

Swiss TPH



Swiss Tropical and Public Health Institute  
Schweizerisches Tropen- und Public Health-Institut  
Institut Tropical et de Santé Publique Suisse

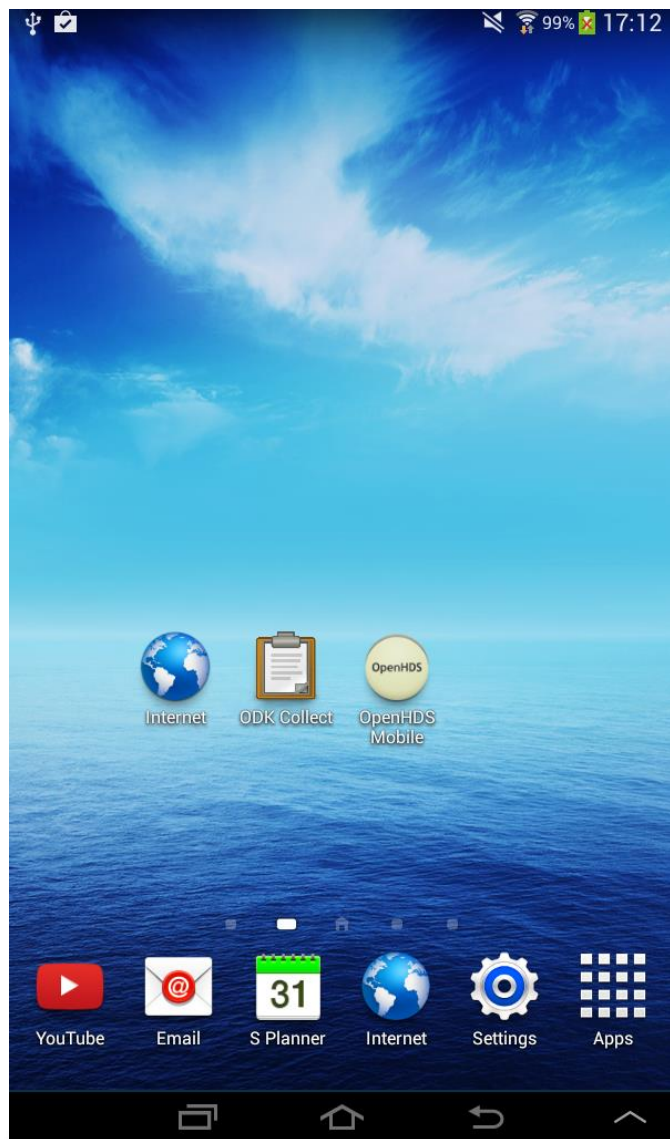
Assoziiertes Institut der Universität Basel

Public Health Computing Group  
Department of Epidemiology and Public Health

# OpenHDS Mobile

[aurelio.dipasquale@unibas.ch](mailto:aurelio.dipasquale@unibas.ch)

# Installing Mobile Apps



## ODKCollect

Available on the Google Play or as direct download from:

<https://opendatakit.org/downloads/download-info/odk-collect-apk/>

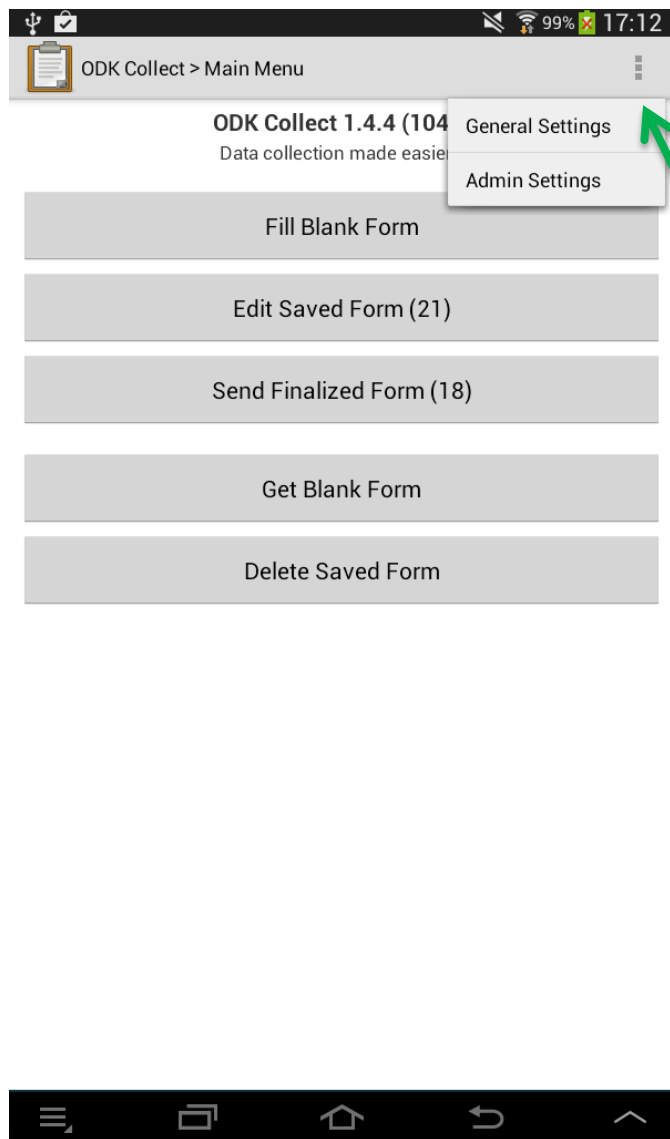
## Openhds mobile

Available on

[https://github.com/SwissTPH/openhds-tablet/releases/download/1.5/openhdstablet\\_1\\_5.apk](https://github.com/SwissTPH/openhds-tablet/releases/download/1.5/openhdstablet_1_5.apk)

Already installed on demo tablets

# Setting-up ODK Collect



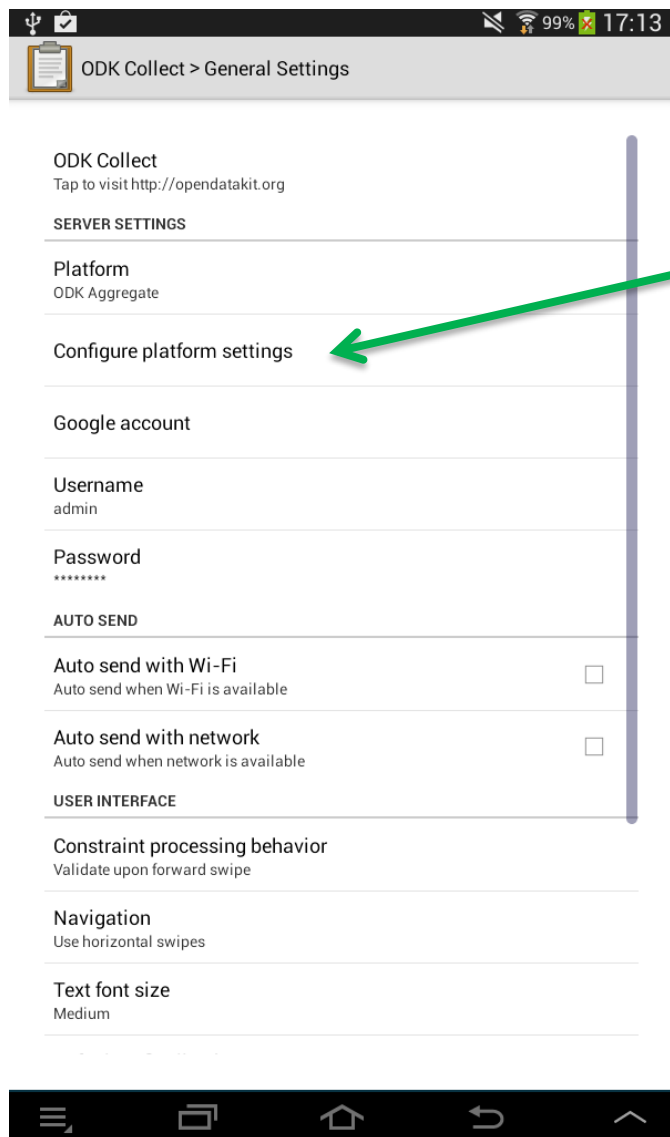
## In ODK Collect Main Menu

Open the Menu at the upper right hand corner (or tap the hardware menu button on your device respectively) and select «*General Settings*»

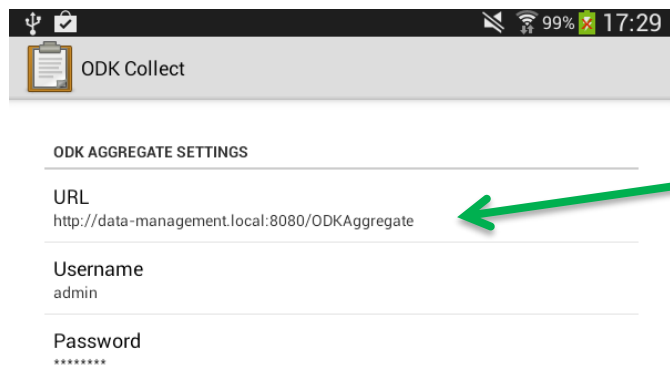
# Setting-up ODK Collect (cont'd)

