

Radio Discovery Tool (RDT) Instructions

RDT Standard, LTE and Pro Version 2.1

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Introduction

Welcome to the Radio Discovery Tool (RDT). RDT is designed for use with Icom transceivers. There are currently three different versions of RDT; RDT, RDT LTE and RDT Pro. RDT is for use with the Icom F3400/F5400/F4400/F6400 radios. RDT LTE add real-time GPS location tracking using Icom LTE products and RDT “Pro” version encompasses both the RDT and RDT LTE plus adds support for Icom F7000 series products as well as Icom’s R30 and R8600 receivers..

RDT provides a method of converting voice logs from an Icom radio in an easy to view table format to playback voice and view its abundant metadata. At the same time, it creates a .kml file that can present voice data fully mapped on Google Earth.

RDT also can convert GPS and Power log data from the Icom radio for full viewing on Google Earth if the radio supports those features.

Finally, RDT takes voice files recorded on the Icom radio and properly formats and places them for use as custom channel announcements if the radio supports that feature.

RDT-LTE adds real-time support for GPS Location with the Icom LTE series radios.

What’s New in 2.1:

- **RDT (Standard Edition)**
 - Additional fields added in metadata for F3400 RR version 2.8G or later.
 - Added media control buttons to add support for play all voice recording, stop, play next file and play previous file to allow for quickly playing voice recordings once converted.
- **Introducing RDT LTE**
 - Support for Icom LTE series radios. real time and historical GPS Location viewing via the VE-PG4 or IP-501M.
- **RDT Pro**
 - Incorporated enhancements listed above for RDT Standard
 - Added the enhancements listed above for the RDT LTE
 - Support to Convert GPS Log for Icom F7000 Series Radios

Source

You can get the latest version of RDT, RDT Pro and RDT LTE at www.icomrdt.com. The latest version of this manual can also be downloaded from that website.

Disclaimers

This product relies on data derived from the Icom radio and is no more accurate than the data derived from that device or the Google Earth tool used to present much of the data. This product is meant as an aid for troubleshooting problems with radio communications as well as incident analysis. It is not meant

to be a navigational aid of any kind and events depicted should be verified independently depending on the severity of the issue.

Supported Operating Systems

Windows 10 (recommended)

Windows 7 (x86, x64) after January 14, 2020 support for this operating system, as announced by Microsoft will end. It is recommended to upgrade to the latest operating system.

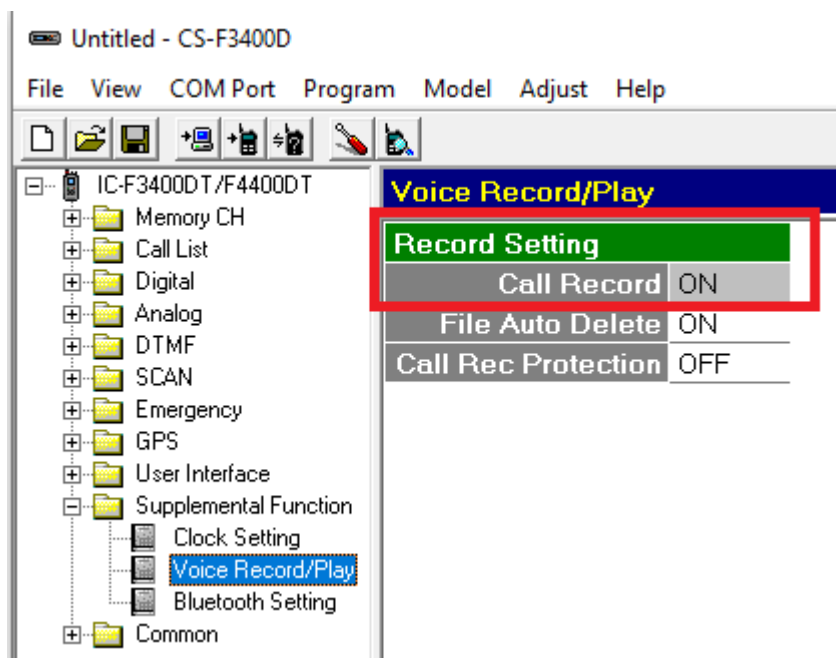
Prerequisites

RDT and RDT Pro (not including the RDT LTE functionality) use logs derived from SD card recordings on the Icom radio. In that regard, an SD card inserted into the Icom radio is required for this product to function.

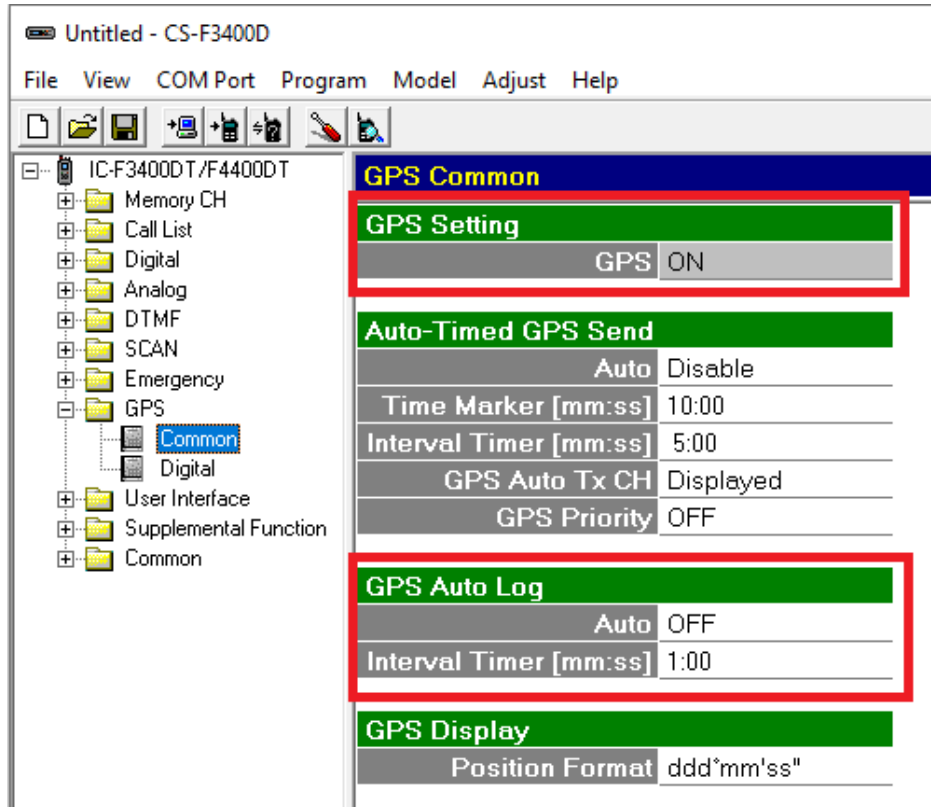
For voice log conversions, RDT requires that voice logging be activated on the Icom radio of choice. It is strongly suggested that the GPS be activated also to take maximum advantage of what RDT can do. Please see the settings on your Icom radio as shown below.

RDT LTE relies on the proper programming of the VE-PG4 or IP-501M to provide GPS Location information of the corresponding LTE portables/mobiles.

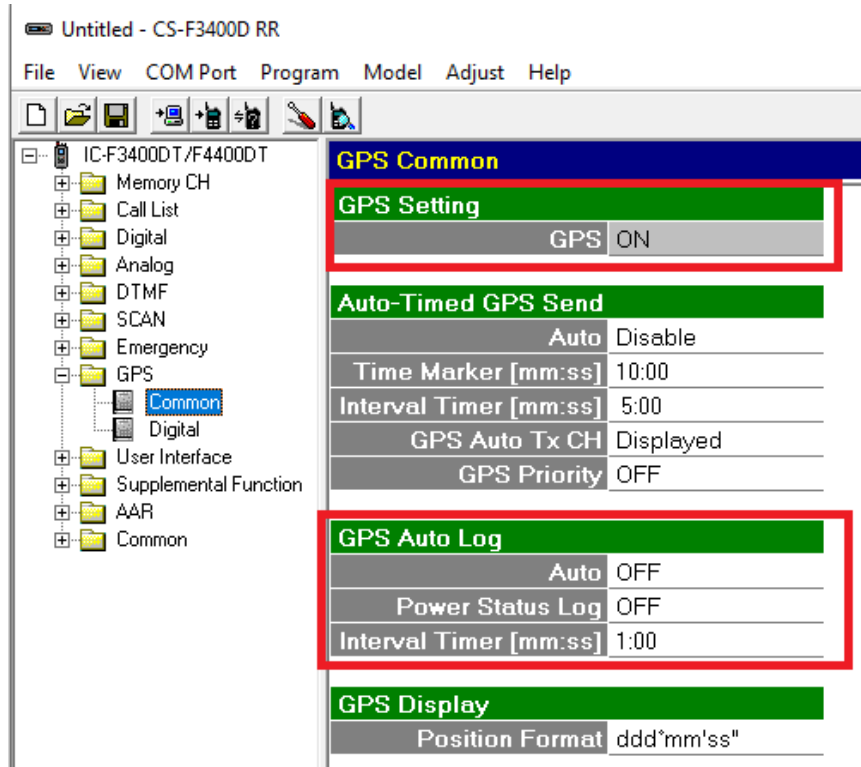
F3400 and F5400 Series Radios



Activate Call Record



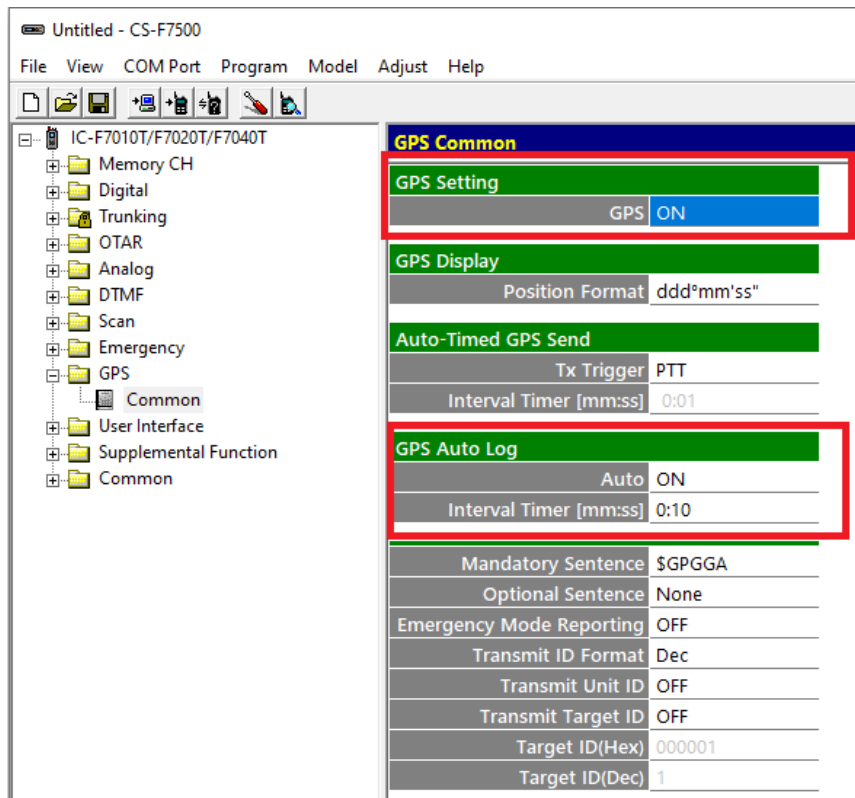
Screen shot from non-RR firmware 2.0. Activate GPS by turning "GPS" to "ON". Note that in this screen you can also activate GPS Auto Log by setting the field to "ON". Interval Timer set to 30 seconds – can go to every 5 seconds as needed



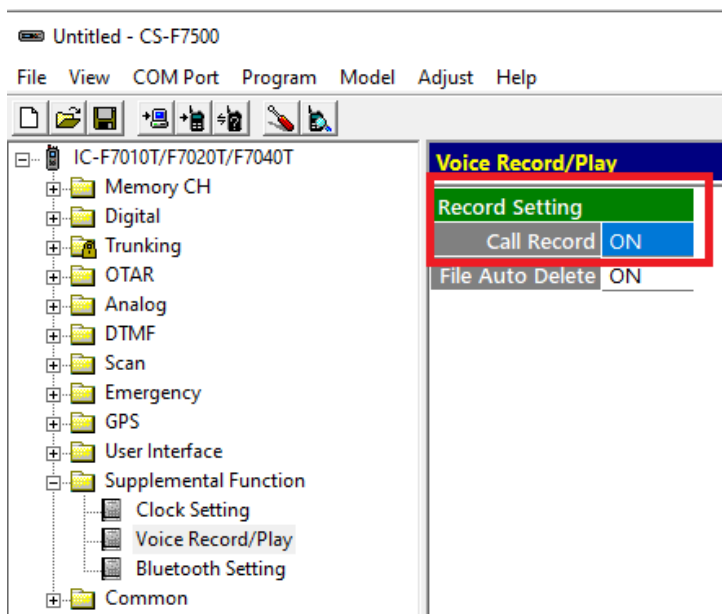
Screen shot from RR Firmware 2.6G. Activate GPS by turning "GPS" to "ON". Note that in this screen you can also activate GPS Auto Log and Power Status Log by setting the respective fields "ON". Interval Timer set to 30 seconds – can go to every 5 seconds as needed

For GPS log conversions, RDT requires that GPS logging be activated, as above. RR Firmware 2.6G and beyond also has power log capability and you can activate by turning Power Status Log to "ON".

