

King County Search and Rescue Association

Setting up Garmin Trackers to work with SARTopo

Using TrackerConsole

Purpose of this training

Purpose of this training is to learn how to display the location tracking information from a **Garmin Alpha 100** on the mapping programs used by King County Search and Rescue Association unit members on missions - **SARTopo.com**, **SARSoft** - using the custom application **TrackerConsole.exe** written by Matt Cosand.

Goals - What we will cover

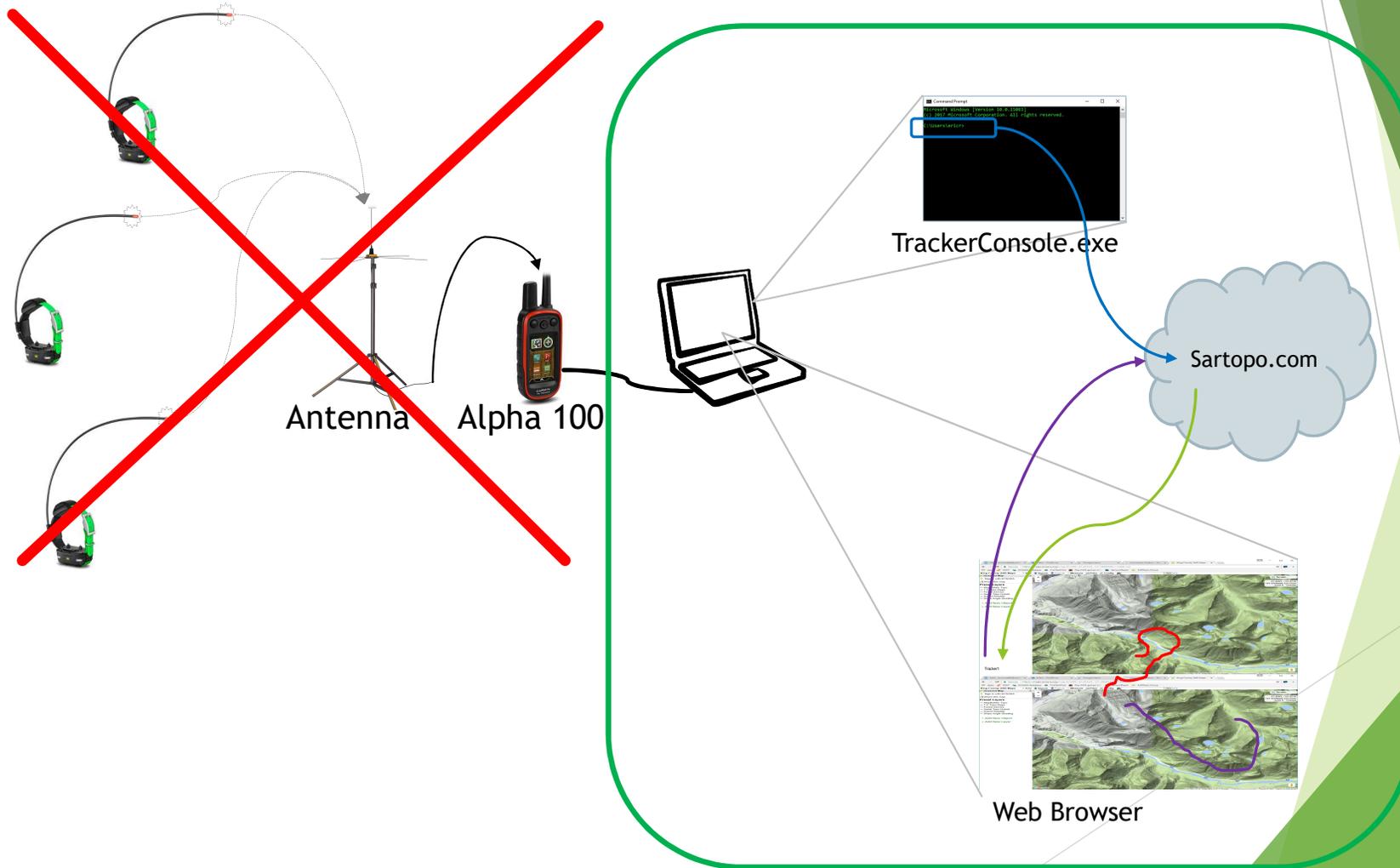
- ▶ How to connect the device, launch the applications, and add the information to the maps.
- ▶ The information **TrackerConsole** is displaying.
- ▶ How to capture the tracks to save with the map using the **log-to-gpx** application.
- ▶ Basic troubleshooting steps.

