



TEROMOVIGO

TeroNet Platform

GNSS Network Management System

User's Manual

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Release date:
31 October 2019

TeroNet – GNSS Network Management System
is developed by TeroMovigo - Earth Innovation, Lda

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1 Introduction

1.1 Introduction to TeroNet

The TeroNet - GNSS network management system – software consists of a complex set of tools and a web platform for a CORS (Continuously Operating Reference Station) network management. This kind of platform and tools are useful to assist the following scenarios:

- Storage and pre-processing of GNSS data;
- Availability of pre-processed data to users registered in the web platform;
- CORS connection state monitoring;
- Received GNSS data quality assurance;
- Provide GNSS RTK corrections via NTRIP Caster to end users.

This manual was elaborated with the aim to help its reader to use TeroNet – GNSS network management system – effectively and correctly, by detailing each component of the web platform.

1.2 Manual Structure

This manual is divided into 5 chapters:

Chapter 1 – The first chapter introduces the manual and gives a brief description of the purpose of the software;

Chapter 2 – The second chapter takes an overview of the software;

Chapter 3 – The third chapter explains in more detail how the public interface of the web platform works;

Chapter 4 – The fourth chapter explains in more detail how the registered users' interface of the web platform works;

Chapter 5 – The fifth and last chapter addresses how users can get help and technical support on TeroNet software.

2 System Overview

The TeroNet software is an integrated set of complex tools and a web platform with multiple features related to pre-processing of GNSS data and later its availability to registered users in the web platform.

2.1 GNSS Data Flow

The received RAW GNSS data are stored in the TeroNet server and are automatically put in queue, for being processed into RINEX and ephemeris files. After this conversion the quality assurance component determines the quality of the data processed before. This action allows the users to know how much data they are downloading for a file, even before the download starts. An illustration of the flow can be seen in Figure 2.1.

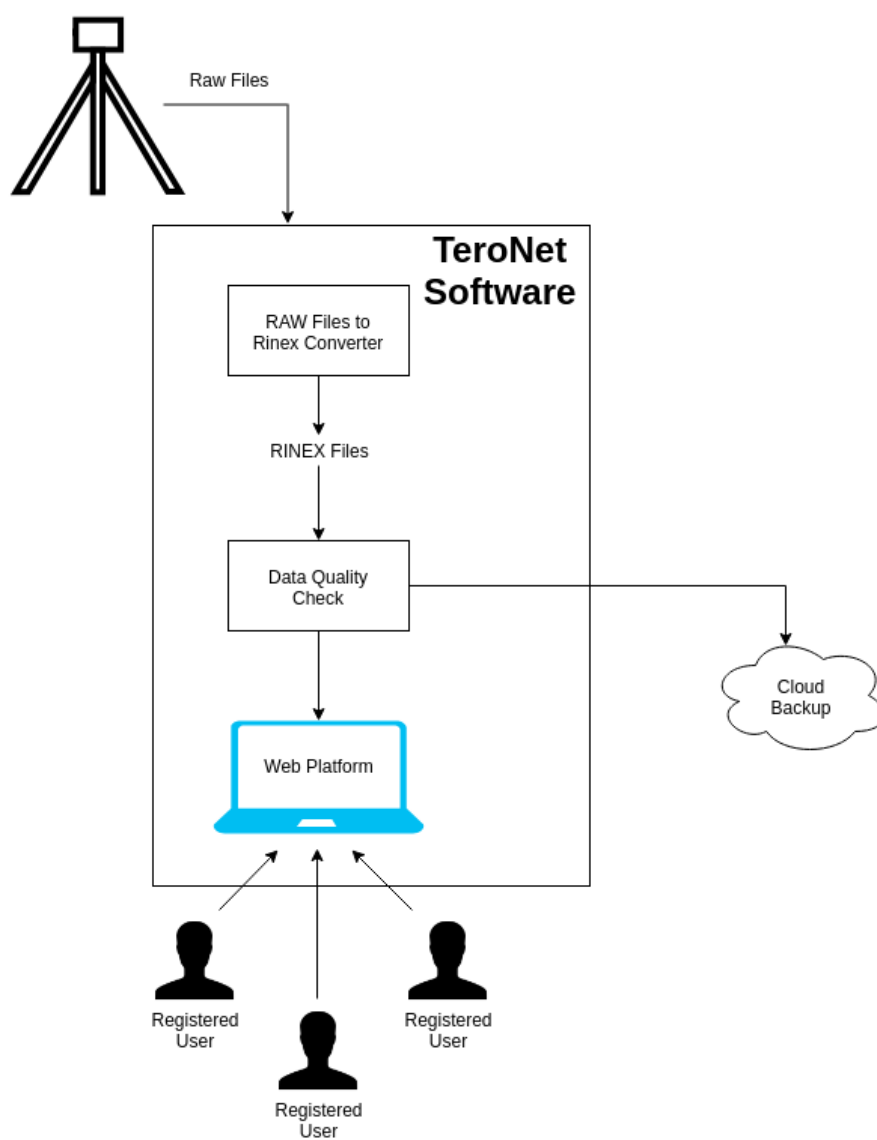


Figure 2.1- TeroNet Software data flow.

3 Public Interface

The public interface is accessible for every user, but shows only the location of the network CORS, a presentation text and the possibility to request a new user account.

It consists in the first screen that is presented to the user once one accesses the TeroNet web platform. This screen can be seen in Figure 3.1. In this screen it is only visible a map with the network CORS and a brief description of the network.

