



**Republic of Kenya**  
**Ministry of Health**

**ODK TECHNICAL USER GUIDE**

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## 1. Introduction

Open Data Kit (ODK, <https://getodk.org/>) is a suite of open source tools for electronic data collection.

The core components of the suite are:

- ODK Collect, an Android app that is used for data collection using forms (i.e. questionnaires).
- ODK Aggregate, a back-end server for data storage and analysis.
- ODK Central, a back-end server that will replace ODK Aggregate in the future
- ODK Build, a drag-and-drop form design tool.
- ODK XLSForm, an Excel-based (works offline) form designer.
- ODK XLSForm converter (offline/online) tool to simplify the creation of forms. Forms designed with Excel can be converted to XForms for use with ODK tools.
- ODK Briefcase, a desktop tool that pulls/pushes and exports data from Aggregate/Central and Collect.

## 2. ODK components used to collect Verbal Autopsy data

For Verbal Autopsy (VA), the ODK components used for data collection are:

- ODK Aggregate
- ODK Collect
- ODK Briefcase

The questionnaire itself has been implemented using ODK XLSForm and can be downloaded for local adaptation from the WHO website (<https://www.who.int/healthinfo/statistics/verbalautopsystandards/en/>).

Users may add questions but under no circumstances should questions be removed from the list since removal may interfere with cause of death assignment. The new questions added besides not being analyzed by the algorithms, should also not have conditions that affect the core questions so to avoid causing bias during COD assignment.

The following sections contain a detailed explanation of the ODK components used and the instructions for installing and configuring these to implement VA data collection. The below further outlines the integration of the use of the ODK tools in combination with the openVA pipeline (<http://openva.net/>) to run automated VA coding algorithms and integration to DHIS2 VA program.

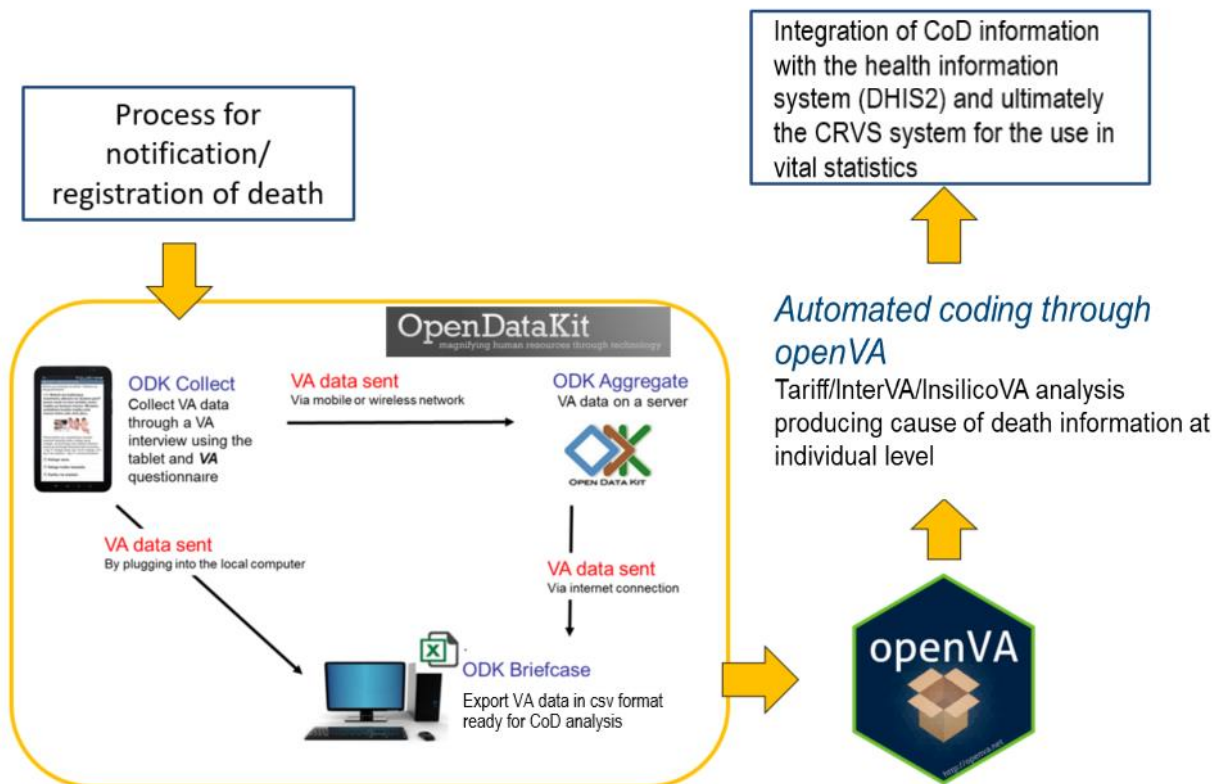


Figure 1: ODK infrastructure needed to collect VA data

## 2.1. ODK Aggregate

ODK Aggregate provides a ready-to-deploy server and database to:

- provide blank forms to ODK Collect, i.e. to download questionnaires to the tablet/phone
- accept submissions (finalized forms) from ODK Collect/ODK Briefcase and manage collected data, i.e. to upload filled questionnaires to the server
- visualize the collected data using maps and simple graphs
- export submissions in CSV, KML, and JSON format

The suggested installation solution for Aggregate is on an Apache Tomcat Web Server, hosted locally on a server machine.

ODK Aggregate also provides the possibility to be installed on cloud servers, and this could be an option for test or pilot phases. DigitalOcean is an alternative but has a monthly fee.

To get detailed information on how to install ODK Aggregate on your local server (Windows, macOS or Ubuntu) or on a cloud hosted server please read the instruction available on the following link: [ODK Aggregate installation](#)

## 2.2. Accessing ODK Aggregate

Upon opening the link to your application, your application will open automatically. But please note the message **‘This server and its data are not secure! Please change the super user’s password!’**

This means that the website is still public and anybody with the link can access the data without login in.



Click on **“Log in”** in the right top corner.



Click on **“Sign in with Aggregate password”**.



Enter the name of the administrator you entered during the installation of ODK and the password for the first time you login is **“aggregate”**.



## 2.3. Site Administration

1. To change the password of the administrator Go to **“Site Admin”** .
2. Click **“Change Password”**.
3. Enter the new password for the system administrator and click **“Change Password”**.  
Please note that the administrator has all the rights for management of the system.

Edit Users

Change usernames, delete usernames, grant capabilities and set passwords for ODK accounts below.