Non-Goals

This training is **NOT** intended to cover the following:

- ❖ How to program the Alpha 100s
- ❖ How to configure collar channels in the Alpha 100 so they don't conflict
- ❖ How to set up or connect stand alone antennas for receiving signals from the tracking collars
- ❖ Really anything having to do with setting up the hardware or devices
- ❖ SARTopo basics - you should already be familiar with using the mapping applications
- ❖ How to start and use SARSoft

Tracking System Overview



Getting started

You will need:

- ▶ A Garmin Alpha 100
- ▶ A transmitting Garmin T5 collar
- ▶ A computer with the TrackerConsole application and files on it (or a USB)
 - ▶ **Available from:**
<https://database.kcsara.org/alphas>
- ▶ A cable to connect Alpha to the computer
- ▶ An account to log in to SARTopo.com or SARSoft

Outline of Steps

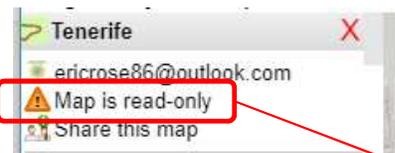
1. Open a **saved map** in your preferred mapping application
2. Connect **Alpha 100** to computer
3. Launch **TrackerConsole.exe**
4. Verify tracker info is showing in **TrackerConsole** window
5. Add **Locator** objects to map
6. Monitor and troubleshoot
7. Convert track **log to .gpx** to import into map

Step 1 - Open a saved map

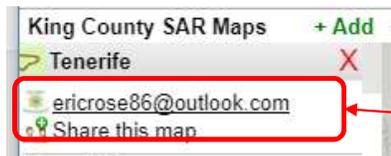
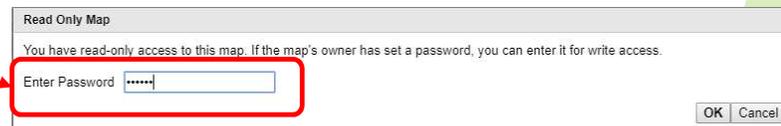
1. Log in to your mapping application, either online or offline.
2. Open a saved map and enter the password so you can edit it, or start a new map and save it.
 - a. Note: You cannot add Locator objects to a map unless it is saved.