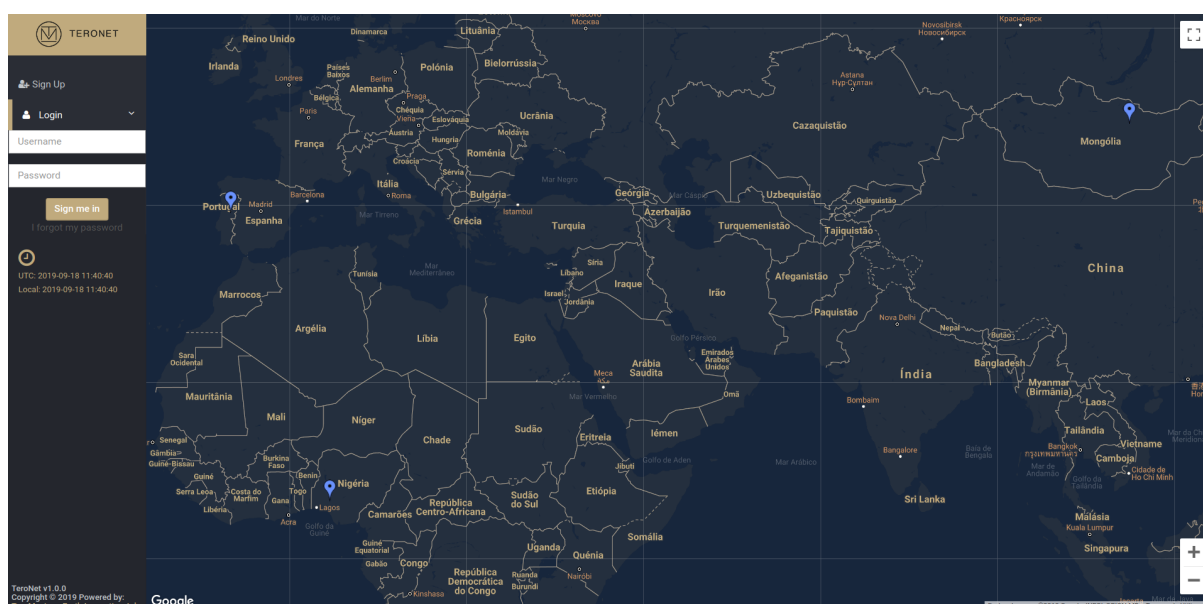


Figure 3.1 – Welcome screen.

3.1 New user account request

It is possible for interested users to request a new user account. In order to do that, the user should refer to the “Sign Up” feature, where a form is presented and should be filled. This filled form will inform the platform administrator so that the account may be approved or declined.

In order to request a new user account, the user should click in the “Sign Up” button, located in the left-top corner of the page right next to the “Login” button, below the TeroNet logo.

After clicking that button, a form is presented, as shown in Figure 3.2, which should be filled with the user's information.

The form consists in the following fields, being all fields mandatory:

- **Personal Data** – General user information
 - **Full Name** – User's full name;
 - **Email** – User's email;
 - **Organization** – User's organization;
 - **Telephone** – User's phone contact;
 - **Preferred Username** - User's preferred username;
- **Observations** – User's observations for the administrator.

After completing the form, the user needs to validate the validation box and click the “Request new account” button in order to move forward with the request. This request generates a notification email that is sent to the platform administrators.

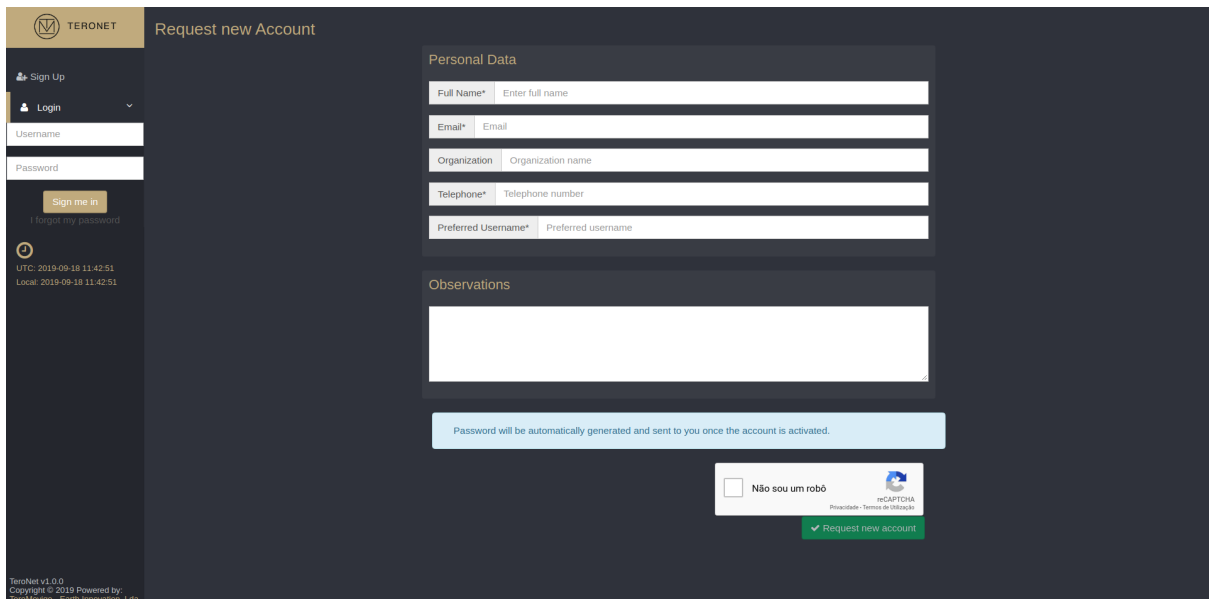
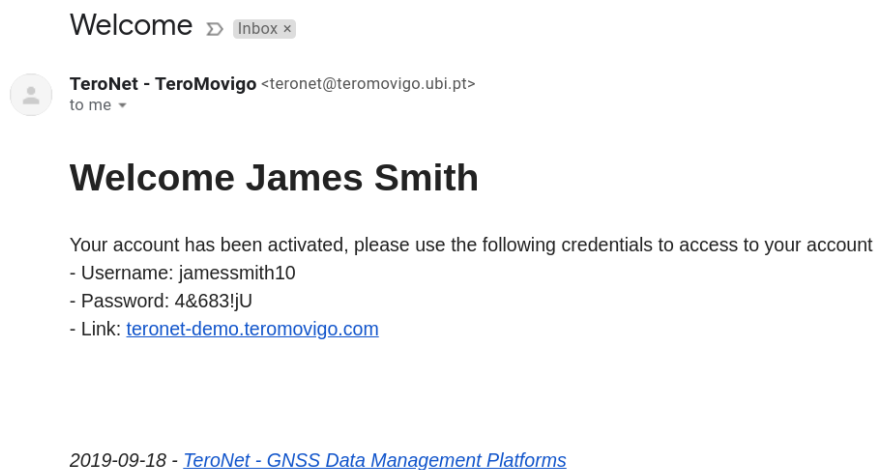


Figure 3.2 - Pre-registration form.

