

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

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

This Technical note describes how to easily use the tool kit to “generate Rinex Observation from Skydel Raw data logging”.

PROCESS

Download the Tool kit

The Skydel Rinex Observation Generator Tool Kit is available on Safran 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 3.8 or download the latest python version from <https://www.python.org/downloads/>.

2. Open a terminal and check your python version:

```
$ python -version
```

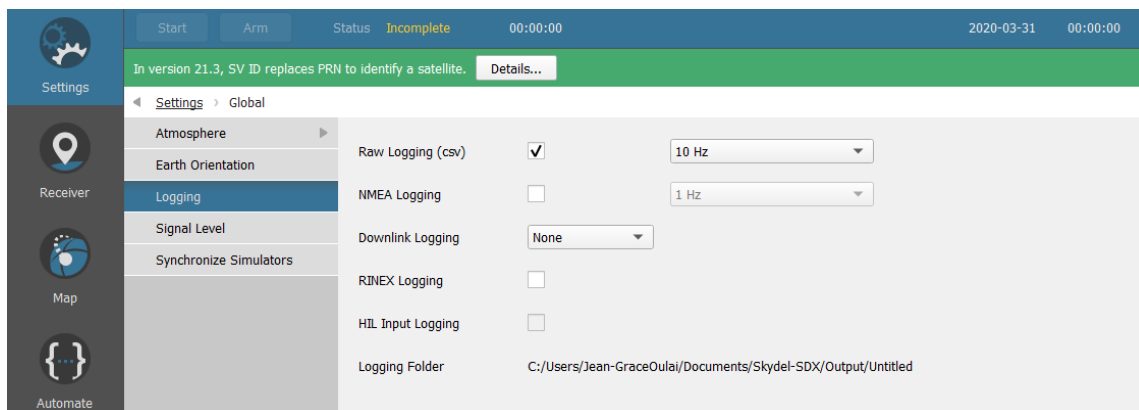
3. Packages installation:

```
$ 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:

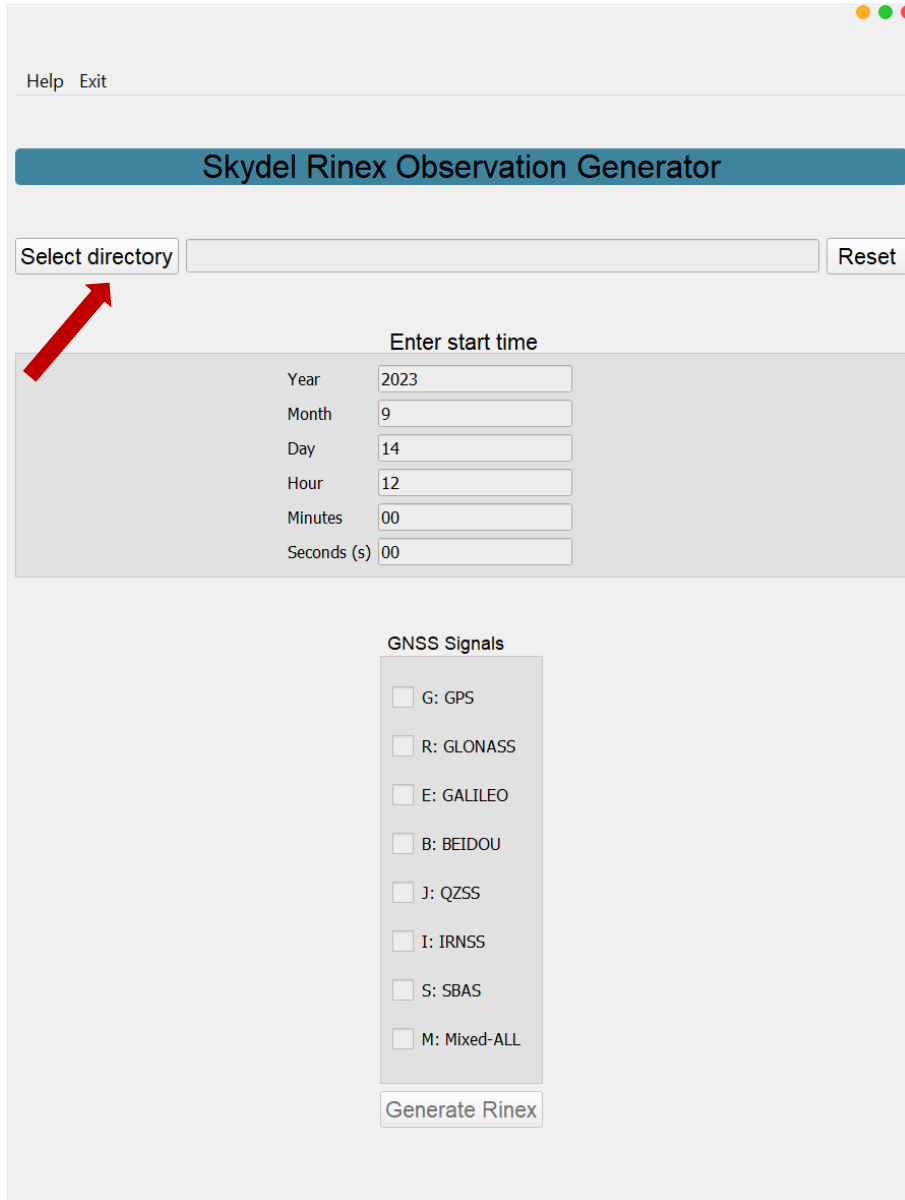
-  L1CA 02.csv
-  L1CA 03.csv
-  L1CA 06.csv
-  L1CA 12.csv
-  L1CA 17.csv
-  L1CA 19.csv
-  L1CA 24.csv

Run and operate with the script

1. Run the Skydel Rinex Observation Generator tool:

```
$ python main.py
```

The following window opens:



Help Exit

Skydel Rinex Observation Generator

Select directory Reset

Enter start time

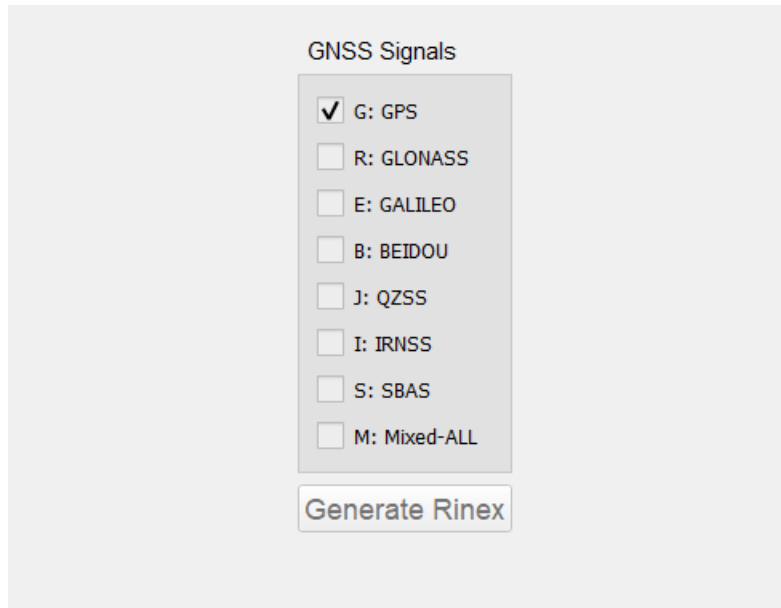
Year	<input type="text" value="2023"/>
Month	<input type="text" value="9"/>
Day	<input type="text" value="14"/>
Hour	<input type="text" value="12"/>
Minutes	<input type="text" value="00"/>
Seconds (s)	<input type="text" value="00"/>

GNSS Signals

- ☐ G: GPS
- ☐ R: GLONASS
- ☐ E: GALILEO
- ☐ B: BEIDOU
- ☐ J: QZSS
- ☐ I: IRNSS
- ☐ S: SBAS
- ☐ M: Mixed-ALL

Generate Rinex

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

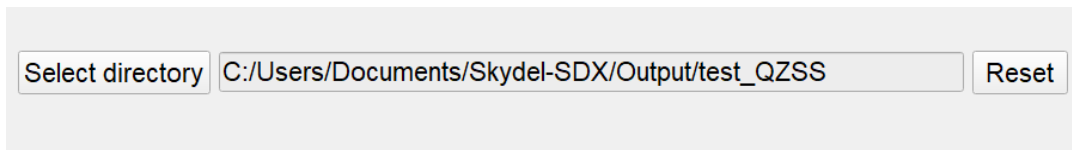


GNSS Signals

- ☒ G: GPS
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- ☐ I: IRNSS
- ☐ S: SBAS
- ☐ M: Mixed-ALL

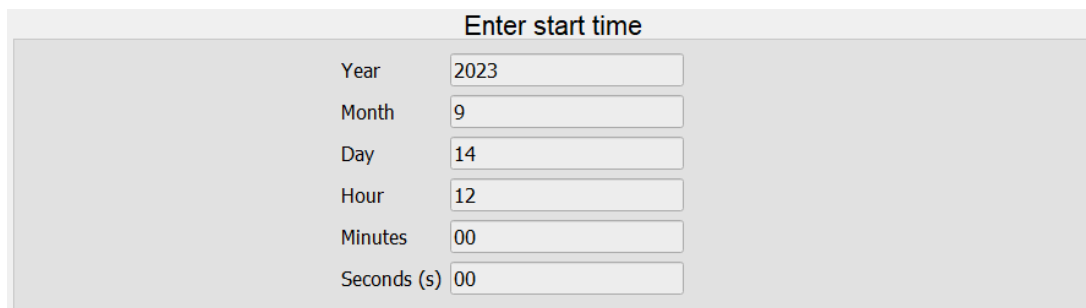
Generate Rinex

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



Select directory

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



Enter start time

Year	<input type="text" value="2023"/>
Month	<input type="text" value="9"/>
Day	<input type="text" value="14"/>
Hour	<input type="text" value="12"/>
Minutes	<input type="text" value="00"/>
Seconds (s)	<input type="text" value="00"/>

4. Select the GNSS constellation for which you want to generate the observation file.

Select on the **G: GPS** to generate a Rinex Observation of GPS satellite only.

If your skydel raw data contains files from several GNSS constellations (for example GPS and GLONASS), selected M: Mixed. The M:Mixed-All option will generate a Rinec observation of all constellation available on your Skydel raw data folder.

