Social Assessment for Protected Areas (SAPA)

Tool February 2016

Using an Open Data Kit for SAPA household surveys

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Background

IIED working in partnership with UNEP-WCMC, WCS and FFI launched a project to develop and pilot the Social Assessment for Protected Area methodology in April 2013. It responded to i) concerns that some protected areas were imposing an overall negative impact on some local stakeholder groups, ii) the need to better understand, promote and strengthen the positive contribution of protected areas to local livelihoods, and iii) the need for a relatively simple, rapid, standardised and low cost approach for assessing social impacts. The final output of this project is a methodology manual, built on the experience of piloting in five countries (Kenya, Uganda, Ethiopia, Gabon and Zambia).

Franks, P and Small, R (2016) Social Assessment for Protected Areas (SAPA). Methodology Manual for SAPA Facilitators. IIED, London

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This document provides supplementary guidance for those who wish to establish an Open Data Kit survey system for SAPA household surveys.

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ISBN: 978-1-78431-309-8 http://pubs.iied.org/14660IIED

Citation: Small, R and Franks, P (2016) Social Assessment for Protected Areas (SAPA). Using an Open Data Kit for SAPA household surveys. IIED, London



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Introduction

The Open Data Kit (ODK) is open source (free) software that allows surveys using questionnaires to be completed using a smartphone or tablet. This guide has been compiled to take Social Assessment for Protected Areas (SAPA) facilitators through the process of establishing an ODK survey system for SAPA household surveys using a Windows-based PC.

The ODK system is comprised of the following components:

- 1. ODK Aggregate: enables storage, management and deployment of surveys and data
- 2. **ODK Build**: a web-based application for the design of ODK questionnaires
- 3. **ODK Collect**: an Android-based application for smartphones or tablets for paperless surveys

This guide is based on guidance from OpenDataKit (www.opendatakit.org) and Google Earth Outreach (www.opendatakit.org) and Google Earth (www.ope

For simplicity, this guide only details the use of Google's App Engine servers to store survey data, an approach recommended for new users of ODK. Other options for local server storage are possible and are detailed at https://opendatakit.org/use/aggregate/.

Regarding the Google App Engine servers, it is important to note that depending on the sensitivity of the data and specific storage rules/restrictions, the server infrastructure may not have all necessary security precautions (such as encryption). It is the user's responsibility to research and comply with applicable laws and regulations before storing data on Google App Engine. The user is also responsible for taking the appropriate security precautions and informing colleagues that the information will be available to Google and stored on Google's servers, as specified in the Google App Engine Terms of Service (https://cloud.google.com/terms/).

The Google App Engine servers are free to use for small-scale projects. Google operates 24-hour activity quotas that typically enable free use of ODK Aggregate during evaluation and small pilot studies. Based on the size of surveys used for SAPA, you are likely to be able to run a full study within these activity thresholds — ie collecting fewer than 2000 responses, accessing the server only during the work day (not 24 hours per day), and flexibility as to when you upload data from ODK Collect or access that data (should the quota have been exceeded). Otherwise, you will need to set up a billing account with Google.

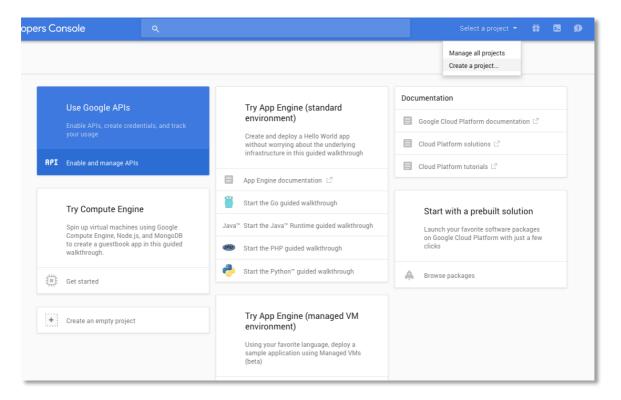
Although this guidance has been prepared for the use of ODK with Social Assessment of Protected Areas, once you have completed the setup (which is quite complex) you will be able to create new surveys and collect and compile the data without having to repeat the setup.