After the approval by the administrators, the new user will receive an email with the password to access the platform, on the email used to request an account, as shown in Figure 3.3.



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If you have received this email and didn't asked for an account, please contact the platform administrator.

Figure 3.3 - Welcome email.

4 Registered User Interface

The registered user interface is accessible only to users who have been previously authorized by the administrator, and these users can consult CORS details and download available CORS data.

4.1 Login

In order to access the registered user interface, the user needs to initially login into the platform. In order to do so, the user needs to click the “Login” button, located in the upper left corner, and fill the form with his username in the top box and his password in the lower box, as seen in Figure 4.1, and, after that, click the button “Sign me in”.

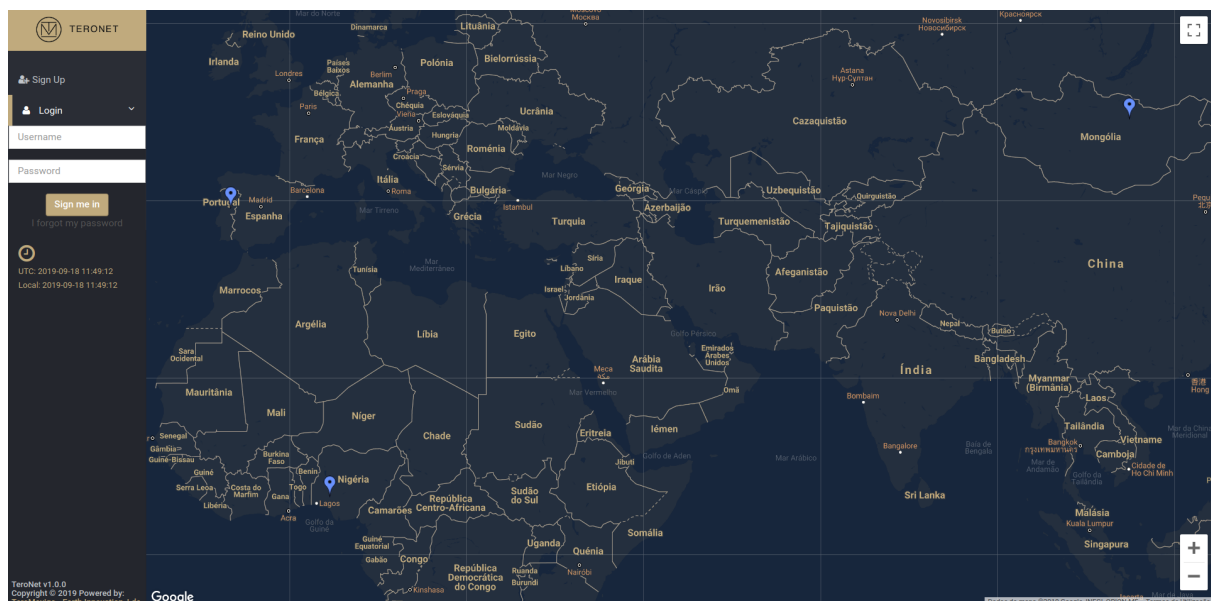


Figure 4.1 – Login form.

In the case, where the user may have forgotten his password a new password can be set. In order to do so, the user must click in the “I forgot my password” button, right

below the “Sign me in” button. After clicking that button, a new form will be shown (as seen in Figure 4.2) where the user must enter the email, he used in the registration process, in order to receive the instructions to restore his password.

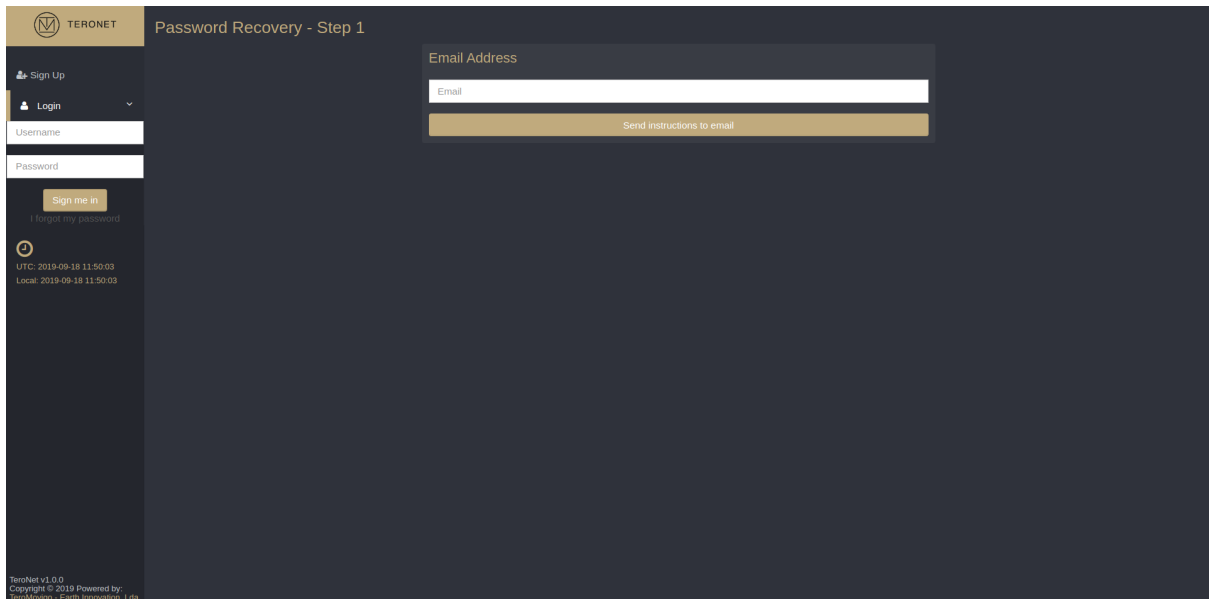


Figure 4.2 – Password recovery first screen.