Username	Full Name	Account Type	Data Collector	Data Viewer	Form Manager	Site Administrator
YourName	YourName	ODK	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
anonymousUser	Anonymous Access		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Allow anonymous retrieval of images, audio and video data (needed for GoogleEarth balloon displays)

Save Changes

Change Password for YourName

Password:

Password (again):

### 2.3.1. Adding Users

Other users such as data collectors and other administrators can be added by the administrator.

- Go to **“Site Admin”** page
- Enter the username in the box at the bottom of the user list, then clicking the **“Add”** button.

Add Users

Enter the usernames (for ODK accounts)

Enumerator

Add the name and click **“Add”**.

	Username	Full Name	Account Type	Data Collector	Data Viewer	Form Manager	Site Administrator
	YourName	YourName	Change Password	ODK	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	degraaif		Change Password	ODK	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	anonymousUser	Anonymous Access	Change Password		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Enumerator		Change Password	ODK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Allow anonymous retrieval of images, audio and video data (needed for GoogleEarth balloon displays)

Toggle for the Enumerator **“Data Collector”** only.  
 If adding another administrator, enable all privileges.  
 Change the password and **“Save the changes”**.

**N/B:**

**Users with the following rights can:**

1. **Data Collector** – Can only push data to server using odk collect, but cannot login to the server.
2. **Data Viewer** – Can only view data but cannot modify/change anything
3. **Form Manager** – Can Delete, update, add new forms (Questionnaires) to the server
4. **Site Administrator** – Can do all tasks of all users and other administrative tasks.

### 2.3.2. XLSForm

*XLSForm* is a form standard created to help simplify the authoring of forms in Excel. XLSForms are simple to get started with but allow for the authoring of complex forms. Forms designed with Excel can be converted to *XForms* that can be used with ODK tools. To learn how to build ODK forms from Excel spreadsheet, please visit <https://xlsform.org/en/>.

To design your form, refer to the [XLSForm form design documentation](#). Once the form has been designed, use [XLSForm Online](#), [XLSForm Offline](#), or if you are comfortable on the command line, [pyxform](#).

### 2.3.3. Upload a Form to your ODK Aggregate Instance

You can upload forms that have been created with ODK Build or using xforms to your ODK Aggregate instance. Once you've uploaded a form, anyone with access to the server can view your form, its submissions and download your form to their mobile device to upload submissions to your form. To add new form(s):

1. Click "Form Management" tab at the top of the page.
2. Click "+Add New Form" button.

3. You will be able to select the form to upload from your computer. Choose the .xml form you wish to upload to your ODK Aggregate instance. If your form has media files associated with it, for example, images inside the form's questions, you can also upload media files that your form references in the XML here.

The screenshot shows the 'Xform Upload' page in the ODK Aggregate interface. The page has a dark blue header with navigation tabs: 'Submissions', 'Form Management', and 'Site Admin'. A user profile 'Log Out earth.outreach@gmail.com' is visible in the top right. The main content area is titled 'Xform Upload' and contains the following elements:

- A heading: 'Upload one form into ODK Aggregate'
- Form definition (xml file): A text input field with a 'Choose file' button and 'No file chosen' text.
- Optional Media file(s): A text input field with a 'Choose Files' button, 'No file chosen' text, and a 'Clear' button.
- An 'Upload Form' button.
- A note: 'Media files for the form's logo, images, audio clips and video clips (if any) should be in a single directory without subdirectories.'
- A note: 'NOTE: If the form definition contains string answers the string data will be truncated to 255 characters. See ODK Aggregate 1.0 documentation for how to increase (or decrease) this size.'
- A note: 'On ODK Collect 1.1.7 and higher, the file named "form\_logo.png", if present in the media folder, will be displayed as the form's logo.'

4. Click "Upload." If your XML form is in the correct format, it will be uploaded and you'll see it appear on the "List of Forms" page.

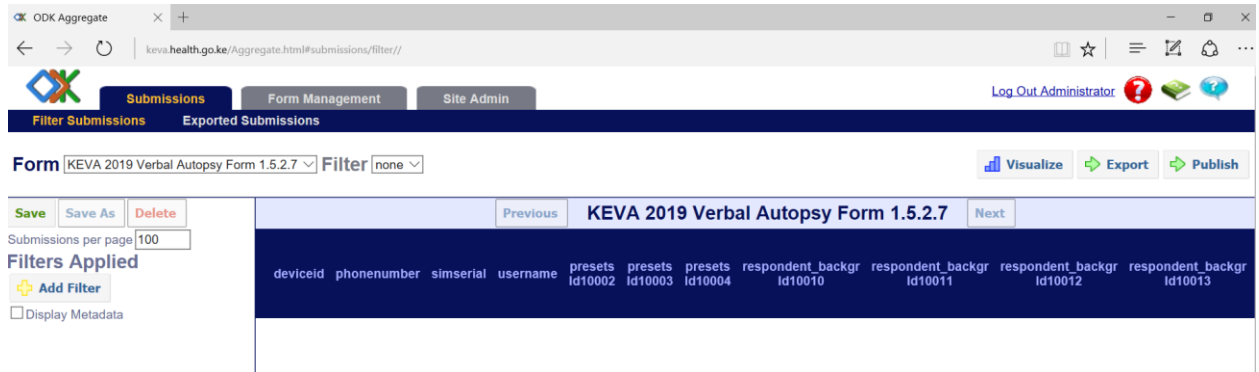
### 2.3.4. Delete a Form from your ODK Aggregate instance

You can also delete forms you don't want to have appear.

1. Click "Form management"
2. Click on "Form list"
3. Click "Delete a Form." Button at the end of the form you want to delete.
4. A dialog box will appear showing you a list of forms. Check the box next to the form you wish to delete, and hit "Delete Forms."

### 2.3.5. Viewing Your Form Submissions

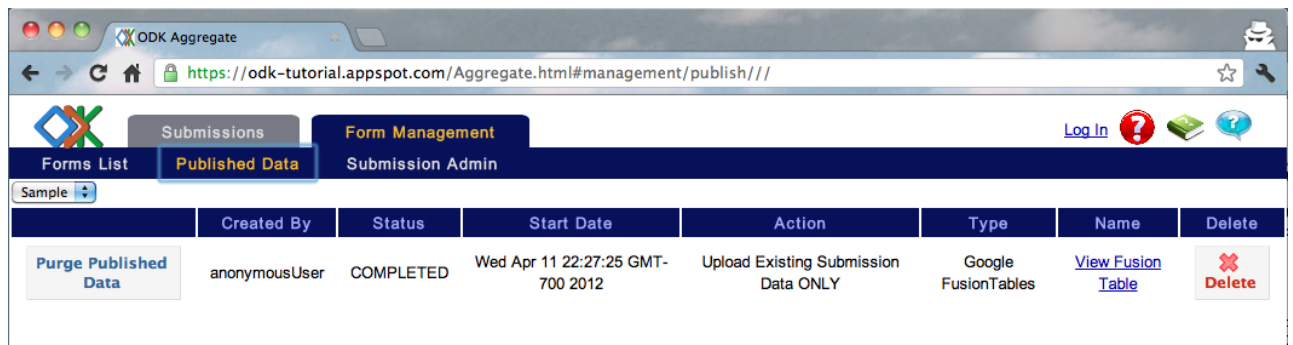
1. Click on the Submissions tab and select the form "KEVA 2019 VA FORM" from the drop-down menu, or the name of the form whose submissions you wish to view. Data for that form will automatically be displayed.



