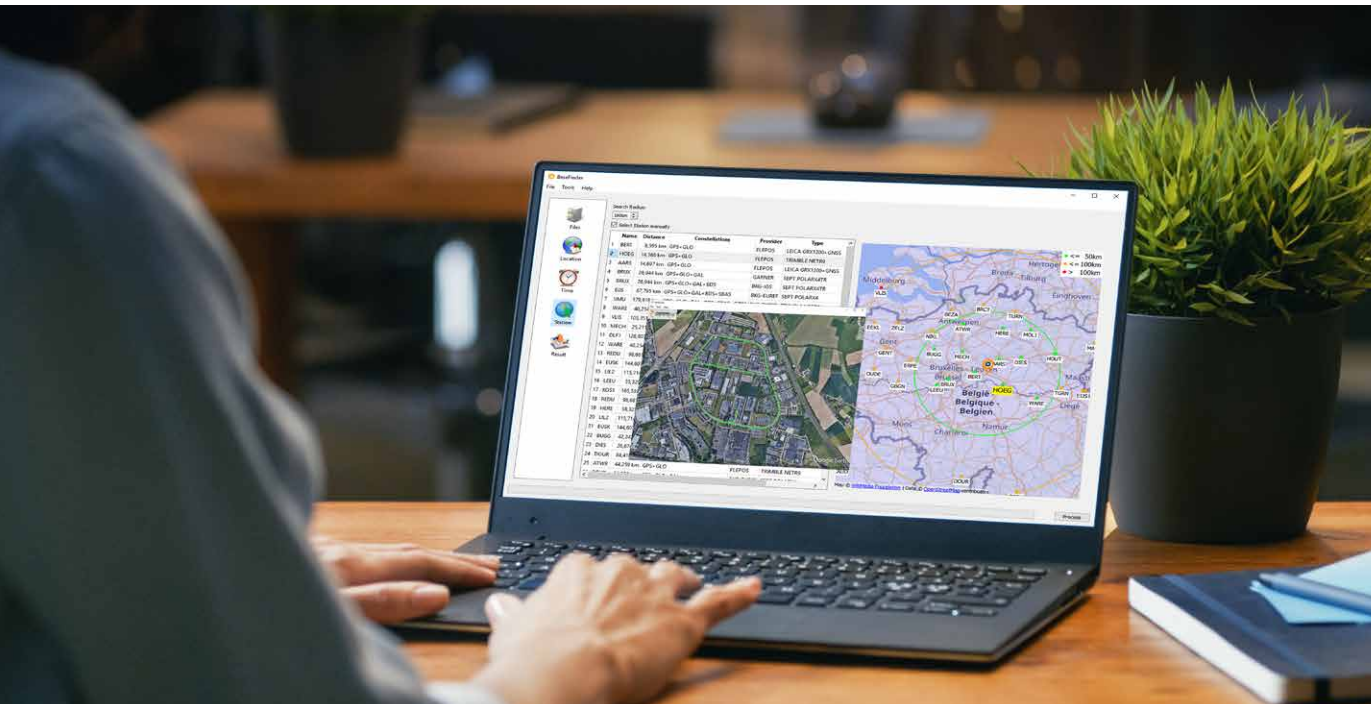


PP-SDK

Septentrio Post-Processing Software Development Kit



UAV



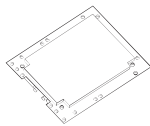
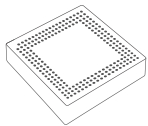
Mining



Mobile Mapping



Offshore Operations



PP-SDK (Post-Processing Software Development Kit) includes all the necessary tools allowing you to incorporate post-processing functionality into your own workflow and products.

KEY FEATURES

- ▶ **Best accuracy without a real-time link to a base station**
- ▶ **Create your own application to improve accuracy of GNSS data files by using our intuitive API (Application Programming Interface)**
- ▶ **Heading, pitch and/or roll from dual antenna receivers**
- ▶ **RINEX base station data compatibility**
- ▶ **Corrections for post-processing are searched and downloaded automatically via a maintained reference station database**

Why offline processing?

In use cases like aerial mapping, where GNSS is not used for navigation, but rather to provide a coordinates frame for mapping sensors (i.e. Lidar or camera) it is not necessary to augment GNSS in real time, during the flight. It can be more convenient to log the rover and sensor data during operation and augment the GNSS data in a second post processing step. RTK corrections can be logged with a base station receiver or base station corrections can be downloaded from the Internet. Corrections are used to augment the rover data in the post processing stage to achieve highest accuracy possible.

Integration into your system

Septentrio Post-Processing SDK is designed to be integrated into any workflow. The intuitive and fully documented API allows PP-SDK to fit seamlessly into your system. You have the flexibility to use either the API for automation or the GUI for manual processing, depending on your specific needs.

Auto-locate the most suitable base station

The BaseFinder command searches an online list of public reference networks, to identify which base station is the most suitable for your location. This list is continuously maintained by Septentrio to ensure a complete and updated view of available correction networks worldwide.