F7000 Series Radio (only can be used with RDT Pro)



Screen shot from F7000 series version 3.2 or greater. Activate GPS by turning “GPS” to “ON”. Note that in this screen you can also activate GPS Auto Log by setting the field to “ON”. Interval Timer set to 10 seconds – selection can be changed.



Activate Call Record

R30 Receiver (can only be used with RDT Pro)

Follow Directions in Section 4 of the basic manual for that product.

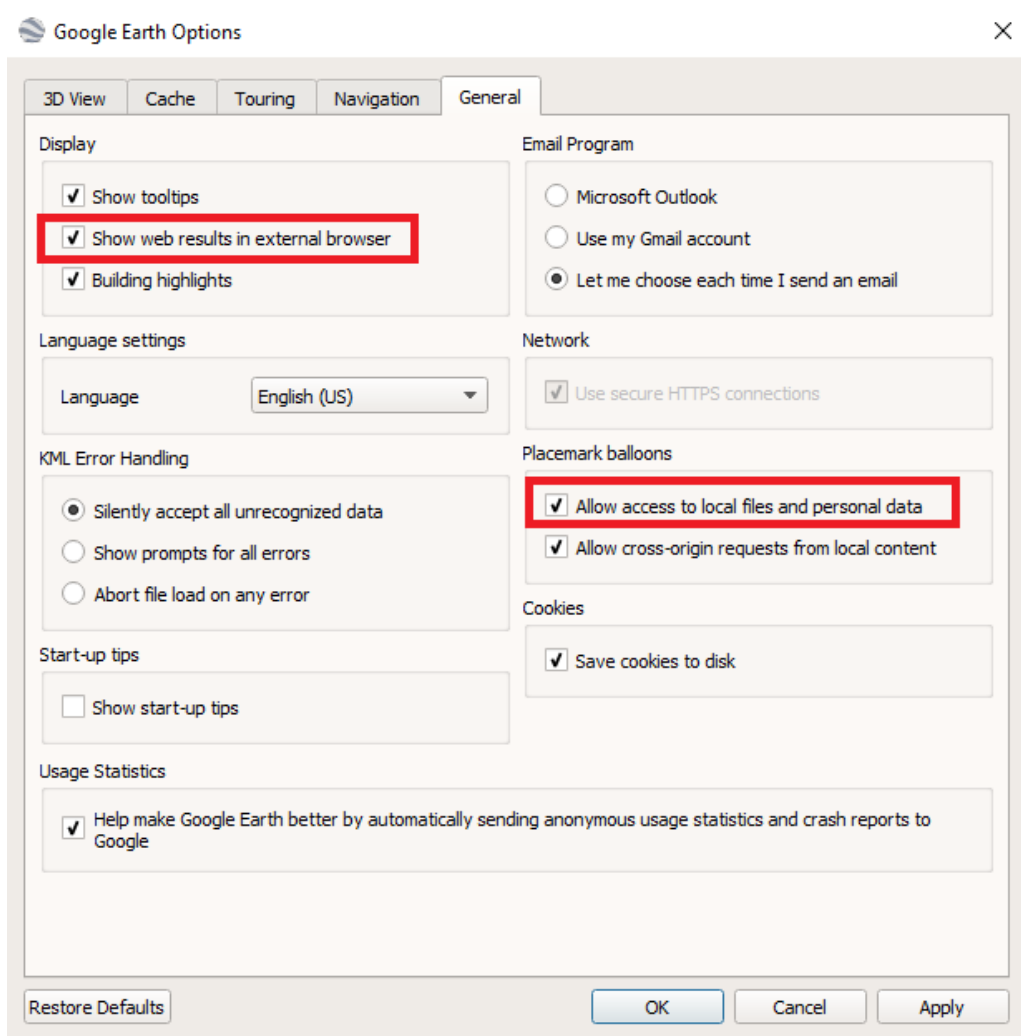
Viewing the KML files

Although any .kml viewer may be used for viewing, throughout this manual we will refer to Google Earth Pro. If using Google Earth Pro to view the .kml files created by RDT, Google Earth Pro must be installed on your computer. It is assumed that the user also has knowledge of how to generally operate Google Earth Pro.

Once installed it is important that you go to “Tools->Options” in the menu and select the “General” tab. Make sure to highlight “Allow access to local files and personal data” as highlighted below. If you do not select this setting, then you will not be able to play back audio files from the Google Earth map.

****Note:** If utilizing Windows 7, you may find inconsistencies when playing back audio from Google Earth Pro.

Also check Tools->Options->General ->”Show web results in external browser” for best results when playing back voice files from map.



Installation

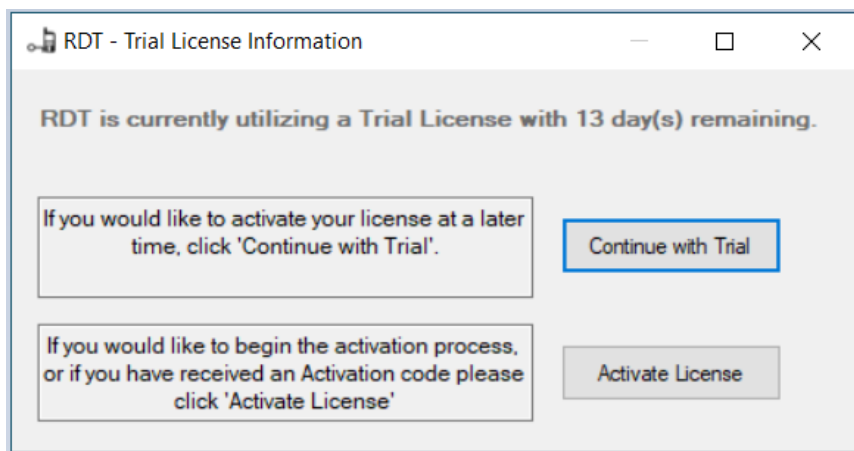
Once the program has been purchased and downloaded following the instructions from Icom's web site, it can then be installed.

The program can be installed by double-clicking on the .zip file download and then double-clicking 'RDT setup.exe'. Follow the on-screen instructions after that to install.

Registration

Initial Registration for RDT, RDT Pro or RDT LTE

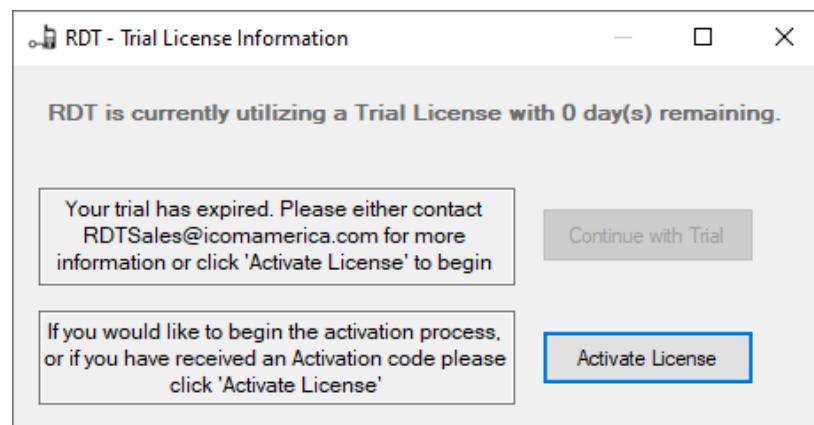
When you first start the program, you will get a screen that looks like this:



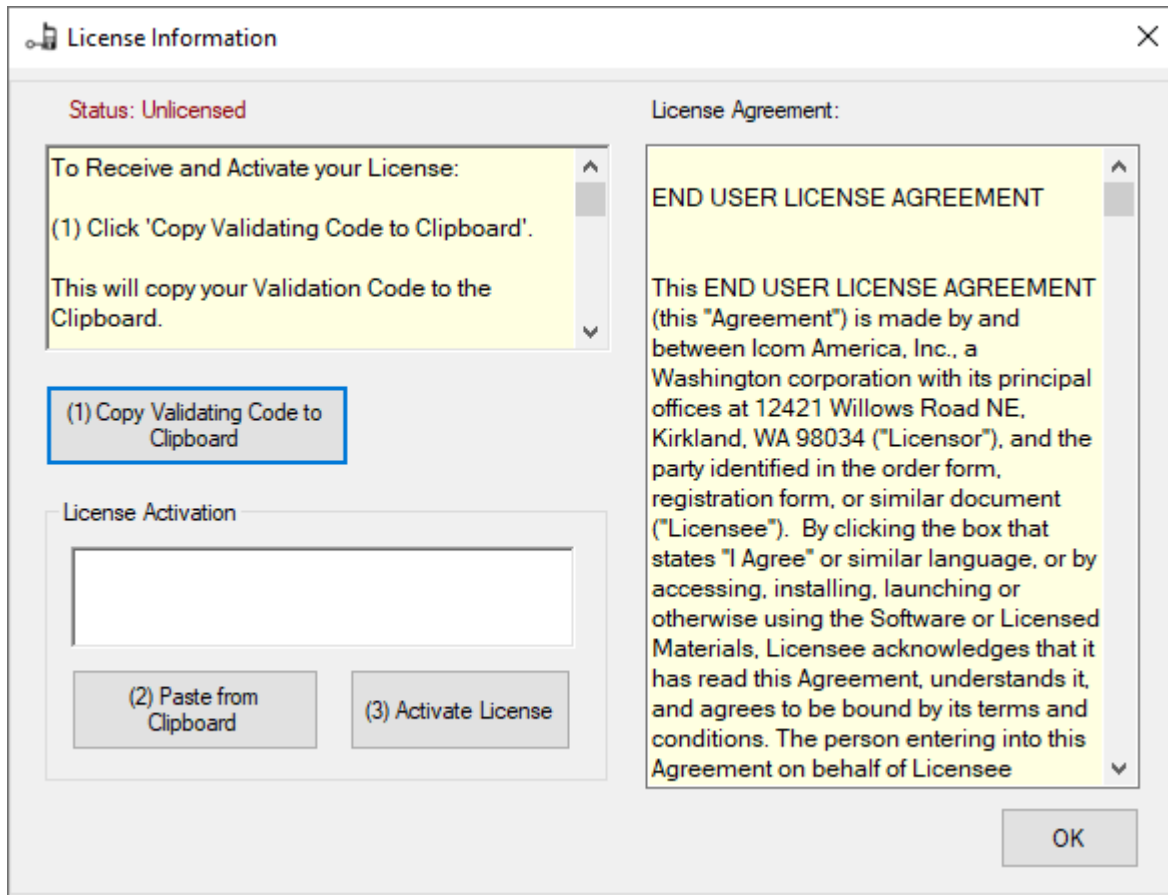
(Note: you will not get this screen if you have already licensed the product and are just upgrading.)

If you select "Continue with Trail" you will be taken to the program and you can immediately start using. You will have 13 remaining days past the day you download to get the program fully licensed. When you're ready to license, you can do so by selecting "Help->License Information" from the menu and register using the procedure described later in this section.

If you start the program and you see the following, then your temporary license has expired. You must get the program's license activated to continue to use:



Registering your program is a three-step process.



To perform the first step, press the “(1) Copy Validating Code to Clipboard”.

Once this has been done, go to the email program of your choice and paste the code that has been copied into your PC’s clipboard into a new email. Send the email to rdtsales@icomamerica.com.

After sending this email, you’ll receive your license activation key in a return email. Carefully select and copy that key into your PC’s clipboard. Then go to the screen below and select “(2) Paste from Clipboard”.

Then, press “(3) Activate License” and you’re done. The product is now fully licensed.

As stated earlier in this section, the program will run without activation for a total of 14 days once downloaded. After that, it will switch to an “unlicensed” state and most functions will not be available.

Note that RDT is allowed to run on a total of two machines per purchased copy (one on a desktop PC and another on a laptop for example). No more installations will be authorized after this. If at some point, you wish to move your copy of RDT to a different machine, please contact rdtsales@icomamerica.com.