After the reception of the password replacement email, with the password replacement instructions (Figure 4.3), the user should follow the URL given in the email, which will lead to a form (Figure 4.4) where the user is required to insert two identical password which will replace the old password, enabling the user to log in again.

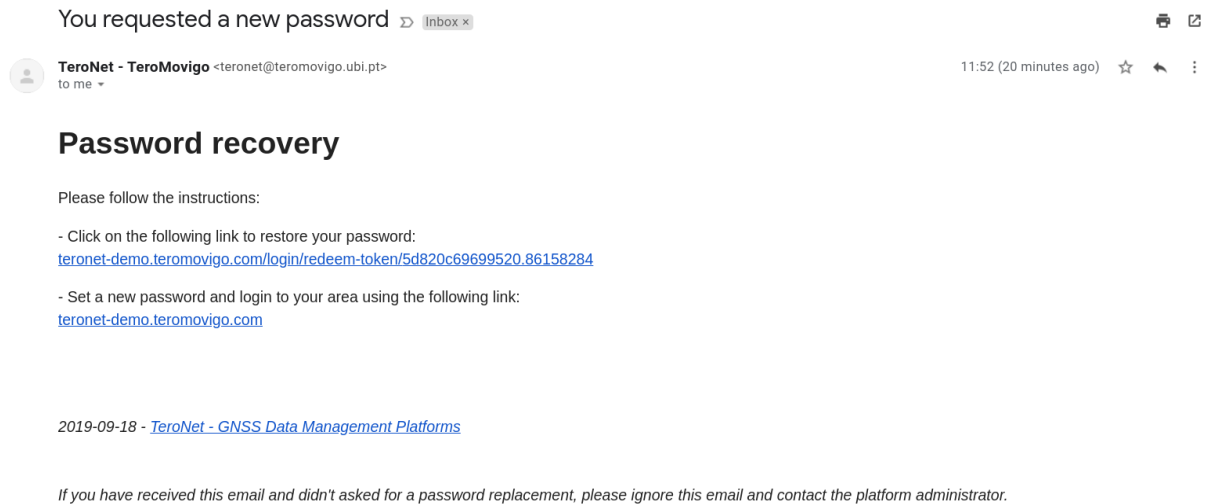
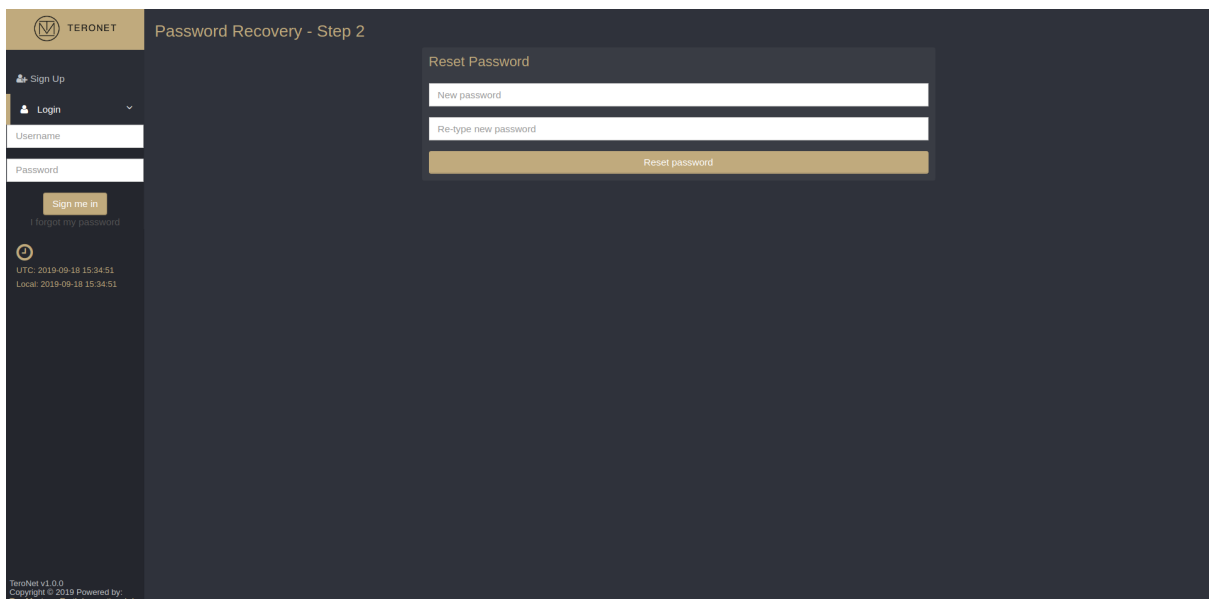



Figure 4.3 – Password replacement instructions.




TERONET

Password Recovery - Step 2

Sign Up

Login ▾

Username

Password

Sign me in

I forgot my password

UTC: 2019-09-18 15:34:51

Local: 2019-09-18 15:34:51

TeroNet v1.0.0

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Reset Password

New password

Re-type new password

Reset password

Figure 4.4 – Password replacement form.

Finally, the user may log into the platform and will be redirected to the registered user interface.

4.2 Registered users welcome screen

After successful authentication, the welcome screen for registered users is presented, as illustrated in Figure 6.5. In this screen, the user can visualize details for each CORS like general and technical information, RINEX data availability and Ephemeris data availability. The user can also create customized downloads, download orbits and send messages to platform administrators.

Once logged in, a form to create customized downloads is presented on the right-hand side as shown in Figure 4.5. In this form the user is able to create customized downloads by only having to specify a couple parameters like: a period of time (of which the user is interested to download data from), the data type that interests the user (daily or hourly data, in the last it is also necessary to specify the time period) and finally the CORS in which the user is interested to download data from. Before the users clicks the “Generate Download” button, the user should also evaluate if there is a need to also include the available ephemeris files for the selected CORS and period of time, by checking, or not, the “Include Ephemeris” box.

