



# GS1 Logger for Staff User Manual Guide

Version 2.4, 11.02.2014.





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## 1. Introduction

The basic service that has provided the main revenue for GS1 Hungary in the last quarter century was issuing GS1 Global Company Prefixes (GCP) and identification keys. Although our scope of activities has broadened significantly in the past few years, this service will also play an important part in our activity portfolio in the future.

At the same time the whole GS1 Community fights against the illegal use of identification numbers, which causes losses in revenue: from time to time initiatives are taken to find a solution to this issue.

In accordance with the above mentioned facts one of the main goals of GS1 Hungary is to develop such software that can provide a solution for the staff of any GS1 Member Organisation to filter out the illegal use of GS1 identification numbers. GS1 Logger for Staff is an application for smartphones (and tablets) providing information on the validity of the GS1 identification numbers with the help of the GEPIR network and the rules of GS1 General Specification (version 13).

The following system elements will be developed in the project:

- Application for client side (for iOS, iPad and Android);
- Application for server side (with validation and qualification rules);
- Database for the logged data;
- Connection with GEPIR, with our location database, with the database of the device and with the Logger database;
- Internal website and the background application for the queries.

In the October of 2011 the development of above mentioned elements of the proof of concept was completed and now they are running on iOS platform. Several functions were introduced during the continuous development and by 2013 we have released the Android version of Logger for Staff. The application can be used in the frame of the pilot project and currently it is suitable for serving maximum 500 devices.

## 2. Functional description - Operation of the software

#### 2.0. Password edition

#### **Registration of GS1 Member Organizations as Supervisor**

Registration is required for participating in the project. Member organisations applying for the pilot are to provide the following data for registration here: (http://gs1logger.gs1hu.org)

- name of GS1 MO
- e-mail address of GS1 MO supervisor
- report e-mail address (to which report e-mails will be sent about invalid numbers)
- GLNIoc identification of the MO
- Acceptance of legal conditions

GS1 Hungary receives in an automatic email the data given by the MO's and puts them on record via an internal administration website in a database for the data of users. This step is needed to ensure that only GS1 member organisations register over the registration process. The moment the data are put on record in the database, the system generates a supervisor login name, a password, which may be changed later on the website, and an individual code for the given MO, which we send to the MO in an automatic email - the email reads that the MO has successfully registered in the pilot and the colleagues may register on our website with the code attached.)



With the individual code only those can registers as MO colleagues who are familiar with the code of the given MO. Entering with the 'Supervisor' login name and password, they can access the data of their own colleagues (who register at the given MO later).

#### **Registration of Users**

Users may begin registration by clicking on the 'Registration' button on http://gs1logger.gs1hu.org website, where the following data are to be filled in:

- username,
- first name.
- last name,
- password,
- confirm password,
- GS1 Member Organization,
- e-mail address,
- serial number of phone,
- GIAI number of phone,
- verification code
- · acceptance of legal conditions



At the bottom of the registration page one must tick off 'I accept the legal conditions', without which the registration is unsuccessful.

## 2.1. Log in/Sign in

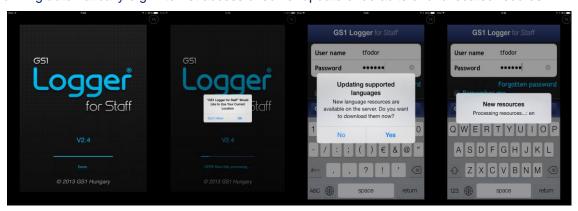
The registration button on the first screen of mobile client drives the user to the registration website of the GS1 Logger for Staff application.

Users can use Logger for Staff with their own login name and private password via the Login button. It guarantees that users can access their own data and records only. Server side authentication is independent of whether it is a registration of a web or a mobile client. Misspelled credentials cause an authentication error. We also get an error message via the authentication process if the client version of the device is unsupported.





After start-up, GEPIR Root XML, language resources and location resources get updated if there are new versions available on the server. Furthermore, there are some other checking functions running automatically e.g. internet access check or update of defaults of unallocated records.



## 2.2. Settings

GS1 Logger for Staff 2.4 has a function, which allows further settings of location information related to ON-OFF position of the GPS of the device. Furthermore, this function also makes it possible that on the administration website we give limited location information about our location belonging to our record, while we can see the accurate coordinates on the website of the application.