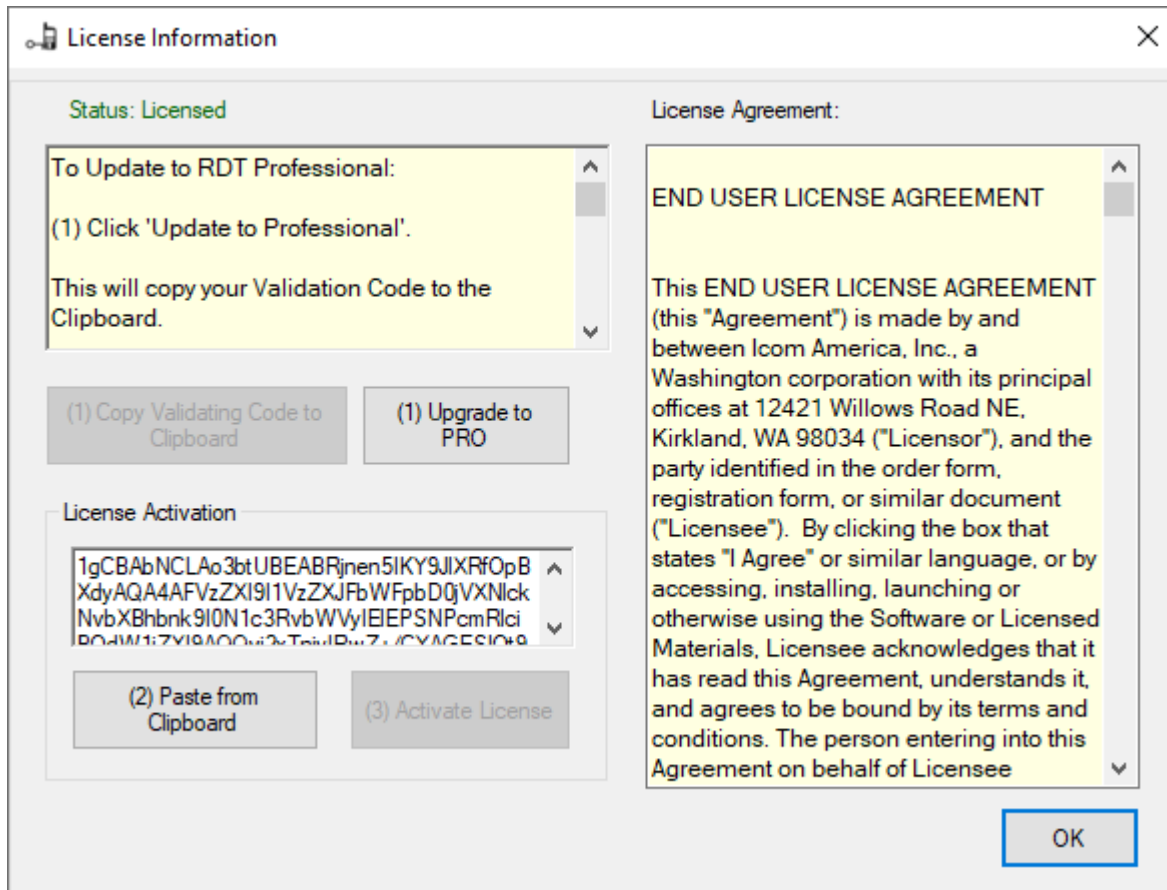
Upgrading to RDT Pro

If you have a licensed copy of RDT or RDT LTE on your machine and you wish to upgrade to RDT Pro, please contact rdtsales@icomamerica.com. You will be issued a special coupon code where you can then go to www.icomrdt.com and purchase RDT Pro at a discounted price.

Once this has been done, you are now registered with Icom as being eligible for RDT Pro.

Your next step is to select “License Information from the “Help Menu”.

You will be presented with this activation screen.



License Information

Status: Licensed

To Update to RDT Professional:

(1) Click 'Update to Professional'.

This will copy your Validation Code to the Clipboard.

(1) Copy Validating Code to Clipboard

(1) Upgrade to PRO

License Activation

1gCBAAbNCLAo3btUBEABRjnen5IKY9JIXRfOpB
XdyAQA4AFVzZXI9I1VzZXJFbWFpbDQjVXNlck
NvbXBhbnk9I0N1c3RvbWVylEIEPSNPcmRlci
bD4wL1i7Y18AQQwZ2TnI0PwZzYVAGE5I0p9

(2) Paste from Clipboard

(3) Activate License

License Agreement:

END USER LICENSE AGREEMENT

This END USER LICENSE AGREEMENT (this "Agreement") is made by and between Icom America, Inc., a Washington corporation with its principal offices at 12421 Willows Road NE, Kirkland, WA 98034 ("Licensor"), and the party identified in the order form, registration form, or similar document ("Licensee"). By clicking the box that states "I Agree" or similar language, or by accessing, installing, launching or otherwise using the Software or Licensed Materials, Licensee acknowledges that it has read this Agreement, understands it, and agrees to be bound by its terms and conditions. The person entering into this Agreement on behalf of Licensee

OK

Much like initial activation, press “(1) Upgrade to Pro”. This will copy the validation code into your clipboard. Paste this into an email and send to rdtsales@icomamerica.com. Shortly after sending this email, you’ll receive your license activation key in a return email. Carefully select and copy that key into your PC’s clipboard. Then go to the screen below and select “(2) Paste from Clipboard”.

Then, press “(3) Activate License” and you’re done. The product is now fully licensed for RDT Pro.

Menu Functions

File Menu

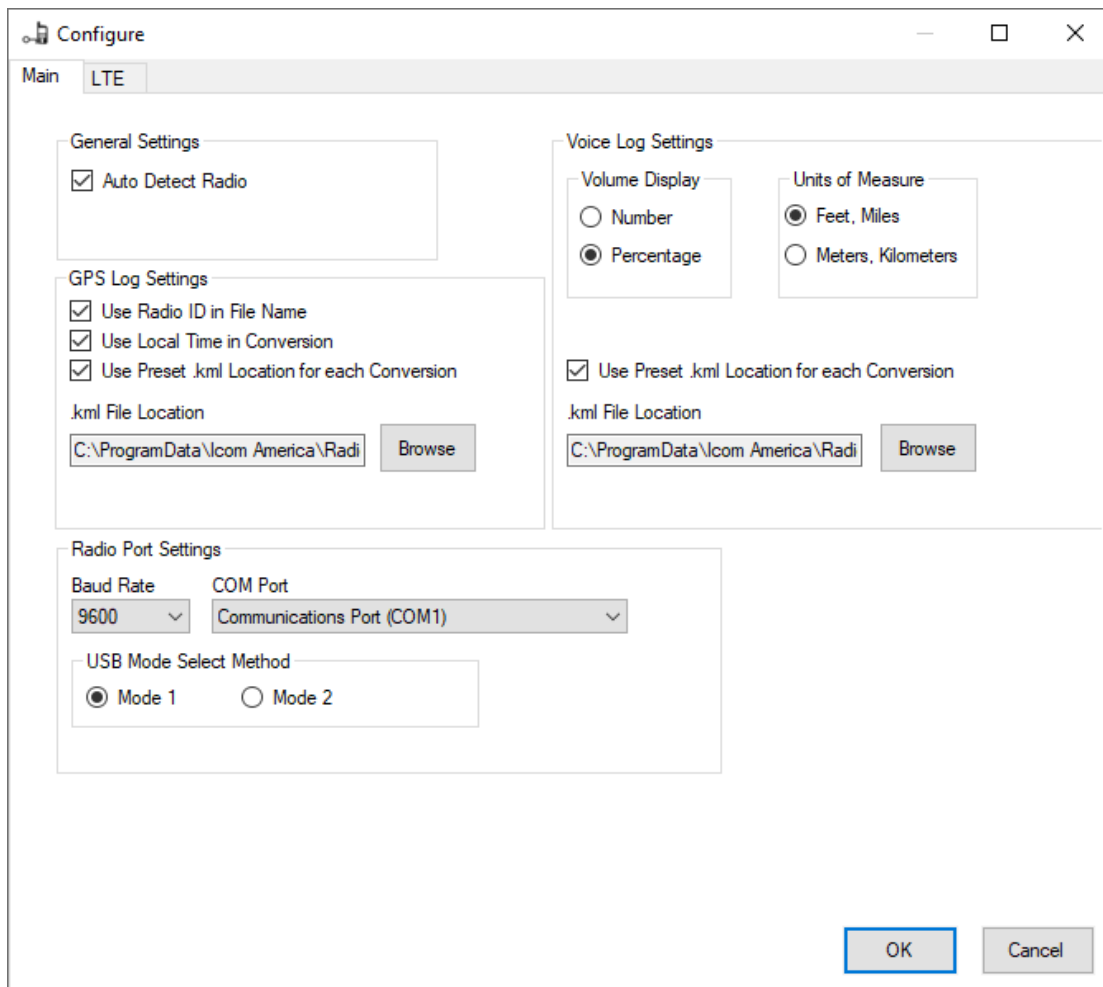
The File menu will allow you to select settings and exit the program.

File->Exit will cause the program to terminate.

File->Settings will give you the Configuration screen containing the Main Settings Tab and the LTE Settings Tab

Note: The Main Settings Tab is available in the RDT and RDT Pro version. The LTE Settings Tab is available in the RDT LTE and RDT Pro version.

Main Settings Tab



Note

Some of these settings may have no function depending on the model of radio you are using RDT with.

When completed click the **OK** to save the information or the **Cancel** to exit without saving.

General Settings

Auto Detect Radio: Program will try to automatically determine if the Icom radio is connected. If so, it will automatically select the correct folder on the SD card for recorded audio files. You can then navigate to the sub-folder where you pick the file(s) you are wishing to convert.

GPS Log Settings

Use Radio ID in File Name: If checked, this will “pop-up” a small screen that will allow you to enter the unit ID of your choice. This ID would typically be the “Unit ID” of the radio if NXDN is being used, but can also be the radio’s ESN or any other designator you choose (up to 15 characters). The Radio ID programming screen will be displayed when you are converting GPS logs, right after you select the files.

This ID will then appear prepended to the GPS log file name. It will also show up in each record inside the newly created .kml file.

Not checking this will prevent the Radio ID programming field from being displayed and any .kml file created will have a generic name.

Use Local Time in Conversion: All times in the .kml file created from your GPS log will be converted to your local time zone (as selected on your PC). This may make file analysis easier than trying to view files in UTC time.

Use Preset .kml Location for Each Conversion: This is the folder location that the .kml file created from your GPS log conversion will be stored. If this is unchecked, the application will prompt you to set a location for .kml file storage each time a GPS log conversion is run.

.kml File Location: Enter location where you would like the .kml file created by the GPS log conversion to be stored.

Voice Log Settings

Note: local time conversion already occurs in the radio for this log so there is no option to provide UTC time.

Volume Display: Voice logs will display the volume level the radio was set to when it received a call. It can be set to display either an absolute number from 0 to 255 or a percentage of full volume.

Unit of Measure: Select if you wish units of measure in the converted log to be displayed in Feet/Miles or Meters/Kilometers

Use Preset .kml Location for Each Conversion: This is the folder location where the .kml file created from your voice log conversion will be stored. If this is unchecked, the application will prompt you to set a location for .kml file storage each time a voice log conversion is run.

.kml File Location: Enter location where you would like the .kml file created by the voice log conversion to be stored.

Radio Port Settings

This section is when you wish to control an Icom radio using a secondary control cable using the “USB Mode Select” button on the main screen.

Baud Rate

Select the baud rate to match your radio. Typically use the default of 4800.

Com Port

Select the com port you want to use to perform USB Mode Select. This is typically the cable hooked to the radios USB port.

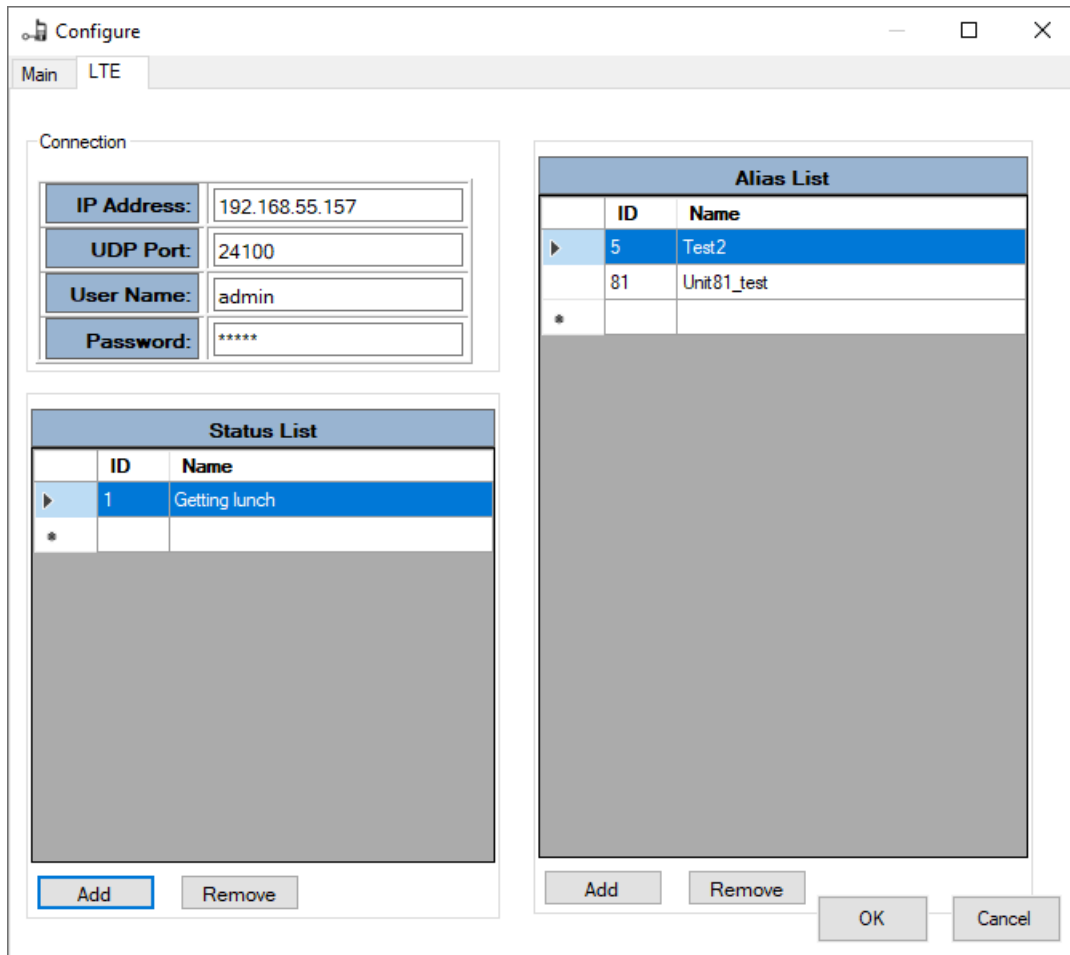
USB Mode Select Settings

Select “Mode 1” for method that allows for USB mode select state change with a single cable. *Note: Only useful for Railroad Firmware 2.6G or later.*

Select “Mode 2” for two cable method of changing USB mode select.

