



**World Food  
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**برنامج الأغذية  
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# GRASP Mobile User Manual Draft Version - English Edition

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## GRASP User Guide: Mobile

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### Introduction:

GRASP is a tool for field data collection and analysis. It enables groups of enumerators to compile data into forms using phones, tablets or on paper, and send to a central database. The forms can be easily and quickly created using a desktop application.

*GRASP Server* is the software that is installed on the server.

*GRASP Designer* is the desktop application for creating forms and administering the data collection process.

*GRASP Mobile* is the mobile app for field data collection on mobile devices.

This manual is part of a set of 3 user guides to using GRASP. This user guide is for the GRASP mobile app user only.

## Necessary user knowledge requirements

Familiarity of the user with smart phones or tablets is necessary, particularly with soft-keyboards.

Familiarity with touch screens, soft-keyboards, hardware button usage, switching on and off WIFI and mobile data connections and with obtaining an accurate GPS coordinate may require training prior to usage.

## Hardware Compatibility

GRASP Mobile app runs only on Android devices. It is developed and tested to run specifically on Android v. 4.x (any version 4). Other versions are not supported even though the app may work.

A minimum screen size of 5 inch is recommended.

A GPS and a camera are required.

GSM/GPRS or 3G/4G connectivity will be required if data is to be sent or received from the field. If not present then WIFI from an office or internet café can be used. SMS text messaging can be used if the server is correctly set up to do so.

If data is to be collected outdoors then the screen must have good retro-illumination and may therefore require a large capacity battery, or a spare battery, for extensive use.

## Installation

Installation and configuration of GRASP mobile are intended for the administrator and not for the user. Please refer to the GRASP Server guide for installation of GRASP Mobile.

## GRASP Mobile App – Usage

To start the GRASP Mobile app, tap on the GRASP icon.

The first screen shows 3 buttons for the 3 functional areas in GRASP Mobile.

Functional Area	Description
Inbox	The inbox functional area lets the user receive blank forms
List Forms	The List Forms area is the main area of GRASP Mobile. It is the area in which data can be compiled and sent.
Settings	From the Settings area, the user may upgrade to the latest version of GRASP Mobile.  The Administrator can use this area to define the network connection parameters and perform other administrative functions

Instructions for usage is described in the relevant sections for each functional area

## The Inbox: Receiving Forms

The inbox function lets the user receive forms. Forms can be received either by SMS text messaging or by network (Wi-Fi or mobile data):



- If a form has been received by SMS text messaging then a small symbol will appear in the Android Notification Bar to alert the user. The user must:
  1. Enter into the Inbox area by tapping the Inbox button. They will see the form (or forms) that have been sent.
  2. Tap the name of each form that they would like to start using.
  
- If a form has been made available over the network there is no notification. The user must:
  1. Make sure that the network is connected
  2. Enter into the Inbox area by tapping the Inbox button
  3. Press the Synchronize button. All forms available on the server for that user will be listed.
  4. Tap the name of each form that they would like to start using.
  
- ✓ The message “Forms imported correctly” should be shown.
- ↶ Press the back button to return to the main screen of GRASP Mobile.

## List Forms: Managing Forms and Responses

The List Forms area is the main area of GRASP Mobile. It is the area in which data can be compiled and sent.

The area contains 5 tabs: *New*, *Saved*, *Completed*, *Submit Images*, *Submitted*.

Each tab has a little number showing the number of forms in the list of that tab. The following table gives a description of the forms found under each tab:

Tab Name	Description of the entries listed	Possible actions
<b>New</b>	In this tab all the blank forms are listed	➤ To start entering data into a form, tap the name of the form.
<b>Saved</b>	This tab lists all the form responses that have been started (i.e. data has been entered into them) but have not been completed yet.	Form responses are listed by form name, the date on which data entry was started and by the Title entered on the first page. ➤ To resume entering data, tap on the form response selected.
<b>Complete</b>	This tab lists all form responses that have been completed (i.e. the user has pressed the <i>Save as Completed</i> button at the end of the form).	Forms that are saved as completed cannot be edited any longer, unless this function has been selected from the <i>Settings</i> . ➤ To open a form response, tap on the entry in the list. ➤ To send a single form response to the server, long-press on the entry in the list and confirm. ➤ To send all form responses to the server, tap on the button called Send all Forms
<b>Submit Images</b>	This tab lists all form responses that contain photos (or other media files). The form response data has been already sent to the server, however the media files still need to be sent to the server manually.	This enables the user to send the large files later, using Wi-Fi, to reduce transmission costs. ➤ To send media files for a single form response to the server, tap the entry in the list <b>and confirm</b> . ➤ To send all form responses to the server, tap on the button called Send all Forms
<b>Submitted</b>	This tab lists all form responses that have been fully submitted, including all the media files.	➤ Tap an entry in the list to see the data in a submitted form response.  Note: Once the data has been sent to the server it cannot be edited any longer. However there are administrative functions inside the Settings that allow for submitted data to be re-edited and re-submitted if necessary.

