



## **Testing Real-Time GNSS Data Streams for Supplying the GOP Data Center**

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EUREF-IP and IGS RTWG are the projects developing facilities to provide and to use the real-time GNSS data and products for real-time GNSS applications. We have tested the transport protocols over open Internet with respect to reliability of the data transfer: RTCM's NTRIP transport protocol used in EUREF-IP (using different data formats) and RTIGS format and transport protocol preferred in IGS.

We have setup the clients for archiving the real-time streams into the standard RINEX file format. The aim was to support our GOP data center with hourly RINEX files available with latency of a few seconds. The BKG Ntrip Client (BNC) was used to read the RTCM raw messages and RTIGS data via NTRIP transport protocol and to save them directly into the RINEX files. Because this software is provided as an open source, we could modify it to store even other formats for possible later conversion into the RINEX. The software was also completed for an additional messages, which could help us to monitor the source of transfer problems. The RTIGS-Archiver was used to read the RTIGS streams and to store them into the RINEX files.

Finally, we developed a simple tool for checking the RINEX format with respect to the data completeness. Resulted RINEX files were routinely checked for the missing epochs. The statistics and plots monitoring the RINEX data gaps with respect to the error messages could be then generated.