More on this in the “USB Mode Select” section of this manual on page 30.

LTE Settings Tab



Configure

Main LTE

Connection

IP Address: 192.168.55.157

UDP Port: 24100

User Name: admin

Password: *****

Status List

ID	Name
1	Getting lunch
*	

Add Remove

Alias List

ID	Name
5	Test2
81	Unit81_test
*	

Add Remove

OK Cancel

When completed click the **OK** to save the information or the **Cancel** to exit without saving.

Connection

This section allows for entry of connection information for the VE-PG4 or IP-501M.

IP Address

Enter the IP Address of the VE-PG4 or IP-501M.

UDP Port

Enter the UDP port of the VE-PG4 or IP-501M. Default is 24100.

User Name

User name associated with the log on set up for VE-PG4 or IP-501M.

Password

Password associated with the log on set up for VE-PG4 or IP-501M.

Status List

Add status 1 – 10 with appropriate name to match programming on the IP-501 programming.

ID

Enter any ID 1-10.

Name

Enter the appropriate name for the given status ID.

Alias List

Add/Remove unit IDs and alias information to properly display the Unit Alias for the LTE units. If not entered the Unit ID will be displayed in the LTE viewer and corresponding map view.

ID

Enter a Unit ID between 1 – 65535.

Name

Enter the corresponding name for the IP-501 Unit ID.

Model Menu

The model menu allows you to select the radio you wish to work with.

For RDT, the IC-F3400/F5400 RR Series and IC-F3400/F5400 Series are available. RDT LTE works with the IC-LTE series. RDT Pro adds the IC-F7000/F7500 Series ,IC-R30/ IC-R8600 and IC-LTE series.

Keep in mind that as you select different models, any functionality restrictions will be indicated by the corresponding action buttons being “grayed” out.

View Menu

The View Menu will allow you to view already created voice logs and event logs.

View->Voice Log

Clicking on this field opens the voice log view. This table will have no entries if no conversions have been run since the program was started otherwise, this table will be populated with entries if a conversion has been run.

See Voice Log Viewer in the following paragraph.

Voice Log Viewer

View->Power Log (F3400/F5400 Series Radios only with RR 2.6G or Later Firmware Installed)

Clicking this field opens up the power log view. This table is derived from GPS log files will have no entries if no conversions have been run since the program was started otherwise, this table will be populated with entries if a conversion has been run.

View-> Event Log

Opens up event log so that you can see recent program events.

Help Menu

Help-> Contents F1

Opens this help guide.

Help-> License Information

See “Registration” section described earlier in this manual.

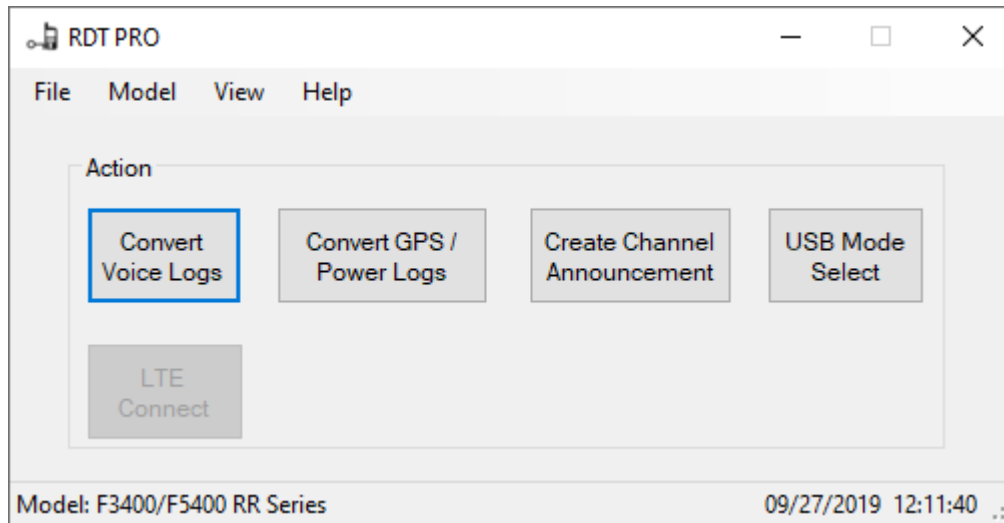
Help->Contact Us

Shows the contact information.

Help-> About

This shows the version of the program as well as other information.

Action Buttons

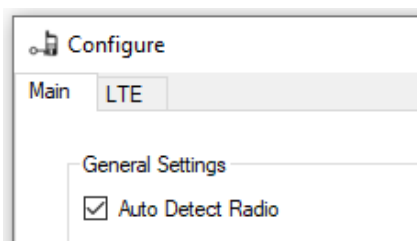


Convert Voice Logs

Pressing the “Convert Voice Logs” button will allow you to select the voice logs of your choice for table/map conversion.

Depending on settings, different things will occur when this button is activated:

“Auto Detect” in General Settings section.



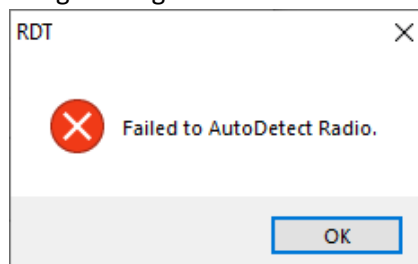
- If checked:

Icom radio is connected via USB and radio is in “Card Reader Mode”.

You will be taken to the top level directory for voice logs on the radio’s SD card.

Pick the folder with the date you are interested in and then one or more voice files you wish to convert

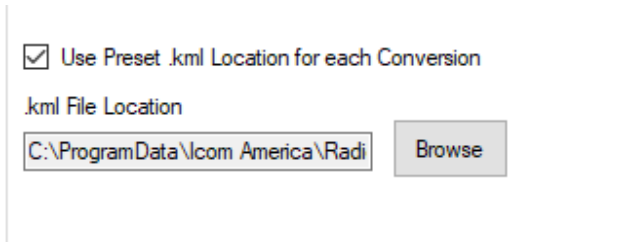
Icom radio is not connected via USB or not in “Card Reader Mode”. You will get the following message.



Pressing “OK” will bring up a file selection screen to allow you to pick voice files from alternate locations.

- If unchecked:
Regardless whether a radio is connected or not you will get a file selection screen to allow you to pick voice files from alternate locations

“Use Preset .kml Location for each Conversion” in the Voice Log Settings section.



☒ Use Preset .kml Location for each Conversion

.kml File Location

C:\ProgramData\Icom America\Radi

Browse

- If checked:
 - The voice files will be automatically copied and placed in the location as listed in the “.kml File Location” setting along with the newly created .kml file.
 - You’ll be presented with the voice log table
- If unchecked:
 - You will be presented with a file selection screen so that you can determine what directory you want your .kml file and voice logs to be stored in
 - Once “OK” is pressed the voice files will be automatically copied and placed in the location you just chose along with the newly created .kml file.
 - You’ll be presented with the voice log table

Once the file chooser is displayed, pick the file you’d like to convert. Note that more than one log file can be selected using standard ctrl or shift Windows conventions when picking a file. The files will all be combined into one .kml file.

When the files are selected, a table is generated, and Google Earth is opened to display the information from the files.

Voice Log Viewer

When populated the voice log will contain a significant amount of metadata from the voice file – most of this metadata is self-explanatory. You can also open and remove additional logs if you wish.

Open Log: Open an existing voice log table. Once pressed navigate to the voice log folder of your choice and open the table that ends in “_vcli.xml”.

GeoLocate Selected Row(s): Select a row of choice by clicking anywhere in the row. Select GeoLocate to open this position in Google Earth. You can select multiple rows by standard ctrl or shift Windows conventions on desired rows.

GeoLocate All Rows: Display Google Earth with all rows selected.

“X” on tab: Close selected tab (note: “Current” tab cannot not be closed)

Media Player:

Play All – Plays all files from the selected file to the end of the list. Button outline will be Red in color while Play All is active. Click Stop to exit the Play All mode.

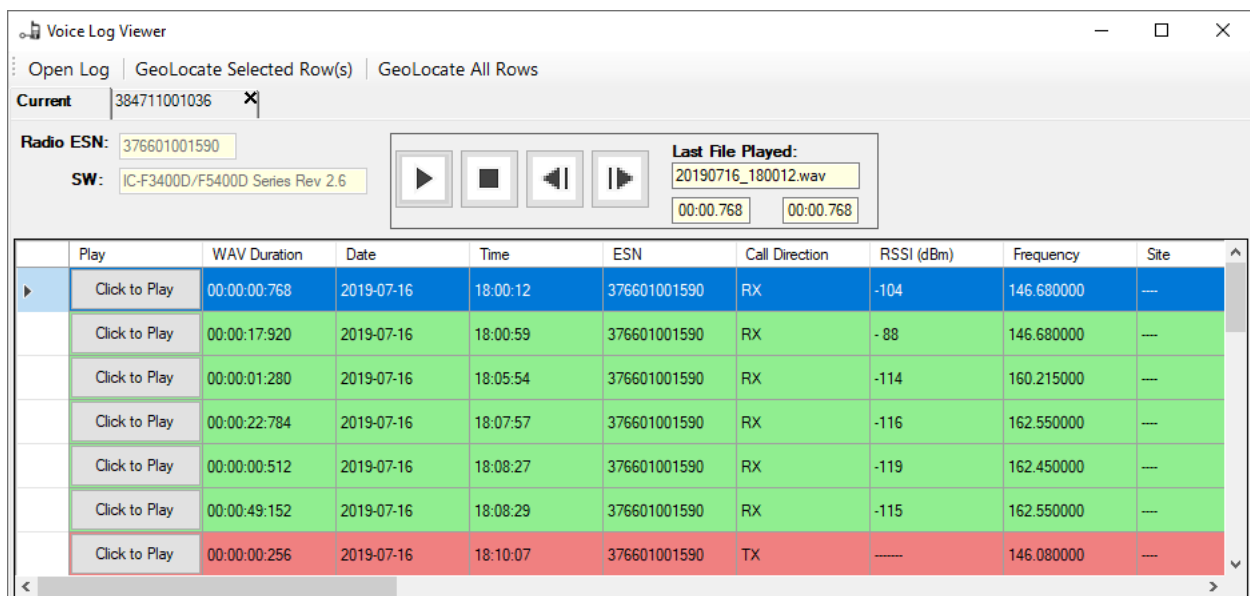
Stop – Stops playing wav file and ends the Play All mode if active.

Play Previous File – Plays previous file in the list.

Play Next File – Plays next file in the list

Last File Played – Displays the last file played. Double clicking the file will locate the file in the Windows Explorer window.

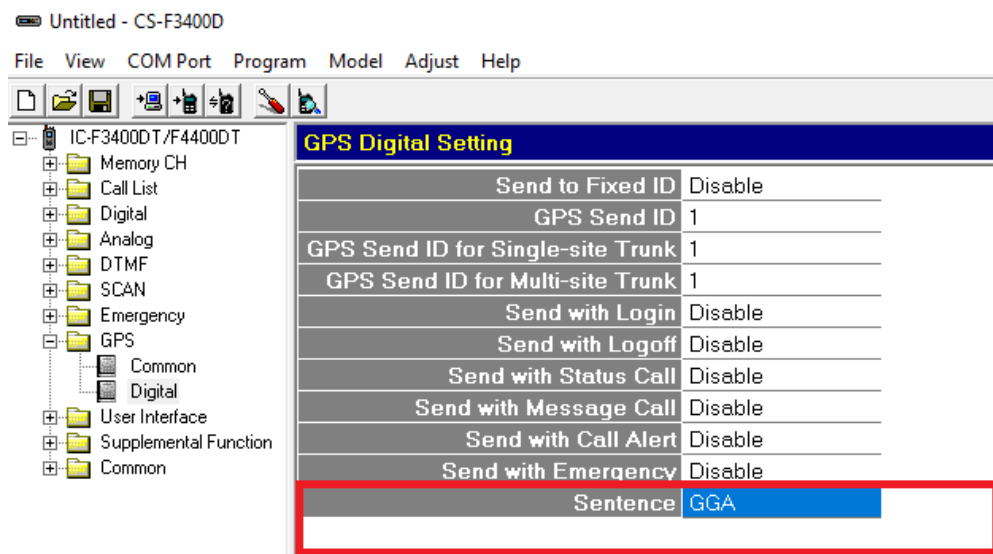
Time Elapsed / Duration – displays the time elapsed and total time duration of the file.