Accuracy, reliability and availability at their best

Septentrio is known for its reliable and robust PVT in real-time as well as in post-processing. The GNSS+ toolkit features multipath and interference mitigation algorithms to deliver full accuracy even in the most challenging environments.

FEATURES

GNSS technology

Support of all visible satellite signals:

- ▶ GPS: L1, L2 C/A, L2C, L5
- ▶ GLONASS: L1, L2, L3
- ▶ Galileo¹: E1, E5ab, AltBoc, E6
- ▶ BeiDou¹: B1, B2, B3, SBAS (L1, L5)
- ▶ IRNSS¹: L5, QZSS (L1, L2, L5)

Up to 100 Hz Raw data processing (code, carrier, navigation data)

Septentrio's GNSS+ toolkit

- ▶ **AIM+** Advanced Interference Mitigation & Monitoring, a unique anti-jamming system against narrow and wideband interference
- ▶ **APME+** A Posteriori Multipath Estimator for code and phase multipath mitigation
- ▶ **IONO+** Advanced scintillation mitigation

RTK and DGNS¹

Moving base¹

Formats

- ▶ Input/output in Septentrio Binary Format (SBF), fully documented with sample parsing tools
- ▶ RINEX (obs, nav, meteo) v2.x, 3.x²

SDK components

- ▶ RINEX Decoder: Allows the conversion from RINEX to SBF.
- ▶ Post-Processing Engine: The main library component computing robust GNSS positioning and heading.
- ▶ BaseFinder: Automatically searches the internet for the most suitable reference station corrections for your input file.
- ▶ SBF Analyzer: Basic and easy analytics of SBF files, can be used for report generation.
- ▶ SBF Stream: Manipulate SBF files for easy handling within your application and the PP-SDK.
- ▶ Error: Intuitive error handling, making it easy to create error reports.

PERFORMANCE

Position accuracy^{3,4}

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.7 m

RTK performance^{3,4}

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm

Velocity accuracy^{3,4}

0.03 m/s

GNSS Attitude accuracy^{3,4}

	Heading	Pitch/Roll
Antenna separation 1 m	0.15°	0.25°
5 m	0.03°	0.05°

Supporting components

- ▶ **RINEX Converter** a GUI application to convert RINEX files to SBF format.
- ▶ **BaseFinder** GUI application to retrieve reference data from the Internet, using the most suitable base station, according to input coordinates given manually or retrieved from an SBF file.
- ▶ **PostNav** the main application to post-process GNSS input files.
- ▶ **Other tools** command line applications for conversion of SBF, analysis of SBF, and others are provided for easy development and integration.

PROGRAMING ENVIRONMENT

Development environments

- ▶ Microsoft Visual Studio® 2013, 2015 or 2017, either 32 or 64 bits, with the latest service pack.
- ▶ Express editions of Microsoft Visual Studio® 2013, 2015 or 2017, either 32 or 64 bits, with the latest service packs.
- ▶ Msys MinGW gcc compiler version 4.9.2 (Rev2, Built by MSYS2 project) or version 6.2.0, both only for 64 bits architecture.
- ▶ Compatible languages: C, C++, C#

Operating systems

- ▶ Windows 7, 8, 10

Minimum HW requirements

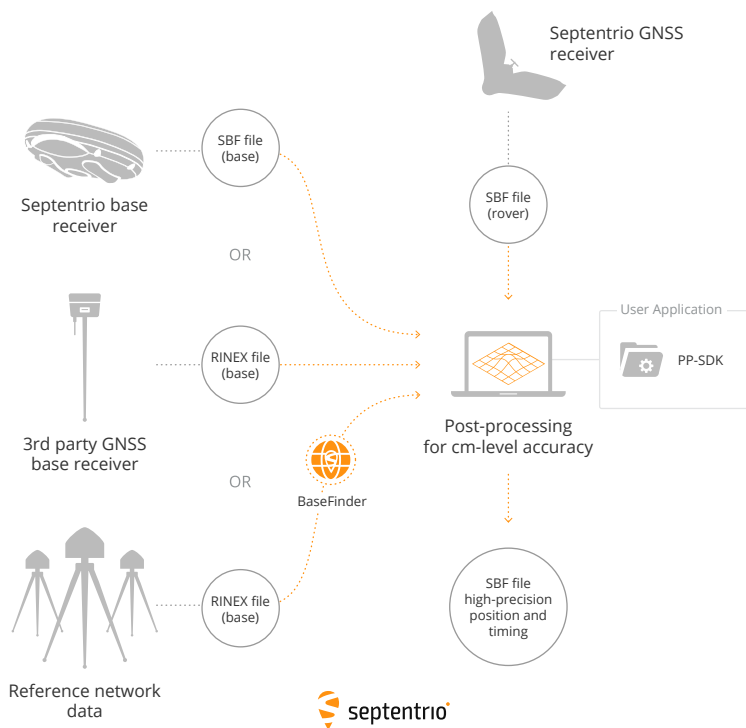
- ▶ 1 GHz processor
- ▶ 1 GB RAM
- ▶ 1024x768 or higher resolution

¹ Optional feature

² RINEX supported for base station data

³ Open-sky conditions

⁴ RMS levels



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