2. You'll see all submissions, created by yourself and others, who have sent completed submissions the server. Submissions with photos have a link on the far right of the row to view each individual photo submission.

### 2.3.6. Other Form Management Tasks

- Published Data: You can also view where your datasets have been published to outside of the ODK Aggregate instance. This tab tells you, for example, if your dataset has been published to a Google Fusion Table, and includes a link to that Fusion Table.

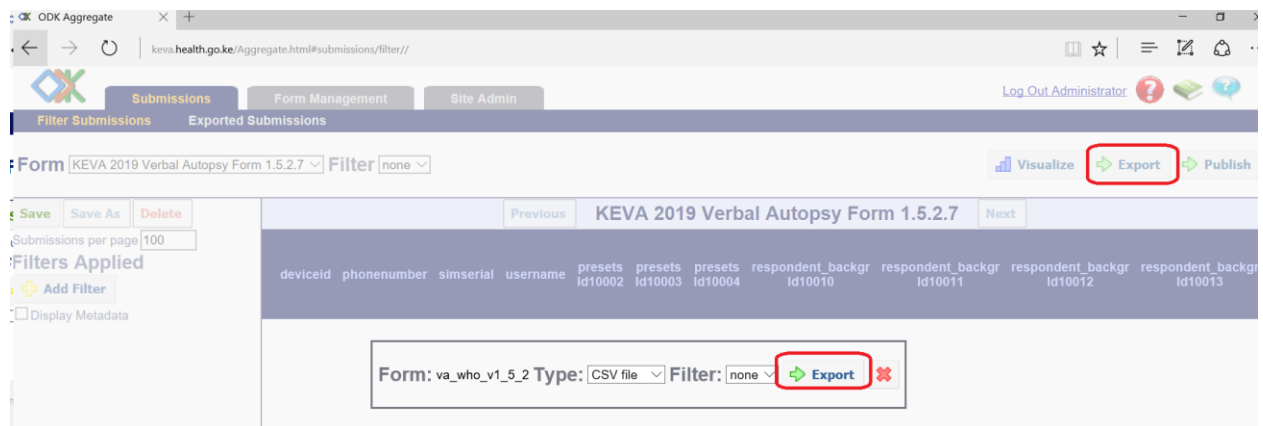


- Submission Admin: For each form, you can decide to either purge submission data from your ODK Aggregate instance, or you can manually upload submissions. You may want to purge submission data if you're storing your submissions elsewhere, say in an Excel file, and you want to re-export only the new submissions that come in for the latest field data collection effort, without including all the prior data that was collected.

### 2.3.7. Exporting Data from ODK Aggregate as CSV

ODK Aggregate allows you to easily export your data as a .csv file. You might be interested in this functionality if you want to import your data on other servers or in other applications like Google Spreadsheets or Microsoft Excel.

1. In the Submissions tab, select the form you want to download data. The click "Export". A pop up window will appear, proceed to select "csv" then click "export"



2. A .csv (comma separated values) file will download to your computer.

### 2.3.8. Setting up User Access Lists and Admin Settings

ODK Aggregate allows you to control who has access to your data in versions 1.0.n and newer. You can decide who can submit data, who can view data, who can manage forms, and who can be a site admin.

1. The first time you set up access permissions to your ODK Aggregate instance, you must login with the username you used during installation of the the odk aggregate.
2. Now, you should see another tab next to "Submissions" and "Form Management," called "Site Admin." Open the "Site Admin" tab

[Submissions](#)
[Form Management](#)
[Site Admin](#)
[Log Out](#)
[earth.outreach@gmail.com](#)

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[Permissions](#)
[Preferences](#)

## Configure Site Access

Users access the site either

- anonymously (i.e., as the anonymousUser), or
- via a Google account, using OpenID (requires an Email account (e.g., user@gmail.com)), or
- via an OAuth 1.0 or OAuth 2.0 token (issued by Google with access to userinfo.email), or
- via an ODK account, with a username and password that a site administrator has configured for them.

Capabilities are as follows:

- Data Collector** - able to download forms to ODK Collect and submit data from ODK Collect to ODK Aggregate. Only ODK accounts and the anonymousUser can be granted Data Collector rights. The anonymousUser must be granted Data Collector rights to accept submissions from unidentified sources (e.g., from ODK Collect 1.1.5 and earlier, or from ODK Collect 1.1.7 and later if not authenticating).
- Data Viewer** - able to log onto the ODK Aggregate website, filter and view submissions, and generate csv or kml files for download.
- Form Manager** - all the capabilities of a Data Viewer plus the abilities to upload a form definition, delete a form and its data, and upload submissions manually through the ODK Aggregate website.
- Site Administrator** - all the capabilities of a Form Manager plus the ability to add users, set passwords, and grant these capabilities to other users.

Edit Users

Change usernames, delete usernames, grant capabilities and set passwords for ODK accounts below.