	Play	WAV Duration	Date	Time	ESN	Call Direction	RSSI (dBm)	Frequency	Site
▶	Click to Play	00:00:00.768	2019-07-16	18:00:12	376601001590	RX	-104	146.680000	---
	Click to Play	00:00:17.920	2019-07-16	18:00:59	376601001590	RX	-88	146.680000	---
	Click to Play	00:00:01.280	2019-07-16	18:05:54	376601001590	RX	-114	160.215000	---
	Click to Play	00:00:22.784	2019-07-16	18:07:57	376601001590	RX	-116	162.550000	---
	Click to Play	00:00:00.512	2019-07-16	18:08:27	376601001590	RX	-119	162.450000	---
	Click to Play	00:00:49.152	2019-07-16	18:08:29	376601001590	RX	-115	162.550000	---
	Click to Play	00:00:00.256	2019-07-16	18:10:07	376601001590	TX	-----	146.080000	---

Note:

- “Click to Play” allows you to play the voice file associated with the metadata.
- You can sort on a particular column by pressing on the column header.
- Green rows represent RX. Red indicates TX.
- “Date” and “Time” will always be in the time zone the radio was set to.
- “Volume” can be displayed as an absolute number or percentage depending on how this is set up in the settings programming screen.
- “Call Type”, “Call To” and “Call From” will be blank unless the transmission was NXDN digital.
- “My Latitude”, “My Longitude” and “My Altitude” may be blank even if the radio has GPS “On”. If the GPS cannot obtain a position when the call was made or received (in-doors, for example) it will not show a position in this table. Once GPS has locked on “My Altitude” may take a little bit longer to obtain a fix and so there may be a delay in the display of that value.
- “RX Latitude”, “RX Longitude” and “RX Altitude” may be blank if the radio you’re receiving is not sending a GPS position. Keep in mind, even if the radio you’re receiving is set to send its GPS position, one will not be received if it does not currently have a fix. “RX Altitude” may take a little longer to display once a fix is achieved on the radio being received.
- SQL / SQL Tight / Scan / Alert / Marked fields may only be populated when viewing results from a F3400 Railroad version 2.8G or better.
- On the F3400/F5400 Series radio, for “RX Altitude” to display, the radio you are receiving must be using GGA NEMA sentence selection:



- For RDT Pro, the F7000 series product does not record
 - Zone/Channel information
 - Volume Level
 - RX GPS Position from Secondary Unit
 - SQL / SQL Tight / Scan / Alert / Marked
- For RDT Pro, the R30/R8600 series product does not record
 - Zone/Channel or site information
 - Volume
 - TX Power (as it is an RX only unit)

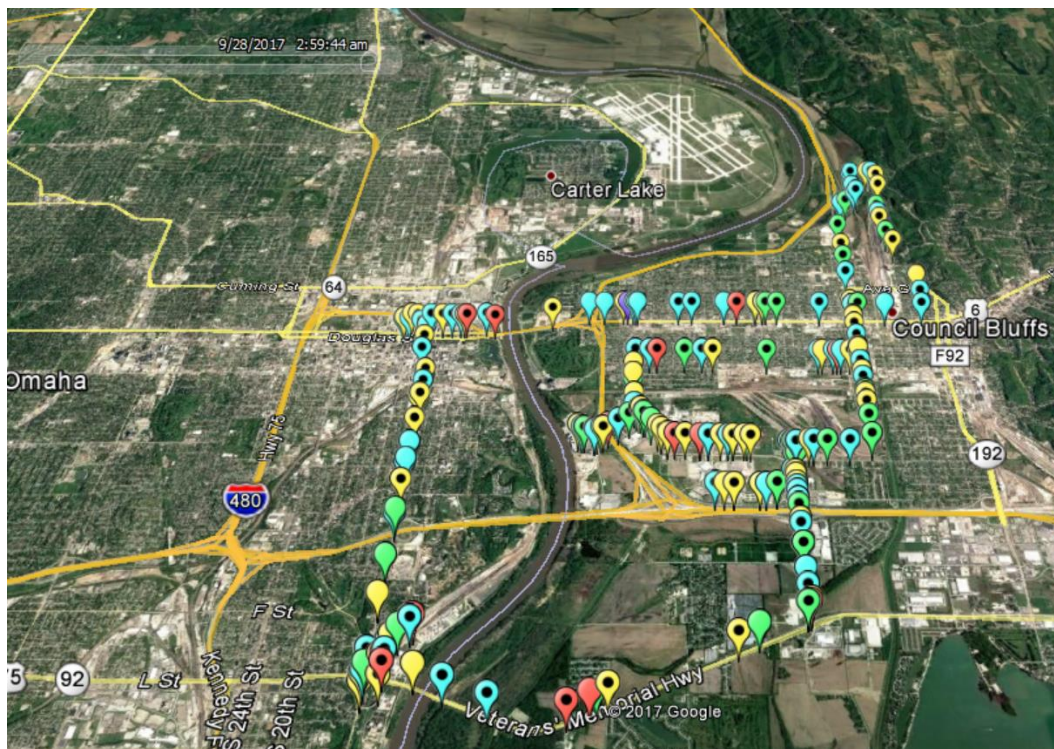
- Call Type
- ESN Number
- SQL / SQL Tight / Scan / Alert / Marked

Voice to .kml File

When voice logs are first converted, Google Earth will open up and display map the information you've selected.

It also generates a .kml file that you can work with should you close that window. To access, use your computer's file system to navigate to the folder that has the target ESN value of the radio you converted. There you will see a .kml file with the ESN number of the converted radio which you can then double-click to open file in Google Earth.

Whether you use Google Earth that was automatically opened when you converted the file, or open it sometime later, you will see a map that looks roughly like this:



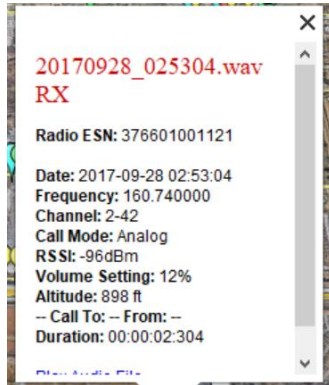
Each paddle style place mark indicates the position of the radio recording the data (not the radio being received).

Color indicates RSSI value, as shown below.

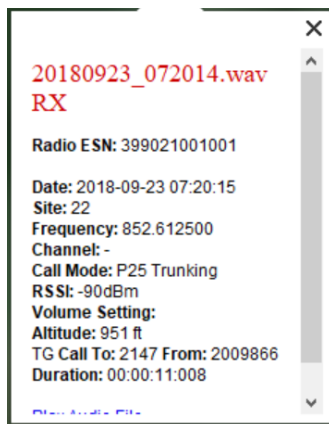
- Green: -100dB or better
- Blue: -101dB to -110dB
- Yellow: -111dB to -118dB
- Red: less than -118dB
- Purple: TX

If there is a “dot” in the paddle place mark, it means that the transmission is longer than 512ms (useful for potentially differentiating between a static burst and an actual transmission)

Clicking on a place mark will show more information regarding a particular transmission or reception.



Example from F3400 series radio

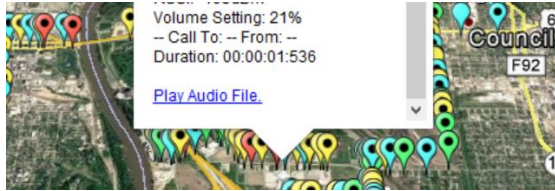


Example from F7000 Series radio (RDT Pro Only)



Example from F30 Radio (RDT Pro Only)

You can also play back the audio from a selected place mark by scrolling down on the pop-up window and selecting “Play Audio File”

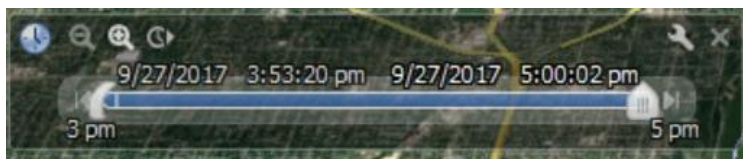


Make sure you have set Google Earth settings as recommended in the prerequisite section for the audio files to play back properly.

When using NXDN, you may be receiving radios that are sending their GPS positions (you will see “RX Latitude” and “RX Longitude” values in the table in this case). If so, the position of the received radio will be displayed using the “pushpin” icon as below. Note that the color of pushpin indicates the RSSI value that the recording radio received that signal at (and will have a matching paddle place mark in regards to time received).



Please note you can use the time slider tool if you’re looking for a recording during a specific period of time.



Convert GPS / Power Logs –

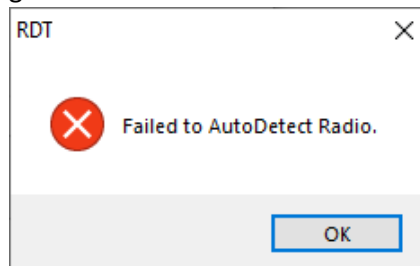
Please see the Prerequisites section for information on how to set up GPS log recording and interval.

Pressing the “Convert GPS Logs” button (if F3400/F5400 Series, F7000/F7500 Series or R30) or “Convert GPS / Power Logs” button (if F3400/F5400 RR Series) will allow you to select the GPS/Power logs of your choice for map conversion. In addition, it will allow you to view power related information in both a table format and on Google Earth.

Depending on settings, different things will occur when this button is activated:

“Auto Detect” in the General Settings section

- If checked:
 - Icom radio is connected via USB and radio is in “Card Reader Mode”
You will be taken to the top level directory for GPS logs on the radio’s SD card. Pick the folder with the date you are interested in and then one or more files you wish to convert
 - Icom radio is not connected via USB or not in “Card Reader Mode” You will get the following message.



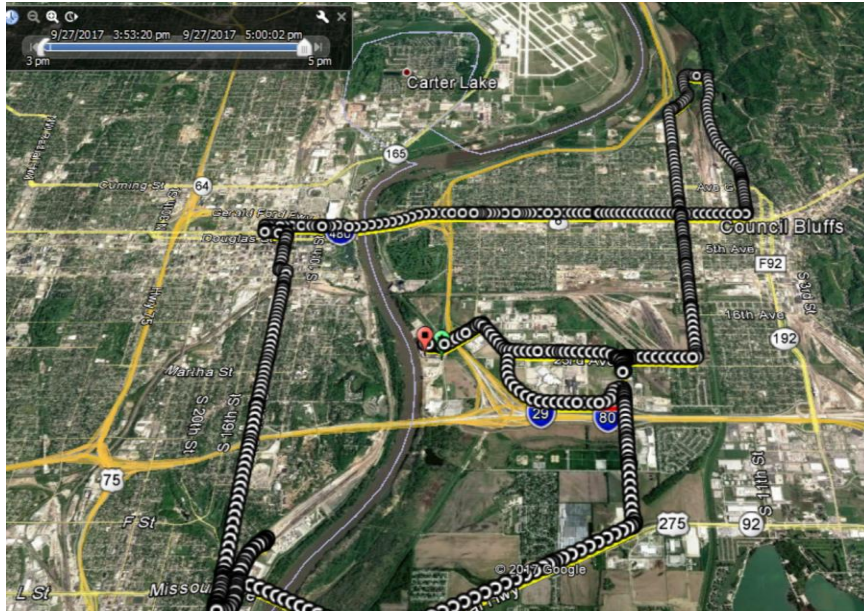
- Pressing “OK” will bring up a file selection screen to allow you to pick GPS logs from alternate locations
- If unchecked:
 - Regardless whether a radio is connected or not you will get a file selection screen to allow you to pick GPS logs from alternate locations

“Use Preset .kml Location for each Conversion” in the GPS Log Settings section

- If checked:
 - The GPS log will be automatically converted and placed in the location as listed in the “.kml File Location” setting.
 - You’ll be returned to the main program screen.
- If unchecked:
 - You will be presented with a file selection screen so that you can determine what directory you want your .kml file to be stored in.
 - Once “OK” is pressed the GPS file is converted.
 - You’ll be returned to the main program screen.

Once the file chooser is displayed, pick the file you'd like to convert. Note that more than one log file can be selected using standard ctrl or shift Windows conventions when picking a file. The files will all be combined into one .kml file.