IMPORTANT NOTICE: a user can only transfer data from the CORS and for the period that has been defined by the platform administrator.

On the left-hand side, a table with all CORS is presented. Using this table, the user can access all general and technical information for each CORS by clicking on the names of the different CORS, and access to Daily, Hourly and Ephemeris data from each CORS by clicking on the respective data type.

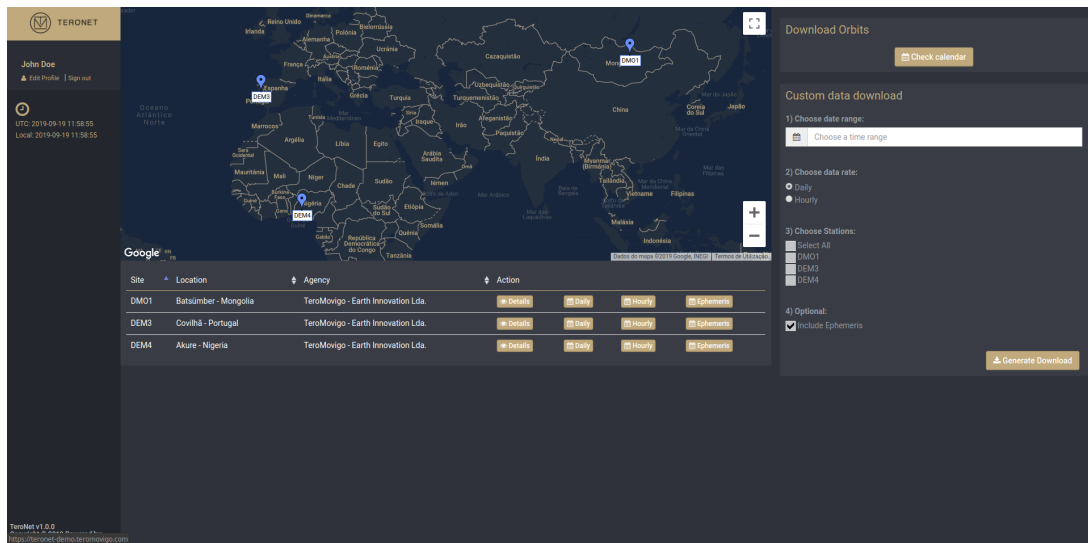


Figure 4.5 – Front office page.

4.3 CORS Details

By clicking in “Details”, in the table of the previously described screen, the user can access a detailed view of the selected CORS (Figure 4.6). In this page, it is possible to see general and technical information about the CORS.

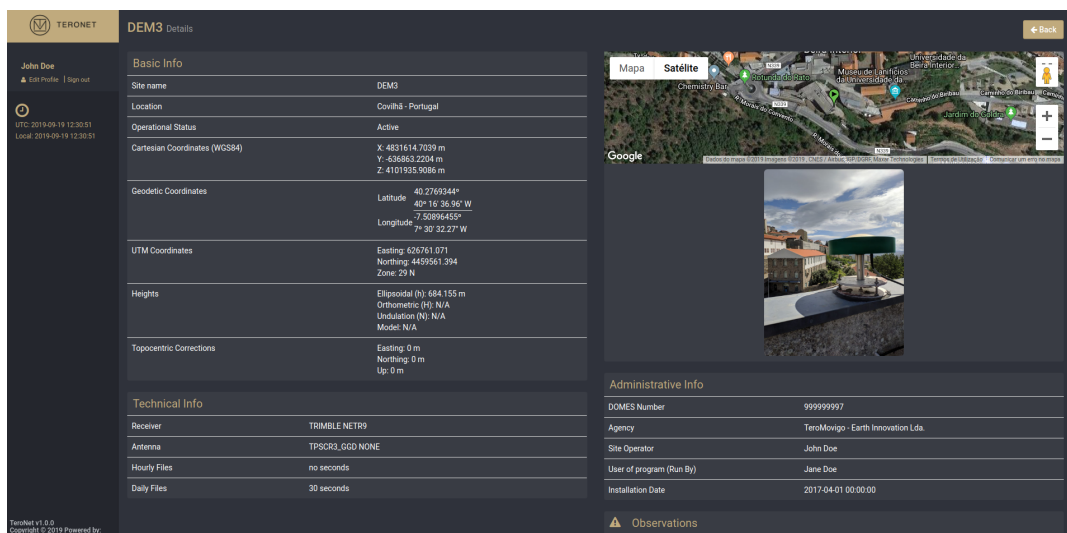


Figure 4.6 – CORS detailed view page.

4.4 Download CORS data

The last functionality for regular users is the download of CORS data, either Daily, Hourly or even Ephemeris data. To access this functionality, the user should click in the “Daily”, “Hourly” or “Ephemeris” button from the interested CORS, from the CORS table from Figure 4.5. By clicking on the previously mentioned options the user is presented with a calendar view with the available data for the CORS selected (Figure 4.7), showing for each day the quantity of data that is available. By clicking on a specific day, a pop-up is presented showing which files are available for that day as well as the quality of the data.