With GPS ON (default) 'coordinates' setting, the current coordinates are transmitted to the server and the supervisor can see the very same information at our record. The two new characteristics related to the ON setting can modify this accuracy; for others instead of the current coordinates it shows the 'country' or in the location database 'the smallest place'.

With GPS OFF the device won't be able to transmit coordinates, but we can modify it either with the default or by the selection of an area e.g. a country or a smaller area to be selected from a hierarchic list – if there is more detailed information available. In the preset setting (default) the area of the country given in registration (the GLN identifier) will go to the OFF mode, thus such location information will be generated automatically to the record as if it were recorded in the registered country.

The GPS defaults either ON or OFF exist only until users modify it, i.e. until they themselves give other location information to be revealed.

With the GPS ON the active setting displayed on the main screen is green and with the GPS OFF it is red. In case the GPS is off users receive a warning message after the starting the application.

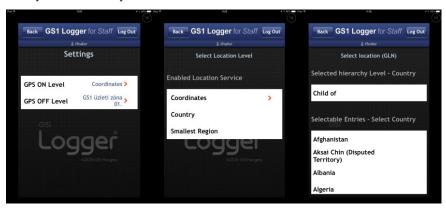


In the course of setting GPS ON users have three options to give their location:

- Coordinates (default)
- Country
- Smallest Region

By the selection of the first one, everybody will see the exact location of your scanning. The coordinates are transmitted in the two others as well, but the exact location is available only for the user, others will see only the selected level (country, smallest region).

GPS OFF is set from a hierarchical list of location. In most of the cases, the country is available. Further levels may be defined by the MOs in the future.





### 2.3. Data input

After login, the main screen appears, on which we can input the GS1 identification number we would like to check. The data input can be done manually or by automatic scanning with the built-in camera of the device. Besides giving the GS1 identification number to be checked, the Validation, the Qualification, the New Scan, the Add Photo, the History and the Settings functions can be accessed on the main screen.



Before sending data, network connection will be checked. You have the possibility to send a record with picture(s) immediately or you can attach picture(s) after data transfer through the main screen, which showing the result of checking by pressing the 'Add photo' button or at any time through the 'History – Detailed Record Data screen to the record later on before reporting. Every cases there are three selectable types of picture sizes (small, middle, large). You can attach a maximum of three pictures to each record. By pressing the 'Send' button, you can forward only the data of the record and the pictures attached. However, if you press the 'Send&Report' button, after the aforementioned process, the report also will be sent. Afterwards, it isn't possible to attach further photos even through History – Detailed Record Data screen to these records. The 'Send&Report' button isn't active only when qualification error is found after the scanning. Another function is to add comments to your reports – with additional information you can help the work of the colleagues who are processing the invalid numbers.

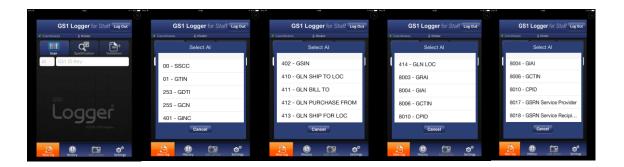




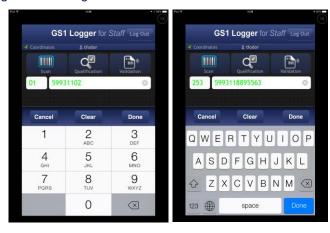
## 2.3.1. Manual data input

During the manual data input, firstly we have to select the necessary data type from the AI selector then we can enter the ID key.

Manual data entry allows you to select only those Als that are displayed on the Al selector field. Recording other types is not possible.



The keyboard changes from numeric to alphanumeric automatically depending on the AI. The 'Done' button also becomes active only if the minimum number of characters has already been entered. Overtyping triggers a warning tone.





## 2.3.2. Automatic data input

In case of automatic scanning the 'Scan' button has to be pressed and the built-in camera of the device switches on allowing us to scan the barcode. Besides reading linear (EAN-8, EAN-13 and GS1-128) bar codes, it is enabled to read GS1 QR-code, inverse GS1 QR-code, GS1 Data Matrix, inverse GS1 Data Matrix, GS1 DataBar Omnidirectional (normal, stacked, truncated) and ITF-14.