ODK Aggregate: setup

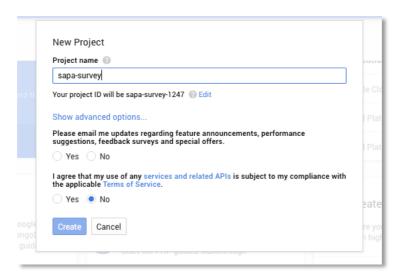
In its simplest form, ODK Aggregate requires the set-up of a web-based server. With the design of the ODK software, this is most easily done using Google's "Cloud Platform Console for App Engine". The following guidance details the steps required to create an App Engine project.

Create a Google App project

- 1. Make sure Java 8 or higher is installed on the computer you plan to use. If it is not, download it (at www.java.com/en/download/) and install it.
- 2. Create a Google/gmail account (at www.gmail.com) and make a note of the username and password, which you will need later
- 3. Once logged into your new Google account, set up a Google App Engine project by going to https://console.developers.google.com/start.
- 4. Either click on "Select a project" to the right of the blue bar at the top and select "Create a project..." from the drop-down list, or click on "Create an empty project".



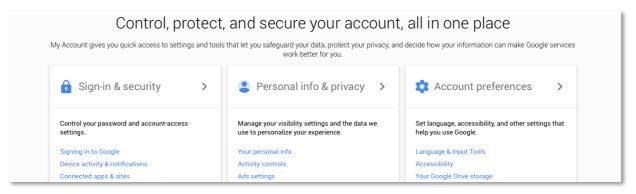
5. Give the project a name (eg "sapa-survey"). Note that the project name you select will determine your project ID, which is usually the same as your project name but in lowercase and with hyphens instead of spaces. However, if your project name is already in use, a number will be automatically added to the project name to form the ID (eg "sapa-survey-123" or "z-sapa-survey"). The project ID will determine your project's URL (eg sapa-survey-123.appspot.com).



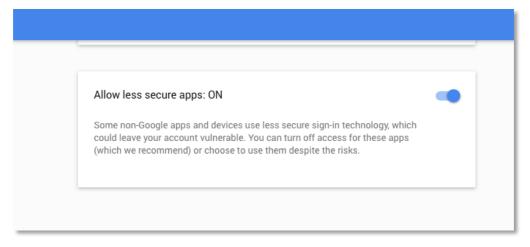
Temporarily lower your Google account security settings

Prior to installing ODK Aggregate, you will need to lower the security settings on your Google account. These can be increased again after the installation is complete and will not affect the security levels of your computer itself.

1. Go to https://myaccount.google.com/ and click on "Connected apps & sites" under "Sign-in & security".



2. Set "Allow less secure apps" to ON by clicking the button. When these settings have been changed, you will receive a notification email to your (new) gmail address.

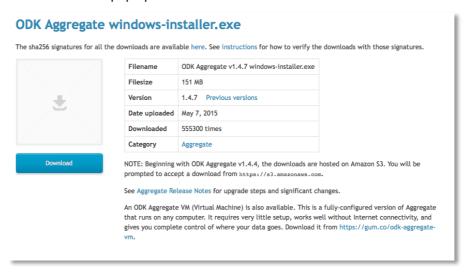


Download and install ODK Aggregate on your computer

- 1. Go to http://opendatakit.org/downloads/
- 2. Select and click on the appropriate version of ODK Aggregate to download; Windows users should click on "ODK Aggregate windows-installer.exe". Note that this is a large file (150MB) and you will need a good internet connection for the download. If the download is interrupted, it is possible to resume it but the program most likely will not work.



3. A download screen will pop up:

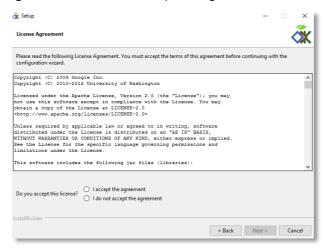


- 4. Click "Download" to download the file.
- 5. Once downloaded, locate the file (ie "ODK Aggregate windows-installer.exe") on your computer and double click it to begin installation.

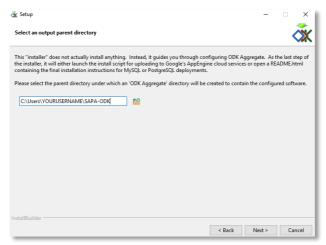
- 6. Follow the ODK Aggregate Setup Wizard.
 - a. Setup ODK Aggregate: Click the "Next" button in the bottom right-hand corner.