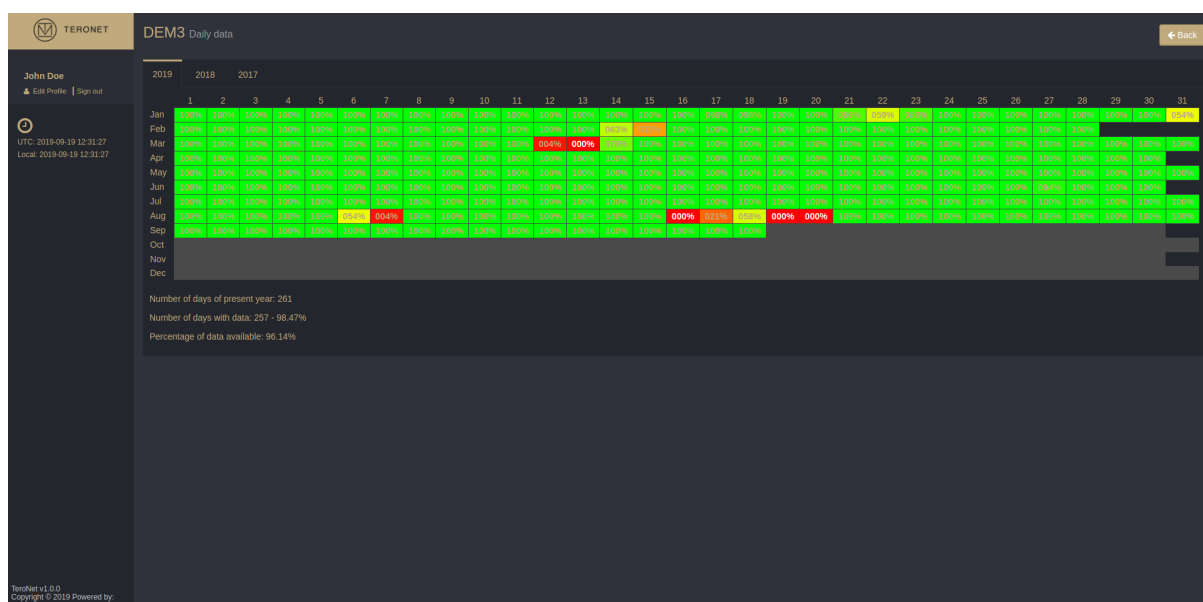


Figure 4.7 – CORS Available data calendar.

By clicking on a day, a pop-up is presented where the available data for that day is listed and its associated quality. For each available data, an associated download button is presented, for daily data as seen in Figure 4.8, for hourly data as seen in Figure 4.9 and for Ephemeris data as seen in Figure 4.10. In case of hourly data, the presented pop-up lists all the hours of the day with its associated data quality.

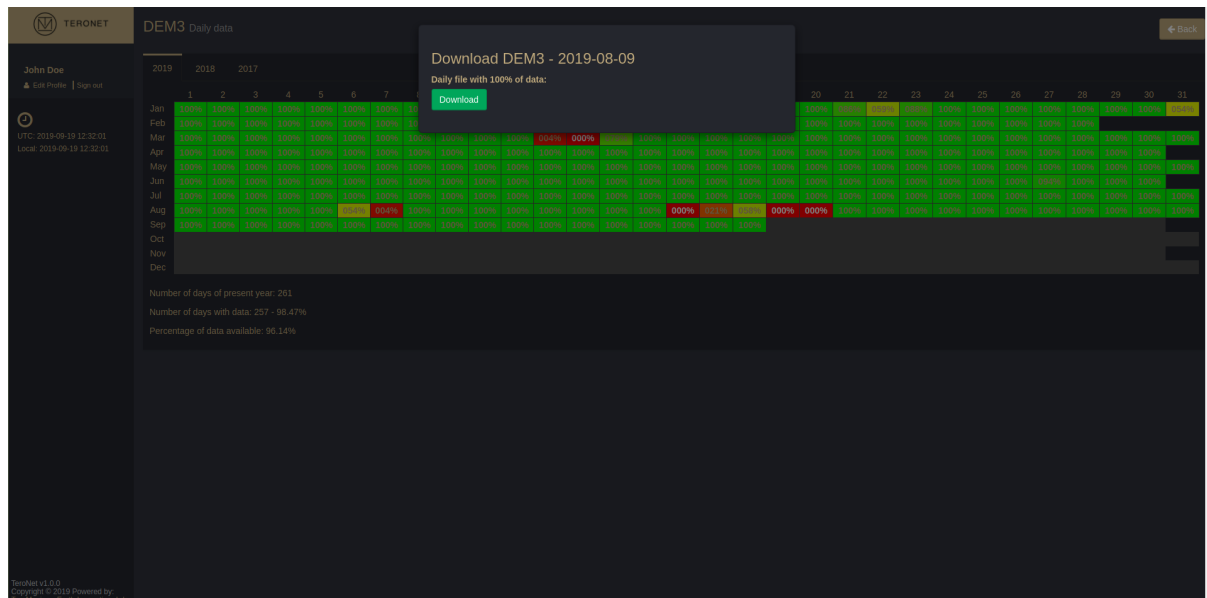


Figure 4.8 – Daily data download.

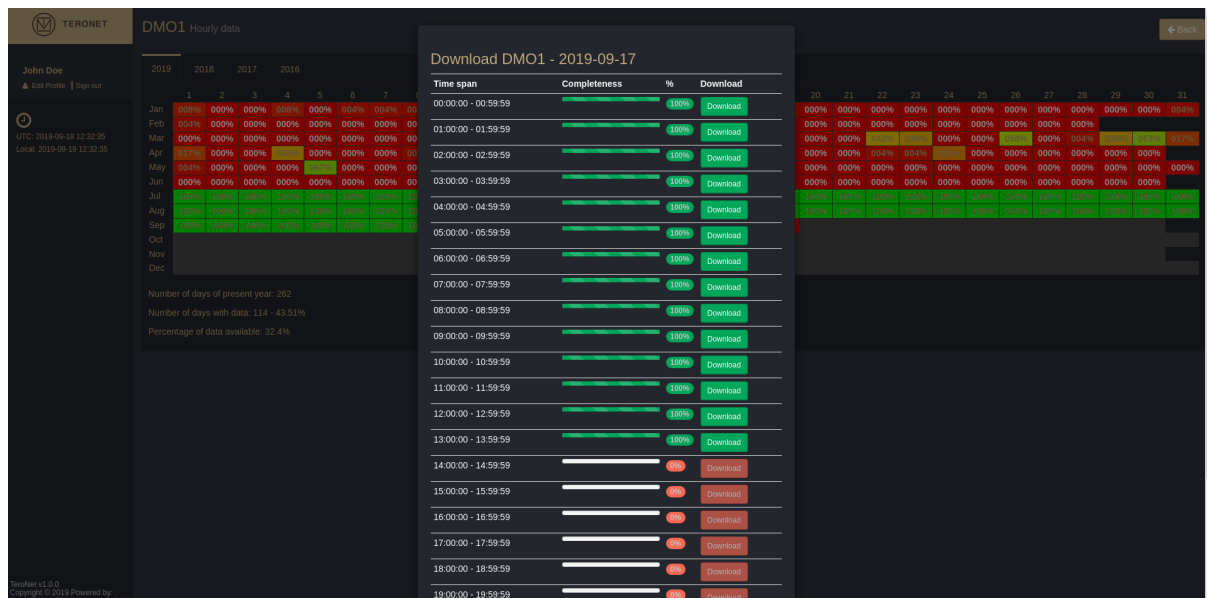


Figure 4.9- Hourly data download.