All the ID Keys and Al pairs defined in the General Specification v14 are available to scan, including identification keys and other element sting pairs as well as simple and complex symbols.

When scanning symbols, every standard and non-standard symbol is read.

The contents of non-standard symbols starting with http://" and "www" are defined as a website and automatically displayed in a new window.



If the code contains URL (regardless it is GS1 Standard 01+8200 or not), it will be opened automatically.



If the symbol contains more ID keys, then a selection list will be displayed by pressing the 'Validation' button, from which we can select the ID Key you want to check through GEPIR.





#### Readable types:



#### GS1 DataBar Omnidirectional (stacked, truncated)



## 2.3.3. Scanning several data mediums - Stringing

If - after scanning a symbol - we wish to scan another one, the application will inquire if we want the new scan to be stringed to the first one (as if they were in the same symbol) or to be overwritten.

The rule for symbols that may be stringed together is shown in the table below:

First symbol type	Appended symbol type	New symbol type
EAN-8, EAN-13	GS1-128	GS1-128
GS1-128	EAN-8, EAN-13, GS1-128	GS1-128
GS1 DataMatrix	GS1 DataMatrix	GS1 DataMatrix
GS1 QR	GS1 QR	GS1 QR



#### 2.4. Validation

The control functions of Logger for Staff version 2.4 work as in the previous versions. While for the display of the results of the validation internet and sever access is needed, the qualification function may be run on the device side without any outside connection.

Besides the number completed with AI to be checked, the application sends the GPS coordinates of the scanning location in the WGS84/UTM system (if the user has authorised the GPS use in the settings of the mobile phone) and setting values of current GPS ON and GPS OFF given in the settings. Both settings have defaults formed in accordance with former operation principles. In addition to the data of the scanning location, the scanning time, the current time zone (device set) and the unique device ID (s/n) are also transmitted by the application.

If the data transmission fails (for example due to the failure of internet connection), the record is stored in the memory of the phone and it is sent at the next data transmission. In case of three failed attempts to send the record, it gets deleted automatically.

After successful data transmission the application on the server side can return three types of messages:

- The number is valid on green background;
- The number is invalid on red background;
- The connection is failed on yellow background.





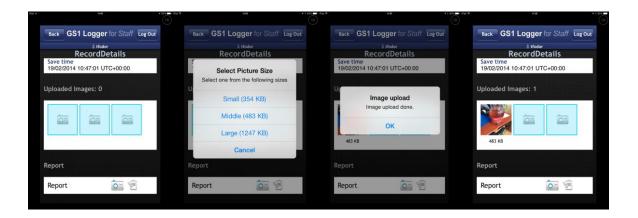
In all of the three cases GEPIR return codes (RC) and details of the responding router are displayed on-screen, on the basis of which the status is set.

Clicking on the 'New log' icon (at the bottom of the page) we can initiate a new scan, which starts the validating process again.



If the number is invalid, we suggest that you click on the 'Add Photo' icon at the bottom of the page, by which you can take picture(s) of the product on which the GTIN can be found, and we can send it/them to the server. While sending data, we can send a report that the system forwards via e-mail to the competent MO that should take the necessary next steps. You can also attach picture(s) in the detailed view of the History before reporting it. After sending the report, we cannot attach new picture(s) to the record.

The identification of competent MO is done automatically on the basis of the country prefix and the Root XML of GEPIR on the server side, and not on the device side like earlier. On the device only the report function must be activated (a command to be given). A message including the list of addressees or the description of the failure is sent to the user about the delivery of the email.



#### 2.5. Qualification

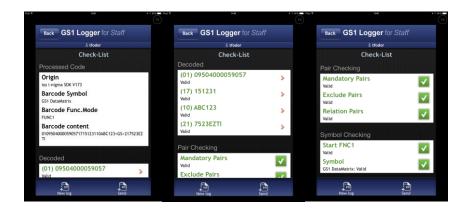
GS1 Logger for Staff's qualification function based on the cross-platform GS1Lib program library. GS1Lib contains the definitions of GS1 General Specifications version 14.0, applying in its checks the rules of its compulsory, excluding and connected pairs, and GS1 prefixes and GS1-8 prefixes. The program library was designed to be able to run the device and the server side platform-free and after initialization it doesn't need outside data source. This operating model among other things makes it possible that the GS1 qualification of a scanned symbol or a string recorded manually could be carried out on the mobile client without internet and/or sever connection.

