

Creating an Off-Line Map for Use with Vision™ Software, AeroShield™ Software, and the Mobile InterferenceHunter™ MX280007A

Introduction

In many applications, users will not have access to the Internet (e.g., Google Maps) for mapping functions used with the following Anritsu software programs:

- Vision Monitor/Vision Locate/Coverage Mapping (options 400/401/486 respectively)
- AeroShield MX280002A
- Mobile InterferenceHunter (MIH) MX280007A

For off-line mapping applications, Anritsu uses tiled pictures to create maps. Once created, the map can be zoomed in/out and moved side-to-side using a mouse pointer. To use the map for positioning and geo-location applications, the upper/lower and left/right corners of the map must be referenced by their corresponding GPS coordinates.

The purpose of the application note is to detail the procedure for creating these off-line maps. While there are several open source options for tile map construction, this application note will be using Map Puzzle to detail the method for incorporating these maps into the Anritsu software application. Map Puzzle is an open source mapping program that can be downloaded from the Internet free of charge.

Using Map Puzzle

Execute the Map Puzzle application and populate the latitude and longitude information. To obtain latitude/longitude for the map center, one can use Google Maps or a similar program. A copy of the Map Puzzle interface is shown in Figure 1. The boxes highlighted in green have already been populated with coordinates for Morgan Hill, California. For the “Base” information (upper right in Figure 1), select the type of map desired. In this instance, Google Maps is selected.

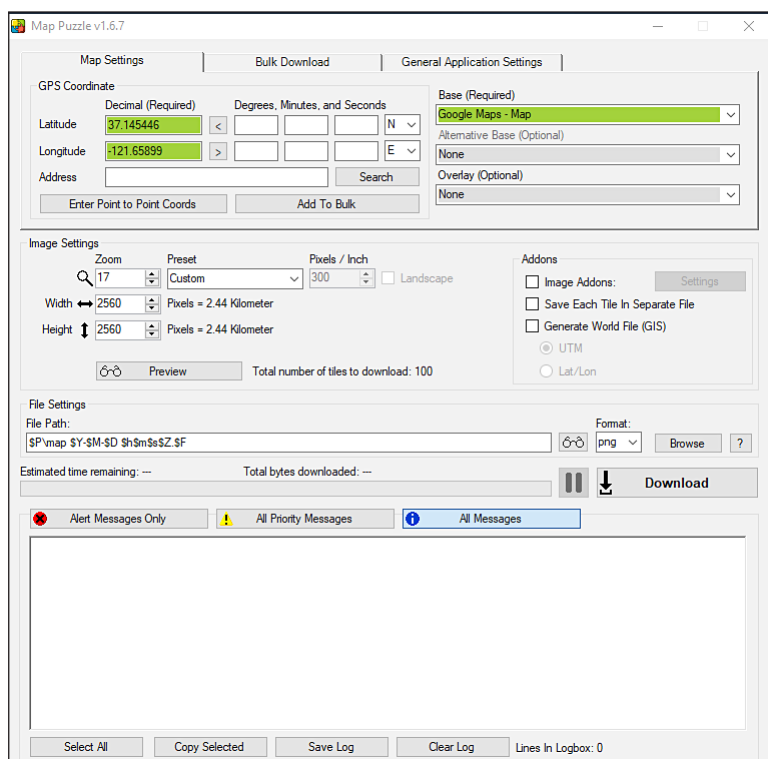


Figure 1. Map Puzzle Interface

To confirm that the coordinates entered are correct, click on the “Preview” button to view the map that will be generated. Figure 2 shows the map created by our Morgan Hill coordinates.