Username	Full Name	Account Type	Data Collector	Data Viewer	Form Manager	Site Administrator
<input type="text" value="earth.outreach@gmail"/>	GoogleEarthOutreach	<input type="button" value="Change Password"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="anonymousUser"/>	Anonymous Access	<input type="button" value="Change Password"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Allow anonymous retrieval of images, audio and video data (needed for GoogleEarth balloon displays)

Add Users

Enter the usernames (for ODK accounts) or e-mail addresses (for Google OpenID accounts) to add to the list of users in the above table

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

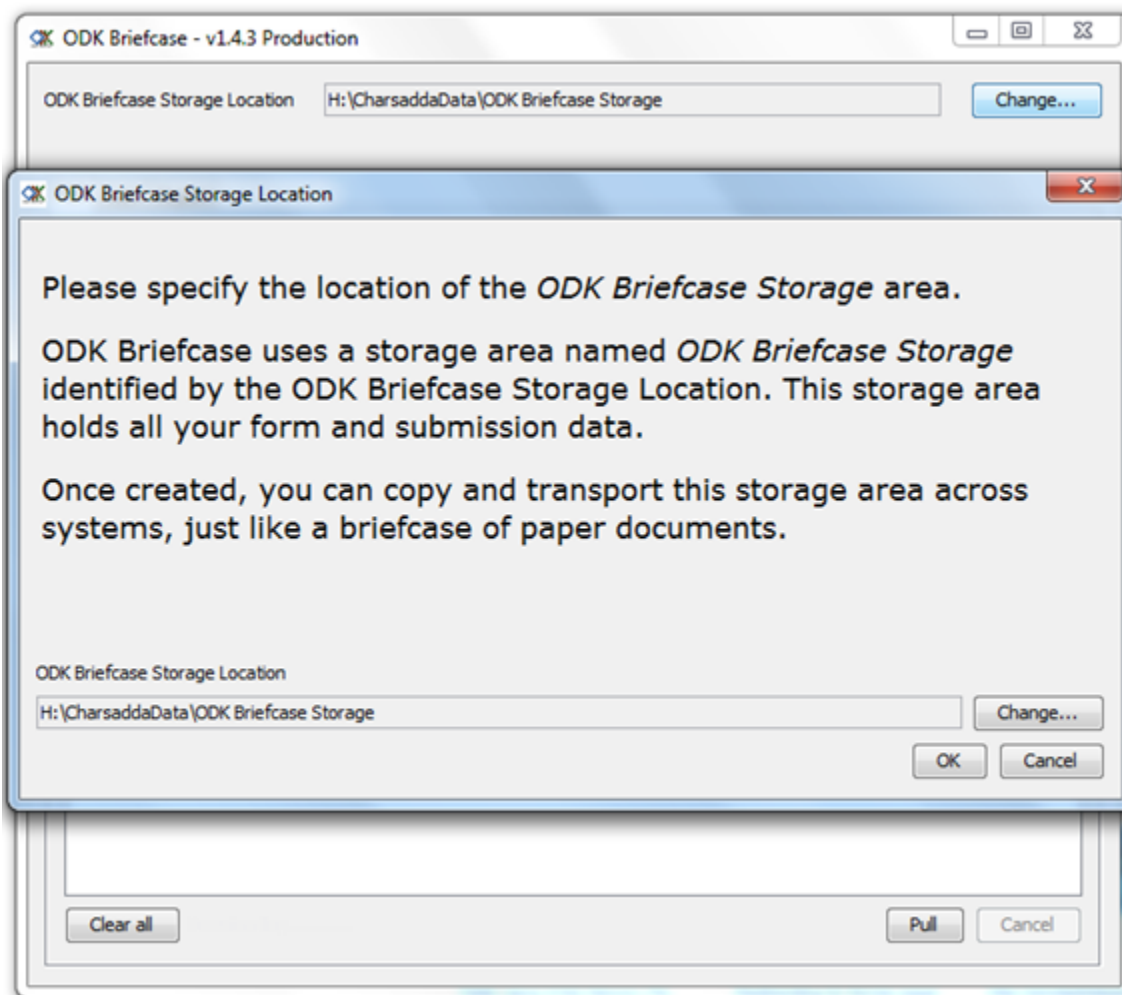
### Add Users

Enter the usernames (for ODK accounts) or e-mail addresses (for Google OpenID accounts) to add to the list of users in the above table

- Once you've added users to the account, you can set their access permissions in the "Edit Users" section. The capabilities are explained above the Edit Users section.
- You can also allow Anonymous access so anyone with a Google account/user access can view your ODK Aggregate instance. This is the default setting, which you can also remove. If you allow anonymous retrieval of images, audio and video, this means that if you have published your data to a Google Earth KML file and hosted that KML file on the web, you want to allow anyone who downloads that KML file to view the content inside the balloons. If you've checked this box, viewers will be able to see the images hosted on your ODK Aggregate instance.

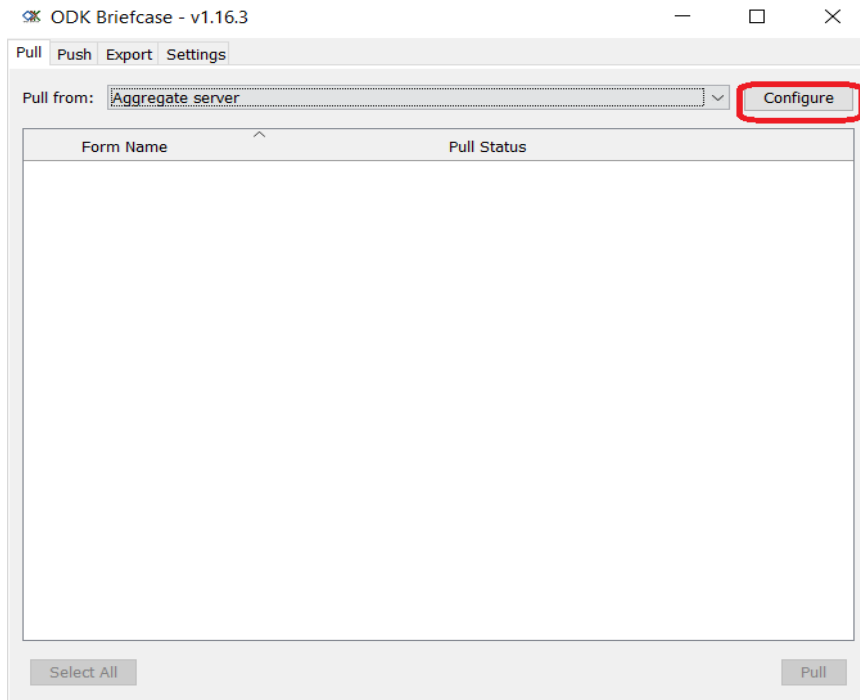
## 2.4. ODK BRIEFCASE

- Download latest ODK briefcase from <https://github.com/getodk/briefcase/releases/> and when download is done double click open it.
- Specify the location of the ODK storage area on your computer this will create the ODK Briefcase Storage folder which will hold all the blank forms and finalized forms.
- For example, we kept it to H:\CharsaddaData. It will automatically create a subfolder named '**ODK Briefcase Storage**' there