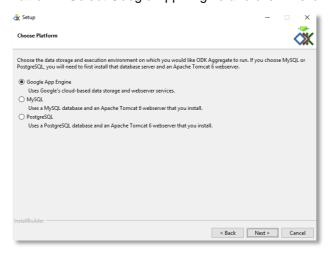
b. License Agreement: Check "I accept the agreement" and click "Next".



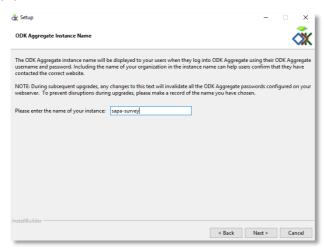
c. **Select an output parent directory:** Select the location on your computer where you wish to store the ODK Aggregate files associated with the project and create a folder in which to store the files in (eg C:\Users\YourUserName\FOLDERNAME). You can name the folder whatever you like. Click "Next".



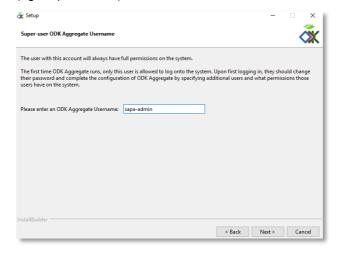
d. Choose Platform: Select Google App Engine and click "Next".



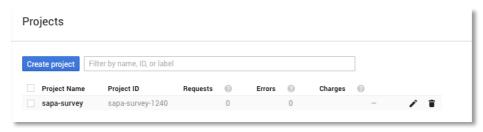
e. **ODK Aggregate Instance Name:** Enter the name of the Google App Engine project you created (eg "sapa-survey"). Please note that ODK uses the term "Instance". To avoid technical jargon, we use "project" instead of "Instance" throughout this guide. Click "Next".



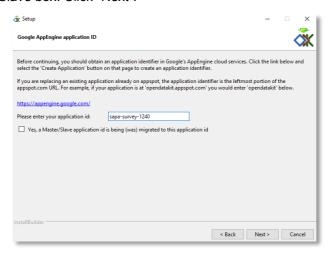
f. **Super-user ODK Aggregate Username**: Create a username, which can be anything you want (eg "sapa-admin"). Make sure to make a record of the username. Click "Next".



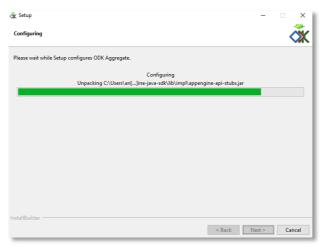
g. **Google App Engine application project ID:** To find the correct project ID, visit your Google App Engine projects page at https://console.developers.google.com/project.



h. Copy the Project ID (eg "sapa-survey-123") for the App Engine project carefully. Remember this may not be the exactly the same as the project name. Don't check the Master/Slave box. Click "Next".



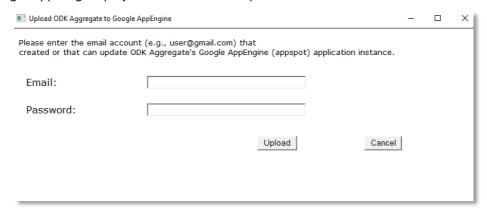
i. **Ready to Configure ODK Aggregate**: Click "Next". This installs the ODK Aggregate program in the location and folder you specified earlier.



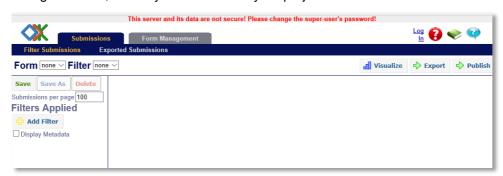
j. **Completing the ODK Aggregate Setup Wizard:** Finish the installation by clicking "Finish".

Upload ODK to your Google App Engine project

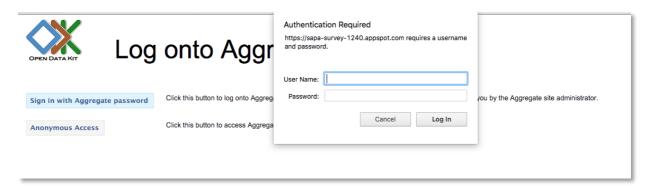
 After completing the ODK Aggregate Setup Wizard, an application window will open that asks you to enter the username and password for the Google account you used to create your Google App Engine project. Then click the "upload" button.