After the files are selected, a Google Earth will open and look something roughly like this:



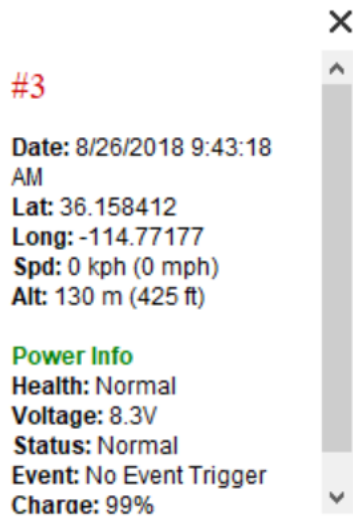
And if Power Log information is available (if activated and using RR Firmware 2.6G or higher) then a table similar to this will display:

Battery Log Viewer									
Current									
Date	Time	Event	Status	Voltage	Info	Cycle Count	Charge %	Health	
8/26/2018	10:11:21 AM	No Event Trigger	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
8/26/2018	10:11:31 AM	No Event Trigger	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
8/26/2018	10:11:41 AM	No Event Trigger	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
8/26/2018	10:11:51 AM	No Event Trigger	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
8/26/2018	10:12:01 AM	No Event Trigger	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
8/26/2018	10:12:02 AM	Power Switch	Normal	8.4	ICOM Intelligent ...	11	99	Normal	
*									

If Google Earth has been closed and you wish to reopen the log you just converted, navigate on your computer's file system to the folder you selected for the converted GPS log to be stored. Double click on the newly created .kml file and Google Earth will open.

Each white circle with a black dot in the middle represents a position. The green paddle place mark represents the start of the track and the red paddle place mark represents the end.

Click on any place mark to get position and speed information for that point. Also, if power information is available at that position, it will be displayed also.

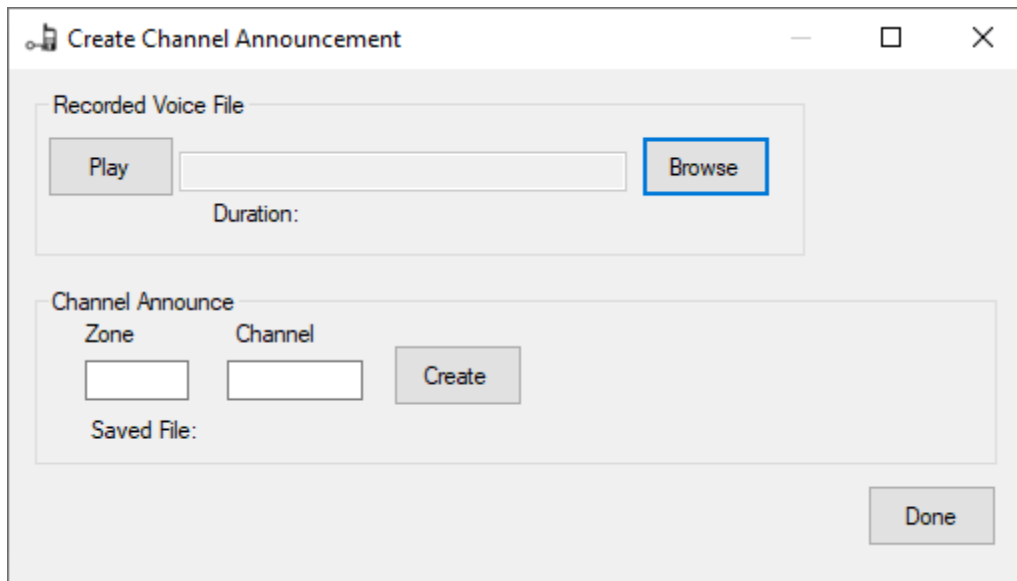


Please note you can use the time slider tool if you're looking for log information during a specific period of time.



Create Channel Announcement – F3400/F5400 and F7000/F7500 Series Radios only

Pressing the “Create Channel Announcement” button will allow you to quickly customize channel announcements from recordings made from the radio itself.



To use, first record the announcements that you would like into the radio itself. Make sure that the radio is unplugged from any USB connection and create your voice files by hitting the PTT and speaking your channel announcements (do this on a time when your system is little used or place a dummy load on the antenna as the announcements you are recording are also going out as standard transmissions).

For best results, speak your announcements with as little pause as possible from the start of PTT and when you start speaking. Also, make sure you quickly release the PTT at the end of your voice announcements. Finally, avoid long announcements as the users may tire of listening to them after a period of time.

Once you are satisfied with your announcements, connect the radio you used to record the announcements to the PC running RDT and place in “Card Reader” mode.

“Browse” button: Allows you to navigate to the specific folder and file you’d like to have converted to a voice announcement

“Play” button: Allows you to play back a selected file to ensure it is correct for the zone channel ID you’re applying

“Zone” field: Put the zone number you’d like for the channel announcement you are creating

“Channel” field: Put the channel number you’d like for the channel announcement you are creating

“Create” button: Creates channel announcement in the appropriate place and format on the Icom radio

Once you have created a channel announcement, you can proceed to the next file by going back to the “Browse” button. When finished, disconnect the Icom radio from the PC and power cycle the radio. The radio will now use the channel announcements you just created and assigned.

USB Mode Select - F3400/F5400 Series and F3400/F5400 RR Series Radios Only

Some Icom F3400 series products are shipped with the SD card flap sealed shut. In addition, the USB card on the F5400 series is not easily user accessible.

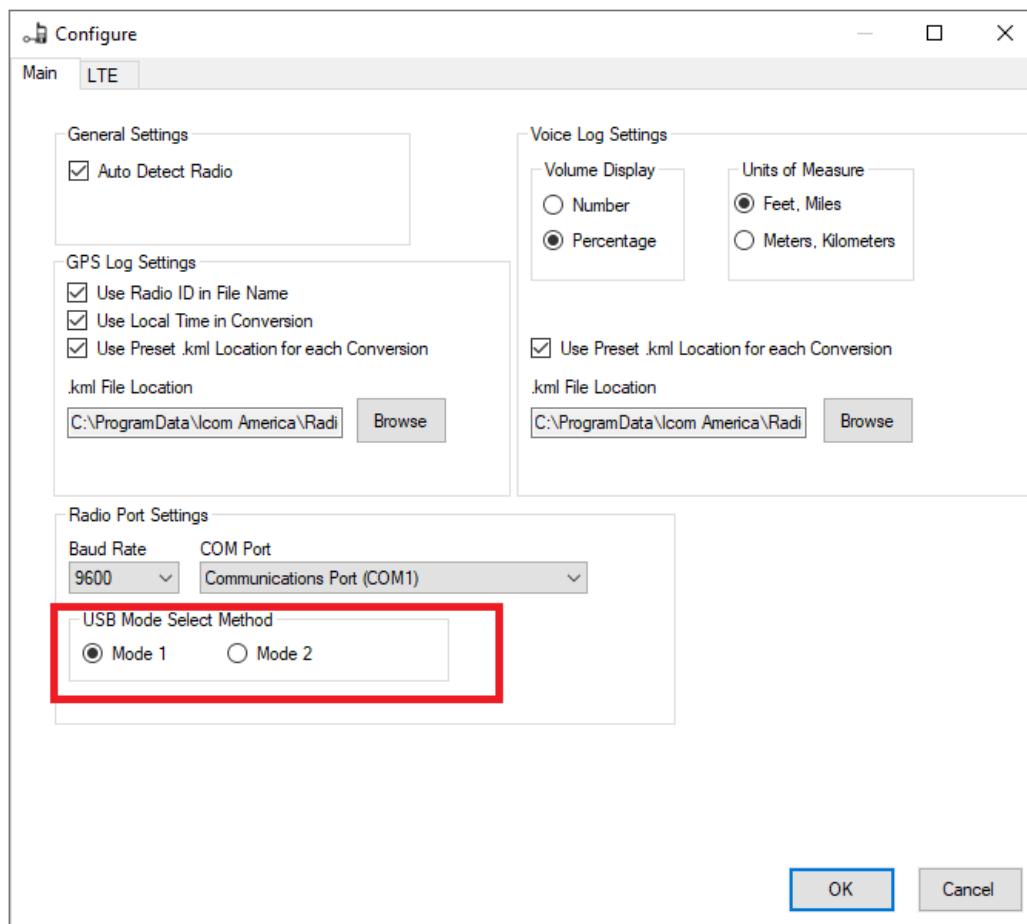
To access SD card data, typically, you can use the USB port on the Icom radio to connect to your computer and then put the radio in “Card Reader Mode”.

There may be circumstances, however, where you do not want typical end users access to the SD Card through the USB port. To prevent this, you would remove the ability to activate “USB Mode Select” from the menu or any programmable buttons.

If you do this, however, you now have no way to put the radio into “Card Reader” mode to move log data off the SD card.

RDT’s “USB Mode Select” provides a way of switching to radio into card reader mode, even if “USB Mode” select has been removed from the radio’s menu or easily accessible buttons.

There are two different methods of USB Mode Select (Mode 1 and Mode 2) which can be selected in the settings menu:



The advantage of Mode 1 is that it is simple to put the radio into “Card Reader Mode”, but you must power cycle the radio to return it to “Data Transfer Mode”. This mode is particularly useful when the computer is local to the radio and cycling power to the radio is practical.

The advantage of Mode 2 is that you can toggle the radio remotely between “Card Reader Mode” and “Data Transfer Mode” but two cables are required for it to work correctly and it is more complex to set up. This mode is particularly useful if not using RR Firmware 2.6G or later or you are reading a radio remotely and do not have a practical way to power cycle the radio.

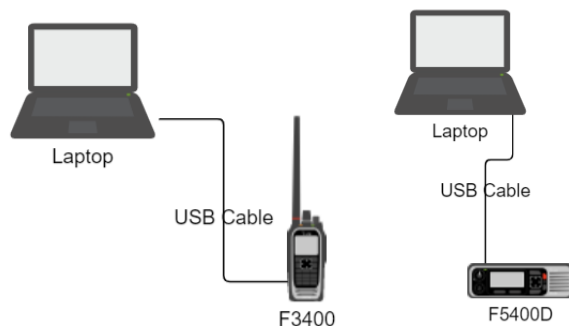
Mode 1

Mode 1 is only supported by RR Firmware 2.6G or later.

To use Mode 1, simply connect a radio that is in “Data Transfer Mode” (default) to the computer with RDT using a USB cable.

Pressing the “USB Mode Select” button will put the radio into “Card Reader Mode”. Once in that mode, you can proceed to convert Voice or GPS logs.

When finished transferring logs, power cycle the radio and it will return to “Card Reader Mode”.



A single USB cable between your computer and F3400 are all that's required for Mode 1 operation

Mode 2

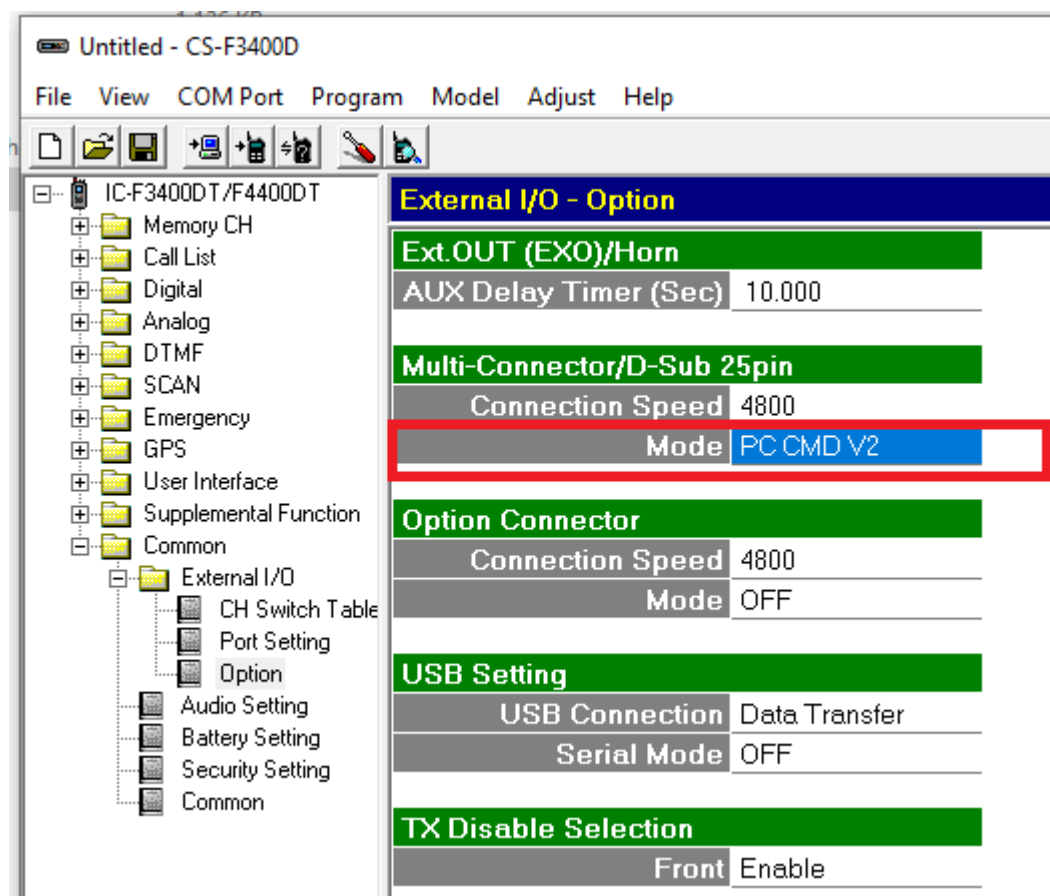
To set up “Mode 2” method of toggling USB Mode Select, certain parameters activated need to be activated in the radio. Once done, you can toggle “USB Mode Select” via a second “control” cable. The second cable would be an Icom’s OPC-1862 cable for the F3400 series and a USB to 25 pin serial cable for the F5400 series.