## In ODK Collect General Settings

Select the option «*Configure platform settings*»



# Setting-up ODK Collect (cont'd)



ODK Collect

ODK AGGREGATE SETTINGS

URL  
http://data-management.local:8080/ODKAggregate

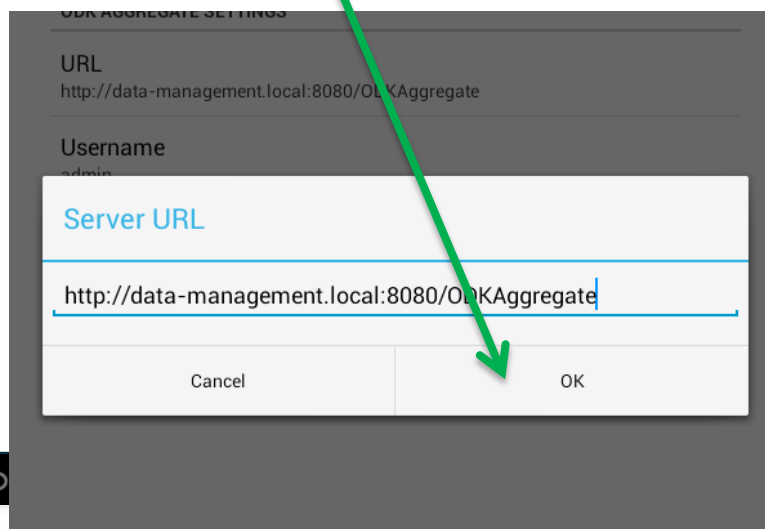
Username  
admin

Password  
\*\*\*\*\*

## In ODK Aggregate Settings

Enter the URL to the ODKAggregate server and also provide a valid ODKAggregate Username/Password combination

Save each of the entries by confirming them by selecting «OK»



ODK AGGREGATE SETTINGS

URL  
http://data-management.local:8080/ODKAggregate

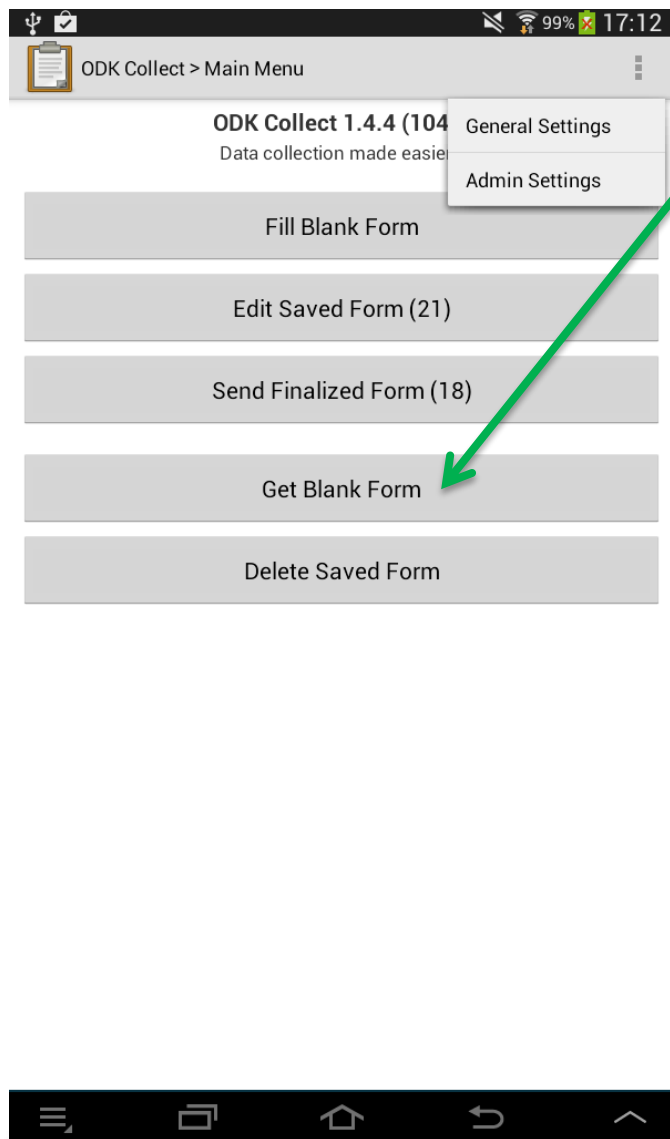
Username  
admin

Server URL

http://data-management.local:8080/ODKAggregate

Cancel OK

# Synchronizing Forms in ODK Collect

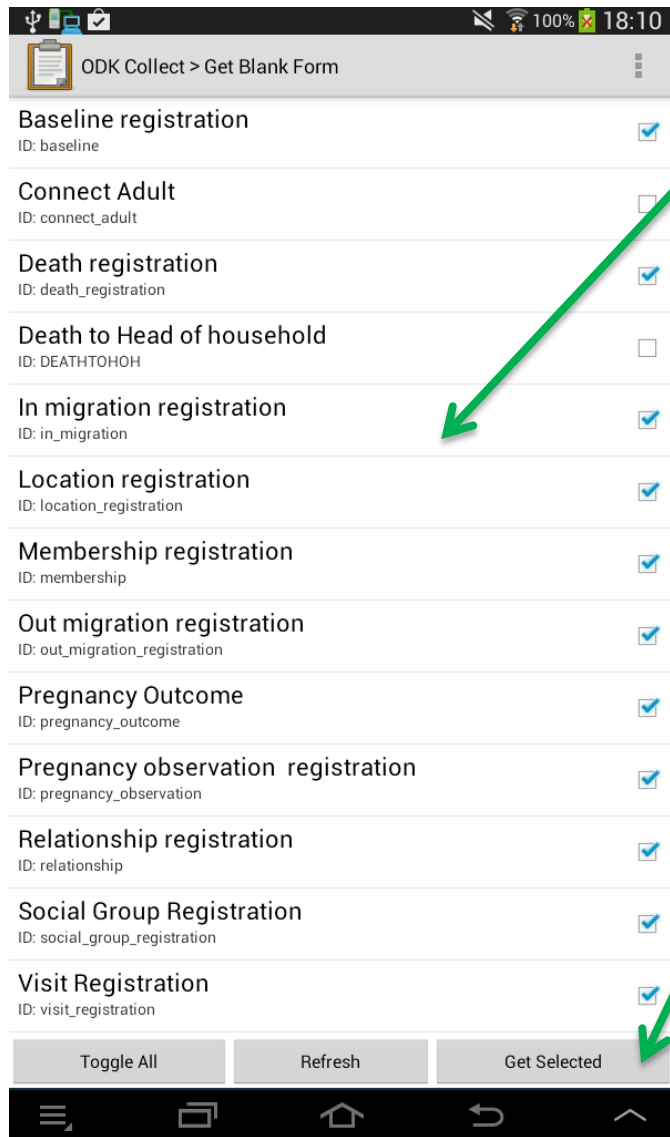


**In ODK Collect main menu**

Select «*Get Blank Form*»

ODK Collect will now query for all available Forms directly on the server and display them in an overview

