

## PROCEDURE FOR BECOMING AN EPN STATION

*EPN Central Bureau  
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### Changes

- April 27, 2023 - Harmonisation with new version of M<sup>3</sup>G
  - Updated links
- Aug. 30, 2022 Added clarification in Section 6. New sections 7 and 8. Introduction of web form to generate EPN commitment letter.
- May 26, 2021 Update links to web pages and alignment with revisited handling of stations metadata in M<sup>3</sup>G.
- May 8, 2019 Update links and introduce M<sup>3</sup>G.
- Jan 20, 2017 Use igs14.atx instead of igs08.atx.
- Dec. 18, 2013 Added [http://offiler.demon.co.uk/~dave/gwv/gwv\\_list.cgi](http://offiler.demon.co.uk/~dave/gwv/gwv_list.cgi) for checking multiple station 4-char IDs
- Jan. 17, 2013
  - Added <http://facility.unavco.org/data/gnss/sitecheck.php> for checking multiple station 4-char IDs
  - Updated revisited links
  - Clarifications in "Steps to be followed"
- Dec. 5, 2011 Candidate EPN stations must provide information on the national ETRS89 coordinates of the station
- Dec. 5, 2006 New EPN stations must have an antenna/radome with known absolute calibrations  
Reflect new data flow.
- Sep. 08, 2004 Update "Procedure Summary"
- Dec. 01, 2003 Major document revision to reflect the current procedure used at EPN CB
- Apr. 22, 2002 IGS stations in Europe no longer automatically part of EPN
- Nov. 24, 2000 Update "Data Format, Flow and Archive"

*This document describes the procedure to be followed by GNSS stations in order to be included in the EUREF Permanent Network (EPN). It is applicable to European GNSS stations of regional interest, and includes detailed steps to be taken by the responsible agency, in consultation with the EPN Central Bureau.*

*In addition to this document, candidate EPN stations should consult the "Guidelines for EPN Stations and Operational Centres"*

*([https://epncb.oma.be/documentation/guidelines/guidelines\\_station\\_operationalcentre.pdf](https://epncb.oma.be/documentation/guidelines/guidelines_station_operationalcentre.pdf)) in order to comply with the detailed station requirements with respect to monumentation, receiver, antenna, data handling, documentation, and data formats as described in this document.*

*GNSS stations wishing to join also the IGS network need to solicit separately their inclusion into this network (see "IGS New Site Checklist" at <https://igs.org/network-resources/#new-site-checklist>).*

*All electronic messages, unless otherwise specified, should be sent to the EPN Central Bureau (CB) at [epncb@oma.be](mailto:epncb@oma.be).*

## 1. Station Requirements

Make sure the station complies with the “Requirements for Permanent Stations” in the document “Guidelines for EPN Stations and Operational Centres”

[https://epncb.oma.be/documentation/guidelines/guidelines\\_station\\_operationalcentre.pdf](https://epncb.oma.be/documentation/guidelines/guidelines_station_operationalcentre.pdf)

Pay especially attention to guidelines for new EPN stations.

## 2. Agency Responsibilities

Make sure you, or an associated agency, are capable of filling the “Requirements for Operational Centres” in the document “Guidelines for EPN Stations and Operational Centres”

[https://epncb.oma.be/documentation/guidelines/guidelines\\_station\\_operationalcentre.pdf](https://epncb.oma.be/documentation/guidelines/guidelines_station_operationalcentre.pdf)

## 3. Station Name

Select the 9-character identification code(s) consisting of a 4-character station identification code, followed by “00” and the 3-char ISO country code, to identify the station. The 9-char code will be used for all future reference to your station (data and documentation) and will uniquely identify it.

To prevent duplication, check for already used station identification codes at

<http://sopac-old.ucsd.edu/checkSiteID.shtml>

<https://gnss-metadata.eu/site/stations>

<https://itrf.ign.fr/en/network/domes/description>

## 4. Request a DOMES number for your station/marker from the International Earth Rotation and Reference Systems Service (IERS):

<https://itrf.ign.fr/en/network/domes/request>

## 5. EPN Commitment Letter

State the **long-term commitment** (at least 5 years) of your agency to operate the station following EPN Guidelines by completing the form <https://epncb.oma.be/networkdata/cl.php>, that allows to create the EPN commitment letter. The letter should be signed both by the Authorizing Official committing the organization/institution to the EPN. Email the signed document to the EPN CB and, if the signature is not digital, also send the original to

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Belgium

After reception of the commitment letter, the EPN CB will make an initial check to see if the station is of interest to the EPN. In case of doubt, the EPN CB will ask advice from the EPN Coordination Group (CG). As soon as a decision has been made, the EPN CB will inform the station Primary Point of Contact if the procedure can be continued. If positive, the station will show up as a proposed EPN station on the EPN CB web site in

<https://epncb.oma.be/networkdata/proposed.php>.