Login



Enter password



Good to go

Step 2 - Connect Alpha 100 to computer

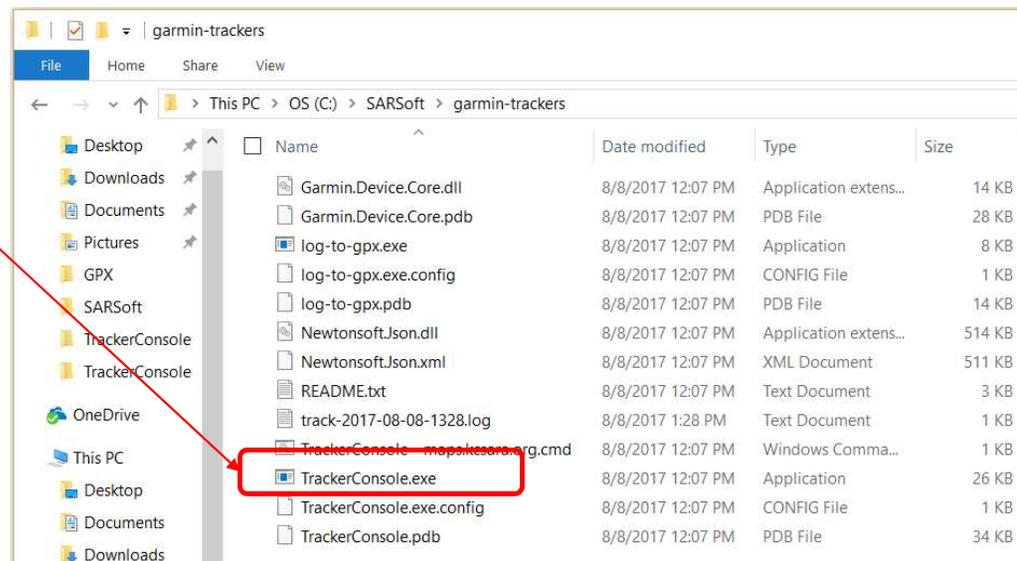
1. Check to ensure the Alpha 100 is receiving signals from at least one tracking collar.
 - a. If the Alpha 100 is not getting the signals from the collars then you won't have anything to add to the map.
2. Connect the Alpha 100 to the computer using a USB cable.
 - a. It does not have to be on, when you connect it to the computer it will turn on or restart if it was already on.
3. Choose "**BaseStation Mode**" when the Alpha 100 turns on.
 - a. If the device is not in BaseStation mode then it won't make the tracks available for downloading.
 - b. If the device does not prompt you for BaseStation mode, then it is in a default mode and cannot make tracks available to TrackerConsole. You might need to go to the device settings and set it to prompt when turned on.

Step 3 - TrackerConsole.exe

Launching TrackerConsole is slightly different depending on if you are using an online map (SARTopo.com) or an offline map (SARSoft).

SARSoft

If you are using SARSoft offline, then all you need to do is go to the folder where you have the TrackerConsole files saved and double click on **“TrackerConsole.exe”**

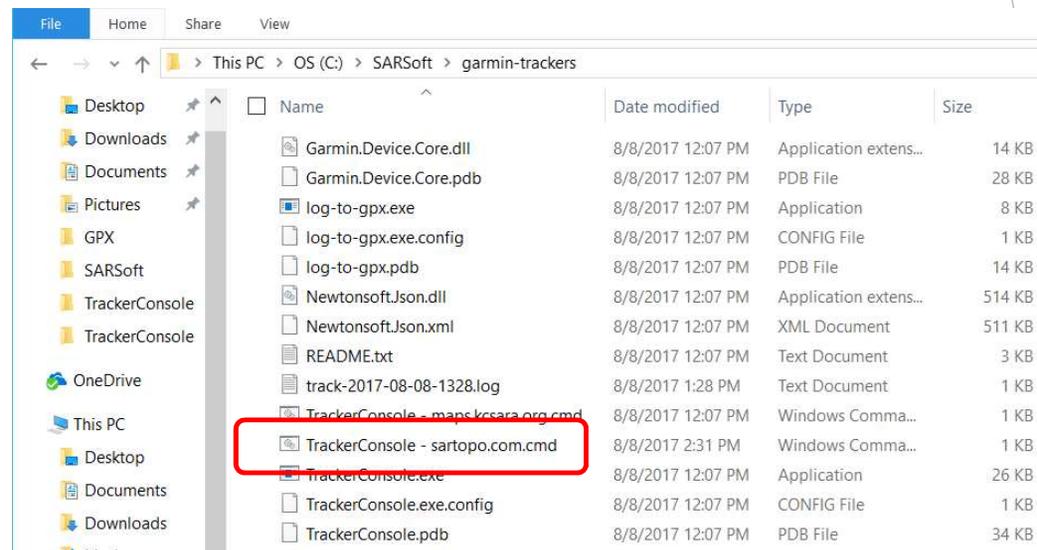


Step 3 - TrackerConsole.exe

SARTopo.com

Important: Before running the .cmd file for the first time, you should edit them and replace KCSARACOLLAR with a call-sign that is unique for your team.