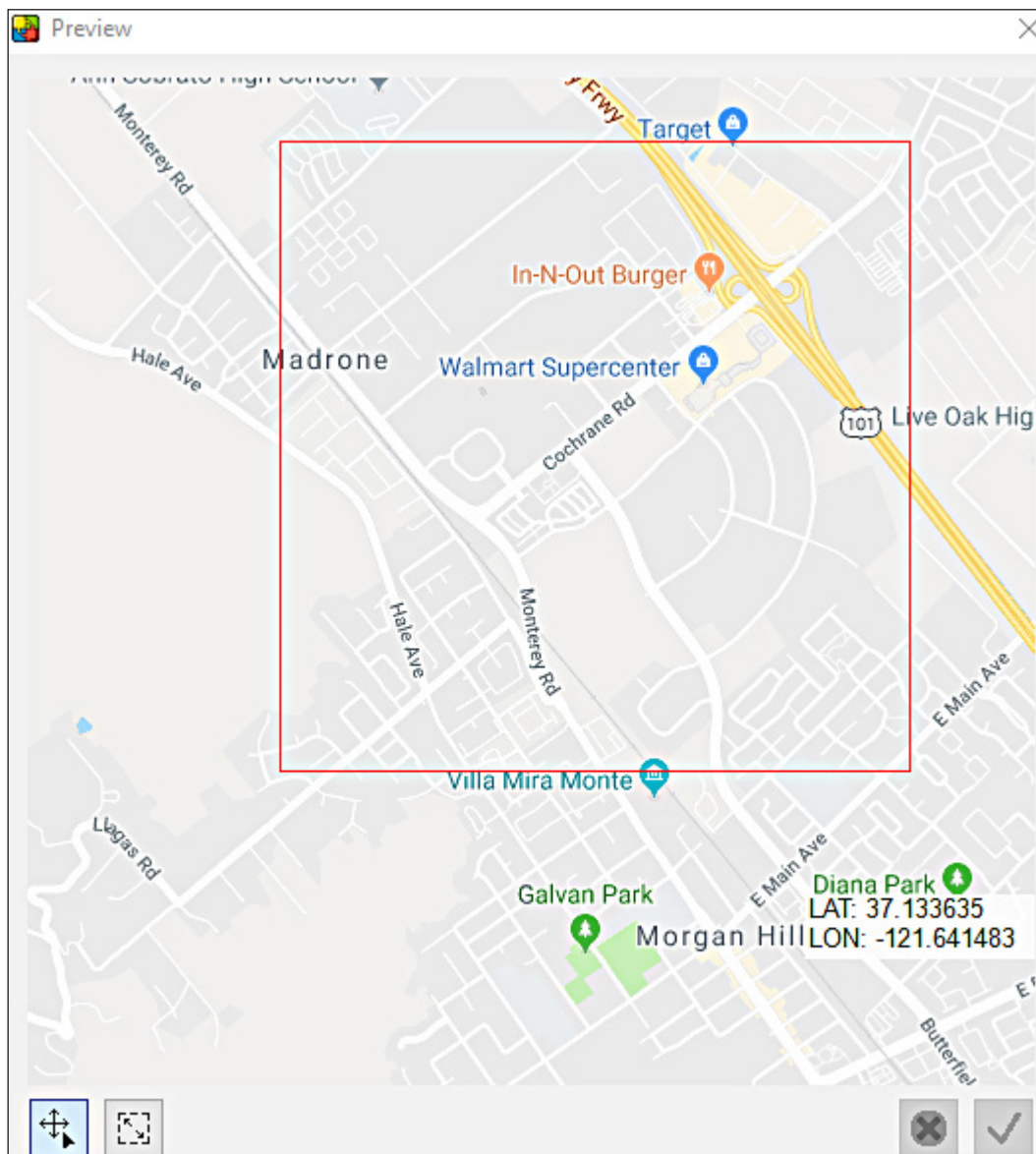


Figure 2. Map Preview Created Using Specified Coordinates

Users can also adjust the width/height parameters in Map Puzzle to increase or decrease the map coverage. Subsequent previews can be done to view the updated coverage area. Another option is to vary the number of tiles used for the map. This controls the zoom levels available once the map is constructed.