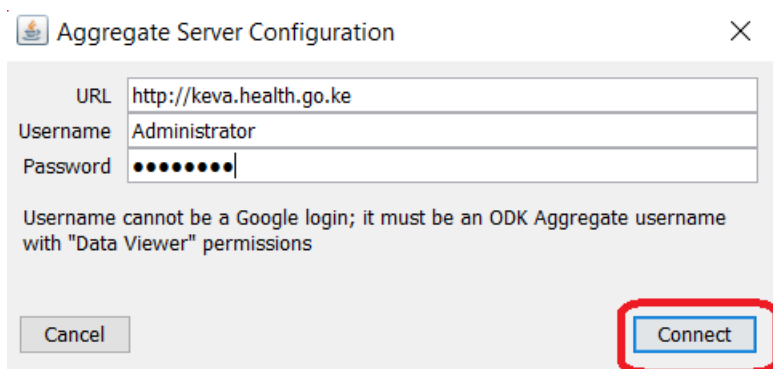


### 2.4.1. Using ODK Briefcase to pull data from Aggregate

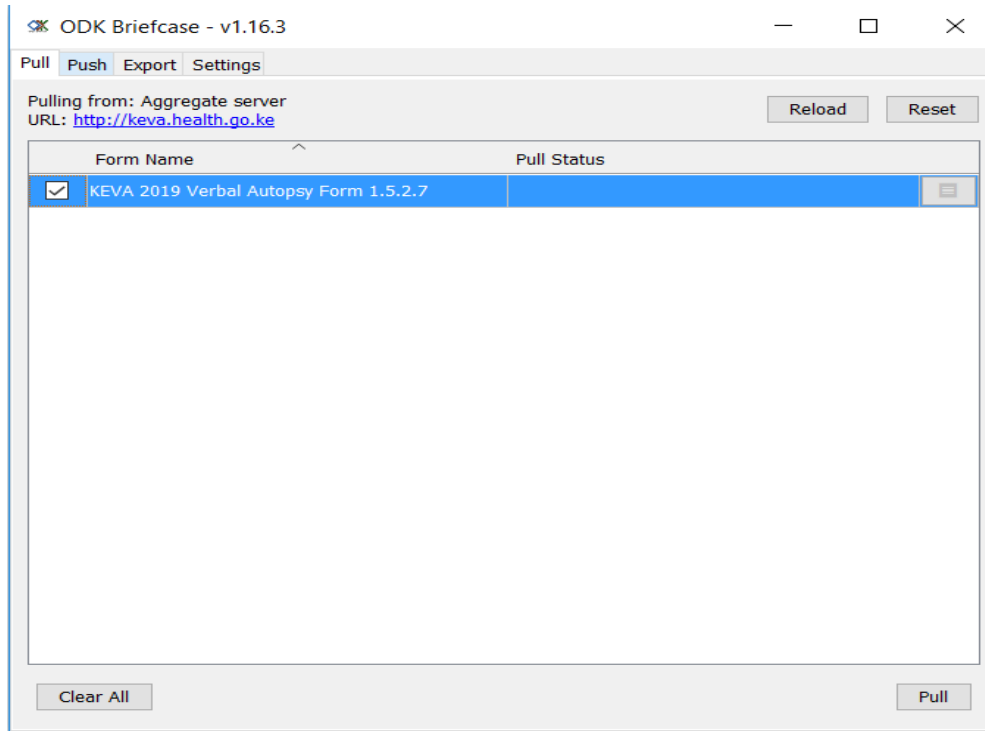
1. On the tab “Pull,” click on the bar at the bottom “Pull from:” and choose “Aggregate server”.
2. Click on “Configure” to enter credentials and server URL.



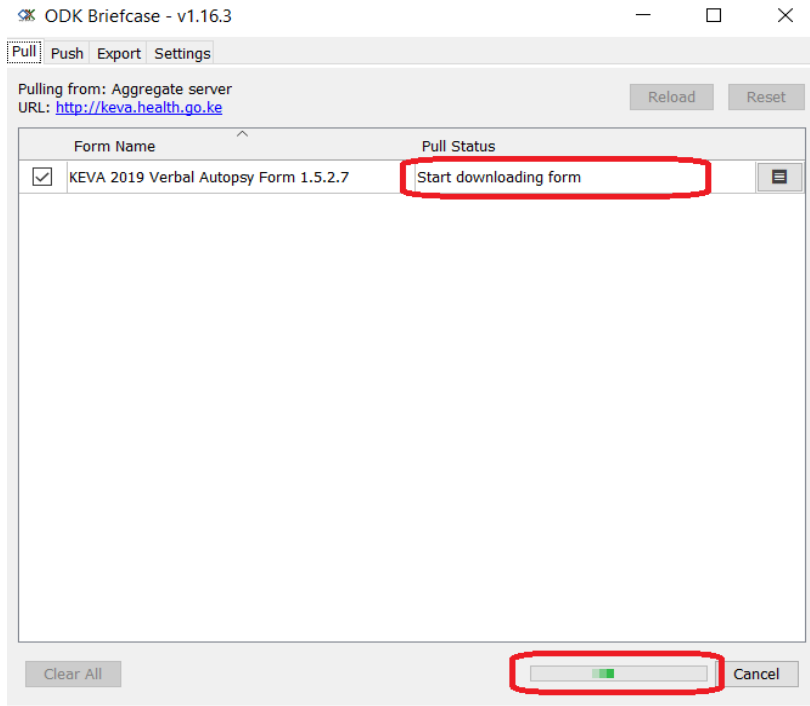
3. Specify the server url, enter the username and password to the server account. Then Click “Connect” to pull forms from server. In this case server address will be <http://keva.health.go.ke>



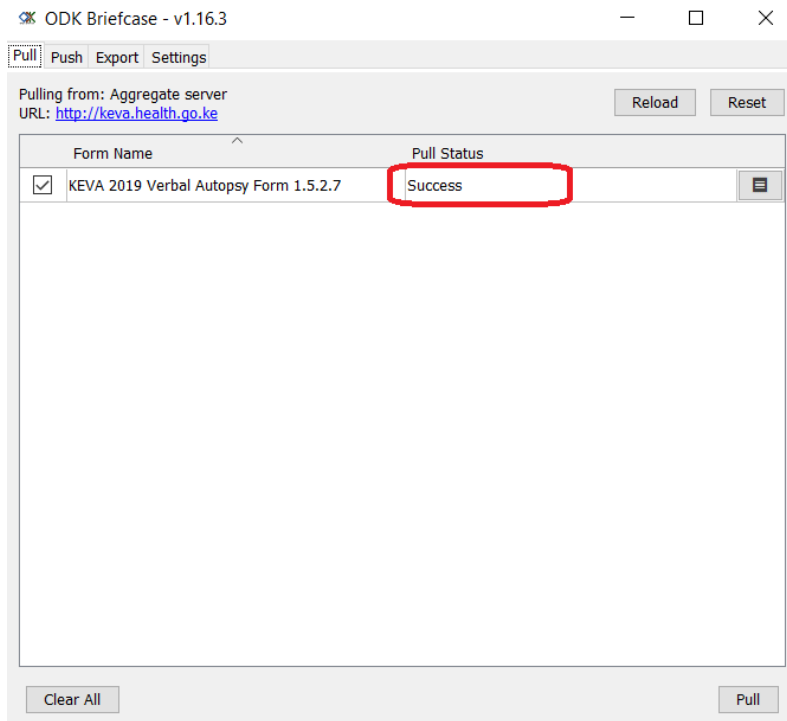
4. In the main screen, find the form you want to download and **tick** on the check box to the left of it. In this case “KEVA 2019...”



