

DefAn-for-GNSS-networks User Guide

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DefAn-for-GNSS-networks is a new scientific software encoded in R programming language under the terms of gnu general public license for carrying out geodetic deformation analysis in GNSS networks using Bernese v5.2-based output files. The software determines absolute deformations in the GNSS network established for detecting deformations on engineering structures and earth's crust, illustrates input data and output results, and provides results as reports in two different formats HTML and PDF.

To run the software, first download the R v4.1.1 or newer version from <https://cran.r-project.org> and RStudio Desktop v1.4 or newer version from <https://www.rstudio.com> for your operating system and install them. It should be noted that RStudio requires R v3.0.1 or newer versions.

Run the R project file, open the DefAnforGNSS.R and type the following code via RStudio Console or use the suggestions of RStudio Desktop for installing the required packages:

```
install.packages('dplyr' , 'ISwR' , 'matlib' , 'readr' , 'rmarkdown' , 'rstudioapi' , 'stringr' , dependencies = TRUE)
```

The following 'tinytex' package must also be installed so that the program generates PDF and HTML result reports. For this, type the following codes on the RStudio console, respectively:

```
install.packages('tinytex' , dependencies = TRUE)  
tinytex :: install_tinytex()
```

Afterwards, you can run the source code and use the software.