## 6. Station Metadata

After receiving confirmation from the EPN CB that the “Metadata Management and Distribution System for Multiple GNSS Networks” (M<sup>3</sup>G) available from <https://gnss-metadata.eu/> is ready to accept the station metadata, login into M<sup>3</sup>G. New users of M<sup>3</sup>G are recommended to first read the [M<sup>3</sup>G quick start guide](#).

After login into M<sup>3</sup>G, in the user dropdown menu (top right), click on the following items:

- a) *“Edit My Agency Information”*: verify/update your Agency Information. It is mandatory to set up at least one *“Public non-personal contact”* without personal information (e.g. [gncs@agency.be](mailto:gncs@agency.be)) and only use this contact later on in the site logs.
- b) *“Third-Party Agencies”*: verify and add third-party Agencies (if any) that are, for example, used in the station site log(s). Also here it is mandatory to set up at least one *“Public non-personal contact”* for each Agency.
- c) *“Edit all Metadata”*:
  - Submit the site log. The site log can be created off-line or on-line in M<sup>3</sup>G by clicking on  in the "UPDATE SITE LOG" column (you will be redirected to the site log editor form). Include the full observation history of the station/marker in the site log. Instructions are available from [https://epncb.oma.be/ftp/station/general/sitelog\\_instr.txt](https://epncb.oma.be/ftp/station/general/sitelog_instr.txt) and the [M<sup>3</sup>G FAQ](#). Examples of EPN site logs can be retrieved from <https://epncb.oma.be/ftp/station/log/>.

In the site log editor: Import (if the site log was created off line), save the site log as draft, and submit the saved draft site log.
  - Indicate the Creative Commons license (column DATA LICENSE) to be used to distribute the RINEX data of each station. As EUREF uses an open data policy, only CC0 and CC BY 4.0 (recommended) licenses are allowed for EPN stations.
  - For EPN stations, the embargo time is mandatory set to ‘no embargo’ (column DATA EMBARGO PERIOD).
  - Upload pictures of the antenna environment in the 4 cardinal directions (column STATION PICTURE(S)). Pictures from other relevant monuments, markers or collocated instruments are welcome too.
- d) *“Propose Station(s) to Network(s)”*: optionally, propose the station(s) to a previously setup local or national network. The EPN Central Bureau will make sure that in M<sup>3</sup>G the station(s) will be proposed to the EPN network.

From M<sup>3</sup>G, all relevant information will automatically flow to the EPN Central Bureau. If the station metadata was already included in M<sup>3</sup>G prior to proposing the station(s) to the EPN, then the EPN CB will send a notification if anything needs to be adapted.

## 7. Individual Antenna Calibrations (optional)

If available, email the individual antenna calibration values (in ANTEX format) for the antenna(s)/radome(s) installed at the station(s) to the EPN CB.

## 8. EUREF Mail

Subscribe to **EUREF Mail** (instructions at [https://epncb.oma.be/newseventslinks/mail\\_rulings.php?community=EUREF](https://epncb.oma.be/newseventslinks/mail_rulings.php?community=EUREF)) to get news about latest developments within the EPN and updates about changes in EPN operation guidelines.

## 9. Provision of Hourly and Daily RINEX Data

Contact the EPN Regional Data Centres (RDC) at [BKG](#) and [BEV](#) and inform them of your intention to start the daily and hourly RINEX data flow. The RDC will then provide you detailed upload instructions.

Information on accepted RINEX formats are provided in Section 3.2 “Format and Distribution of Hourly and Daily Data” of the document "[Guidelines for EPN Stations and Operational Centres](#)". In case the data are not directly uploaded to the two regional EPN Data Centres (BKG and BEV),

**make sure that at the end, all hourly and daily RINEX data end up at the two regional EPN Data Centres.**

Once the RINEX data transfer to BKG and BEV is operational, contact the EPN CB to receive instructions to submit the missing station's historical data.

#### **10. Provision of Real-time RTCM Data**

If real-time RTCM data will be provided,

- Contact the operator of each of the three EPN regional broadcasters (see column 'Operator' in [https://epncb.oma.be/networkdata/data\\_access/real\\_time/broadcasters.php](https://epncb.oma.be/networkdata/data_access/real_time/broadcasters.php) for contact info) to set up the real-time data to their broadcaster.
- Start the real-time data flow.
- Check the availability of the station real-time stream in the three broadcasters from [https://epncb.oma.be/networkdata/data\\_access/real\\_time/status.php](https://epncb.oma.be/networkdata/data_access/real_time/status.php) and take the necessary actions until the real-time data transfer runs smoothly.

#### **11. Station Status in the EPN**

The EPN CB will monitor the station for a couple of weeks and update <https://epncb.oma.be/networkdata/proposed.php> regularly.

When the station's data quality, data latency and metadata consistency checks performed by the EPN CB show that the station is performing according to EPN expectations, the EPN CB will contact EPN Analysis Centres with the request to process the daily station data. As soon as at least three EPN Analysis Centres agree to analyse the daily station data, the EPN CB will announce through EUREF mail the integration of the station into the EPN. From now on, the station is officially included in the EPN.