To have this work correctly, you first must set the following parameters on the Icom radio.

On the “Key” menu referenced below, set “Ext. Emer” to “USB Mode Select”. Note, you cannot actually use the Ext. Emer input for anything else while this setting is set.

Emergency	Up	CH Up
GPS	Down	CH Down
User Interface	Left	Zone Down
Key Assign	Right	Zone Up
Key	OK	Menu
Rotary Encoder	Back	Home
Display	F1	Monitor
Menu	F2	Null
Beep & Vibration	F3	Null
Display Message	Emer	Emergency
Supplemental Function	Ext.Emer	USB Mode Select
Common	OPF	Null

Next set the “Mode” field under Common->External I/O->Option->Multi-Connector/D-Sub 25pin to “PC CMD V2”.



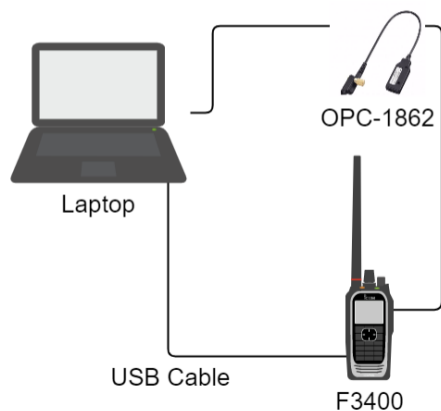
That’s all you need to do on the radio. Note that in the portable radio, if you attempt to program through the Multi-Connector (not USB port) that you must press “P1” first to bypass temporarily the PC CMD V2 setting.

Make sure that your com port is properly set in the settings menu. You will now be able to toggle modes as needed with the USB Mode Select button.

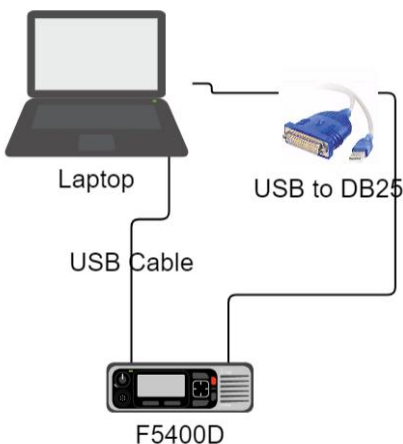
There is no way at this time to determine the state of this button other than looking at the radio as you press the USB Mode Select button. But if it is in card reader mode and an SD card exists in the Icom radio, the SD card should mount on your desktop.

Pressing the button again should cause the SD card to disappear from Window's file explorer. This should be another indication to you that the card is back in "Data Transfer" mode. Please make sure you set the radio to "Data Transfer Mode" if you wish to program the radio via the USB port.

****Please note that it is very important that you leave the radio in "Data Transfer" mode while recording audio files. If you leave it in "Card Reader" mode AND have a USB cable connect to a computer, the radio will not be able to store log files.***



Using an OPC-1862 as a "control cable" to toggle USB Mode Select for F3400 series



Using a USB to DB25 adapter as a "control cable" to toggle USB Mode Select for F5400 series.

Note: the USB to DB25 connection will typically consist of a USB to 9 pin converter and then a 9 pin to 25 pin adapter. Icom America has successfully used a US Converters Model XS880 converter and a generic null-modem 9 to 25 pin adapter cable.

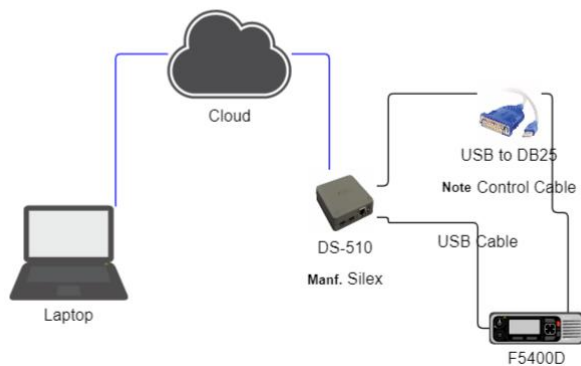
Remote Access using USB Mode Select

To remotely access an Icom radio for the purposes converting voice and GPS logs, the following method has been shown to work in limited tested. Be aware that Icom America does not offer support for this technique and that this setup is being provided for informational purposes only.

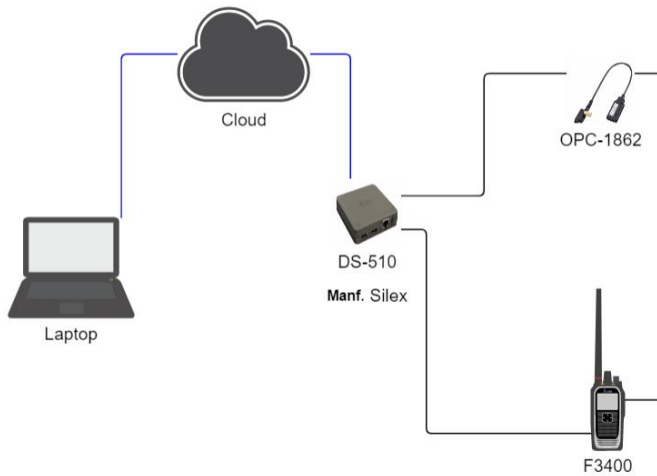
For this method to work, you will need to obtain a Silex DS-510 USB device server. Follow the direction that comes with the device to configure it to work on your network and install the SX Virtual Link software on the same computer that is running RDT.

You will also need to configure your radios as described in the first part of this section.

You will connect your Icom radio to the Silex USB Device server as in the graphics below.

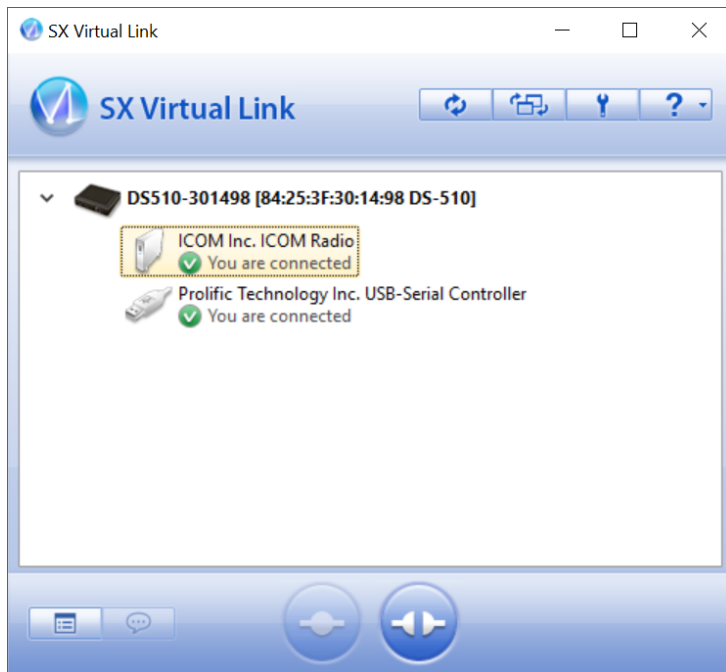


Connecting a Silex USB Device Server to a F5400D



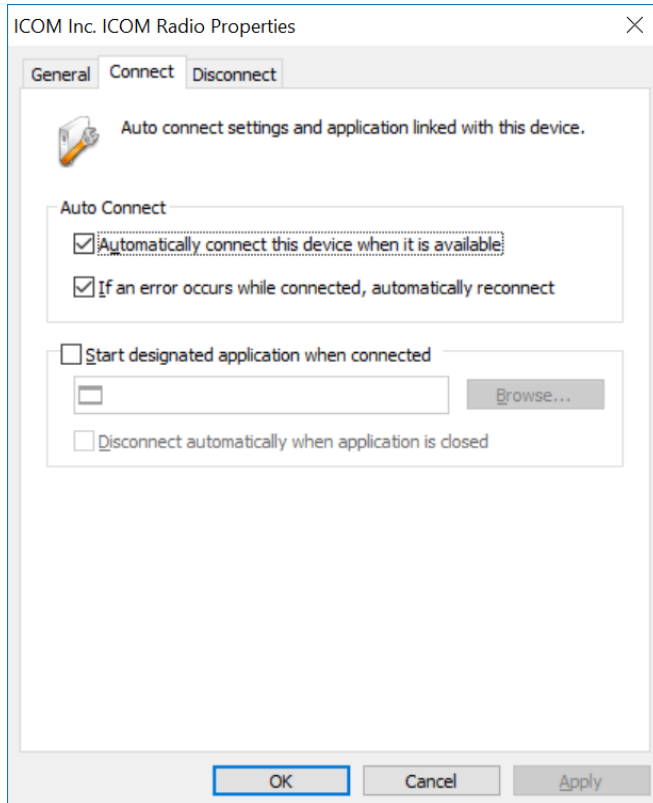
Connecting a Silex USB device server to a F3400

Here is an example of what the SX Virtual Link software will look like when the Silex USB device server is successfully hooked to a powered-on F3400 using one USB and one OPC-1862 cable



SX Virtual Link Software with Icom radio connected. Note that the “Icom Inc. Icom Radio” port is currently connected as a “hard drive” (hence the icon) using the USB cable. The “Prolific Technology” port is the OPC-1862 control cable (note the icon associated with it).

Note, for speedy reconnection, on each port, right click and select “Automatically connect the device when it is available” as shown below.



Once successfully connected, you can use the “USB Mode Select” button just as if the radio is local.

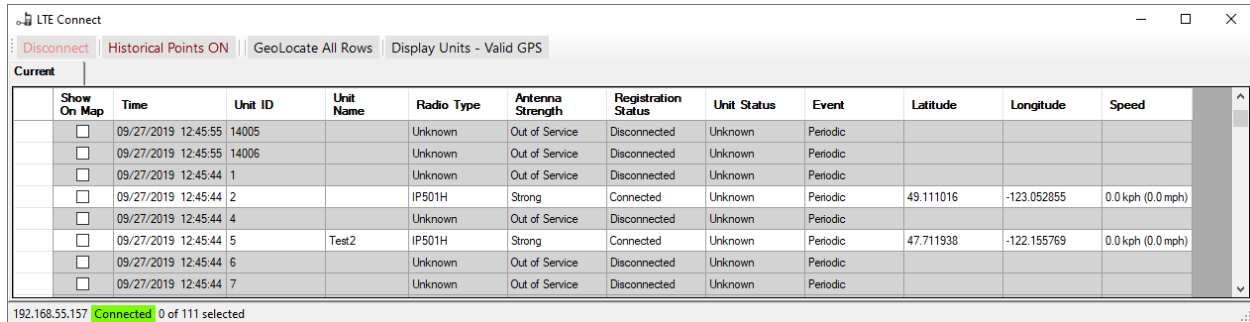
Note:

This application is for reading the files on the SD Card. Using this method to try and read the radios using the cloning software has not been successful.

If you wish to update a remote radio, the recommended way is to transfer the .icf file or firmware to the SD card. Then locally update the radio using the menu commands built into the radio.

LTE Connect – LTE Series model

Pressing the “LTE Connect” button will immediately open the LTE Connect Viewer window and will initiate the IP Connection per the settings in the “File->Settings->LTE Settings Tab->Connection” screen, if not currently connected.



Current	Show On Map	Time	Unit ID	Unit Name	Radio Type	Antenna Strength	Registration Status	Unit Status	Event	Latitude	Longitude	Speed
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:55	14005		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:55	14006		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	1		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	2		IP501H	Strong	Connected	Unknown	Periodic	49.111016	-123.052855	0.0 kph (0.0 mph)
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	4		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	5	Test2	IP501H	Strong	Connected	Unknown	Periodic	47.711938	-122.155769	0.0 kph (0.0 mph)
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	6		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	<input type="checkbox"/>	09/27/2019 12:45:44	7		Unknown	Out of Service	Disconnected	Unknown	Periodic			

192.168.55.157 Connected 0 of 111 selected

Current connection status can be viewed in the status label located at the bottom of the window.

When populated the LTE Connect window will contain real-time information related to your LTE units. When an LTE Unit is selected via the “Show on Map” the information for that unit will be recorded to the rdtLive.kml file. See below “Setting up Google Earth for RDT Live updates” for setting up Google Earth to link this file for automatic updates for viewing RDT LTE real time data.

LTE Connect viewer color representation:

- Gray – units are not currently reporting a valid GPS signal
- Yellow – data displayed is considered “old” data and is greater than 5 minutes old.
- White – units are actively updating their GPS location and status
- Red – unit is in Emergency Status

Show On Map: Select LTE units to be viewed/tracked with the GPS kml file.

Connect/Disconnect: Force a connection or disconnect from the currently connected VE-PG4 or IP-501M.