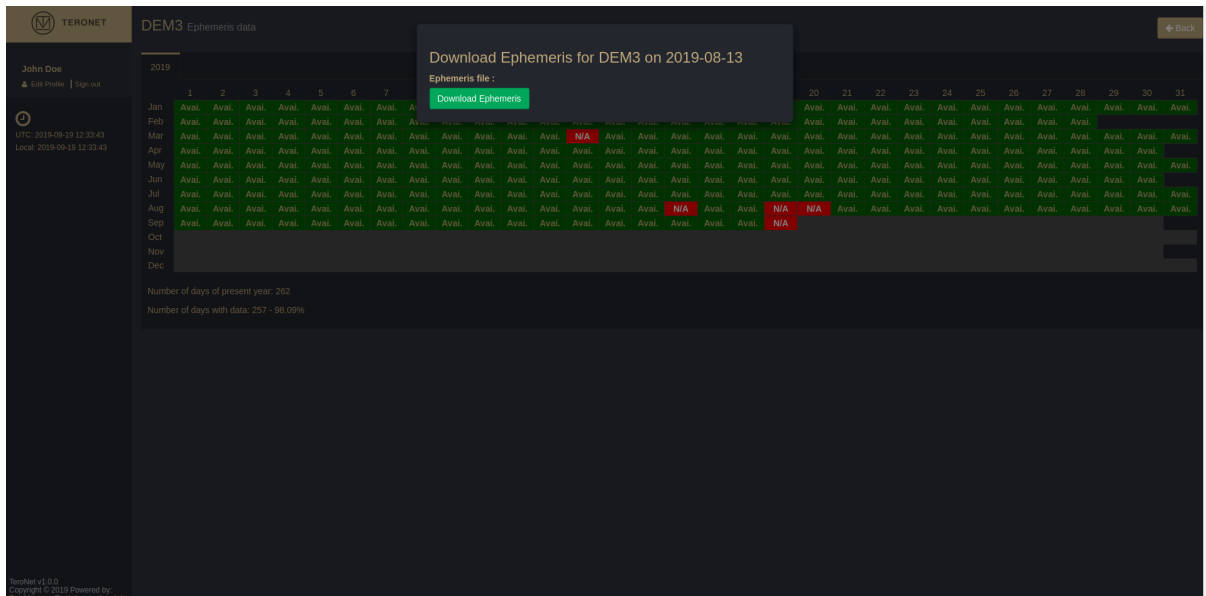


Figure 4.10 – Ephemeris data download.

4.5 Orbits download

The user may also download orbits data files that are made available through the platform. The orbits data are sourced by the IGS – International GNSS Service.

In order to have access to the orbits files, the user must click on the button “Check calendar” right below “Download Orbits”, on the upper right corner of the page, as shown in figure 4.6. After clicking, the user will find a calendar, as illustrated in Figure 4.11, like the CORS calendar for daily, hourly and ephemeris data.

The calendar legend reads as follows:

- **N/A** – No available data;
- **R** – Rapid orbits;
- **P** – Precise orbits.

By clicking in a day with data a pop-up is presented where the user can then download the available data for that day as shown in Figure 4.12.

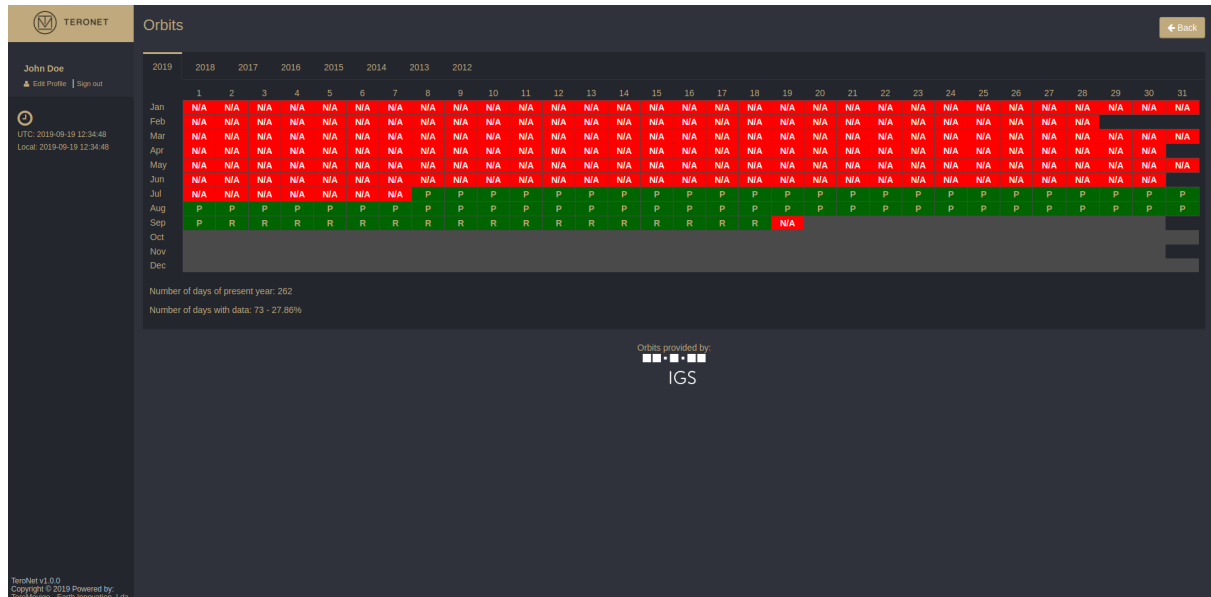


Figure 4.11 – Orbits download calendar.