# Synchronizing Forms in ODK Collect (cont'd)

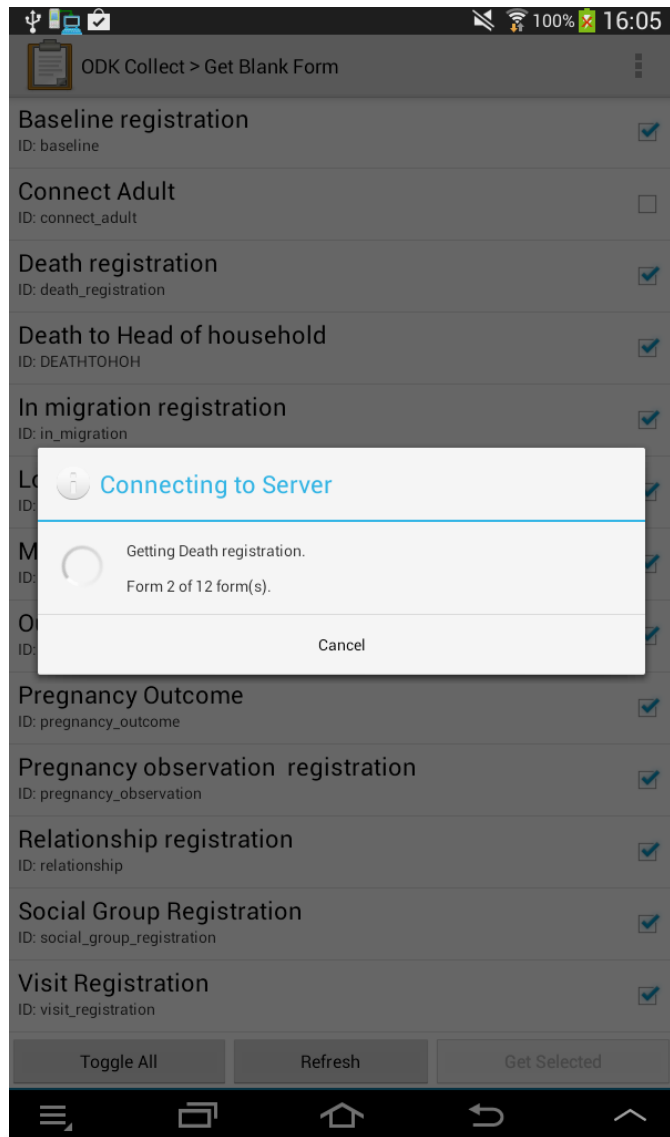


## In «*Get Blank Form*»

Select the Forms you want to synchronize with the tablet from the list

Click on «*Get Selected*» to start the import process

# Synchronizing Forms in ODK Collect (cont'd)



## In «*Get Blank Form*»

The selected forms are transferred and imported one by one into ODK Collect

The imported forms are displayed. Make sure there were no errors



# Preparation for synchronization with OpenHDS Mobile

The screenshot shows the OpenHDS web application interface. The left sidebar contains a navigation menu with the following items: English, Welcome admin, Logout, HOME, GETTING STARTED, BASELINE, UPDATE, AMENDMENTS, UTILITY ROUTINES, Tasks (highlighted with a red box), Data Extensions, Individual History, Modify Group Head, Death for Group Head, Field Workers, ODK Forms, Location Hierarchy, Merge Individuals (highlighted with a red box), Round Codes (highlighted with a red box), Notes, DHIS Document, Study Document, Validation Routine, and CONFIGURATION. The main content area is titled 'Utilities > Form Create' and 'Tasks'. It lists several utility options: 'Generate Individual XML File' (Start Individual Task), 'Generate Location XML File' (Start Location Task), 'Generate Relationship XML File' (Start Relationship Task), 'Generate Social Group XML File' (Start Social Group Task), and 'Generate Visit XML File' (Start Visit Task). Below these options is a table with the following data:

Task Name	Total Items
Visit Task	44
Individual Task	162
Location Task	44
Relationship Task	12
Social Group Task	44

## Create update round

Open the OpenHDS web application and log in  
Create a new Round under *Utility Routines* -> *Round Codes*

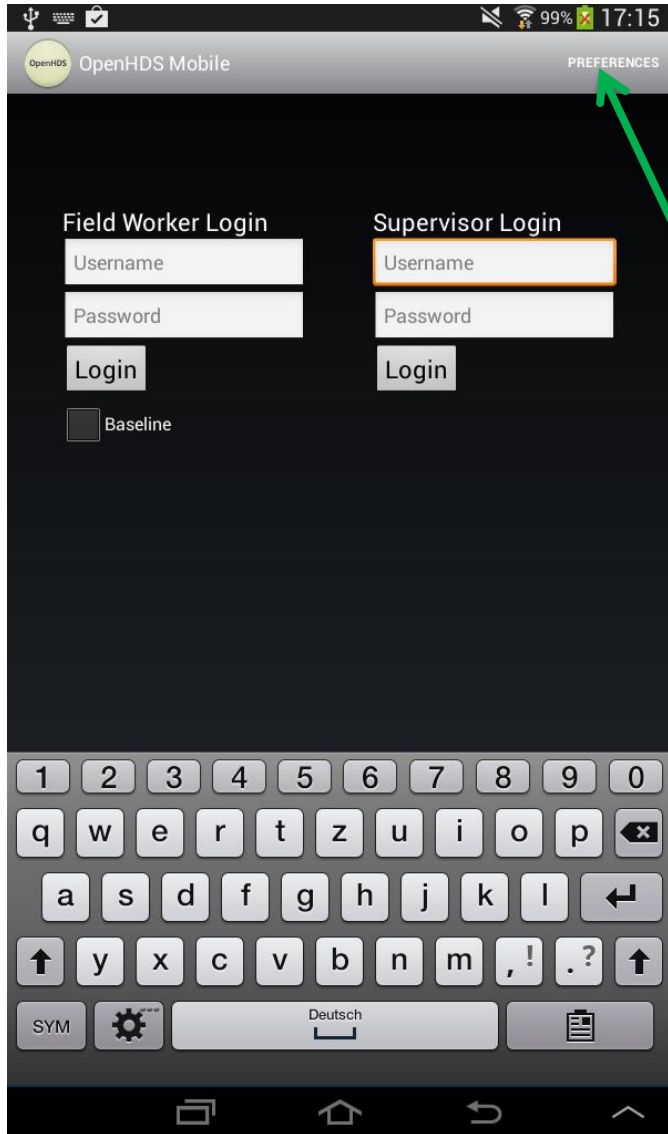
Navigate to the *Utility Routines* section and open the *Tasks* utility

Start a new *Visit Task* with *Round Number XY* (with start date today)

Subsequently start every other Task, going from *Individual Task* to *Social Group*, downwards