## Entering and Editing Data in Forms

This section describes how to enter data into a blank form or how to edit data that has already been entered into a form response. A new form is opened by tapping on an entry in the New tab. A form response can be opened for edited by tapping on an entry in the Saved tab (or in the Completed tab if this setting is enabled).

If a form response is opened from the Submitted tab, or from the Completed tab (if the setting has not been enabled) then the form response will be opened in Index view. This is described in the relevant section below.

### *The Opening Screen*

When a form is opened the opening screen is shown:

Swipe the screen to move to the first page. The pages always run from left to right in all languages.

- ← To move to the next page swipe your finger across the screen from right to left.
- ↶ Press the back button to leave the form and return to the tabs in the List Forms area.

In a GRASP form, the form is organized in sections. Each section is a page on the mobile display. To move between sections the user must swipe horizontally and to move down in the section the user must swipe from down to up.

### *The First Section*

The first section always contains the following standard fields:

**Date:** The date of data collection. It shows the date from the Android settings, but it can be changed

**Title:** A title that the user can enter to help to find the form later in the tabs

**Designer Version** (read-only): the designer version with which the form was created, to ensure compatibility between the components

**Client Version** (read-only): the version of the mobile app, to ensure compatibility with the server

**GPS Coordinate:** a function to register the position of the device. **If this button is yellow, the user must take the coordinate in order to proceed.** See the relevant section on GPS coordinate below, on how to take the coordinate.

### *Moving through the sections of the form*

← Once the section has been compiled, the user must swipe from right to left to proceed to each of the sections of the form. At each swipe the form will be automatically saved.

→ The user may return to the previous section by swiping left to right.

↶ Press the back button to leave the form and return to the tabs in the List Forms area.

☰ Press the menu button to open a menu option called *Goto Index*. With this button the user can switch to Index view and have an overview of the whole form. See the



relevant section below for instructions. NOTE: On some devices the menu button requires a long-press (press and hold for 2 seconds)

### ***Save as Completed***

Once reached the end of the form, a large button called *Save as Completed* will be displayed.

The user must tap the button for the form response to be saved under the *Completed* tab so as to be sent to the server. This function will also check the form for any missing information. If the form response is found to be incomplete, the user will be taken to the index view to find and complete the missing information.

### ***How to enter information into the fields***

All fields have a label on top (one line asking a question or describing the information that the user is expected to enter into the field). To enter a value in a field the user must tap inside the field. If necessary the soft-keyboard will open.

When a field is obligatory, a value is required and the user cannot proceed without entering a value. The label of the field will be shown in yellow to tell the user that it is obligatory.

### **Date Field**

The date field shows today's date, and lets the user modify the day, month and year. The user should click on the up or down arrows to change each item individually.

### **Number Field**

A number field accepts a single number. It can be an integer (e.g. 3) or a decimal (e.g. 3.55). The user knows when a number is expected because a numerical soft-keyboard will open automatically when the field is tapped on.

A number field may have a validity check. This means that the number has to be smaller or larger than a fixed value or has to fall inside a fixed range. If the value that is entered is not valid, then the label will turn red. The number has to be valid for the user to proceed to the following section.

### **Text field**

A text field may accept a single line of text or more than one line. Any letter, number or symbol can be entered. The user knows when a text value is expected because the normal soft-keyboard will open automatically when the field is tapped on.

A text field sometimes has a validity check on the length of the value entered. Either it is shorter or longer or exactly equal to a specified length. If the length of the value is incorrect, then the label will turn red.

### **Dropdown list**

A dropdown list opens when the field is tapped, and the user must select one of the values.

### **Radio button list**

A radio button list is a list with buttons. Only one item can be selected in the list.



### Checkbox

A checkbox is a field that can accept a check (✓) mark.

### Email address

An email address is expected. It will have to contain an @

### Phone number

A phone number is expected.

### Currency

A numeric value is expected and a currency symbol is to be selected from the list.

