HOW TO USE THE SKYDEL RINEX OBSERVATION GENERATOR TOOL?

Topic raised by SKYDEL users :

Rinex Observation file is an ASCII file of Pseudo-range data conforming to the RINEX standard. The time system is GPS Time, and the scalar data is reference frame independent using by used by GNSS receivers or applications such as RTK to analyze data.

SKYDEL SOLUTION

Orolia provides a specific Tool Kit, including an easy to use Python Script to generate GLONASS Rinex Observation from Skydel raw data.

This Technical note describes how to easily use the tool kit to "fill the gaps of GLONASS Rinex files".

PROCESS

Download the Tool kit

The Skydel Rinex Observation Generator Tool Kit is available on OROLIA web site from the following https://github.com/learn-orolia.

Follow the installation recommendation

1. **Python installation:**
   Make sure you have a python from version 3.7 or download the latest python version from https://www.python.org/downloads/.

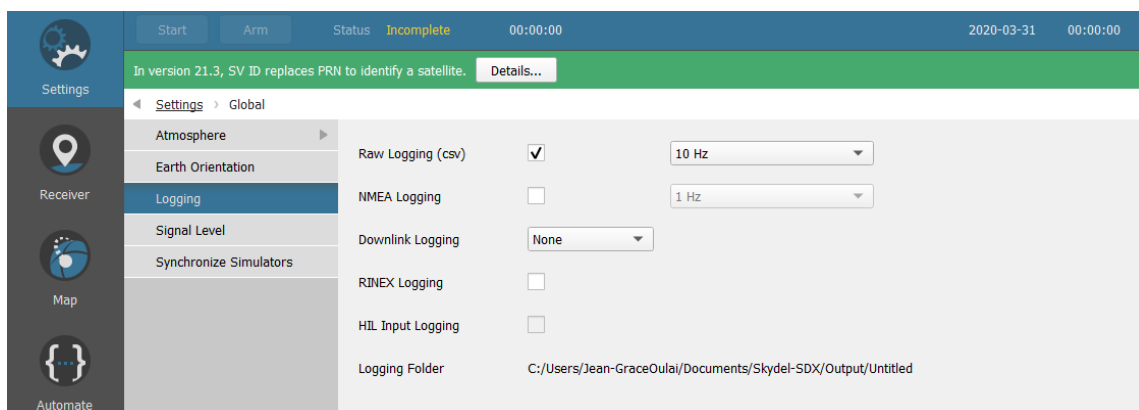2. **Open a terminal and check your python version:**
   $ python -version

3. **Packages installation:**
   $ pip install -r requirements.txt

4. **Navigate to the directory in which the tool kit was installed on the system.**

Generate pseudo-range data from Skydel

To get the pseudo-range data from Skydel, go to **Settings –> Global -> Logging** and check Raw Logging (csv).

The generated files will be saved in the output data of Skydel:

- L1CA 02.csv
- L1CA 03.csv
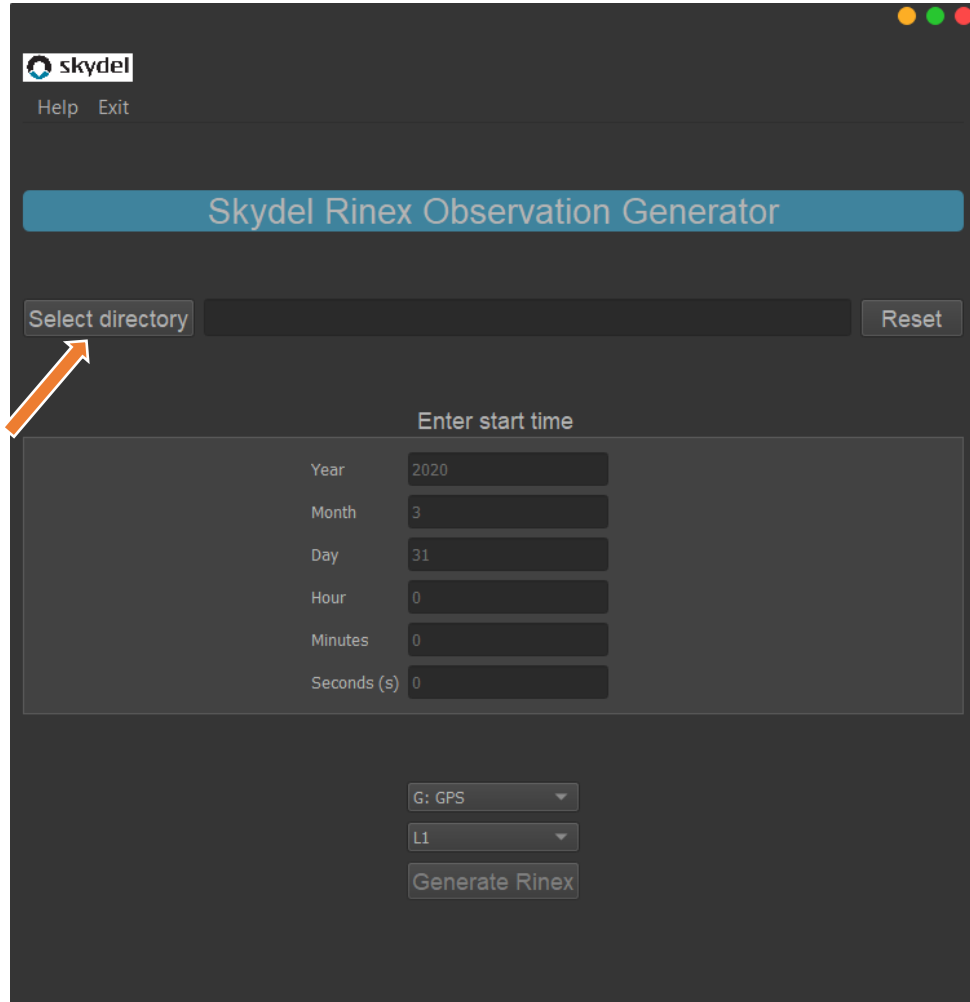- L1CA 06.csv
- L1CA 12.csv
- L1CA 17.csv
- L1CA 19.csv
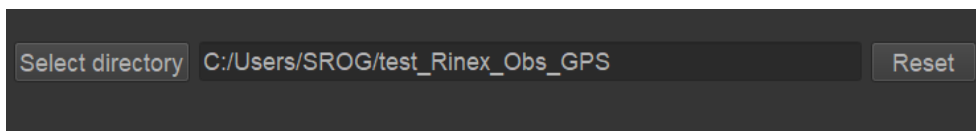- L1CA 24.csv

Run and operate with the script

1. **Run the Skydel Rinex Observation Generator tool:**

   $ python main.py

   The following window opens:

2. **Click the button "Select directory" to load your generated Skydel raw data.**
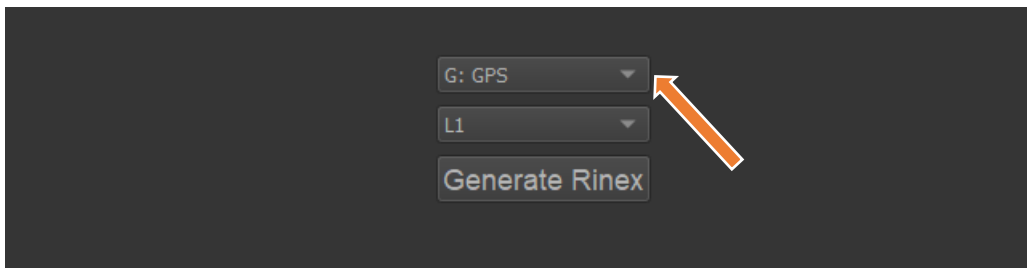

   When the directory is loaded, the tool takes a few seconds to read and analyze the data.

3. **Enter the start time of your simulation using the edit text section.**

Enter start time	
Year	2021
Month	4
Day	28
Hour	0
Minutes	45
Seconds (s)	0
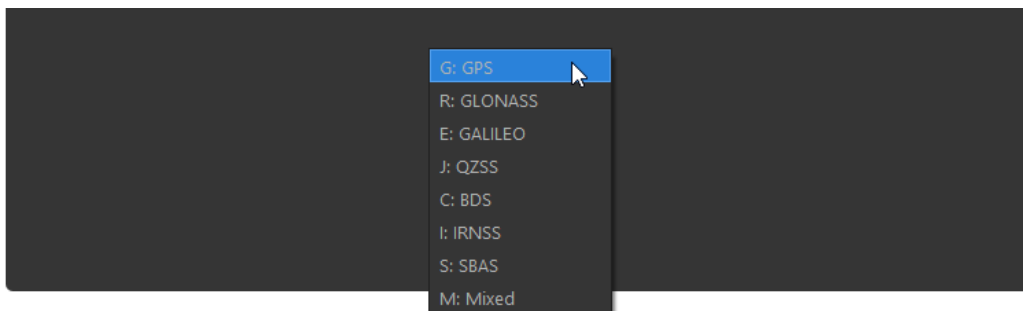
4. **Select your type of GNSS constellation.**

Click on the *G: GPS* button.