To run TrackerConsole for an online map, go to the folder where you have the TrackerConsole files saved and double click on “**TrackerConsole - sartopo.com.cmd**”.



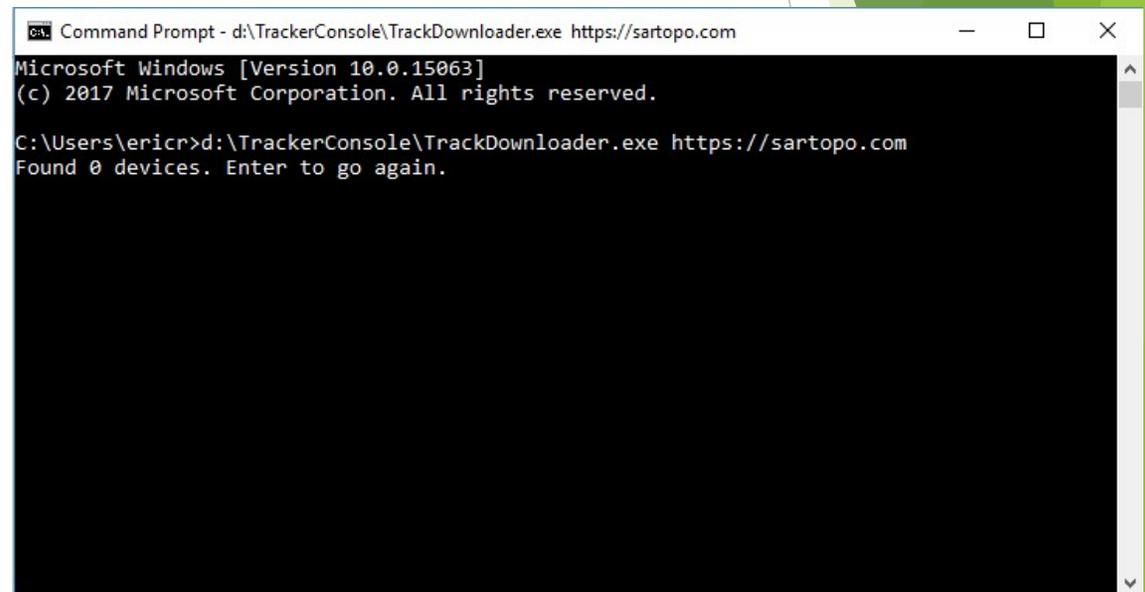
Step 3 - TrackerConsole.exe

A Command (or Console) window opens.

- ▶ If you have a window like this then your Alpha 100 is either not connected or it is not in **BaseStation** mode.

"Found 0 devices. Enter to go again."

- ▶ It can take up to 5 mins for the Alpha 100 to wake up. Give it a few mins then hit Enter and see if it connects.