### GPS Location

GRASP Mobile can use both GPS and wireless network triangulation to determine the user location.

These should be activated in the *Location Source* in the *Android Settings*.

The user should become familiar with the following chart to obtain best results.

Location Source	Requirements	When to use
Wireless Network Triangulation	<ul style="list-style-type: none"><li>• Requires an internet connection</li><li>• Provides a coordinate quickly</li><li>• Coordinate is inaccurate</li></ul>	<ul style="list-style-type: none"><li>• When indoors</li><li>• Low accuracy required (Village location only)</li></ul>
GPS only	<ul style="list-style-type: none"><li>• No internet required</li><li>• Clear sky required</li><li>• May take up to 5 minutes</li></ul>	<ul style="list-style-type: none"><li>• When outdoors</li><li>• High or medium accuracy is required (House location or neighborhood location)</li></ul>
Both GPS and Network	<ul style="list-style-type: none"><li>• Requires internet connection</li><li>• Provides a coordinate quickly</li><li>• Semi-clear sky required</li></ul>	<ul style="list-style-type: none"><li>• When outdoors</li><li>• High or medium accuracy is required (House location or neighborhood location)</li></ul>

The GPS location button opens a new screen while the GPS attempts to estimate a coordinate.

The estimated accuracy of the location is shown on the screen. At any moment the user can accept the coordinate provided **or can cancel the operation**. The estimated coordinate will be shown in the form.

### Photo

Tap the photo button to take a photo. The user can select to take a photo using the camera or to select a photo from the photo gallery.

Depending on the situation, the user may choose to take several photos before starting to fill in the form response. Then when filling in the information the user can select the most appropriate photo to include in the form.





Each photo field will accept one photo. It is up to the form design to include as many photo fields as necessary.

### Calculated fields

A calculated field is a number field whose value is not entered by the user but is calculated by a formula, based on other field values. A calculated field may be invisible or visible. Visible calculated fields appear different to the user compared to number fields because the label is **grey**.

A calculated field may be used to compare several different field values, or to calculate a value for the user. The calculation takes place once the user taps on the next field, or swipes to the next section, or presses the Next button (on the soft keyboard) to calculate the value of a calculated field.

### *Tables and Rosters*

Tables and rosters provide a way to ask the same fields several times inside one form response.

#### Rosters

In a roster, the user can compile a set of fields once, and if necessary can compile them again, and again as many times as are necessary. For example a roster can be used to collect information about each member of a group such as people or houses.

A roster will be identified because of the number <1> at the top of a new section. This means that the user has to compile the first set of fields in the roster.

After compiling the first set of fields, when the user swipes forward to the next section, they be asked “Add another entry?”. If the user taps yes, they will see <2> at the top of the section and will have to compile the same fields for the second entry, and so on.

When they respond “No” the roster will be completed and they can swipe onwards to the rest of the form.

#### Tables

Tables are like rosters, but they have a fixed number of entries, and each entry has a label. The user will know they are inside a table because they will see <label> at the top of the section.

When they swipe forward to the next section they are automatically taken to the next entry in the table. When all the entries have been completed, the user can swipe onwards to the rest of the form.

### *The Index view*

The index view provides a single overview of the whole form response and shows the values that have been provided for each field.

The user can click on a field to be taken directly to that field in the form response. This provides a way for the user to jump from one location to another in the form quickly.

The index view may be accessed by pressing the menu button (on some devices a long-press may be necessary) and selecting *Goto Index*. The index view is automatically

accessed when opening a form that has been already submitted or completed (depending on the administrative settings).

Note that when inside a table or roster, the index view only shows the inside of the table or roster.

## Settings: Software Administration

From the Settings area, the user may upgrade to the latest version of GRASP Mobile. The Administrator can use this area to define the network connection parameters and perform other administrative functions.

Some settings may be defined by the Android system, as follows:

Language: GRASP Mobile will find the most suitable language based on the system language defined in the Android settings:

Android Language Setting	GRASP Mobile app language
Arabic	Arabic
English	English
Spanish, Portuguese, Italian	Spanish
French	French not yet implemented

On the basis of the language, other settings may change automatically. For example the numerical decimal point would vary from “.” and “,” depending on the language. The usage of GPS or network triangulation to determine the current position will depend on the Android *Location Settings* which, for privacy reasons, must be set by the user in the Android Settings.

### *For the User:*

To upgrade to a higher version of the app without losing data and without requiring the administrative password.