The first screen of Qualification is a checklist containing the processed code (scanned or manually recorded) and other parameters of the scanning, the decoded ID Keys, the AI pair checking and the symbol checking.





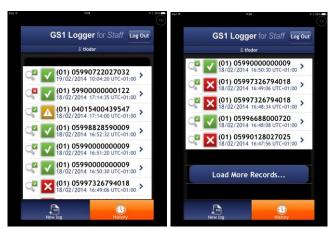
After the successful scanning or the manual data input, the qualification on the device side runs automatically, and the results of the checks appear on the 'Qualification' button in icons of different colours. Green tick means standard, the yellow exclamation mark means correctable (e.g. check digit), or dubious (e.g. unknown use area), and red X means non-standard. Parallel with the Qualification the 'Photo' button gets activated, and by clicking on it we can attach photo(s) to the record and then send the data to the server side, which with the help of the GEPIR system checks if the identification key such as a company prefix is valid or not.



Selecting the decoded elements, you can check the ID Keys one by one or in details by the Al content, min-max length, format, prefix, prefix handler, prefix format, Al support by prefix, separator and substance. By the data content the checklist of the element string pair may show a different number of rows e.g. in the case of faulty or unidentifiable Al's other information isn't displayed, or in the case of other Al's (e.g. date, bulk extent ...) we make individual checks (e.g. in case of a date we can check if the month/day data is valid or not), in other case this row doesn't appear at all.

## 2.6. List of History

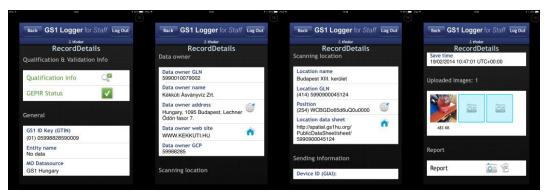
With the 'History' icon (on the right) we can list the previous checks (records) and the information associated with them. The last ten records are available (default), but users may expand the list with nine new pages of history downloadable one-by-one from the server (a maximum of 100 records). The appearance of the list of history is always preceded by data communication, that is to say all the records are always downloaded from the server. However, we download the photos belonging to the records from the server only if they have been deleted on the server side in the meantime; otherwise we display them on the device side. Whether a given picture is existent or not, we check by the current list of History, server and device side identifiers, then if needed, we download both the icons and the picture in full size on the device, save them and then we display them from here.





In the list of History the first icon displays the result of the qualification, while the result of the validation (GEPIR query) is shown by the second. Clicking on the given row we can see more information about the record. The detailed data includes the Qualification and the Validation as independent functions on a button respectively, the MO data source belonging to the ID Key, if the number is valid, the name and the address of company prefix owner can be seen (we can even check it on the map due to the Google maps connection of the application), the dates when data was sent and recorded, the pictures attached to the record and the date of report on the record or a function that can provide this possibility in the form of a report button.

Furthermore, even in case of unauthorised use, i.e. invalid numbers, the scanning time and the scanning location (along with its GLN, which we can also check on Google maps), the user name and the identifier of the device (GIAI), and the data of GEPIR return codes and responding router are recorded.



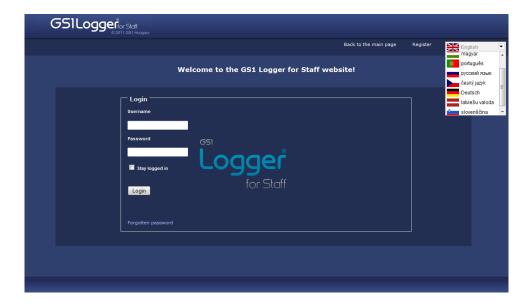
In case of those records in the location database, which have location data sheets, an URL link will be displayed referring to the data sheet in the scanning location block.