5. Click “Pull” button at bottom right of page. It will start fetching the form and you will be able to see the progress. ODK Briefcase automatically see if any form is already downloaded in the given folder. In that case it will quickly go through those forms and will fetch only the new records.

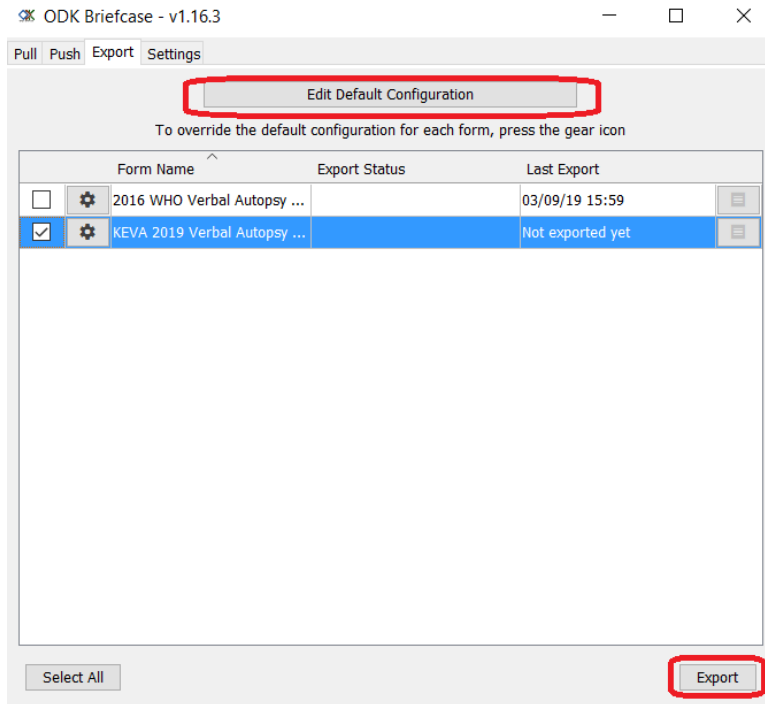


6. Wait until you see the "SUCCESS!" message as shown



## 2.4.2. Using ODK Briefcase to export data

1. Go to “**Export**” tab. Click on “**Edit default configuration**” to select folder to export data to. The select the form you want to export its data. The click “**Export**” button.







2. Click “**Export**” button on the bottom-most right of the application. This will load quickly and will give you the same “Exported xx submissions!” message. This means export is complete

Pull Push **Export** Settings

Edit Default Configuration

To override the default configuration for each form, press the gear icon

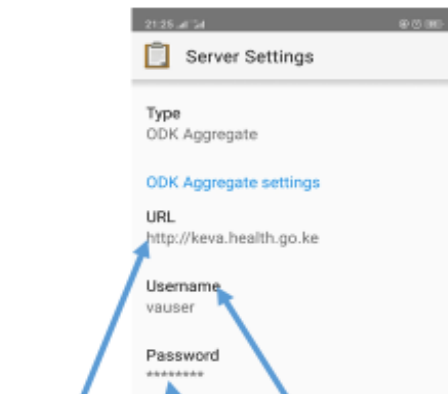
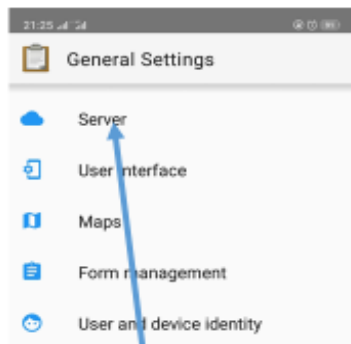
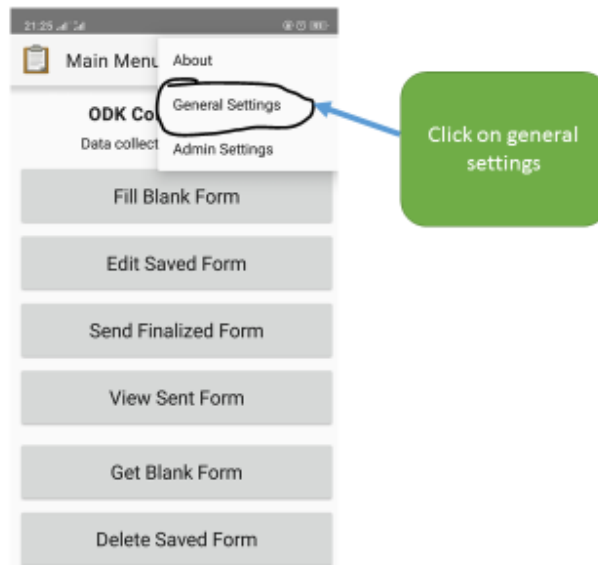
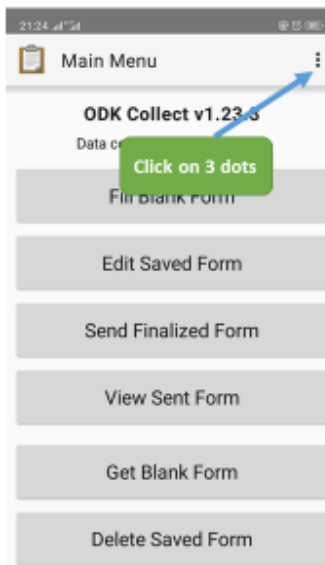
	Form Name ^	Export Status	Last Export	
<input type="checkbox"/>	 2016 WHO Verbal Autopsy ...		03/09/19 15:59	
<input checked="" type="checkbox"/>	 KEVA 2019 Verbal Autopsy ...	Exported 0 submissions	13/09/19 16:13	