To create the map, click the **DOWNLOAD** button. By default, the map is created in the same directory as the Map Puzzle application.

In the Map Puzzle message window, you will see the progress report scroll as the map is constructed. At the top of the window, copy the listing of the six GPS coordinates (as shown in Figure 3). This is done by highlighting the six coordinate lines and typing **<CTRL> C** (for copy).

Open the Anritsu software application. Here the AeroShield software demo application will be used to illustrate the process.

In Figure 4, circled in red in the upper left area of the AeroShield user interface window is the icon for selecting an off-line map.

```
Preparing...Done!  
Upper Latitude: 37.1712601762641  
Lower Latitude: 37.1199482196458  
Left Longitude: -121.690063476562  
Right Longitude: -121.625690460205  
Exact center of image Latitude: 37.1456085  
Exact center of image Longitude: -121.657877
```

Figure 3. GPS Coordinates Created After Downloading a Map

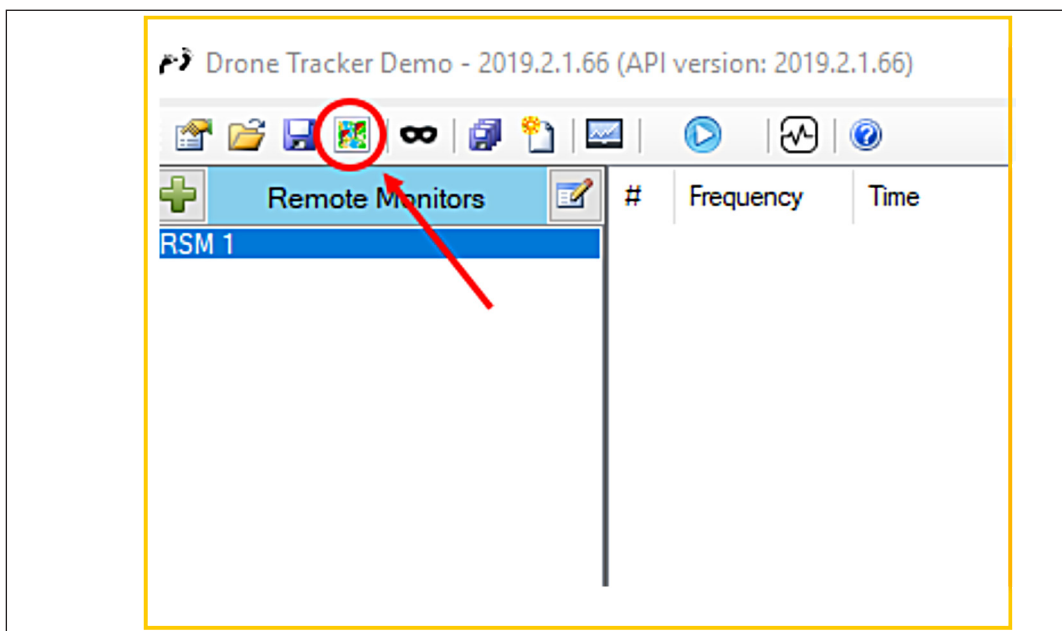


Figure 4. Icon for Selecting an Off-Line Map (AeroShield Interface)

Figure 5 shows the pop-up window that appears once the selection in Figure 4 is made. Simply click on the **PASTE** button to import the copied coordinates (Figure 5, illustration on the left). The coordinates previously copied from the Map Puzzle interface will appear. This is shown in Figure 5 (right).



Figure 5. Window Where GPS Coordinates are Copied. The Picture on the Right Shows the Panel Populated with Coordinates.

