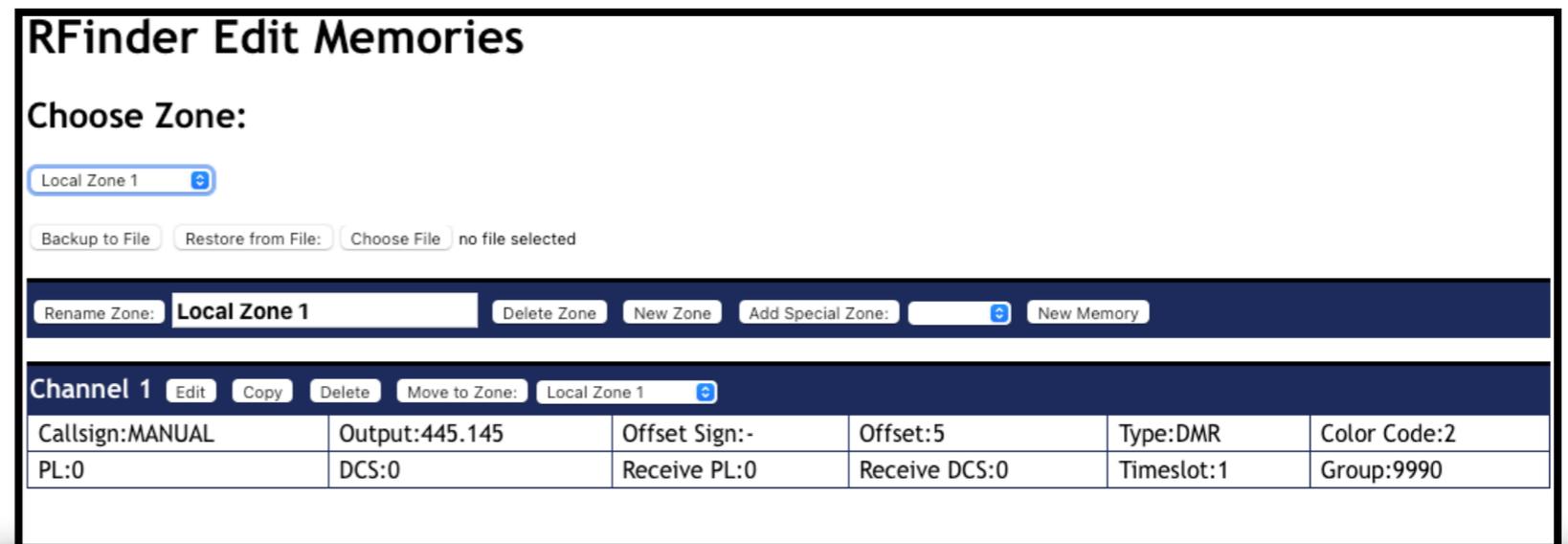
Rename Zone - Change the name of the zone.

Delete Zone - Removes the Zone you are working on.

New Zone - Create a new Zone of memories.

Add Special Zone - Add a new zone with pre-configured set of frequencies. This can include: FRS, GMRS, MUHRS, Marine, Offroad.

New Memory - Create a new cloud memory channel.



Channel 1					
Callsign:MANUAL	Output:445.145	Offset Sign:-	Offset:5	Type:DMR	Color Code:2
PL:0	DCS:0	Receive PL:0	Receive DCS:0	Timeslot:1	Group:9990

Backup to File - Saves your cloud memories to a file on your computer.

Choose File - Select the backed up file from your computer to be restored into the cloud.

Restore from File - Upload the memories from your chosen file into the **RFinder Cloud**.

ONLINE PROGRAMMING CONT.