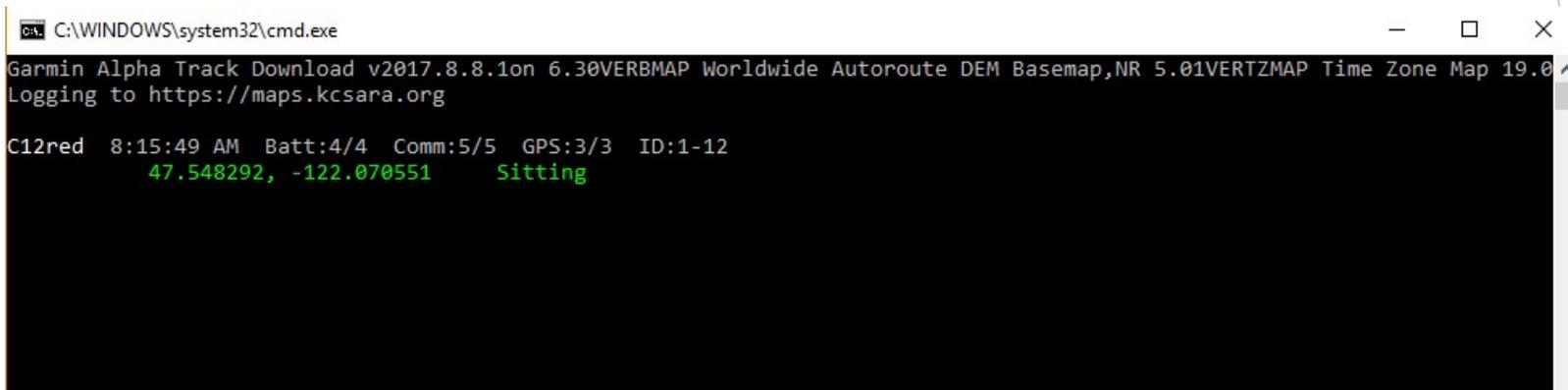


```
Command Prompt - d:\TrackerConsole\TrackDownloader.exe https://sartopo.com
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\ericr>d:\TrackerConsole\TrackDownloader.exe https://sartopo.com
Found 0 devices. Enter to go again.
```

Step 3 - TrackerConsole.exe

Which ever way you launched TrackerConsole, if your Alpha 100 is in BaseStation mode, and it is connected, and it is picking up a transmitting collar, you should now have a window that looks something like this:

A screenshot of a Windows command prompt window. The title bar reads "C:\WINDOWS\system32\cmd.exe". The window content shows the following text:

```
Garmin Alpha Track Download v2017.8.8.1on 6.30VERBMAP Worldwide Autoroute DEM Basemap,NR 5.01VERTZMAP Time Zone Map 19.0  
Logging to https://maps.kcsara.org  
C12red 8:15:49 AM Batt:4/4 Comm:5/5 GPS:3/3 ID:1-12  
47.548292, -122.070551 Sitting
```

Step 4 - Verify Tracker Information

Tracker Name

Timestamp of last update from Tracker

Radio Signal Strength from Tracker to Alpha 100

GPS Signal Indicator

Tracker Battery Level

```
C:\WINDOWS\system32\cmd.exe
C12red 5:32:41 PM Batt:4/4 Comm:5/5 GPS:3/3 ID:1-12
47.548378, -122.070530 Sitting
```

Coords of Tracker at last timestamp

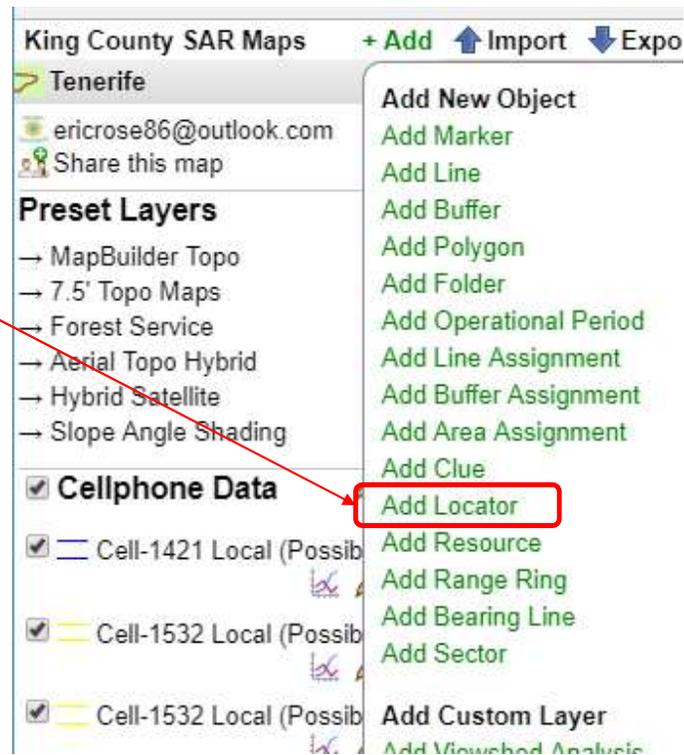
Moving Status

Internal ID of Tracker

Step 5 - Add Trackers to the Map

To add a Tracker to the map you need to add a new **Locator** object.