Select All

Export

## 2.5. ODK COLLECT

### 2.5.1. Changing server settings

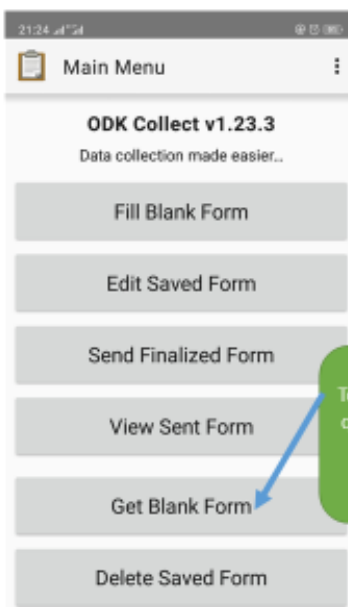


Click URL and enter: <http://keva.health.go.ke>  
Click Username and enter: vauser  
Click Password and enter: Vauser@Moh

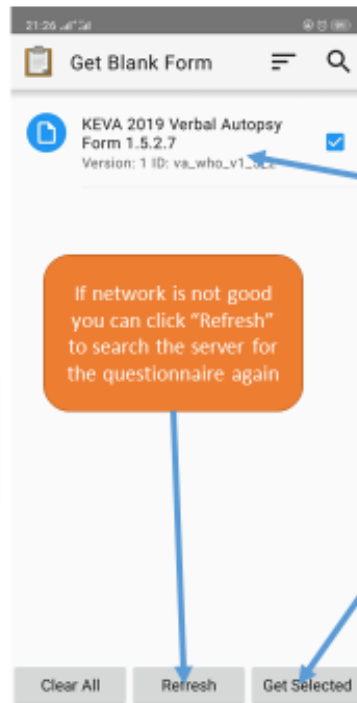
Then click on back button twice to go back to the ODK original menu at the beginning



## 2.5.2. Downloading forms from server



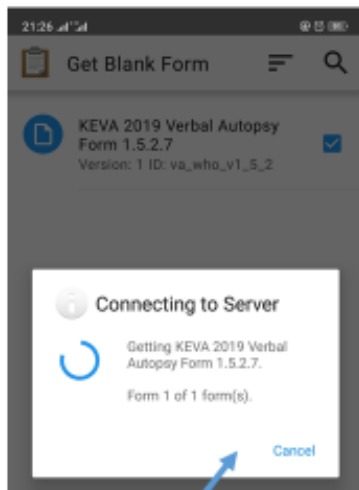
To download a new questionnaire click on "Get blank form"



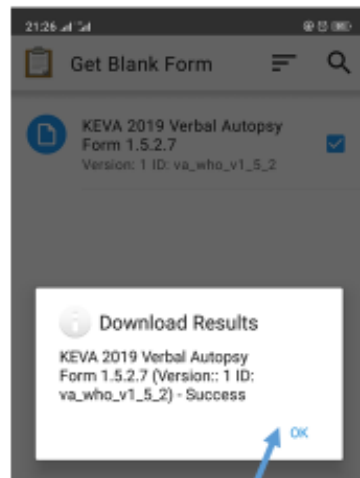
KEVA Questionnaire will appear "checked" as shown.

If network is not good you can click "Refresh" to search the server for the questionnaire again

Proceed to click to click "Get selected" to download the form

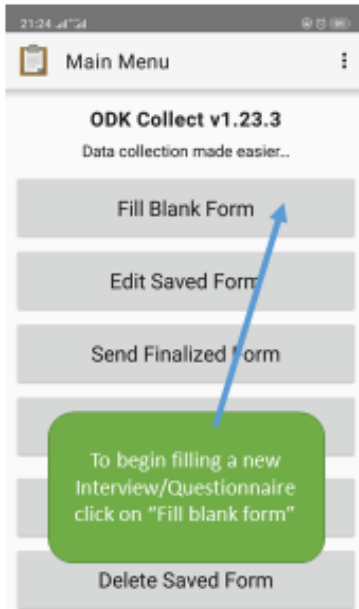


When it downloads the form it will display the message above

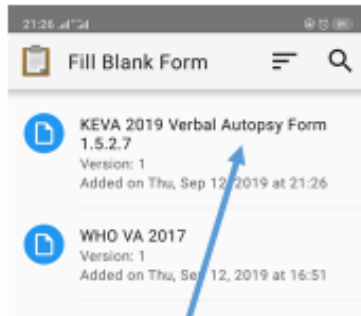


When download is successful it will show the above message with "success". Click ok

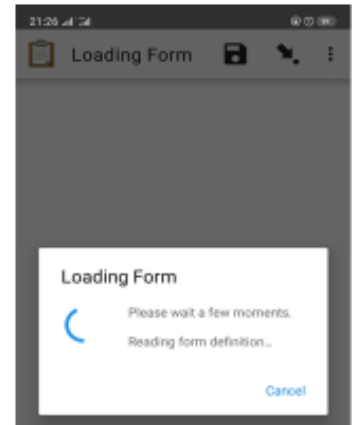
### 2.5.3. Load form and conduct Verbal Autopsy Interview



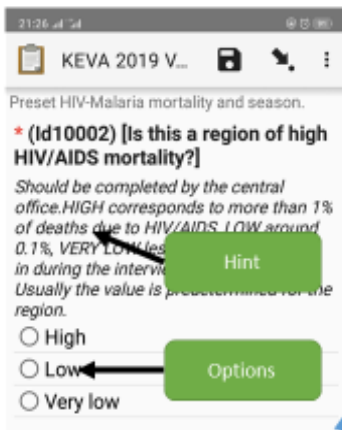
To begin filling a new Interview/Questionnaire click on "Fill blank form"



After clicking "fill blank form" The questionnaires available will be displayed as shown. Click on the "KEVA" Questionnaire to load/open it.

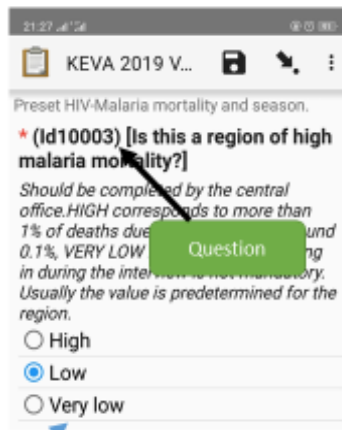


This is a pop up message shown when form is opening

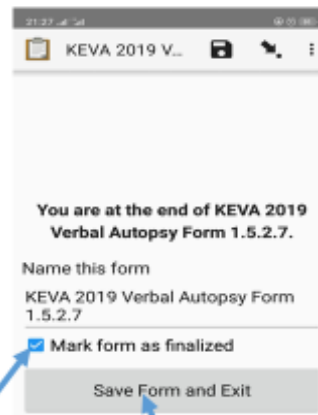


This is how the questions will appear.

