VIAVI Solutions

Application Note

Recording and Playing Trajectory Routes in the GPSG-1000

Trajectory files recorded by GPS receivers or the GPSG-1000 and saved in the .gdt or .nme format may be played back in the GPSG-1000 for simulation and testing of GPS receivers. This Application Note will detail the steps required to record a Trajectory route in the GPSG-1000 GPS RX and playback the file for simulation.

The GPSG-1000 GPS RX will record its position and route. Attach the included GPS RX antenna. From the Main Menu, select the down arrow. See Figure 1.

Figure 1. Main Menu

Acquisition

From the lower portion of the Main Menu, select GPS RX. See Figure 2.

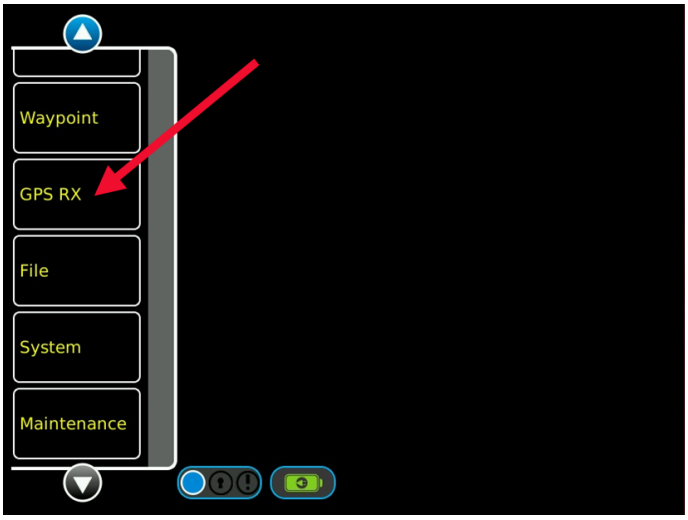

Figure 2. Main Menu, Lower Section

The GPS RX page will display the current GPS position fix and the visible satellite. See Figure 3.

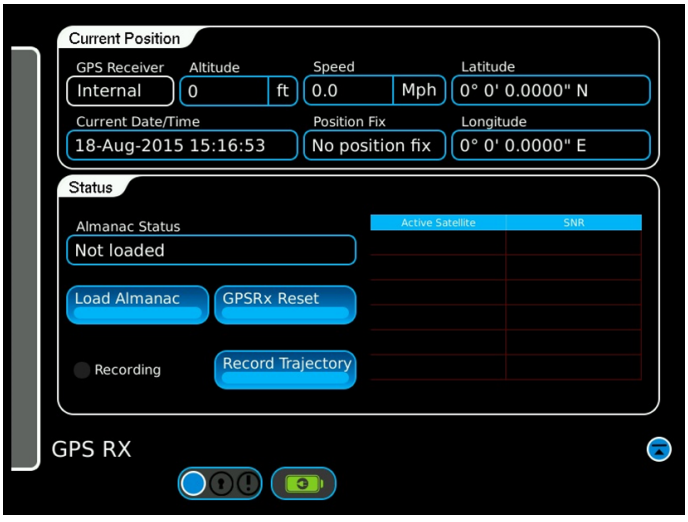

Figure 3. GPS RX Page

Wait for the GPS RX to acquire a 3d position fix. See Figure 4.

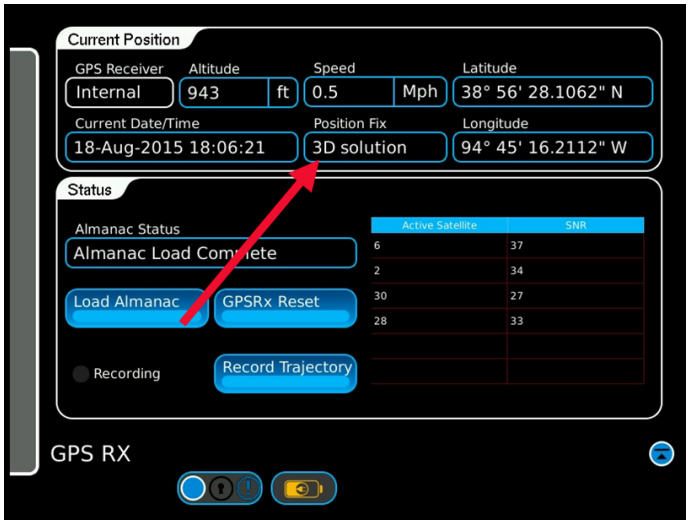

Figure 4. GPS R Page with 3D Fix

Record

Press the Record Trajectory button to start recording. The GPSG 1000 will continue to record until the Stop Recording button is pressed. Note the Current Date/ Time field, the time is displayed as GMT. See Figure 5