Wait until each task completed, before continuing

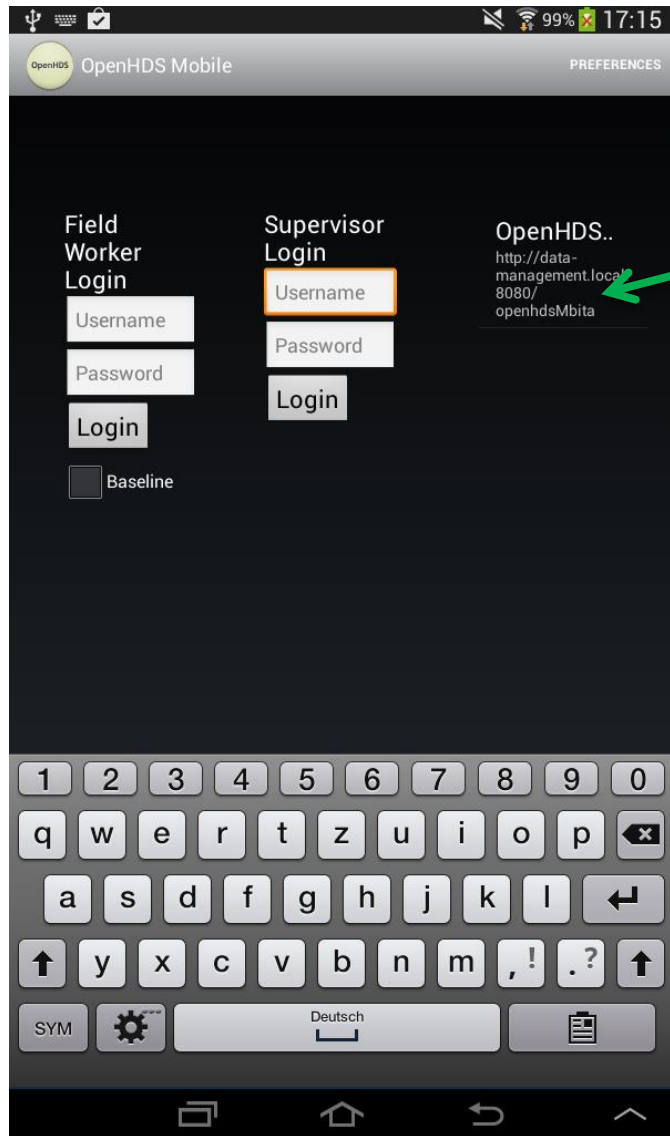
# Setting-up OpenHDS Mobile



## In OpenHDS Mobile Main Menu

Tap the «*Preferences*» button at the upper right hand corner

# Setting-up OpenHDS Mobile (cont'd)



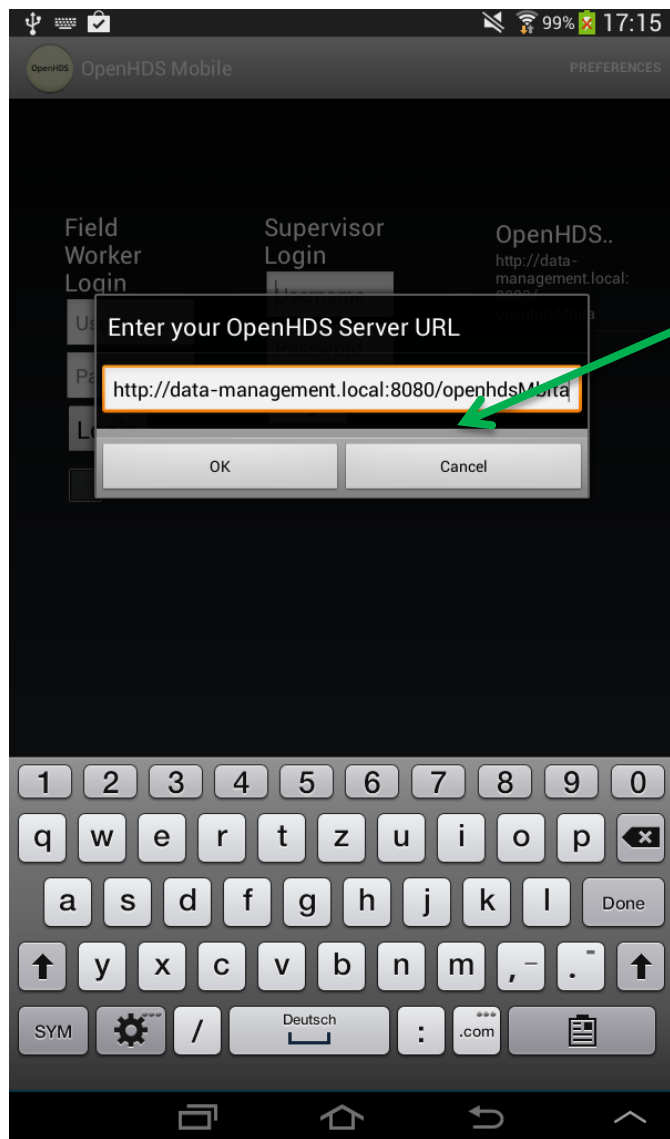
**In OpenHDS Preferences**

Click on the URL to start editing the entry

# Setting-up OpenHDS Mobile (cont'd)

## In OpenHDS Server URL dialog

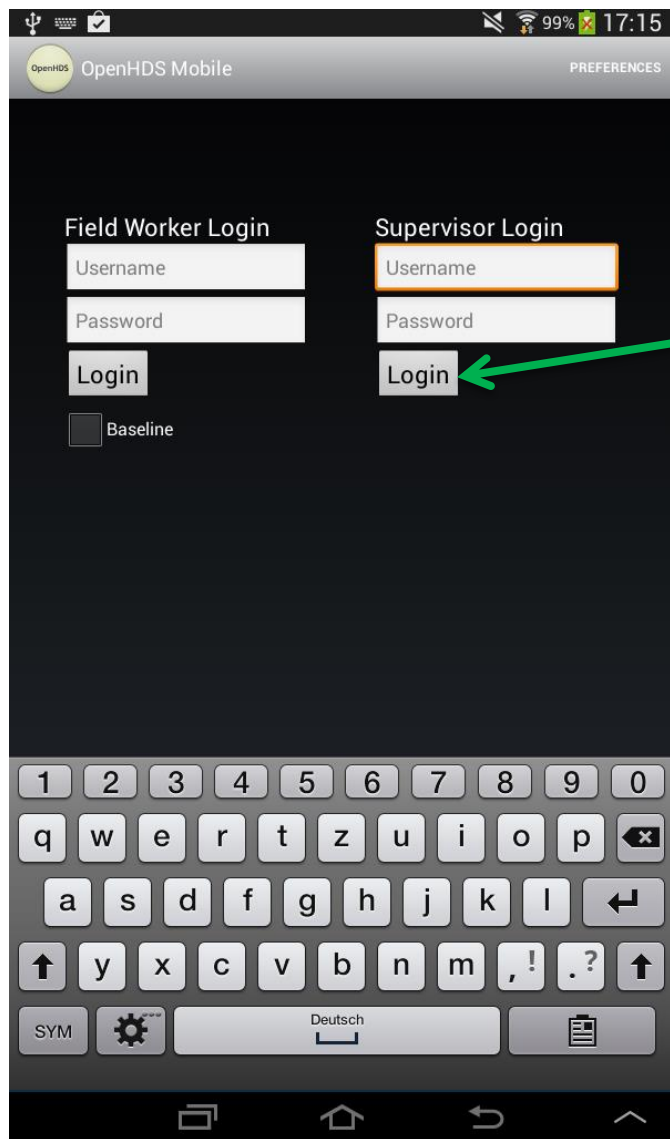
Enter the URL to the OpenHDS server and confirm your input with a click on «OK»



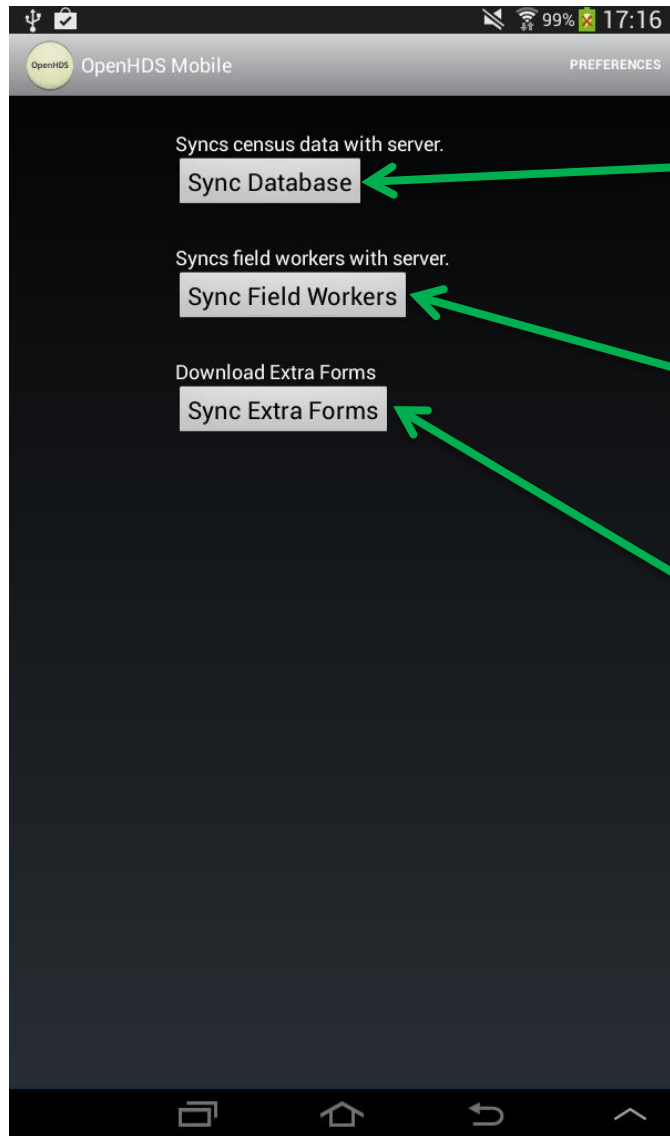
# Synchronizing OpenHDS Mobile

In OpenHDS Mobile main menu

In the «*Supervisor Login*» section, provide the user credentials and click on «*Login*»



# Synchronizing OpenHDS Mobile (cont'd)



## In OpenHDS Mobile Supervisor Menu

Select «*Sync Database*» to download the OpenHDS Entities onto the tablet

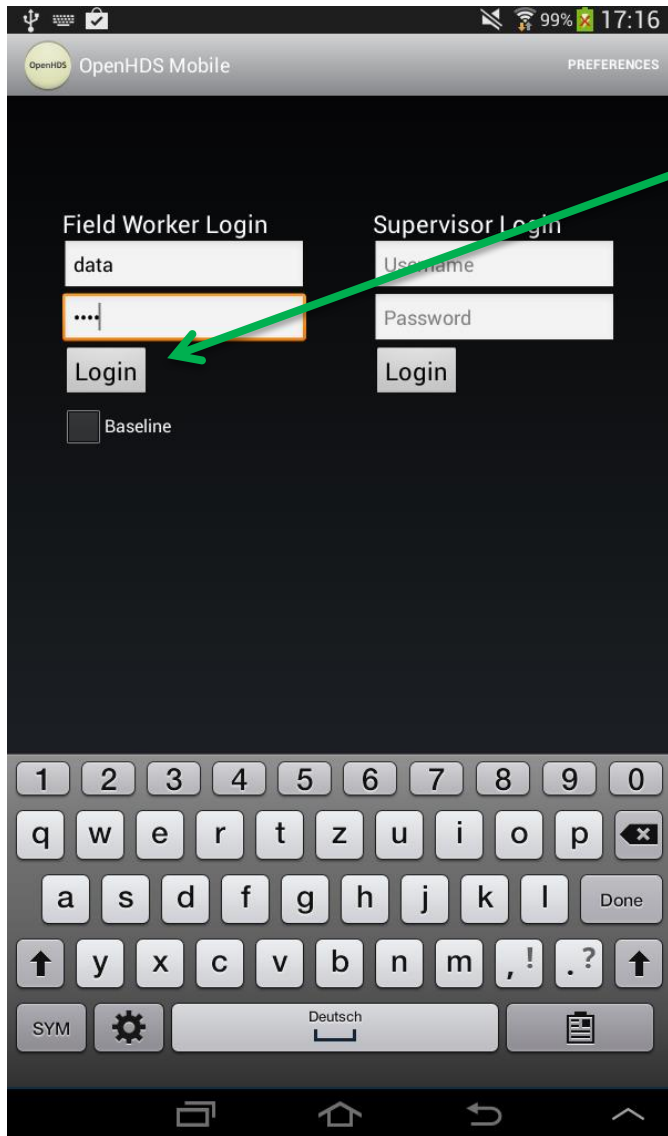
Select «*Sync Field Workers*» to download the OpenHDS Field Workers onto the tablet