- Swipe Left to move forward to next questions.
- Swipe Right to move backward to previous question.



- At the end of the questionnaire, this window will appear.
- Select "Mark as finalized" to make the form ready for upload.
- Uncheck/deselect this option to save the form for revisiting/future review before sending.
- Then click "Save form and Exit"

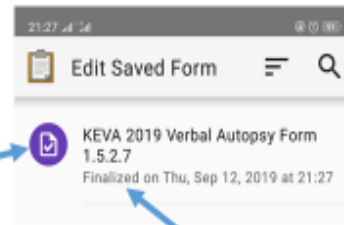




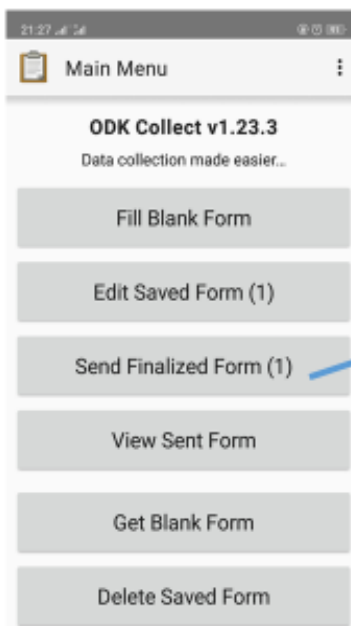
Click on Edit saved forms to edit or review an already done interview

A number denotes forms saved for review

A number denotes forms finalized ready to upload/send

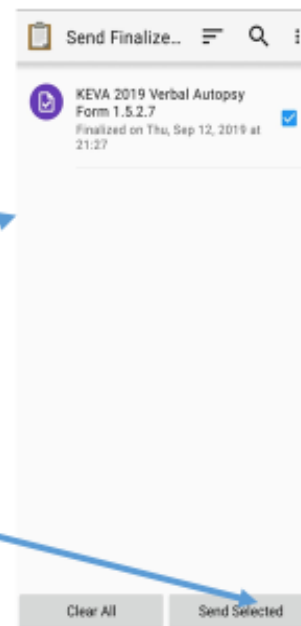


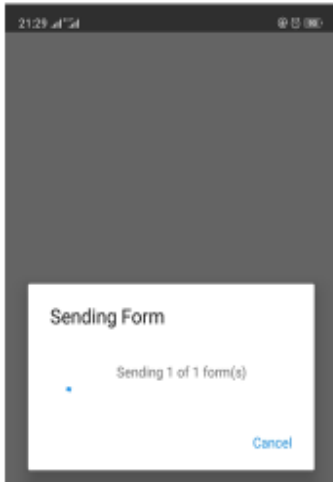
N/B: Forms finalized will be indicated "Finalized"



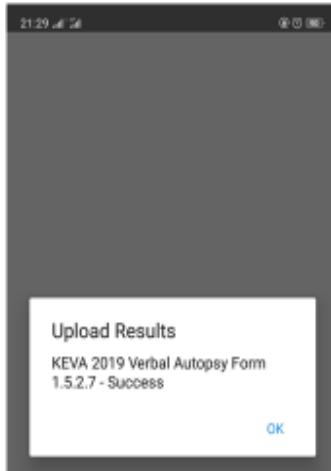
Click on "Send Finalized form" to upload forms to odk server

Click on the form you want to upload/all of them.  
Then click on "Send Selected" to upload the form(s).

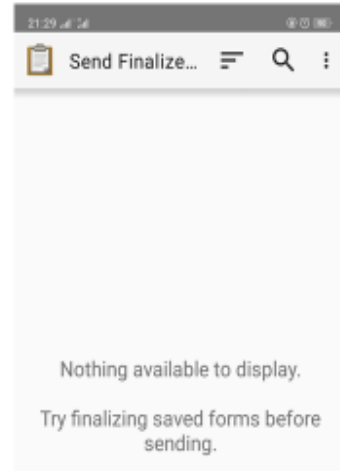




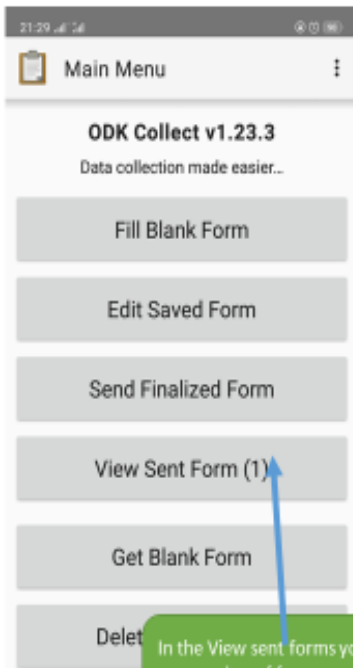
This message will appear when sending form(s) to the server



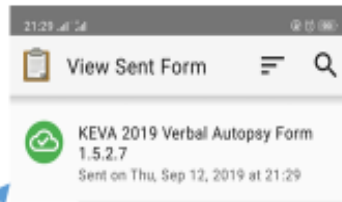
Once the upload is complete this "success" message will appear.



When all forms are uploaded this will show.



In the View sent forms you will see number of forms sent to server.



Click on "View sent form" then you will see all forms sent to server with status "sent"

When you/Data manager logs in to the server, you will see all the data that has been sent. To login, Visit <http://keva.health.go.ke> Login with Admin user and password

The screenshot shows a web browser window with the URL `keva.health.go.ke/Aggregate/In/In/submissions/filter/1/`. The application header includes 'Submissions', 'Form Management', and 'Site Admin' tabs. Below the header, there are buttons for 'Visualize', 'Export', and 'Publish'. The main content area displays a table for 'KEVA 2019 Verbal Autopsy Form 1.5.2.7'. The table has the following columns: deviceid, phonenumber, sinserial, username, presabs (with sub-columns id10002, id10003, id10004), respondent\_backgr (with sub-columns id10010, id10011, id10012, id10013), and resp. A single row of data is shown with a red 'X' icon in the first column.

deviceid	phonenumber	sinserial	username	presabs id10002	presabs id10003	presabs id10004	respondent_backgr id10010	respondent_backgr id10011	respondent_backgr id10012	respondent_backgr id10013	resp
X 061310040070001		065400500007203000	vuser	hgt	low	dy	Helo/helo	2019-09-12 21:29:53.627	2019-09-12 00:00:00.000		no