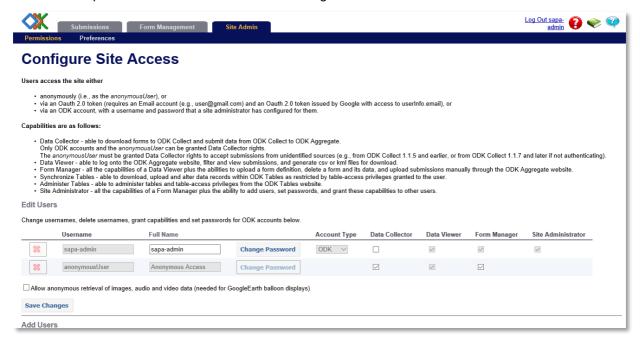
- 2. A command line will run for about one minute or less, ending with message: "Update completed successfully." (Please note you may see some error messages in the command line, but this should only be of concern if you don't see the message "---END-SCRIPT-SUCCESS---" in green at the bottom of the dialogue box).
- 3. If the upload script fails, read the dialogue box to check for errors. Common errors include mistyping your Google account username or password, not using lowercase letters in the project ID name, or not installing Java correctly. Click on "Rollback" to restart the setup process, taking into account these common errors.
- 4. After successfully uploading ODK Aggregate, update your Google account security settings by going to https://myaccount.google.com/ and clicking on "Connected apps & sites". Set "Allow less secure apps" to "OFF". It is very important to do this as ODK will not work otherwise.
- 5. To double-check whether ODK Aggregate was successfully uploaded to your Google App Engine Project, go to "<your project name>.appspot.com" (eg "sapa-survey.appspot.com") in your browser. The first time you visit your ODK Aggregate project, you will see a screen stating "Awaiting Redirect", before you are taken to your project.



6. Once you are redirected to your ODK Aggregate project, you should immediately change your password. Click on "Log in" in the top-right corner, and then choose "Sign in with Aggregate password". Log in using the super-user username you chose during setup (eg "sapa-admin") and the default password, which is "aggregate".



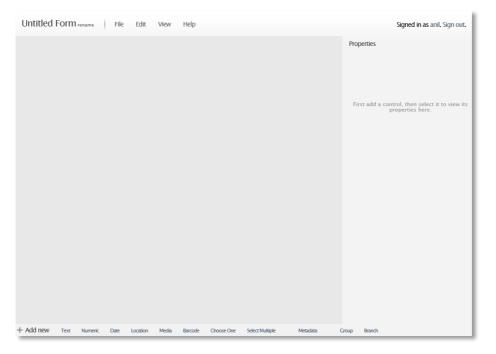
7. You should now see a "Site Admin" tab. Click this tab and then click "Change Password". Enter a new password and remember to save changes.



ODK Build: setup and survey design

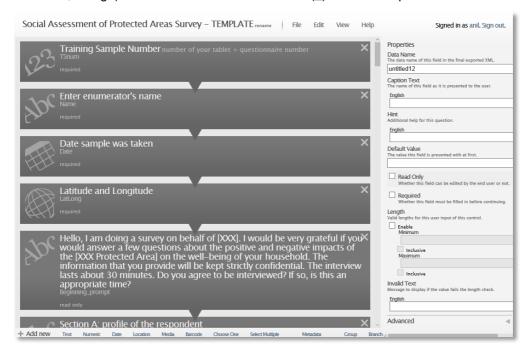
Designing questionnaires in ODK Build

- 1. Go to ODK Build at http://build.opendatakit.org.
- Create an ODK Build account. Note that this account is different from your Google Account, and you can choose to use a different login and password (be careful not to confuse the login details for your Google and ODK Build accounts). Your forms will be saved to this account for future access (note that in ODK a questionnaire is called a "form").
- 3. A household survey questionnaire template for SAPA (in .odkbuild format) is available at http://tinyurl.com/z3ho654 .Once you have downloaded this template, you can upload it to your ODK Build account by going to File > Load Form From File..., and then clicking on "Choose" to locate the file. If you are using ODK for other surveys, then go to File > New Form.
- 4. Add questions to your form by clicking on the type of question you'd like to add (eg "Location", "Text", "Numeric", Select Multiple") at the bottom of the page.