Select «*Sync Extra Forms*» to download the Extra Form definitions onto the tablet

# OpenHDS Mobile : Login

## In OpenHDS Main Menu

To test a successful synchronization, try logging in as Field Worker in the Field Worker Login section



# OpenHDS Mobile

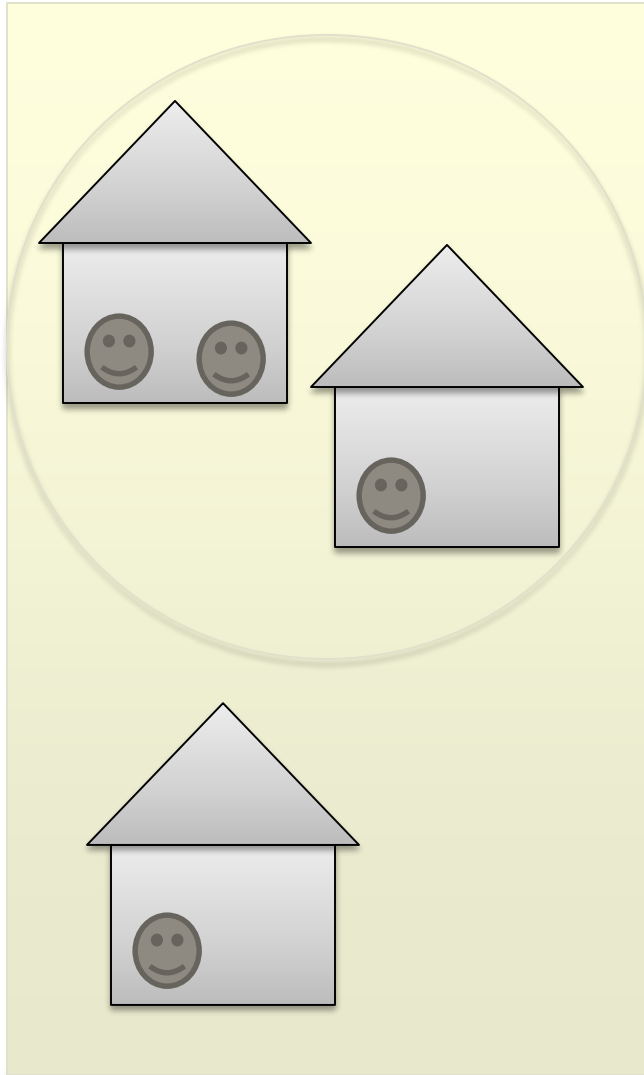
The screenshot displays the OpenHDS Mobile application interface. At the top, there is a status bar with icons for signal, Wi-Fi, 99% battery, and the time 17:16. Below the status bar is the app header with the OpenHDS logo and the text "OpenHDS Mobile". The main content area is titled "Hello, Data Data" and is divided into two columns. The left column contains several sections of data entry fields, each with a corresponding "Select" button: "District" with "Select District", "TA" with "Select TA", "CBO" with "Select CBO", "Village" with "Select Village", and "Individual" with "Select Individual". The right column contains a vertical list of action buttons: "Find Location with GeoPoint", "Create Location", "Create Visit", "Clear Individual", "Household", "Membership", "Relationship", "In Migration", "Out Migration", "Pregnancy Observation", "Pregnancy Outcome", "Death", and "Finish Visit". At the bottom of the screen is an Android-style navigation bar with icons for back, home, and recent apps.

## In OpenHDS Mobile Round

If the login was successful, the main data entry screen is displayed



# Field processes

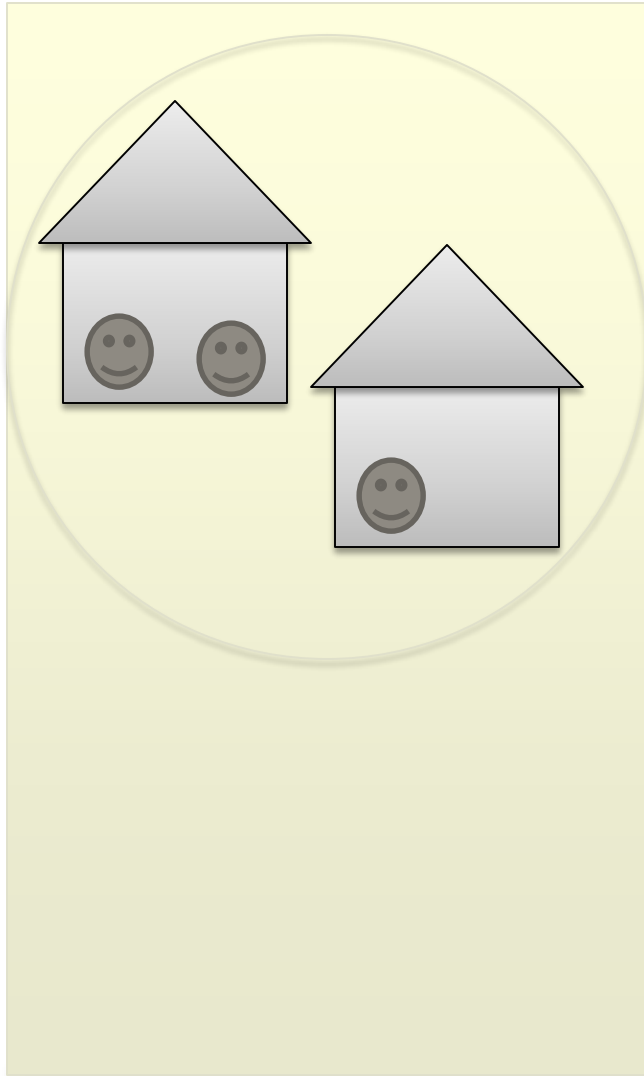


Rounds

Prerequisites

Follow-up visit

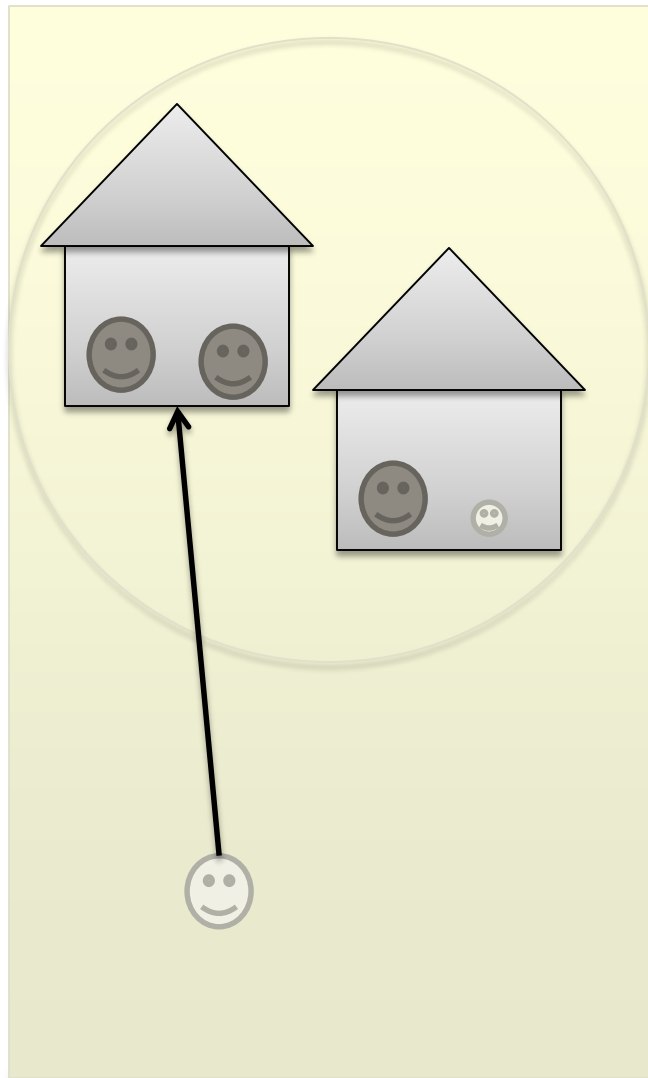
# Rounds



## Baseline Round

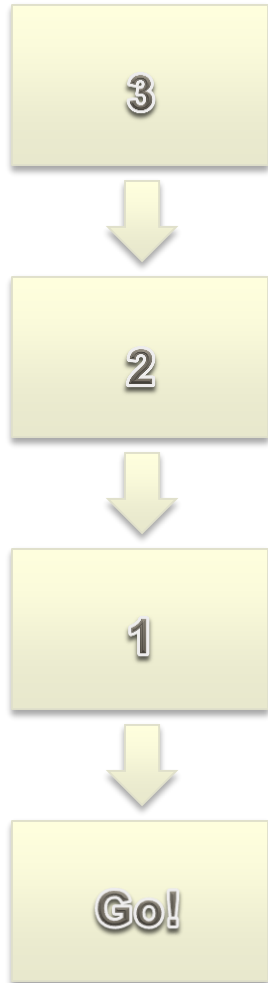
We will not discuss this, as it does not apply for you