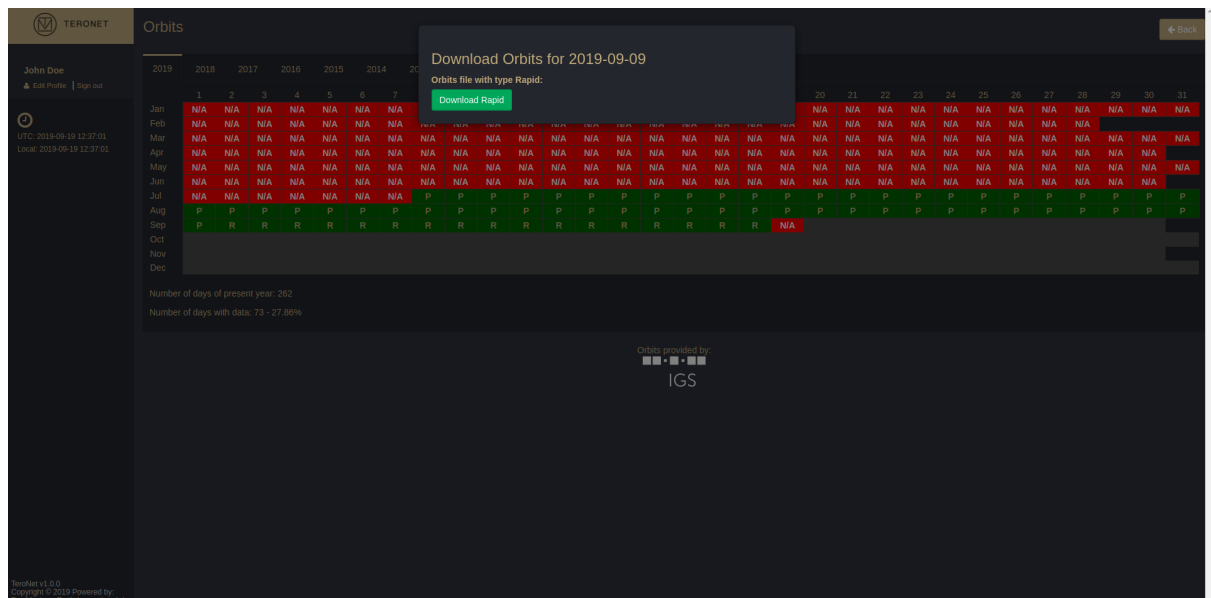


Figure 4.12 – Orbits download pop-up.

4.6 Profile Edition

The last functionality of the regular user is the fact that the user can edit their own profile, giving the ability to edit personal information like the email, organization, password, etc.

To access this functionality, the user must click in the upper left corner over the option “Edit Profile”. Immediately a pop-up will appear with a pre-filled form containing all the user data, as seen in Figure 4.13. The user may then change the data at will and then click in the option “Edit User” to persist changes.

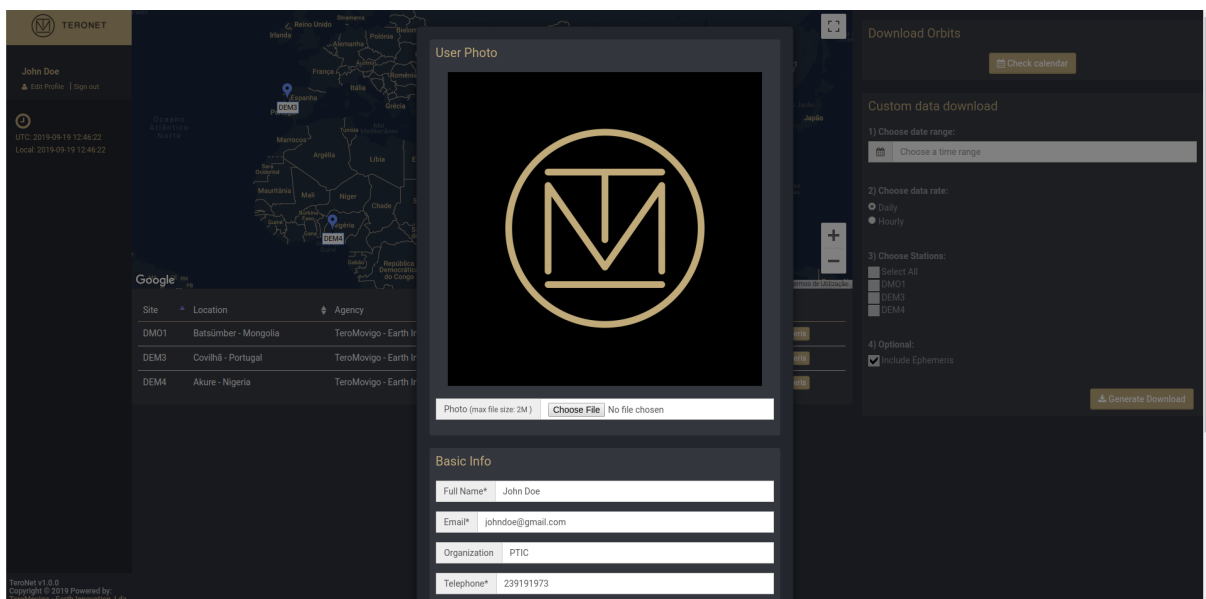


Figure 4.13 – Profile edition

5 Technical Support

This manual describes the complete workflow of the TeroNet software and its components for a regular user's point-of-view.

In order to get the most recent version of the TeroNet software manual, please check the following link:

<http://teromovigo.com/teronet-manual> (in development)

If you have any questions regarding the RINEX format, please refer the following link first:

<https://igscb.jpl.nasa.gov/igscb/data/format/rinex211.txt>

For more information about receivers and antennas, please refer to the listing provided by the IGS:

http://igscb.jpl.nasa.gov/igscb/station/general/rcvr_ant.tab

and for offset tables:

<http://igscb.jpl.nasa.gov/igscb/station/general/antenna.gra>

To communicate directly with the TeroNet software development team, please contact the following email: support@teromovigo.com

TeroNet User's Manual, October 31, 2019

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