Septentrio PolaRx5 - BINEX

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Septentrio added the capability of logging and streaming <u>BINEX</u> to the PolaRx5 receiver model with the release of firmware version 5.1.0.

BINEX is an open binary data format for GNSS research. It has been developed in a collaborative effort partnering with the UNAVCO community and interested receiver manufactures. Septentrio has chosen to implement <u>forward-readable</u>, big-endian records with regular CRC (SYNC BYTE == 0xe2).

Supported Records and Sub-records

- <u>0x00</u> Metadata
- <u>0x01</u> GNSS Navigation Data
 - 0x01 decoded GPS ephemeris (L1 C/A)
 - 0x02 decoded GLONASS ephemeris
 - 0x03 decoded SBAS ephemeris
 - 0x04 decoded Galileo ephemeris
 - 0x05 decoded Beidou ephemeris
 - 0x06 decoded QZSS ephemeris
 - 0x41 raw GPS ephemeris (L1 C/A)
 - 0x42 raw GLONASS ephemeris
 - 0x43 raw SBAS ephemeris
 - 0x44 raw Galileo ephemeris
 - 0x45 raw Beidou ephemeris
 - 0x46 raw QZSS ephemeris
 - 0x47 raw IRNSS ephemeris
- <u>0x05</u> Antenna PVT
 - 0x04 Geodetic coordinates
- <u>0x7d</u> Receiver State

• 0x00

- <u>0x7e</u> Ancillary Site Data (e.g. meteorological)
 - <u>0x01</u> Stores raw ASCII string response from ancillary site equipment (e.g. met or tilt devices)
- <u>0x7f</u> GNSS Observables
 - 0x05 GNSS capable storage record

How to configure a BINEX stream (GUI)

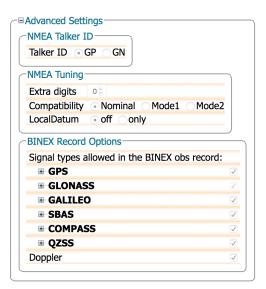
- Select Data Output
- Select New BINEX stream

Data Streams DSK1 (Out:BINEX,SBF 20.10kB/s) NMEA/SBF/BINEX Output Streams Port Type Messages Interval	DSK1 (Out:BINEX,SBF 20.10kB/s)	erview GN	SS Station	Communication	Corrections	Data Output	Logging
NMEA/SBF/BINEX Output Streams Port Type Messages	NMEA/SBF/BINEX Output Streams Port Type Messages	Data Stream	S)
Port Type Messages Interval	Port Type Messages Interval	-	•		SK1 (Out:BINEX,SBF 2	20.10kB/s)	
		MMEA/SBF/E	BINEX Output Streams				
	IPS1 BINEX Rec0101+Rec0102+Rec0103+Rec0104+Rec0105+Rec0106+Rec7F05 1 sec						
	🛟 New NMEA stream 🛟 New SBF stream 🛟 New BINEX stream	😳 New NME	A stream 🛟 New SBF s	tream 🛟 New BINEX	stream		

• Select the output port, interval and the records you would like to be included in the stream. Typically that might include: Rec00 (metadata), Rec01Nav (GNSS navigation data), and Rec7F05 (GNSS observation data). If you would like to stream antenna position (Rec05Geod), receiver state (Rec7d00) or met/tilt data (Rec7e01) then you can include those as well. Be aware that changing these settings can affect your telemetry bandwidth usage. Select OK when you're finished editing. **Note: Make sure to re-save your configuration to boot after making any changes to the receiver's configuration.**

Overview	GNS	S	Station	Communication	Corrections	Data Output	Logging	Admin
Da	ata Streams							
	¢	-			5K1 (Out:BINEX,SBF 1	5.36kB/s)		
	lit BINEX St	ream						
	orts	COM1						
	nterval	1 sec						
	Clear		Clear					
	Rec01Na	av						
Œ	Rec01Ra	w						
F	Rec00							
F	Rec05Geod							
F	Rec7D00							
F	Rec7E01							
F	Rec7F05							
	Ok	Cancel						

- The case above shows the output being streamed to COM1. If you choose to output the new stream to an IP port, then you'll need to visit Communication -> IP Ports -> IP Server Settings to configure a TCP output port (e.g. IPS1, IPS2, ..., etc.) . Please refer to the PolaRx5 user manual for more information.
- What do the "Advanced Settings" do?
- •



• The BINEX Record Options are global settings. They will affect the output of all configured BINEX streams. For most applications, leaving this panel set to default is sufficient. For advanced filtering to reduce bandwidth usage users may choose to deselect individual constellations and signals.

Online URL: https://kb.unavco.org/article/septentrio-polarx5-binex-861.html