Editing your **RFinder Cloud**

New Memory - Placeholder for Channel Name

Callsign - Subtext to channel name, i.e Repeater Callsign or Location

Output - RX or Receive Frequency

Offset Sign - Frequency Offset (+, -, blank)

Offset - Frequency Offset (0.600, 5.00)

Type - Channel Type

- **DMR** - Digital DMR Mode
- **FM** - FM Wide (25k Spacing - Standard for Amateur Radio)
- **FM-N** - FM Narrow (12.5k Spacing - Standard for Non-Amateur Radio Frequencies)

Color Code - DMR Color Code

New Memory					
Callsign:	Output:	Offset Sign:	Offset:	Type: DMR	Color Code:
PL:	DCS:	Receive PL:	Receive DCS:	Timeslot:	Group:

PL - Transmit PL

DCS - Transmit DCS Code

Receive PL - Receive PL

Receive DCS - Receive DCS Code

Time Slot - DMR Time Slot (1 or 2)

Group - DMR Talkgroup

NOTE: TG 98 - Testing Talkgroup
TG 91 - World Wide Talkgroup
TG 3100 - US Nationwide Talkgroup
TG 31770 - RFinder Users Talkgroup

RTL-SDR (P10 ONLY)

To activate the SDR on the P10, follow the steps below:

- Go to the Android Settings App
- Go to the search, and type in OTG
- Turn on the OTG toggle switch
- Go to the RF Analyzer application
- Press the triangle button (play button)