Historical Points ON/OFF: ON - Add historical data (“breadcrumbs”) to selected/tracked LTE Units. OFF – Remove historical data and only provide current GPS information to selected/tracked LTE Units.

GeoLocate All Rows: Force select all LTE units to be viewed/tracked with the GPS kml file.

Display Units – Valid GPS/All Units: Select whether to see all units or only view units with a valid GPS signal being reported.

Data as viewed on Google Earth Pro

Historical Points OFF – note the single entry (pushpin) for Unit ID 5 – Test 2.

LTE Connect

Disconnect

Historical Points ON

GeoLocate All Rows

Display Units - Valid GPS

Current

Show On Map	Time	Unit ID	Unit Name	Radio Type	Antenna Strength	Registration Status	Unit Status	Event	Latitude	Longitude	Speed
<input type="checkbox"/>	09/25/2019 16:09:53	14001		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:53	14002		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:53	14003		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:53	14004		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:53	14005		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:53	14006		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:49	1		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input type="checkbox"/>	09/25/2019 16:09:49	2		Unknown	Out of Service	Disconnected	Unknown	Periodic			
<input checked="" type="checkbox"/>	09/25/2019 16:09:49	4		IP501H	Strong	Connected	Unknown	Periodic	31.552558	-110.240912	6.3 kph (3.9 mph)
<input checked="" type="checkbox"/>	09/25/2019 16:09:49	5	Test2	IP501H	Strong	Connected	Unknown	Periodic	47.711858	-122.15571	0.0 kph (0.0 mph)
<input type="checkbox"/>	09/25/2019 16:09:49	6		Unknown	Out of Service	Disconnected	Unknown	Periodic			

192.168.55.157 Connected 1 of 111 selected

Google Earth Pro

File Edit View Tools Add Help

Search

ex: 94043

Get Directions History

Places

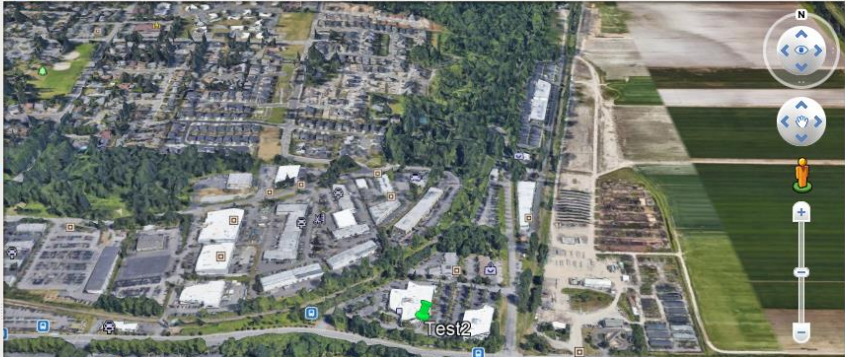
My Places

Sightseeing Tour

Make sure 3D Buildings layer is checked

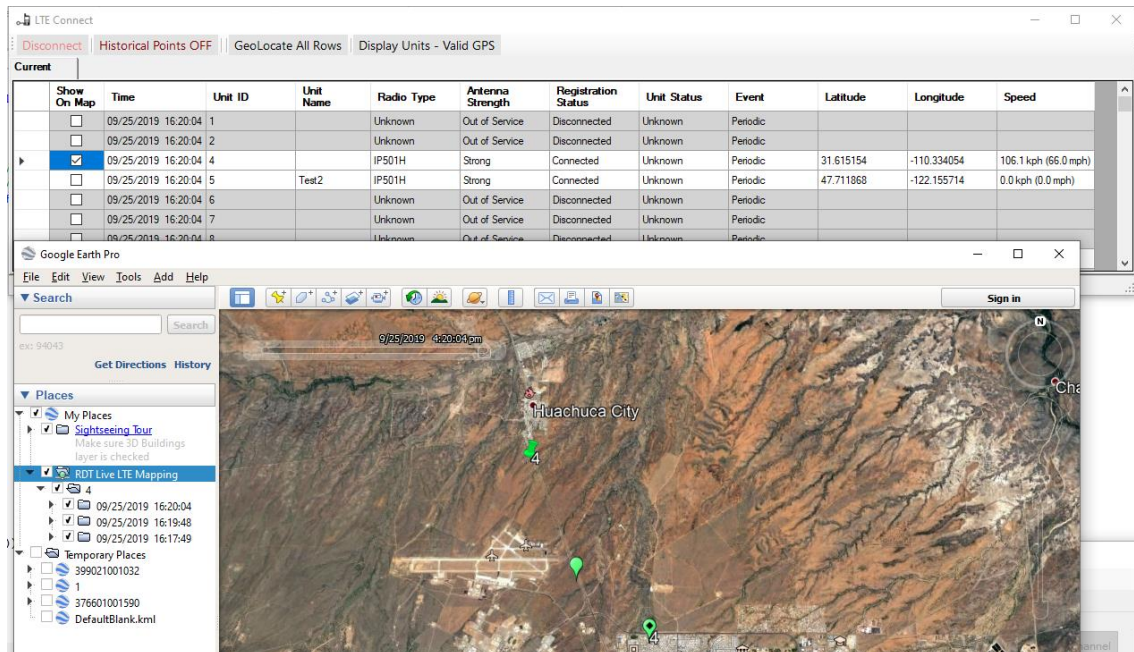
RDT Live LTE Mapping

Temporary Places



Sign in

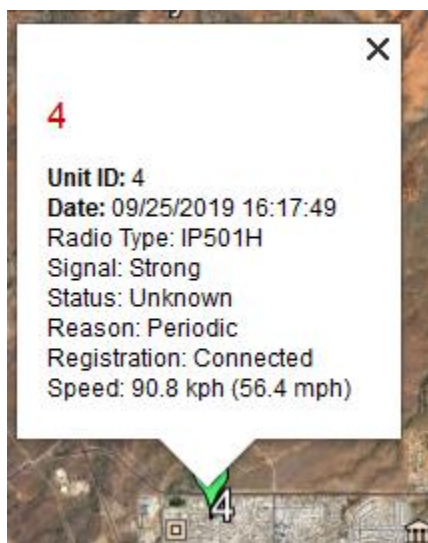
Historical Points ON - view/track the latest 250 **location** points reported by the unit.



- Earliest location point (starting point) is denoted with a diamond in a balloon.
- Most recent location data is denoted as a push pin.

When multiple units are being tracked with Historical Points ON , multiple colors of pushpins/balloons will be used with one color associated with the track of one unit.

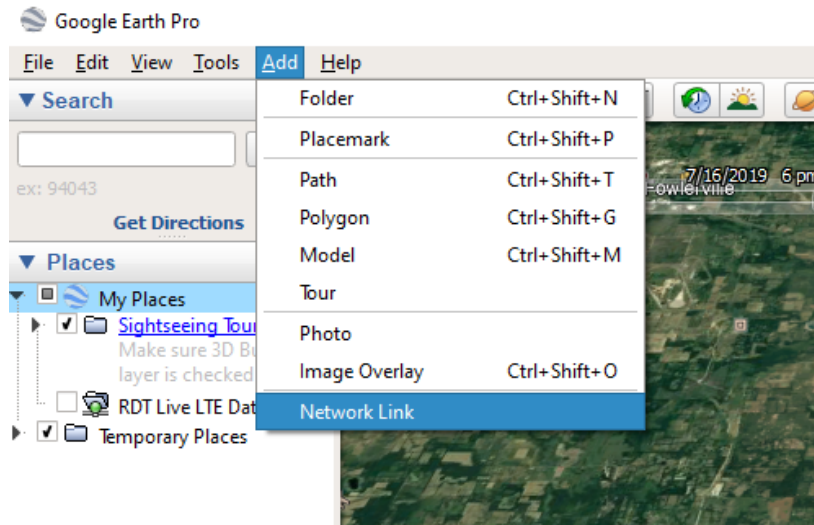
Clicking on any location point within Google Earth will give more data related to that point.



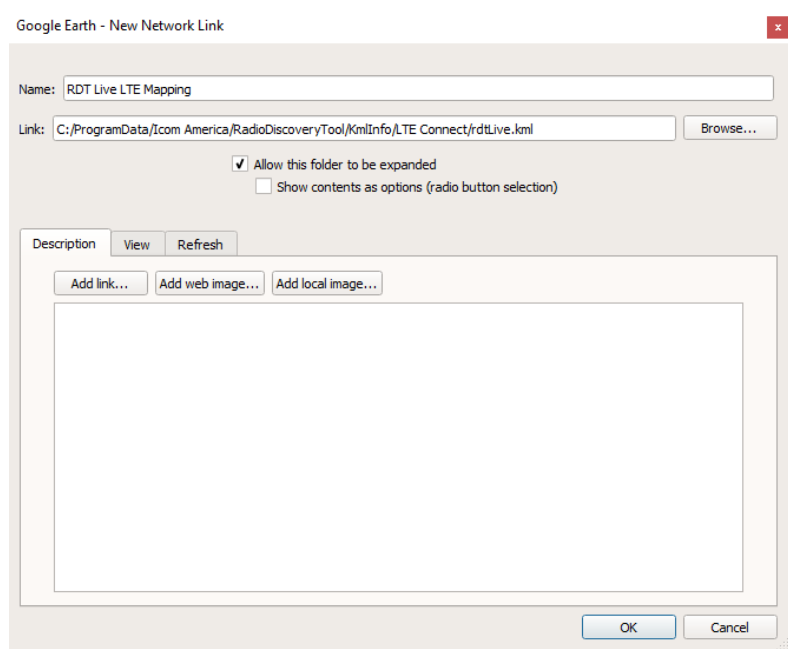
Setting up Google Earth for RDT Live updates

RDT LTE generates the file rdtLive.kml with real time mapping updates for LTE units selected for viewing/tracking. Linking this file to GE allows the GE Map to refresh the current map view to represent the most recent RDT LTE data available.

In Google Earth Pro, select “My Places”. Choose Add->Network Link.



Network Link

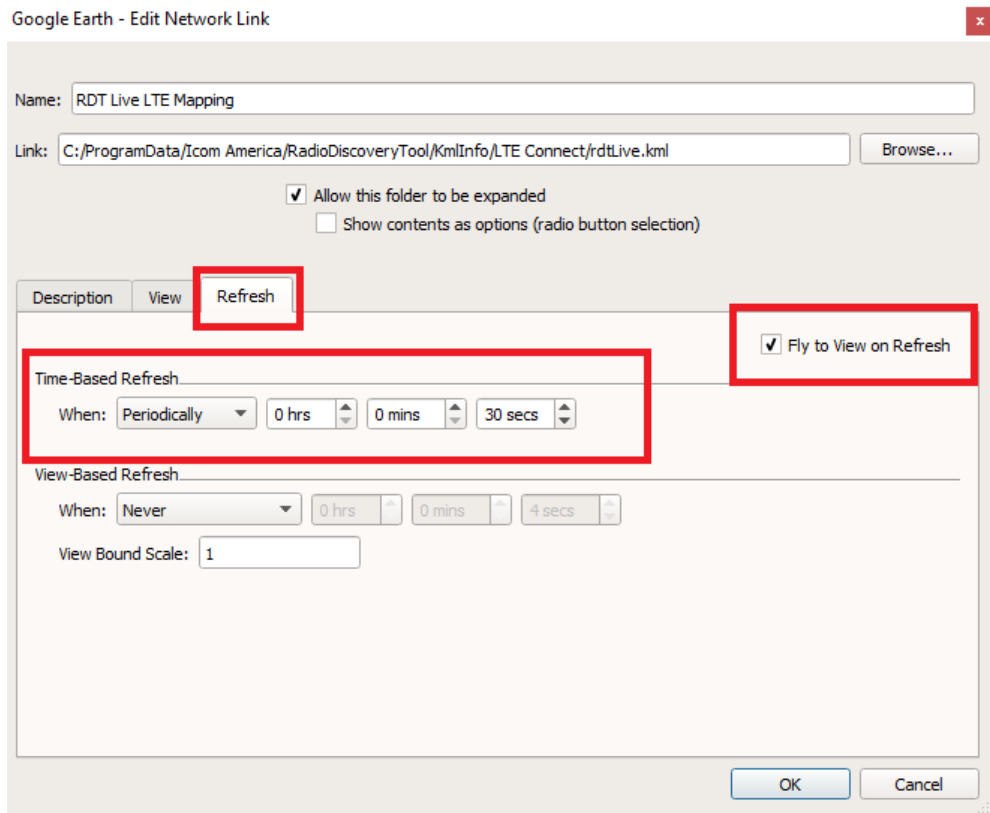


Name the Link and browse to the location of rdtLive.kml. Typically this can be found in “C:/ProgramData/Icom America/RadioDiscoveryTool/KmlInfo/LTE Connect/rdtLive.kml”.

Refresh Time

Choose the Refresh tab for the Link and set the Time-based refresh to periodic and set the update time appropriately. Typical setting would be 30 seconds or faster.

Select Fly to as appropriate to force the map to fly to all units to be displayed on the map. Note you may wish to unselect Fly to if you are attempting to zoom in to see a particular unit.



Press OK to save these settings. You will see the new Network Link displayed in Google Earth.