G: GPS ▼

L1 ▼

Generate Rinex

Click on the arrow to expand the drop-down list and select your GNSS constellation.

G: GPS
R: GLONASS
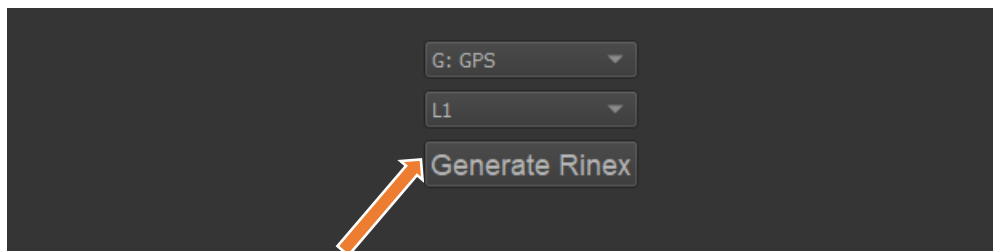E: GALILEO
J: QZSS
C: BDS
I: IRNSS
S: SBAS
M: Mixed

If your skydel raw data contains files from several GNSS constellations (for example GPS and GLONASS), selected M: Mixed.

Click on the second combobox and expand it to select your GNSS band:
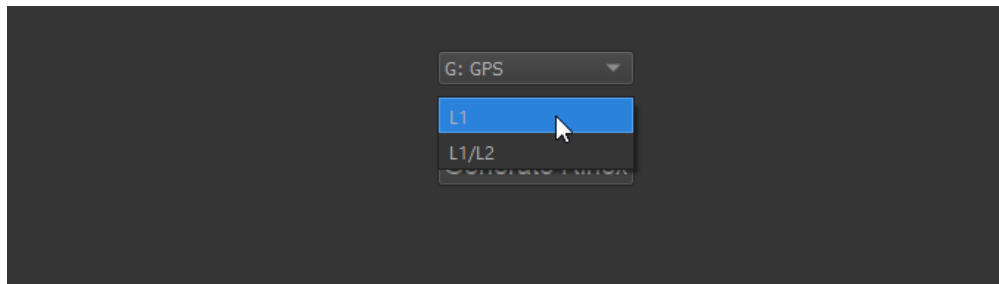
5. To start, click on the button Generate Rinex

A dialog window will open to help you choose the location and name of the Observation file you want to generate.

Then go to the path where you saved your observation file. You should have a file like this:

```
     3.04              OBSERVATION DATA    E                      RINEX VERSION / TYPE
sbf2rin-13.4.5                            20200813 185642 UTC PGM / RUN BY / DATE
SEPT                                                             MARKER NAME
Unknown                                                         MARKER NUMBER
Unknown               Unknown                                   OBSERVER / AGENCY
3013296               SEPT POLARX5        5.3.0                  REC # / TYPE / VERS
Unknown               Unknown                                   ANT # / TYPE
  1320816.1902 -4320195.0015   4487349.8252                     APPROX POSITION XYZ
         0.0000          0.0000          0.0000                  ANTENNA: DELTA H/E/N
E    2 C1C L1C                                                   SYS / # / OBS TYPES
  2020     3   31     0     0    0.0000000     GPS               TIME OF FIRST OBS
                                                                END OF HEADER
> 2020 03 31 00 00 0.50000000  0 06
E11  24403367.371 7 128240538.42850
E12  21672928.448 7 113891991.51480
E24  22901335.042 7 120347307.20620
E25  25419921.934 7 133582567.35640
E31  27542279.960 7 144735614.38950
E33  26397525.146 7 138719900.76420
> 2020 03 31 00 00 0.60000000  0 06
E11  24403335.082 7 128240368.75350
E12  21672938.226 7 113892042.89880
E24  22901371.198 7 120347497.20820
E25  25419903.690 7 133582471.48380
E31  27542341.973 7 144735940.27200
E33  26397566.882 7 138720120.08720
> 2020 03 31 00 00 0.70000000  0 06
E11  24403302.795 7 128240199.08010
E12  21672948.004 7 113892094.28470
```