- ▶ This will add a “Locator Group” that will be the request from your map to the server for any Locators.



Step 5 - Add Trackers to the Map

TrackerConsole takes advantage of the built in FLEET tracking code.

- ▶ Type: **FLEET** <- You must choose **FLEET** as the type
- ▶ Label: **TEAM** <- All collars names will be pre-pended with this. You can change it later.
- ▶ Fleet ID: **COLLAR** <- If using offline **SARSoft**
- ▶ Fleet ID: **MYCALLSIGN** <- If using **SARTopo.com**. Use the same value as in the startup .cmd file

Lines & Polygons

Assignments

Locator Groups

Team



+ Add New Object

+ Add New Layer

- ▶ This will create a new “Locator Group” in the Left Nav pane.

Step 5

- ▶ Refresh the browser page (hit F5).
 - ▶ You need to do this only the first time. From here on out new Trackers that get detected by the Alpha 100 will autopopulate.
- ▶ A new Locator object called “TEAM-<name of your tracking collar>” should appear the left Nav pane.
- ▶ And a new marker should appear on the map for the location of the tracker.

reset Layers

MapBuilder Topo
7.5' Topo Maps
Forest Service
Aerial Topo Hybrid
Hybrid Satellite
Slope Angle Shading

Markers

Lines & Polygons

Assignments

Locators

● Team-C12red  
Bulk Ops

Locator Groups

Team  

+ Add New Object

+ Add New Layer



Step 5 - Add Trackers to the Map

- ▶ You can edit the Locator and change the Name, Folder, Track Length, etc.

The screenshot displays a map interface with a sidebar on the left and a 'Locator Details' dialog box overlaid on the map. The sidebar includes the following sections:

- Slope Angle Shading
- 4X4 (checked)
- ESAR (checked)
- K9 (checked)
- SMR (checked)
- Markers (unchecked)
- Lines & Polygons (unchecked)
- Assignments (unchecked)
- Locators (checked)
 - Team-C12red (with a red dot icon)
 - Bulk Ops
- Locator Groups (checked)
 - Team (with a pencil and X icon)

The 'Locator Details' dialog box contains the following fields and options:

- Label: Team1_Dog22
- Callsign: APRS:COLLAR-C12red
- Folder: K9 (dropdown menu)
- Disable After: Never (dropdown menu) Remove from map after 24 hours
- Track Length: Full (dropdown menu)
- Color: Red square icon
- Style: Arrow icon

The background map shows a topographic view with a red track line overlaid on the terrain.

Step 6 - Monitor and Troubleshoot

That's all there is to it. From here on out you just watch the map and monitor things and troubleshoot as needed.

- ▶ New Trackers that get picked up by the connected Alpha 100 will automatically get added to the map and Locators folder.
- ▶ No need to manually Add New Locator anymore.
- ▶ Keep an eye on the TimeStamp of each tracker in the TrackerConsole, this will tell you if the location on the map is current or not.
 - ▶ This info is also available on the marker on the map, but you can see them all at once in the TC window.
- ▶ You may need to occasionally refresh the map in the browser.
- ▶ You may want to adjust Track Length of the Locators to avoid cluttering the map.
- ▶ If you aren't seeing a Tracker in the TrackingConsole even though you handed that Tracker to a team, it means the Alpha 100 isn't picking it up. You might want to ask the team to make sure the Tracker is turned on.

Important Things to know

There are two key things to know.