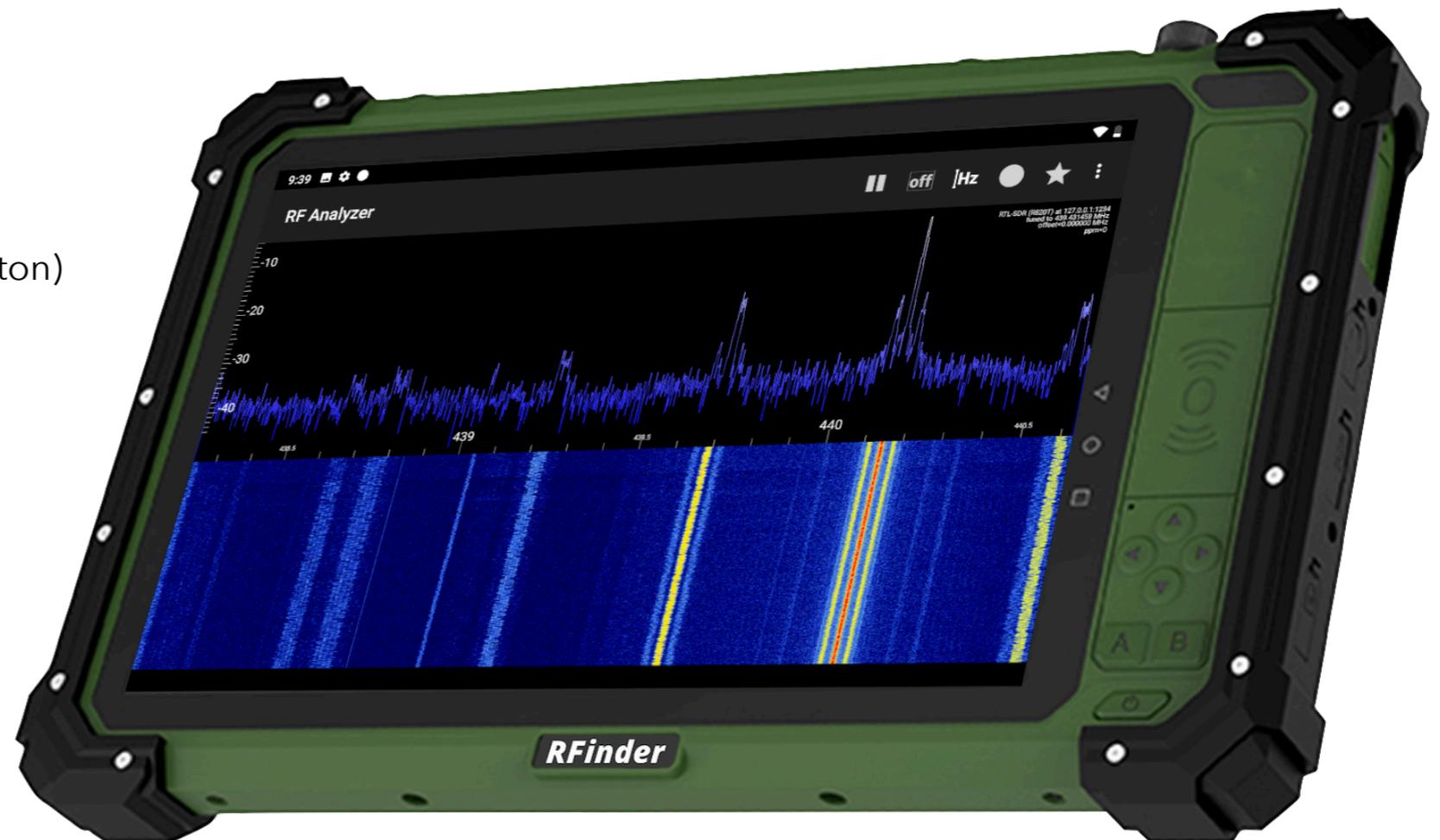
 - Start/Stop button for the SDR

 - Set Modulation Mode

 - Tune to Frequency

 - Record SDR

 - Set SDR Favorite

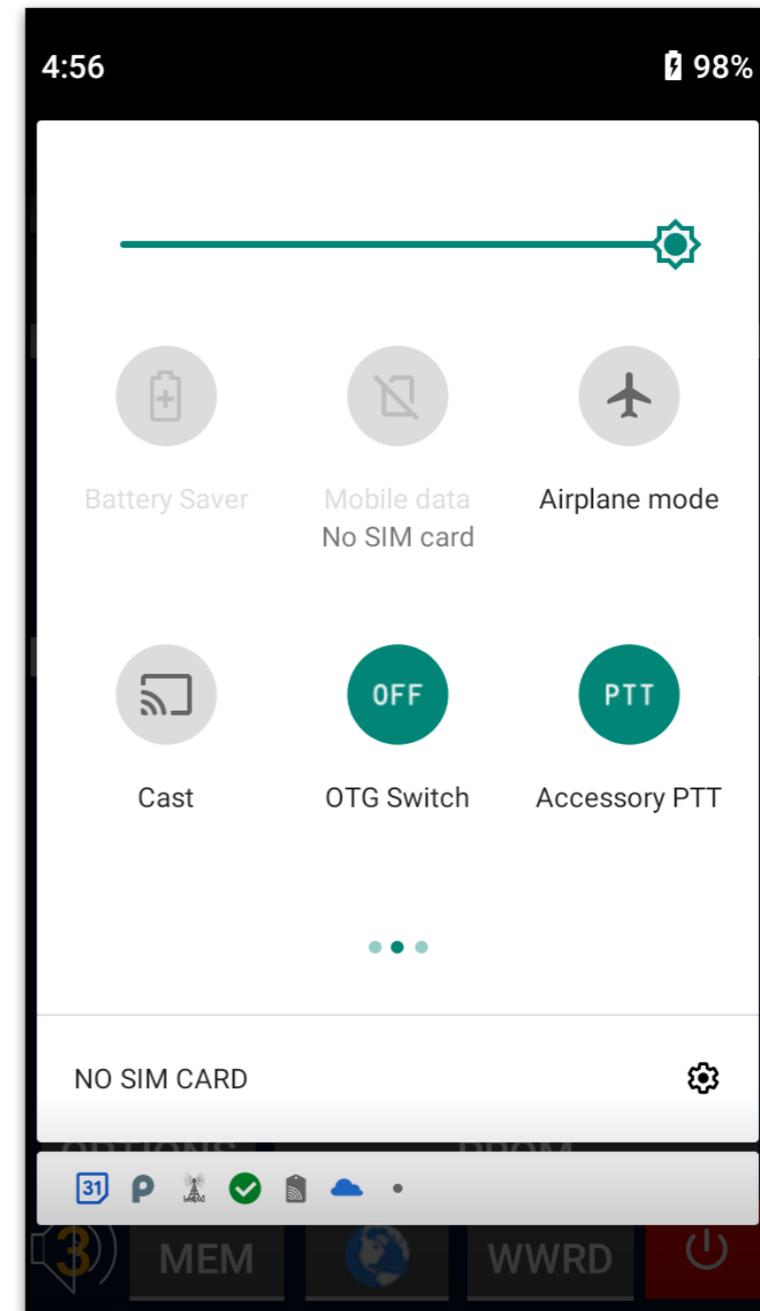


Note: The antenna port on the right side (by the volume knob) is for the RF module. The antenna port on the left side (away from the volume knob) is for the SDR.

EXTERNAL SPEAKER ACCESSORIES (B1/B1+/P10)

To enable the external speakers that can be purchased from **RFinder** or other vendors, please follow the steps below:

1. Swipe down from the unlocked device, from the top of the screen to take you into the Notification Center.
2. Swipe down from the top of the screen again to get into the Control Center
3. Swipe from the right side of the screen to the left, until you see the "**Accessory PTT**" button.
4. Set the "**Accessory PTT**" button to **PTT** and your external speaker will now be able to key up with your RF module.



RFinder **SUPPORT**

Many of the **RFinder** Radio users are very passionate about the RFinder products. For this reason our

"RFinder Android Radio"
Facebook group is very active

Many common questions can be found through this group which is accessible via the <http://RFinder.net> website. Look for the Facebook Icon

If you are need of any kind of customer support, please go to <https://ticket.rfinder.net> to submit a support ticket, and we will usually respond within 24 hours

Phone Support is also available at:
(631) 610-9635

Email us at:
support@rfinder.net



RFinder SALES

You may see in-person or purchase any RFinder merchandise or products through our preferred retail stores, such as:

Gigaparts or **Ham Radio Outlet**

for United States Purchases.

To purchase directly from RFinder LLC, please visit our website RFinderOutlet.com

If you have any questions, feel free to email

us at:

support@rfinder.net

DMRoIP

RFinder Radio over IP

TM



WARRANTY INFORMATION

The warranty policy shall in essence abide by the rules and regulations of local authorities, and may vary from county to country. Please ask your local supplier for detailed explanation of the warranty policy. However, we normally cover one year warranty of service for radio from the date of invoice, and 90 days for battery and accessories.