To check for an upgrade:

1. Ensure that the Android device is connected to WiFi or to mobile internet. Wifi may be preferable to reduce costs of the download.
2. In the settings area, tap the button called “Check for latest version of the application”
3. A progress bar will appear showing the progress of the download.
4. **Any other action?**

✓ **If the download is successful then...**

↶ If the download does not occur press the *Back* button to cancel and check that you are connected to the network

### *For the Administrator:*

In the settings area, enter the password and tap the Login button. The following settings are available in this area:

Server Settings:	
Protocol:	If the server is configured for secure communications select HTTPS otherwise HTTP
* Server address:	Enter the IP address or the DNS name of the server. <b>FOR PCD: <a href="http://grasp.pcd.ps">grasp.pcd.ps</a></b>
Port: DEFAULT: 80	Change only if the GRASP web server is configured for a different port
Directory: DEFAULT: GRASPREPORTING	Change only if the GRASP web server is configured for a different directory
Server Telephone	Only if using SMS text messaging for data transmission, enter the number of the SIM card of the server.
Client Settings:	
Text Font Size Default: Medium	The size of the writing in the forms may be made smaller or bigger to account for differences of screen size in different devices. Note that this functionality may cause problems on some devices.
* Client Telephone	The phone number or ID of the SIM card in the phone. If SMS text messaging is being used then the full phone number including country code should be entered. Otherwise any unique number can be used. The number must begin with +
Sending Method: DEFAULT: GPRS/UMTS PREFERRED	There are 3 different modalities for sending data:  1. SMS Only: with this setting all data will be sent using only SMS text messages 2. GPRS/UMTS only: with this setting only Wi-Fi or mobile data will be used 3. GPRS/UMTS preferred: with this setting Wi-Fi or mobile data will be attempted and if it fails the user will be asked if SMS text messaging should be used.
Time Before re-submit allowed DEFAULT: 0	<b>TO BE DELETED</b>
* Check Server Connection	This function tests to see if a network connection to the server can be established and if the Client Telephone is registered in the GRASP Designer.  If the server is online and the Client Telephone is recognized, the message: <i>Server Online</i> will be shown. If the Client Telephone is not recognized, the message “....” Will be shown. If the server is not reachable the message <i>The server is not online or the URL address is not correct</i> will be shown.
Update the application	This function is similar to the <i>Check for latest version of the application</i> function for the user, described above. However after downloading the new version the administrator is asked if they want to

	delete all existing forms before installing the new application. This may be necessary if the new version is not backward compatible with the format of the previous version.
Convert Submitted Forms to Completed	This function enables the administrator to re-submit the forms that have already been submitted. This may be done to recover the data from the mobile devices if the server database requires re-building. Also, in combination with the setting below, the form responses can be modified before re-sending to the server.
Enable editing completed forms  DEFAULT: DISABLED	If set to Enabled, this function will let the user modify the form responses even after they have pressed the <i>Saved as Completed</i> button. In this case the form responses listed under <i>Completed</i> can be opened and edited.  This function is useful if the type of assessment being carried out may require the users to be able to modify data after their field visit is completed.

\* For most set-ups, it is sufficient to enter the server address, the client ID and check the connection

## Glossaries

### Android Feature

Android settings: The settings of the Android device, can be modified using the *Android Settings* app.

long-press: As well as tapping an item on the screen, the user may have to press and hold for 2 seconds

network triangulation: determining the approximate geographic location by knowing what WIFI networks are around the user.

Next: On the Android soft-keyboard, there is a button called "Next"

soft-keyboard: the on-screen keyboard that pops up when necessary

system language: the language setting for the Android system

tab: A way to group information on the screen. The user can select a tab to see one group at the time

### Buttons

Android Notification Bar	2
Back	9
Check for latest version of the application	9, 11
Goto Index	5
Inbox	2
Login	10
Save as Completed	3, 5
Send all Forms	3



Synchronize 2

### Tabs

Complete 3  
Completed 3, 4, 5, 11  
New 3, 4  
Saved 3  
Submit Images 3  
Submitted 3

### Messages

Forms imported correctly 2

### GRASP concept

administrator 1, 11  
calculated field 7  
Client Telephone 10  
field 1, 5, 6, 7, 8, 11  
fields 4, 5, 7  
form 3  
form response 3, 4, 5, 7, 8  
form responses 3  
forms 2  
index view 5, 8  
Index view 4, 5  
label 5, 6, 8  
Language 9  
rosters 7  
saved as completed 3  
sections 4  
settings 9, 10  
Settings 3  
Tables 7  
Title 3