- 5. Each question has several common properties as well as unique properties, including the name of the variable ("Data Name"), which should be either one word or two words linked with an underscore (ie no spaces). For an explanation of the common properties, see the Common Properties box on page 13. You do not need to save each question as you go but do remember to save the form frequently, especially if you have a poor internet connection.
- 6. To enter a Text question, such as "What is your name?", click "Text" at the bottom of the screen and then fill in the properties on the right-hand side. The question itself goes in the "Caption Text" box. (Optional: you can enter a minimum and/or maximum character length for the text field for responses to the question.)
- 7. Select "Numeric" at the bottom of the screen to add a question that requires a number in the response, such as "What is your age?". Again, the question itself goes in the "Caption Text" box. In the properties section, specify whether you'd like to record the number as an integer (a whole number) or a decimal (eq 0.1).

- 8. Using the "Date" question, you have the option to allow the date and time to be entered automatically (as per the user's phone settings), or allow the user to enter or modify the date in the form.
- 9. If your mobile device is equipped with GPS, ODK can automatically record the GPS coordinates of the location where the interview is taking place. Select "Location". The user will see an estimate of the GPS accuracy, which will improve over time, and must click "Record location" when the accuracy is sufficient.
- 10. You can allow users of your form to attach media files to their form submissions by clicking "Media" at the bottom of the form. You can select "Image", "Audio" or "Video" as the media format. The form will switch the user's device to camera mode, voice memo mode or video camera mode, and the media will be stored with that form entry. Hint: if you know you will have a slow internet connection when you upload your form submissions, some devices allow you to reduce the default image size so that when you come to send your completed data over the internet, the file size is smaller.
- 11. Use the "Choose One" question type if you would like the user to select one option from among several. You can specify which options you present by clicking "Add Option". Make sure that you add an underlying value to your options this is required for each option. A numerical value should be entered as the underlying value in order to simplify data analysis (eg 1=low; 2=medium; 3=high). Make sure to use underscores (_) instead of spaces.



- 12. Use the "Choose Multiple" question type for multiple choice questions. As with "Choose One", be sure to add an underlying value to each option and use underscores instead of spaces for the underlying value fields.
- 13. Once you have completed the form, be sure to save again. Go to File > Save Form As... Next time you log in to your ODK Build account, you can select File > Open to reopen the form to add to or edit it. In the "open form" dialogue box, you can also delete forms that you no longer want by clicking on the "X"
- 14. To download the form to your computer, select File > Export as XML... You will see XML code in a dialogue box. Click the "Download" button to save the file to your computer as an .xml file. This is the format that you will import into ODK Aggregate and onto your mobile device in the next step.

- 15. If you would like to create a list of your questions in PDF format, this can be done using software called LINKS Codebook v1.1. This is available at: http://tinyurl.com/z3ho654.
- 16. To use the software, click on the file "LINKS Codebook v1.1.jar". Please note that you will need Java installed on your computer to run the software. Then click "1. select form", navigate to the .xml file you downloaded from ODK Build, and finally click "2. make codebook". A PDF of your questions and underlying values codes will be generated.

Common properties in form questions

Data name (required): This is the variable name that is stored in your form's XML. You must use lower case and underscores () instead of spaces.

Caption Text (required): Enter your question as you would like it to be presented to the user.

Hint: Specify a hint or some help text for the question (optional).

Default value: This is the default information that will be presented to the user. For example, if you are gathering information about a group of children and you know that the majority of the children are aged 12, you can enter "12" as a default value.

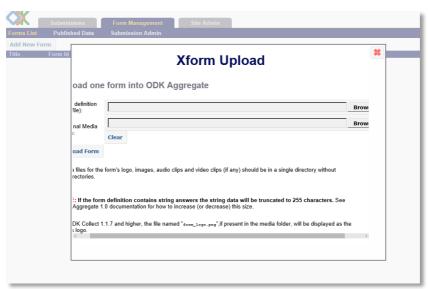
Read-only: If you don't want the user to be able to enter information for this question, tick this box.

Required: Users will not be able to save a form as completed unless they have entered information for questions that are checked as "required."