All Tracks are “Public”

- ▶ TrackerConsole is pushing the Tracker info up to the *servers*, not to your map.
- ▶ Your map is pulling the info from the servers.
- ▶ This makes the tracks, or more specifically, the Locators, “Global” to the server. This essentially means they are “public”.
- ▶ Anyone can add the Locators you are pushing up to the server onto their own map, **If they know the callsign.**
- ▶ I can start a new map on a different computer, and if I know the Callsign of your Locators I can add that to my map as well and watch what is going on.
- ▶ It is essentially like APRS tracking websites.

Convert Track Log to .gpx

- ▶ Goto the folder where you are running TrackerConsole.
- ▶ Find the Track-<year-month-day-time>.log file
 - ▶ Example: track-2017-08-09-0759.log
- ▶ Drag and drop it on the **Log-to-gpx.exe**
- ▶ A file called **Output.gpx** will be created in the same folder
- ▶ Import Output.gpx into your map and now all tracks are displayed and saved

File Home Share View

← → ↕ ↑ This PC > Data (D:) > garmin-trackers-2017.8.8.1

Quick access

- Desktop
- Downloads
- Documents
- Pictures
- 2017-07
- Camera roll
- CustomMaps
- Data (D:)
- Creative Cloud Files
- OneDrive
- This PC
 - Desktop
 - Documents
 - Downloads

Name	Date modified	Type	Size
Garmin.Device.Core.dll	8/9/2017 7:54 AM	Application extens...	14 KB
Garmin.Device.Core.pdb	8/9/2017 7:54 AM	PDB File	28 KB
log-to-gpx.exe	8/9/2017 7:54 AM	Application	8 KB
log-to-gpx.exe.config	8/9/2017 7:54 AM	CONFIG File	1 KB
log-to-gpx.pdb	8/9/2017 7:55 AM	PDB File	14 KB
Newtonsoft.Json.dll	8/9/2017 7:55 AM	Application extens...	514 KB
Newtonsoft.Json.xml	8/9/2017 7:55 AM	XML Document	511 KB
output.gpx	8/10/2017 7:49 AM	GPX File	13 KB
README.txt	8/9/2017 7:55 AM	Text Document	3 KB
track-2017-08-09-0759.log	8/9/2017 8:04 AM	Text Document	43 KB
track-2017-08-09-0808.log	8/9/2017 8:11 AM	Text Document	25 KB
track-2017-08-09-0813.log	8/9/2017 8:15 AM	Text Document	15 KB
track-2017-08-09-0815.log	8/9/2017 8:51 AM	Text Document	282 KB
TrackerConsole - maps.kcsara.org.cmd	8/8/2017 9:36 PM	Windows Comma...	1 KB
TrackerConsole - sartopo.com.cmd	8/9/2017 8:06 AM	Windows Comma...	1 KB
TrackerConsole.exe	8/9/2017 7:55 AM	Application	26 KB
TrackerConsole.exe.config	8/9/2017 7:55 AM	CONFIG File	1 KB

Additional Troubleshooting

- ▶ **Problem:** Collar is transmitting, you can see it on the Alpha 100, and the Locator is showing on the map, but no tracks are getting created even though you know the collar is moving.
 - ▶ Check Collar Timestamp on TrackerConsole
 - ▶ If timestamp is old it hasn't updated.
 - ▶ Collar could be in team's pack or in a 4x4 during transport
 - ▶ Refresh the browser
 - ▶ Sometimes things just get stuck
 - ▶ Make certain the Update Interval on the collar is greater than 2.5 seconds
 - ▶ Need at least 10m between two points for SARTopo to draw a track between them
 - ▶ Only the MASTER Alpha can change the Update Interval on collars

Summary

- ▶ The general steps are
 - ▶ Open a map
 - ▶ Connect Alpha to computer
 - ▶ Launch TrackerConsole
 - ▶ Add Locators with Callsign “Collar” or your unique call sign
 - ▶ Convert track log to .gpx
 - ▶ Import .gpx to map
- ▶ Troubleshoot along the way

Contacts

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Thank you!