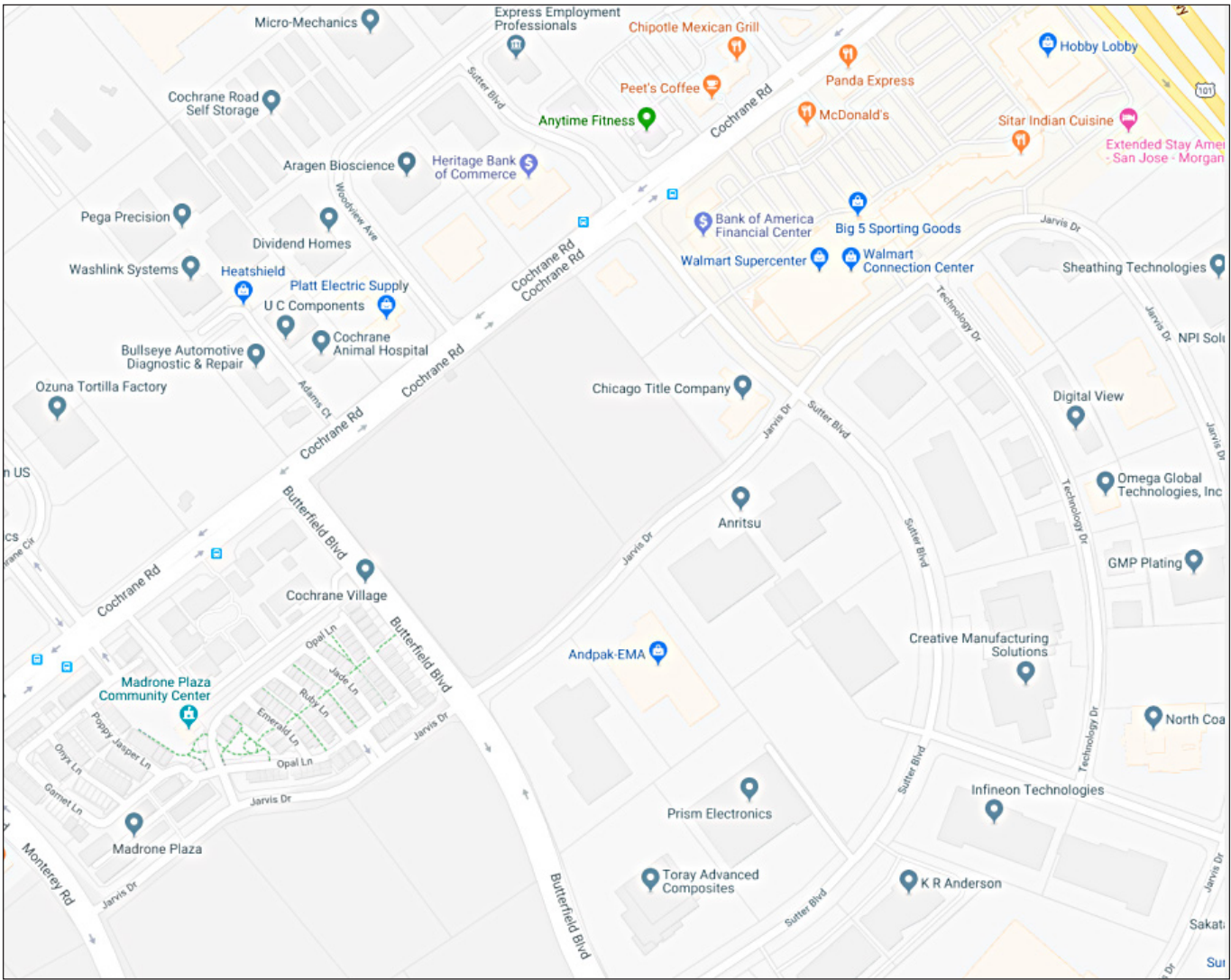


Figure 6. Off-Line Map as it Appears in AeroShield

Figure 6 shows zoomed-in version of the off-line map as it appears in the AeroShield application.

Conclusion

Appending the GPS coordinates of an off-line map is a one-time procedure. Once the map is constructed, the GPS coordinates will be embedded into the map file and used each time the map is opened.

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