Uploading forms to ODK Aggregate

Now that you have set up your Google App Engine project with ODK Aggregate, you can upload your forms. This is the last step before you start collecting data out in the field using the forms. You can do this by uploading the .xml file you downloaded from ODK Build.

- 1. Go to your ODK Aggregate project open ODK Aggregate in your browser by visiting the web address "com".
- Log in with your Google Account if prompted. Click on the "Form Management" tab and then "Add New Form".



3. Choose the form that you created in ODK Build which you wish to upload and hit "Upload Form". If you have media files that are part of your forms (eg for images within questions), you can also upload them here.

- 4. If your form has uploaded successfully, you can close out the Upload Forms window. You will now see your form in the "Form Management" tab, ready to accept completed forms ("submissions" in ODK jargon).
- 5. Once you have uploaded a form, anyone with a Google Account who knows the website address of your ODK Aggregate project can view your form and its submissions, and also download your form to their mobile device and upload completed forms to it.

Viewing your form/questionnaire submissions

1. Click on the Submissions tab and select the form "SAPA Template" from the drop-down menu.



2. You will see all the submissions created by yourself or anyone else who has sent completed submissions to your ODK Aggregate project. Submissions with photos have a link on the far right of the row to view each individual photo submission.

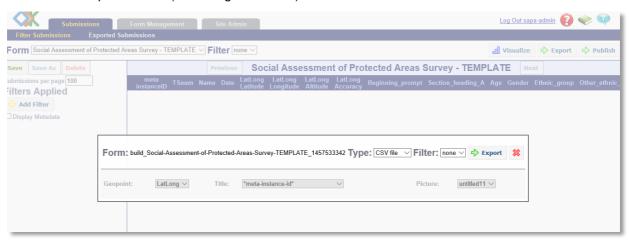
Other form management tasks

Submission Admin: Under this option, you can remove the submission data for each form from your ODK Aggregate project. You may wish to do this if you have already stored old submission data elsewhere (such as in an Excel file) and you only want new submission data to be included next time you export.

Exporting data from ODK Aggregate as a CSV file

ODK Aggregate makes it easy to export your data as a .csv file, which can subsequently be uploaded to data analysis software such as PSPP.

- 1. Click on the "Submissions" tab
- 2. Click on the "Filter Submissions" tab and select the form that you wish to export
- Click on the "Export" button (with the green arrow)

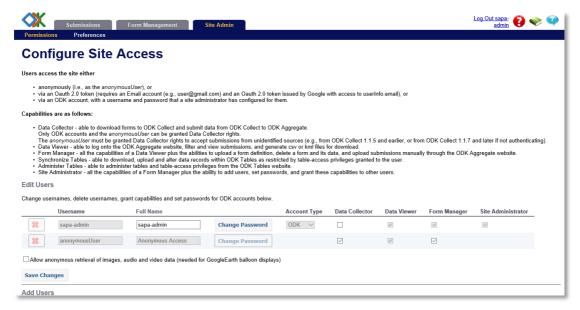


- 4. On the window that pops up, make sure that "Type" is set to "CSV file".
- 5. Click "Export" in the pop-up window.
- 6. A new screen will pop up with a status column that states "Generation in process". Once this changes to "Dataset available", click the link to download the CSV file.

Setting up user access lists and admin settings

ODK Aggregate allows you to control who can access your data. You can decide who can submit data, who can view data, who can manage forms and who can be a site administrator.

- The first time you set up access permissions for your ODK Aggregate project, you must log in with the Google Account that you used to set up the Google App Engine Project. Select "Sign in with Google".
- 2. Now you should see another tab next to "Submissions" and "Form Management", called "Site Admin". Click on this tab.



 Add new users, either by assigning them usernames (for sign-in via ODK Aggregate, NOT via a Google Account) or by entering their Google Account email addresses. Then press the "Add" button.



 Once you have added users to the account, you can set their access permissions in the "Edit Users" section on this page. The capabilities are explained in the text above the Edit Users section.

ODK Collect: mobile data collection

Please note that the ODK Collect software is only available on mobile devices (ie phones or tablets) running the Android operating system. The screenshots used in this section are from a mobile device using the SAPA Template form.