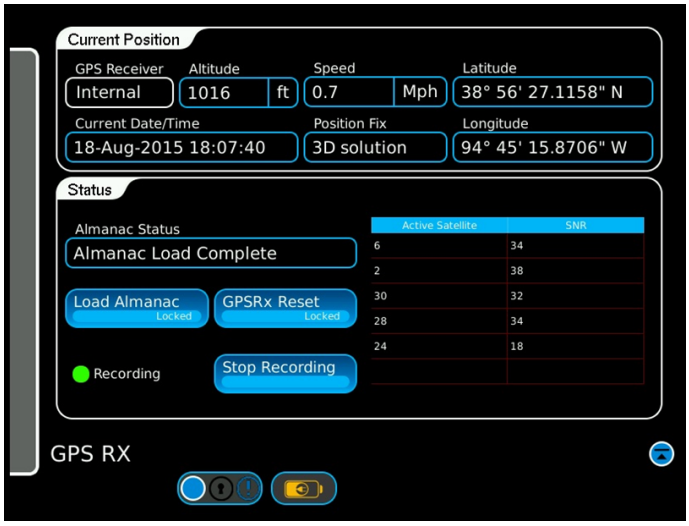

Figure 5. GPS R Page, Recording Trajectory

The data will be stored in a file with the following naming convention: MMDDYYYY_HHMMSS.mne. The time recorded for the file name is the time the recording is stopped.

Playback

Note: Files saved from other GPS receivers may have .nmea file extension. When transferred to the GPSG-

1000 for playback they must be renamed with .mne file extension. See Application Note: GPSG-1000 File Properties. Once renamed and transferred to the GPSG-1000, they may then played in the same manner as files recorded by the GPSG-1000.

To load the new Trajectory File for playback select File from the Main Menu and then Trajectory from the tabs at the top of the page. Press the Load button and select the new .nme file, press Open. See Figure 6.

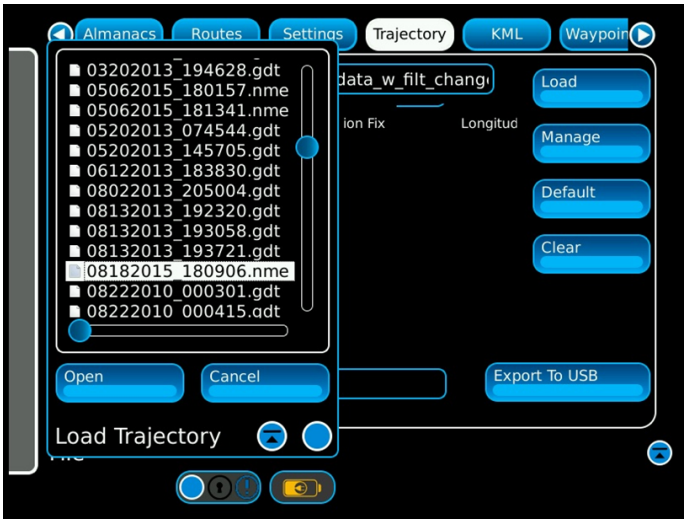

Figure 6. File Page, Trajectory File Saved

The new Trajectory file will appear in the Current Trajectory File widow. See Figure 7.

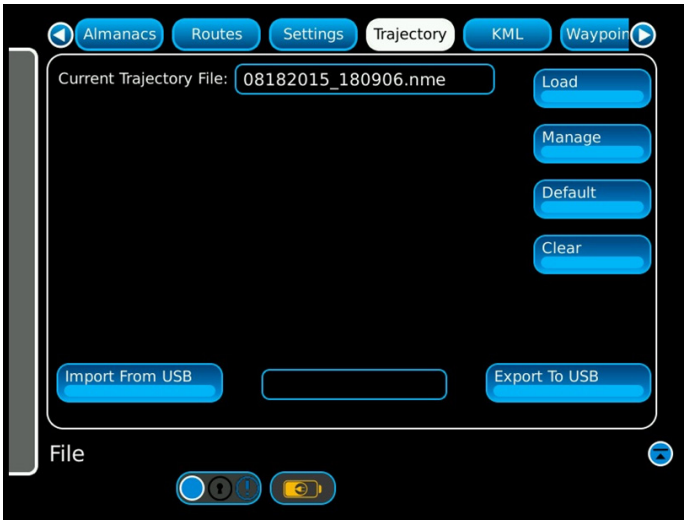

Figure 7. File Page, Trajectory File Loaded

To run the Trajectory File simulation, select Setup from the Main Menu. In the GNSS window in the Simulation field select Trajectory. In the PRN Signal field select Traj File. Set the RF Level in the RF Output window to the desired level. See Figure 8.