- 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      J      RINEX VERSION / TYPE
SROG      SKYDEL      20231218 103523 UTC PGM / RUN BY / DATE
SKYDEL      MARKER NAME
Unknown    MARKER NUMBER
SAFRAN TRUSTED 4D    OBSERVER / AGENCY
THIS RINEX OBS HAS BEEN GENERATED WITH SKYDEL RAW DATA    COMMENT
Unknown      Unknown    REC # / TYPE / VERS
Unknown      Unknown    ANT # / TYPE
      0.0000      0.0000      0.0000    APPROX POSITION XYZ
      0.0000      0.0000      0.0000    ANTENNA: DELTA H/E/N
J   15 C1C L1C D1C C1L L1L D1L C1Z L1Z D1Z C2L L2L D2L C5Q  SYS / # / OBS TYPES
      L5Q D5Q      SYS / # / OBS TYPES
      2023      9      14      12      00      0.0000000    GPS    TIME OF FIRST OBS
      END OF HEADER

> 2023 09 14 12 00 0.50000000 0 04
J02 38503349.773 7 202336452.945 7 -573.488 7 38503349.773 7 202336452.945 7
J03 37476306.863 7 196939287.883 7 436.707 7 37476306.863 7 196939287.883 7
J04 37118213.369 7 195057499.544 7 -141.862 7 37118213.369 7 195057499.544 7
J07 37358911.269 7 196322382.791 7 -4.177 7 37358911.269 7 196322382.791 7
> 2023 09 14 12 00 0.60000000 0 04
J02 38503360.686 7 202336510.294 7 -573.484 7 38503360.686 7 202336510.294 7
J03 37476298.553 7 196939244.212 7 436.706 7 37476298.553 7 196939244.212 7
J04 37118216.069 7 195057513.730 7 -141.866 7 37118216.069 7 195057513.730 7
J07 37358911.348 7 196322383.209 7 -4.177 7 37358911.348 7 196322383.209 7

```