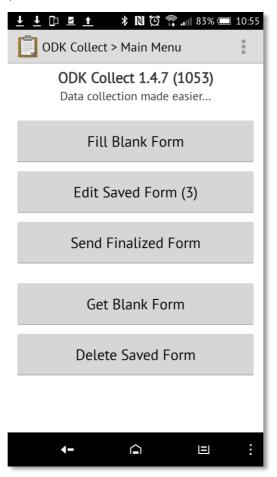
Install ODK Collect on your device

 On a mobile device, search for the "ODK Collect" application in Google Play. Install the latest version to your device. For more information about ODK Collect and its requirements, visit the ODK website (http://www.opendatakit.org/) or the ODK Project page (http://code.google.com/p/opendatakit/).



2. On your mobile device, tap the ODK Collect icon to open ODK Collect.

3. You will see the home screen, which lists five options: "Fill Blank Form", "Edit Saved Form", "Send Finalised Form", "Get Blank Form" and "Delete Saved Form".



Check your settings

Now you need to make sure that your phone knows the address of your ODK Aggregate project.

1. Select the "Menu" button at the bottom of your phone. The icon for this button is different on different phones, but it is one that is not the Home icon, the Search icon or the Back arrow.



- 2. You will see "General Settings" and "Admin Settings" appear. Select "General Settings".
- 3. Select "Configure platform settings". You will see the default URL for ODK Aggregate (https://opendatakit.appspot.com).
- 4. Click on "URL" to change the server address to the URL for your ODK Aggregate project. Once you have entered this new address, any forms or data submissions you send will go to your project.



5. Once you have entered the name of the new server, hit your device's Back button to go back to the main menu. Confirm that you are accessing the new server by following the instructions in the next step.

Loading forms onto a mobile device

You can either download forms manually onto your mobile device – by plugging it into your computer and transferring them by dragging the files over to the device folder – or you can access ODK Aggregate remotely and download the form files onto your phone over the internet.

First we will cover downloading a form stored on your ODK Aggregate project. You must have an internet connection to proceed with this.

- 1. Turn on your phone and open ODK Collect.
- 2. Select "Get Blank Form".
- 3. You will be able to choose from any form that is on your ODK Aggregate project. Tick any forms that you want to access on your device when offline and download them.



Importing forms from your computer to your mobile device

You can import a form to your mobile device manually, if the form is an .xml file as produced in ODK Build.

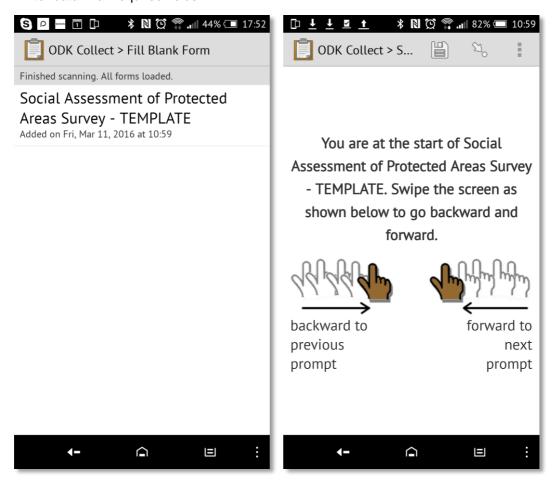
- Connect your mobile device to your computer. Different Android OS versions offer different ways for you to connect (or "mount") your device to your computer so that you can add and remove files. Go through the steps that appear on your mobile device.
- 2. Open the folder to your mobile device in Windows Explorer (PC) or Finder (Mac).
- 3. Open the folder called "odk".
- 4. Open the folder called "forms". Drag the form you just created into the "forms" folder.
- 5. Disconnect your mobile device from your computer. If you are using a Mac, be sure to eject the device from Finder before unmounting (ie disconnecting) your phone.
- 6. Now when you open ODK Collect on your phone, you will be able to enter data into your form.

Collecting data in the field with your mobile device

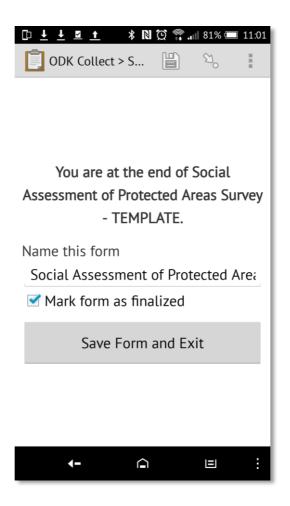
Now that you have the right forms on your device, you're ready to start collecting data in the field. Before you travel long distances to your field location, test your form to make sure that everything works. Remember to charge your device's batteries. Turn off features that you won't need, such as Wi-Fi or Bluetooth, to prolong battery life.