# Rounds



Update Round

# Prerequisites



## Prerequisites for mobile data collection

Field Worker records available

Location Hierarchy set up

Round set up and Tasks configured

XForms uploaded to ODKAggregate

OpenHDS Mobile set-up and synchronized

ODK Collect set-up and synchronized

# Follow-up visit (Updates)

OpenHDS Mobile

Field Worker Login

data

Password

Login

Baseline

Supervisor Login

Username

Password

Login

## Login

Field Worker Login

Uncheck the 'Baseline' checkbox

# Follow-up visit (2)

The screenshot shows the OpenHDS Mobile application interface. At the top, the status bar displays the time as 11:38 and battery level at 77%. The app header reads 'OpenHDS Mobile'. Below the header, the text 'Hello, Data Data' is displayed. The main screen is divided into two columns. The left column contains a series of selection buttons: 'Select District', 'Select TA', 'Select CBO', and 'Select Village'. These four buttons are enclosed in a red rectangular box. The right column contains a vertical list of action buttons: 'Find Location with GeoPoint', 'Create Location', 'Create Visit', 'Clear Individual', 'Household', 'Membership', 'Relationship', 'In Migration', 'Out Migration', 'Pregnancy Observation', 'Pregnancy Outcome', 'Death', and 'Finish Visit'. Below the buttons, there are several input fields for 'District:', 'TA:', 'CBO:', 'Village:', 'Round Number:', 'Start Date:', 'End Date:', 'ExtId:', 'Name:', 'Latitude:', 'Longitude:', 'First Name:', 'Last Name:', and 'Dob:'. At the bottom of the screen, there is a navigation bar with four icons: a square, a house, a back arrow, and an up arrow.

## Select location hierarchy

Top-down location hierarchy selection

# Follow-up visit (3)

## Select location hierarchy

Top-down location hierarchy selection

Hello, Data Data

Select District

District: MBITA  
ExtId: MBT

Select TA

TA: TOWN  
ExtId: TOW

Select CBO

CBO: Bondo  
ExtId: TBO

Select Village

Village:  
ExtId:

Round Number:

Start Date:  
End Date:

Select Location

ExtId:  
Name:  
Latitude:  
Longitude:

Select Individual

ExtId:  
First Name:  
Last Name:  
Dob:

Find Location with GeoPoint

Create Location

Create Visit

Clear Individual

Household

Membership

Relationship

In Migration

Out Migration

Pregnancy Observation

Pregnancy Outcome

Death

Finish Visit

# Follow-up visit (4)

OpenHDS Mobile

Hello, Data Data

Select District

District: NW  
Extid: NWS

Select TA

TA: Basel  
Extid: BSL

Select CBO

CBO: Basel-Stadt  
Extid: BSS

Select Village

Village: Gundeldingen  
Extid: GND

Round Number:  
Start Date:  
End Date:

Select Location

Extid:  
Name:  
Latitude:  
Longitude:

Select Individual

Extid:  
First Name:  
Last Name:  
Dob:

Find Location with GeoPoint

Create Location

Create Visit

Clear Individual

Household

Membership

Relationship

In Migration

Out Migration

Pregnancy Observation

Pregnancy Outcome

Death

Finish Visit

## Select current round

Select the current round you're working on



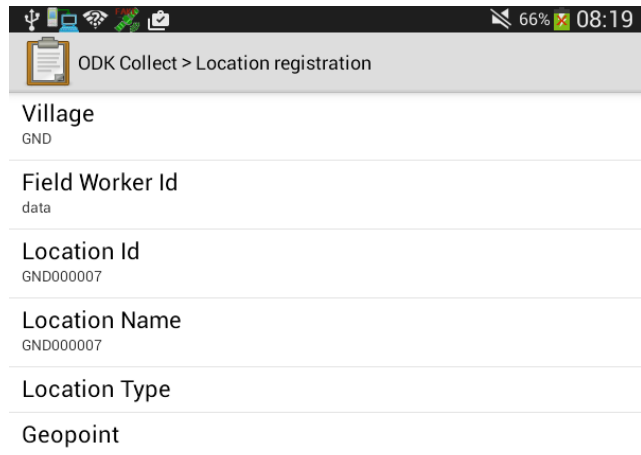
# Follow-up visit (5)

## Location

Select the location from the List or filter for a specific location

The screenshot shows the OpenHDS Mobile application interface. The top status bar displays the time as 08:18 and battery level at 66%. The app header reads "OpenHDS Mobile". Below the header, the user is greeted with "Hello, Data Data". The interface is divided into two main sections: a left sidebar with selection buttons and a right sidebar with action buttons. The left sidebar contains buttons for "Select District", "Select TA", "Select CBO", "Select Village", "Select Location", "Filter Location", and "Select Individual". The right sidebar contains buttons for "Find Location with GeoPoint", "Create Location", "Create Visit", "Clear Individual", "Household", "Membership", "Relationship", "In Migration", "Out Migration", "Pregnancy Observation", "Pregnancy Outcome", "Death", and "Finish Visit". The main form area displays the following information: District: NW, ExtId: NWS, TA: Basel, ExtId: BSL, CBO: Basel-Stadt, ExtId: BSS, Village: Gundeldingen, ExtId: GND, Round Number: 1, Start Date: 11-11-2014, End Date: 11-11-2014 (highlighted with a red box), Name, Latitude, and Longitude. The bottom of the screen shows the standard Android navigation bar with icons for home, back, and search.

# Follow-up visit (6)

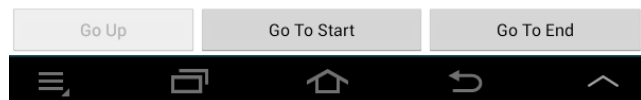


The screenshot shows the ODK Collect mobile application interface for location registration. The status bar at the top indicates 66% battery and the time 08:19. The application title is "ODK Collect > Location registration". The form contains the following fields:

Village	GND
Field Worker Id	data
Location Id	GND000007
Location Name	GND000007
Location Type	
Geopoint	

## Create New Location

Upon selecting “Creating Location” you will be able to fill in a new Location registration form



The screenshot shows the bottom navigation bar of the ODK Collect application. It contains three buttons: "Go Up", "Go To Start", and "Go To End". Below these buttons is a standard Android navigation bar with icons for home, back, and forward.

# Follow-up visit (7)

Region: MOROGORO  
ExtId: MOR

Select District

District: IFAKARA DISTRICT  
ExtId: IFD

Select Village

Village: IFAKARA VILLAGE  
ExtId: IFV

Create Location

Create Visit

Clear Individual

Household

## Visits

Create a Visit

Filter individual

Search for an Individual

Region: MOR See List

District: IFD See List

Village: IFV See List

Subvillage: KIU See List

Location: IFA000159 See List

First Name: First Name

Last Name: Last Name

Gender:  Male  Female

Clear Search

CHRISTOPHIA KOMBA
IFA000159001
07-01-1954
AGUMBI MBARURU
IFA000159002
20-12-1977
SODINA MSONGA
IFA000159003
22-06-1996
MERTY KOMBA
IFA000159004
07-01-1996
ANDREA HAULE
IFA000159006
15-09-1993

Connected as a media device

# Follow-up visit (8)

ODK Collect > Visit Registration

Visit Id  
GND000001001

Field Worker Id  
data

Location Id  
GND000001

Round number  
1

Location Id

check  
0000

The barcode doesn't match the Location ID are you sure you want to proceed?

Why the barcode doesn't correspond?

Visit Date  
13/11/14

Interviewee ID  
GND000001001

Is the person selected the one you are actually interviewing?

Where is the visit taking place?  
House

Record the GPS coordinates:

Go Up    Go To Start    Go To End

Navigation icons: Home, Back, Forward, Up, Down

## Visit registration form

After selecting the individual, the Visit Registration form will open, prefilled with previously selected data

# Follow-up visit (9)

## Select Individual individual

Select an individual living at the current location or *In Migrate* an individual

The screenshot shows the OpenHDS Mobile application interface. The top status bar displays the battery level at 67% and the time as 08:24. The app header reads 'OpenHDS Mobile'. Below the header, there is a greeting 'Hello, Data Data'. The main form area is divided into two columns. The left column contains several 'Select' buttons: 'Select District', 'Select TA', 'Select CBO', 'Select Village', and 'Select Location'. The right column contains a vertical stack of buttons: 'Find Location with GeoPoint', 'Create Location', 'Create Visit', 'Clear Individual', 'Household', 'Membership', 'Relationship', 'In Migration', 'Out Migration', 'Pregnancy Observation', 'Pregnancy Outcome', 'Death', and 'Finish Visit'. The form is populated with the following data: District: NW, ExtId: NWS, TA: Basel, ExtId: BSL, CBO: Basel-Stadt, ExtId: BSS, Village: Gundeldingen, ExtId: GND, Round Number: 1, Start Date: 11-11-2014, End Date: 11-11-2014, ExtId: GND000001, Name: LOCATION NAME, Latitude: 47.5359532057, Longitude: 7.5883701019. At the bottom of the screen, there is a navigation bar with icons for home, back, and forward.