1. To the fullest extent permitted by law, warranty service may only be performed by supplier or authorized service centers.
2. RFinder may conduct diagnostic tests on customers' products to identify the causes of failure/defects. Before returning any unit for service, customer should back up data and remove any confidential and/or personal information from the product. Supplier is not responsible for damage or loss of any program, data or removable storage media.
3. Prior to contacting a service agent, please ensure the following information is at hand: model, serial number, IMEI number if available, customer's full address and contact information, purchase order number and copy of original receipt.
4. This warranty does not cover the following cases:
 - A. If the product serial number, IMEI number or warranty seal is illegible or has been removed, erased, defaced, altered and/or tampered. If any accessory or external part of the product is missing.
 - B. If any damage occurred in/on the outer surface of the product, including but not limited to cracks, dents, scratches on the exterior cases, screens, camera lenses, buttons and other attachments.
 - C. General maintenance, password reset assistance, cleaning, application update/installation, product demonstration, or any other service other than repair/replacement.
 - D. Deterioration of the product caused by normal wear and tear, including but not limited to rust or stains.
 - E. Any other circumstance that are contradictory to or not in compliance with business ethics.
5. Supplier will determine whether a product is "Out of Warranty" according to the standards listed below.
 - A. Repair of Out of Warranty products shall be separately quoted by the service center and respective service shall be provided upon a service fee payment.
 - B. Violation of the warranty terms, invalid warranty, expired warranty, or any other reason not included in the warranty.
 - C. During the warranty period, a violation is defined as: customer induced damage, such as self-repairs, exposure to water damage caused by misuse, alteration, failure to comply with product manual, etc.