- 1. Open the ODK Collect app on your Android phone.
- 2. Select "Fill Blank Form", then select the form you want to use.

3. Enter data into the form, swiping from right to left with your finger to get to the next questions. Enter data in all required fields.

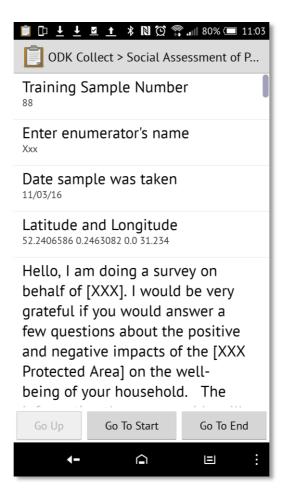


4. When you have finished, make sure that the "Mark form as finalised" checkbox remains checked, and hit the "Save Form and Exit" button. If the "Mark Form as finalised" checkbox is unchecked, you will be able to go back and edit the information in the form and save it as finalised later.



Review saved data

On the ODK Collect home screen you can review the data you collected, whether it has been saved as incomplete or saved as complete. Select "Edit Saved Form" and choose the data submission you would like to review. You can correct any mistakes or update the submission, and then save your changes or ignore any changes made.



If you would like to edit form submissions, you can do so regardless of whether you selected "Mark as finalised" when you finished entering data. Tap the fields you wish to edit to get back to the form entry. Once finished, hit the back button on your device and save or ignore your changes.

Send finalised form

Once you have finished entering and reviewing data in the field, you're ready to send it to ODK Aggregate so that you can access it online later. You must have an internet connection to proceed with this step.

- Make sure that your device is connected to the internet, either via a Wi-Fi connection or a data plan with a mobile service provider.
- 2. Open ODK Collect and select "Send Finalised Form".
- 3. Tick the box next to the entries that you wish to send. These are the data submissions you entered in the field. The green tick denotes the files selected to be sent. You can select these individually or toggle "All".
- Press "Send Selected". Your files will be sent to your ODK Aggregate project. You will see a
 message on your mobile device saying that your data was sent successfully (or not, depending
 on your internet connection).
- 5. To confirm that your data has been submitted successfully, visit your ODK Aggregate project. Make sure to first login, then click on the submissions tab and on the drop-down menu select the relevant form. Your submission(s) should automatically appear in the list.

Upload a submission manually using a USB cable

ODK Aggregate allows you to import your data submissions manually if you don't have an internet or mobile data connection to upload your forms directly from your mobile device. This is useful if you want to transfer files from your mobile device to a computer or external hard drive to free up some space on your mobile device. You can use a USB cable to connect your phone to your computer and upload the files to ODK Aggregate when you next have access to the internet.

- Connect your mobile device to your computer with a compatible cable. You can use a mini USB-to-USB cable, or whatever proprietary port is used by your phone (your device probably came with a cable that allows you to do this). Be sure to mount your device to your computer so that you can transfer files over the USB cable. You do not need an internet connection for this step.
- Submissions are located under the /odk/instances directory on your phone's SD card. This directory will contain subdirectories with the names of the forms in the following format: formID_yyy-MM-dd_hh-mm-ss.
- 3. Within each of these subdirectories are the submission data files (named: formID_yyy-MM-dd_hh-MM-ss.xml) and any associated data files (for images, audio clips, video clips, etc) linked with this submission.
- 4. Copy the required files to your computer.



6. Click on "Manually Upload Submission Data", then find the files on your computer, along with any corresponding data files (such as photos in .jpg format) that you would like to link to your data submission.

Hit "Upload Submission." Your data submission will now appear within the list of submissions corresponding to the appropriate form.

This document will guide you through the process of establishing an Open Data Kit survey system for household surveys as part of the Social Assessment for Protected Areas (SAPA) methodology. It is aimed at those using a Windows-based PC and intended to be used in conjunction with the Methodology Manual for SAPA Facilitators.



Biodiversity, Poverty

Keywords:
Open source, open data kit, household survey, social assessment, protected areas



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