The Trajectory File records the Signal to Noise Ratio of the received GPS signal. During playback the GPSG-1000 will adjust the RF Power Level to simulate the actual recorded S:N. For this feature to work the simulation must be played back with the same Almanac with which the recording was made. If the Trajectory File is played with a different Almanac the positional simulation will run, but, the Simulation screen will show a "Red" indicator for Traj Power and the RF Level will remain at the set level.

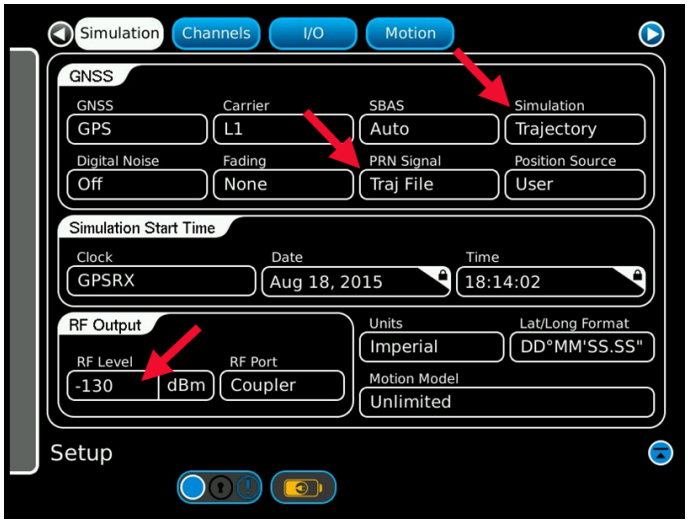

Figure 8. Setup Page, Trajectory Setup

Close the Setup page and select Simulation from the Main Menu. Press Run and the Trajectory Simulation will start. See Figure 9.

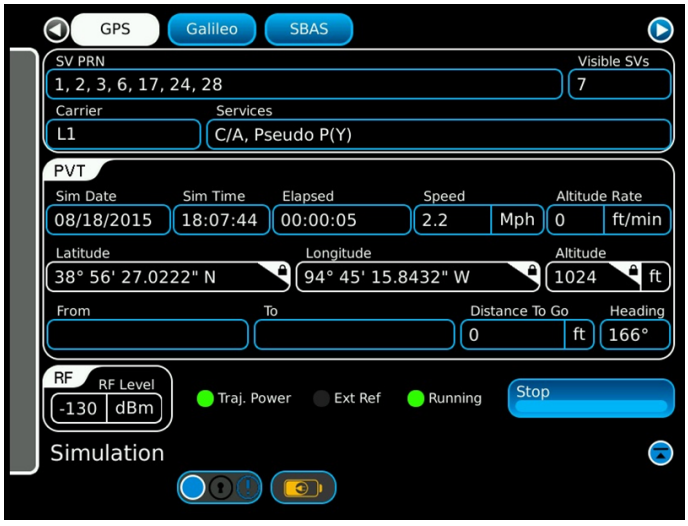

Figure 9. Simulation Page, Trajectory File Running

The Simulation will run until the end of the Trajectory File. See Figure 10.

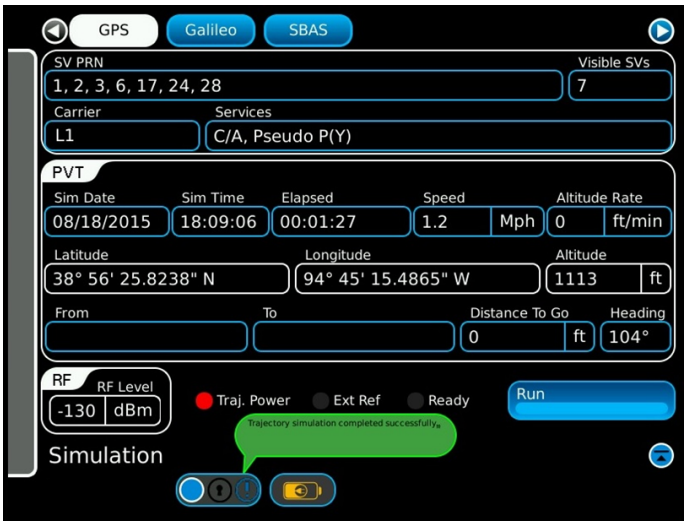

Figure 10. Trajectory Simulation Compelete

VIAVI Solutions

Contact Us: +1 316 522 4981
avcomm.sales@viavisolutions.com

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viavisolutions.com/contact

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30191266 900 1020