# Follow-up visit (10)

OpenHDS Mobile EXTRA FORMS

Hello, Data Data

Select District

District: NW  
Extid: NWS

Select TA

TA: Basel  
Extid: BSL

Select CBO

CBO: Basel-Stadt  
Extid: BSS

Select Village

Village: Gundeldingen  
Extid: GND

Round Number: 1  
Start Date: 11-11-2014  
End Date: 11-11-2014

Select Location

Extid: GND000001  
Name: LOCATION NAME  
Latitude: 47.5359532057  
Longitude: 7.5883701019

Select Individual

Extid: GND000001001  
First Name: SARA  
Last Name: KAUFMANN  
Dob: 1972-07-14

Find Location with GeoPoint

Create Location

Create Visit

Clear Individual

Household

Membership

Relationship

In Migration

Out Migration

Pregnancy Observation

Pregnancy Outcome

Death

Finish Visit

## Events

Available events:

External / Internal Inmigration

Outmigration

Membership

Relationship

Pregnancy Observation

Pregnancy Outcome

Death

# Filling in event forms

ODK Collect > Out migration registration

Individual Id  
GND000001001

Field Worker Id  
data

Visit Id  
GND000001001

Date of Migration

Place Moved To Within Rusinga Island?

Name of Destination

Reason for Out Migration

Has the person in question stayed here long term or short term?

Go Up    Go To Start    Go To End

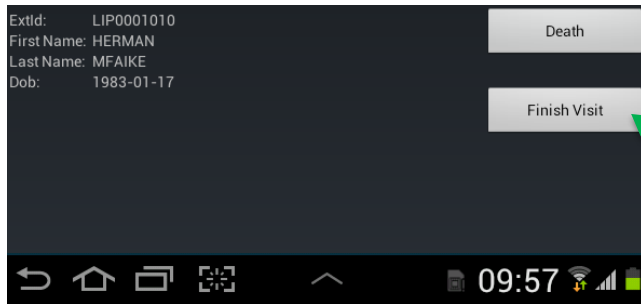
## Filling in event forms

Selecting an event opens the corresponding XForm.

The form is pre-populated with the relevant Id information.

This prevents the most frequent source of error in the data collection process.

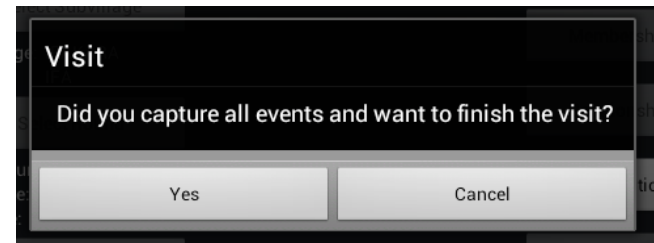
# Finishing visit



## Finishing a Visit

Finish Visit

## Confirmation Dialog





# Id Generation

The individual extId is generated based on the location extId. E.g. if the location extId is GND000001 then the individual extId becomes GND000001001, GND000001002, etc.

The SocialGroup extId is generated from the Hierarchy extId, parts of the location extId and an appended 00.

The visit extId is generated from the location extId and the round number

The location extId is generated from the Hierarchy extId with an appended 000001, 000002, 000003, etc.

Issues: Migration, Multiple tablets per village

## Topics covered

1

OpenHDS Mobile (40')

2

## Tasks

1

1. Set-up *OpenHDS Mobile* (*URL with Port!*)
2. In your Dashboard: Generate test data; run *Fieldwork Simulator* with the scenario “01: *Baseline with fixed events*” (make sure the appropriate Mirth-Channels are started)
3. In OpenHDS: Create a new Round with id 1: *Utility Routines->Round Codes*
4. Navigate to the *Utility Routines* section and open the *Tasks* utility
5. Under Tasks: Start a new *Visit Task* with *Round Number 1*
6. Subsequently start every other Task, going from *Individual Task* to *Social Group*, downwards
7. Set the form w. id *extra\_form* as *ODK Extra Form* under *Utility Routines* (active/for all)

# OpenHDS Mobile (2)

## Tasks

1

7. In OpenHDS Mobile: Login as Supervisor admin/test and synchronize the Database, Field Workers and Extra Forms (please make sure you close ODKCollect before)
8. Login as *Field Worker data/data (uncheck Baseline)*
9. Navigate through Location Hierarchy (NW -> Basel ->Basel-Stadt ->Gundeldingen)
10. Select the round 1
11. Select the *Location with id GND000001*
12. Create a *Visit*
13. *Search and select the individual with Id GND000001001*
14. *Fill out the visit form*

# OpenHDS Mobile (3)

## Tasks

15. *Immigrate (external) a new Individual (create a woman over age 18)*
16. *Create a membership for the new individual*
17. *Create a Pregnancy Observation Event*
18. *Open the Extra Form you defined earlier and fill it out*
19. *Finish the Visit*
20. *Open ODKCollect and open the Finalized Forms view.*
21. *Verify that the forms you filled out in the last few steps are there under Finalized Forms*

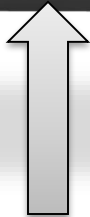
1

Time: 40 minutes

# Sending data to the server

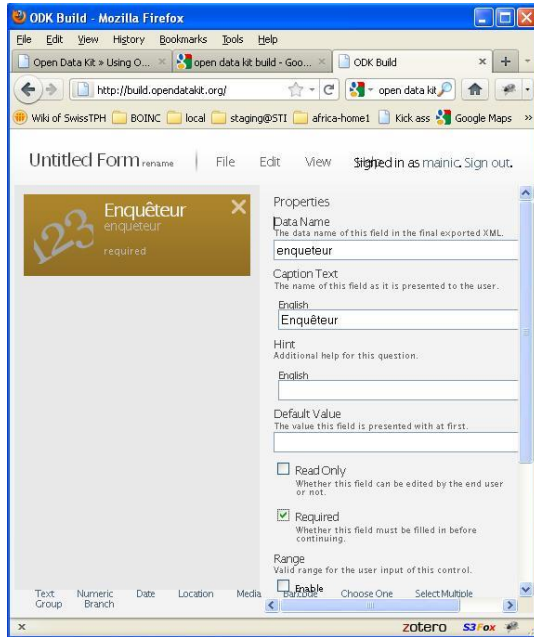


ODK Collect  
ODK Aggregate

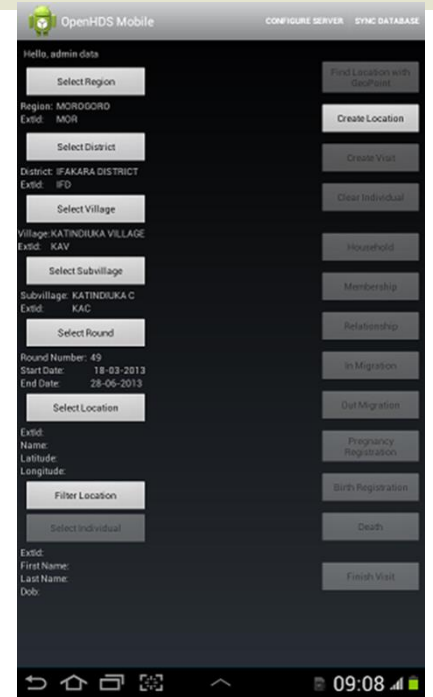


# OpenHDS/ODK integration

**ODK Build/  
XLSForm**



**OpenHDS Mobile**



**Download  
Form**

**Publish form**

**Upload  
Data**

**Upload  
Information**

**ODK  
Aggregate  
Server**

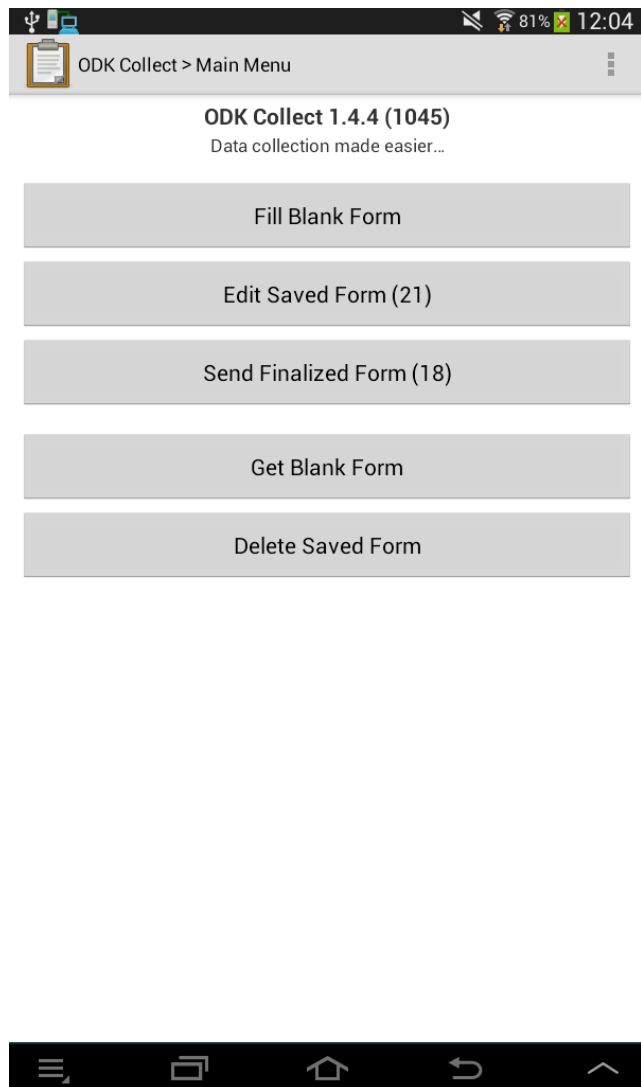
Form ID	Instance ID	Date	Location	Latitude	Longitude	Accuracy	Status
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0
123	123	2011-05-10 12:43:10	0000000000	0.000000	0.000000	0.0	0.0