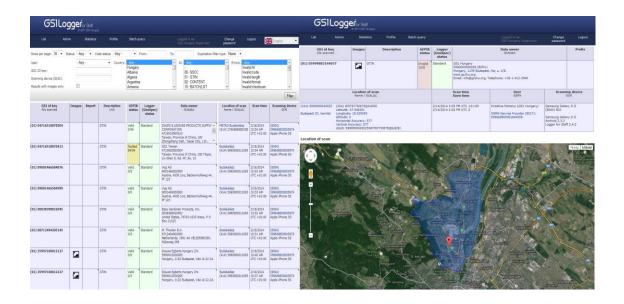
#### 2.7. Back Office website

The 'History' is also available on a website: http://stafflogger.gs1hu.org. On this website every user can sign in with their own login name and password, and can list their own records in timeline, and can filter the list, for example by time, location or status. The website is available in eight languages (Hungarian, English, Portuguese, Russian, Czech, German, Latvian and Slovenian).



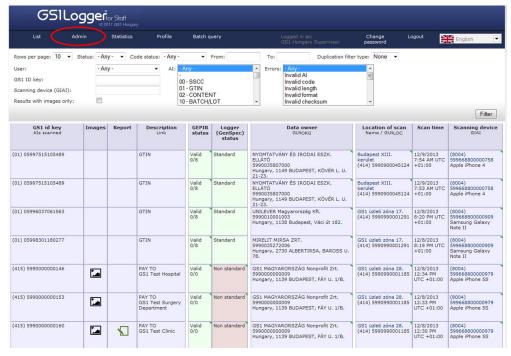
Only the number of records in the 'History' available from the website that can be displayed on one screen is limited, but the number of screens is not. (One may go back as far as to their first record.) Users cannot delete or modify any record from the history through this surface either. However, they can modify the display according to their profile settings, and with this they can give others authorisation (e.g. to supervisor) for the exact scanning location of the record or just a limited display of a given area.

Supervisor users are capable of using dynamic filtering, such as filtering by time period, location, code status (unauthorized/authorized use), Al's, countries, users, GS1 ID Keys, scanning devices. The details tab also contains a Google map with the exact location of the scan.

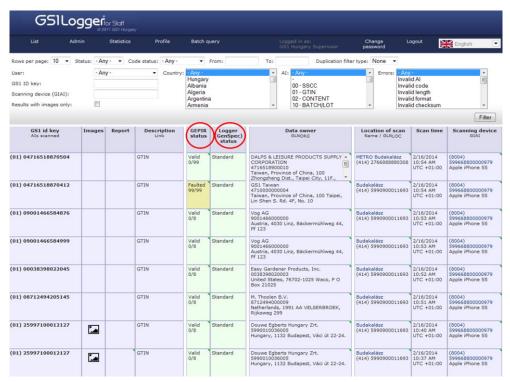




Due to the Admin function, you can see here all the records that contain ID Keys allocated from your MOs prefix (even the barcodes scanned by other users).

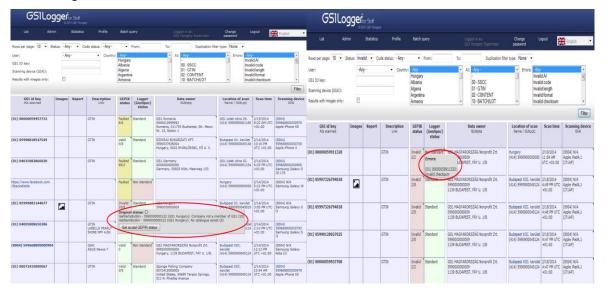


Due to the qualification function, the website is suitable for the visualization of the results of both checking methods. To put it properly, the GEPIR status and Logger status columns, standard or non-standard,(according to the GS1 General Specification v14) are displayed on the website. In addition, under the GEPIR status, you have the possibility to query the current GEPIR status of the record.

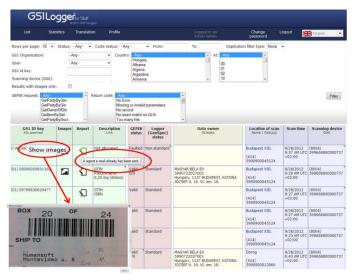


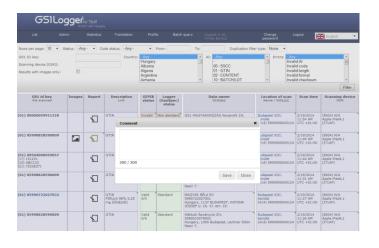


Under the GEPIR and Logger status, you can see the reasons of invalid numbers and non-standard numbers. You have an additional possibility under the GEPIR status to query the current GEPIR status of a given number.



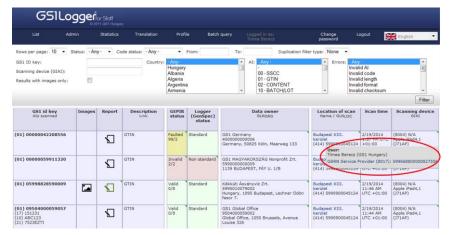
As far as the pictures attached to the given records are concerned, you can also see them on the website (and you can remove it at any time). Also you will have the possibility to check if the report e-mail has been sent or not, what's more it can be sent via the website and you can add your remarks opening the comments form.







At the scanning device block, you can see the names and GSRN numbers of the users, the GIAI numbers of the devices and which GS1 MO you/your colleagues belong to.

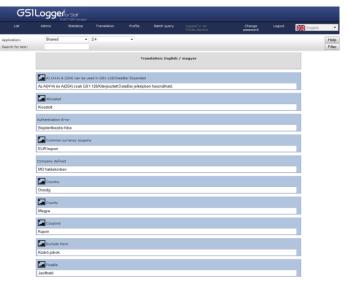


At the bottom of list view, you have the possibility to download your records from the website in excel sheet or .csv format.



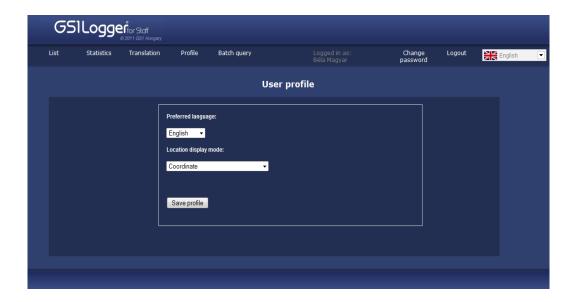
There are three new icons on this website, namely Translation, User Profile and Batch Query menu items.

The Translation menu allows you to translate the website and application itself (access must be requested of the project manager) in an interactive way with the help of pictures.

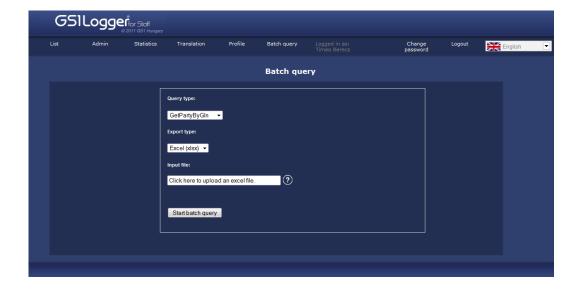




The profile menu allows you to set your preferred language and the display mode of your location (according to the coordinate or mobile device setting).

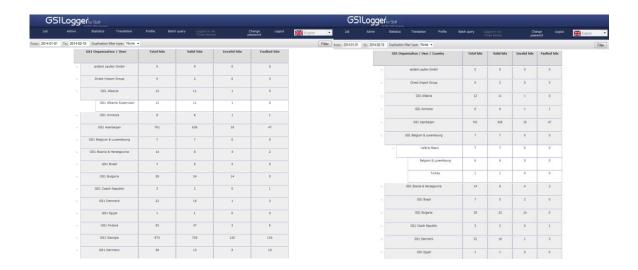


Under the Batch Query you can upload and check in excel format the required GS1 identification numbers in quantity (the only condition is that the GS1 Identifiers should be in the first column of the excel table), then the return codes of GEPIR can be downloaded in excel an xml formats.





The Statistics menu on the same website contains four different types of views. Stat1 contains the number of scans from users of participating member organizations by status. It is possible here to filter by time span or to filter duplicates. Stat2 shows the distribution of user scans amongst countries for all three statuses (valid, invalid, and faulted).



Stat3 shows the distribution of GEPIR router return codes by member organizations. Stat4 consists of two tables. The first one shows the user scans of member organizations by status. The second one shows the distribution of scans with a specific status (select the kind of status above the tables) by country (country codes).