**Sync Data**

Individual ID	First Name	Last Name	Date of Birth
0000000001	OCIANE	LANC	31-12-1993
0000000002	THAO	LANC	31-04-2000
0000000003	THAO	SPORER	30-07-1955
0000000004	MELINA	MOSEK	19-05-1913
0000000005	DANVA	BREMAN	04-04-1995
0000000006	CELIA	LEHMANN	19-12-1963
0000000007	CELIA	LEHMANN	20-08-2004
0000000008	CAMILLE	KNECHT	05-08-1982
0000000009	JADE	KNECHT	19-02-1989

**OpenHDS**

# Submit data

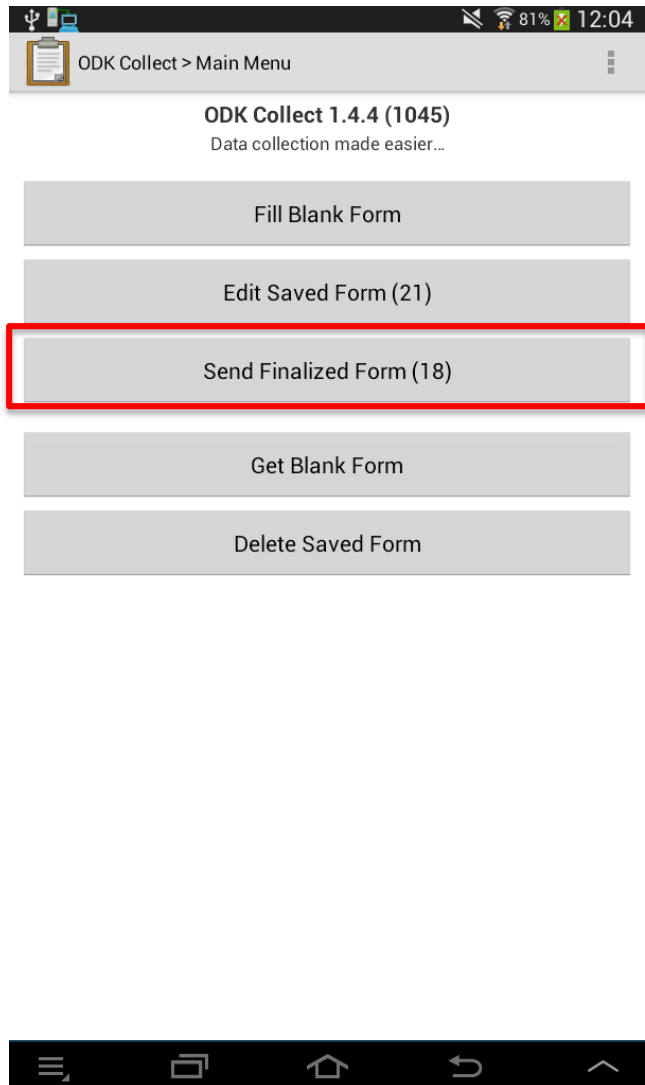


## ODKCollect

Open the *ODKCollect* application



# Submit data (2)



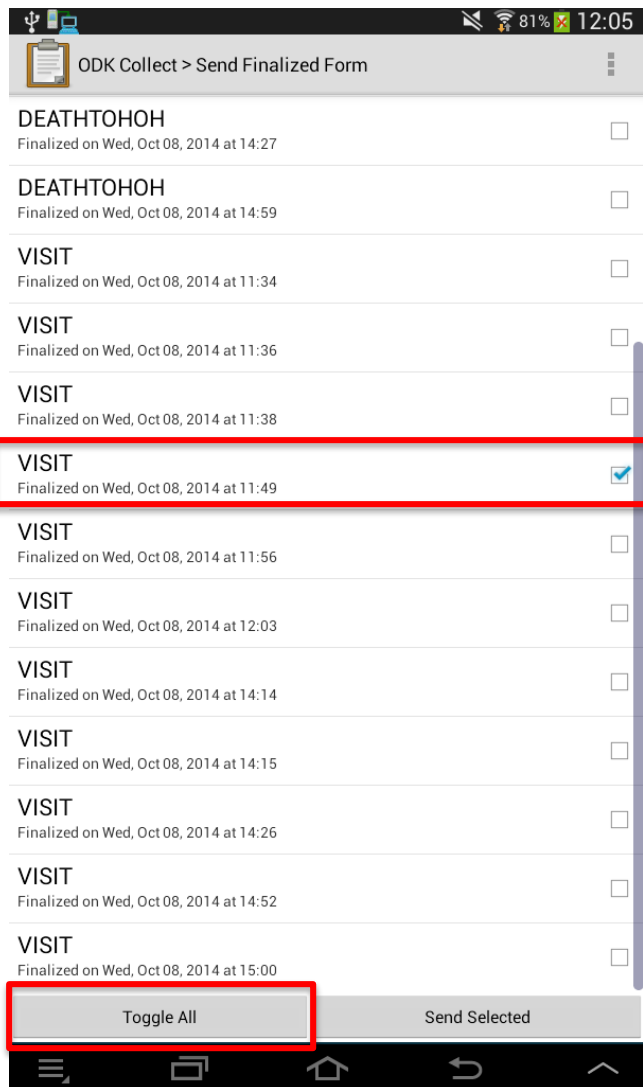
## Send Finalized Form

Enter the 'Send Finalized Form' section

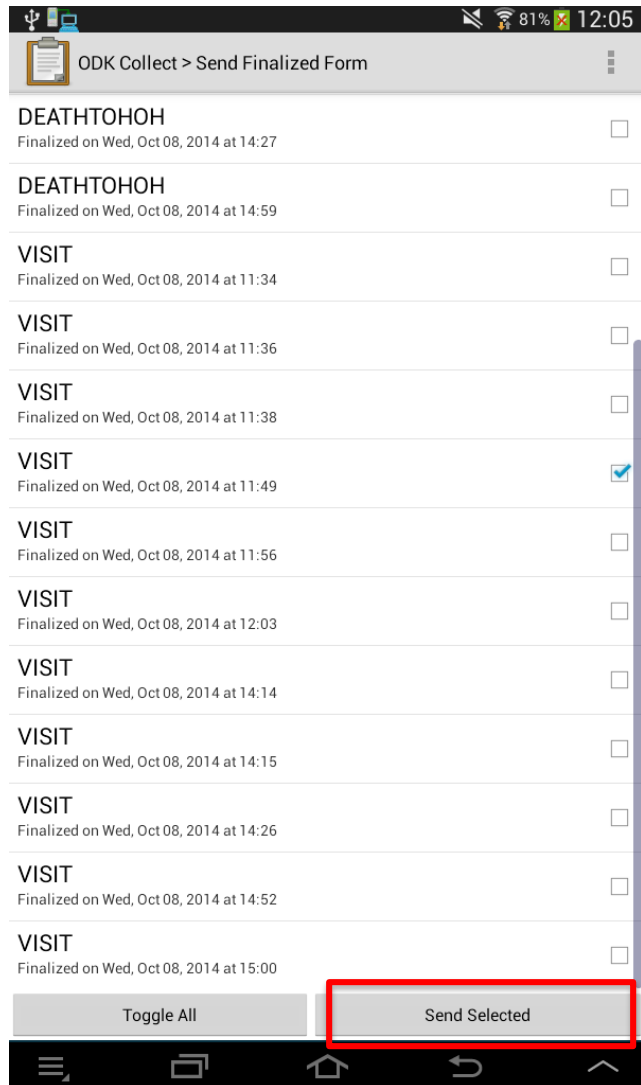
# Submit data (3)

## Select relevant forms

Select all the forms to submit from the list view or select them all by clicking on “Toggle All”



# Submit data (4)



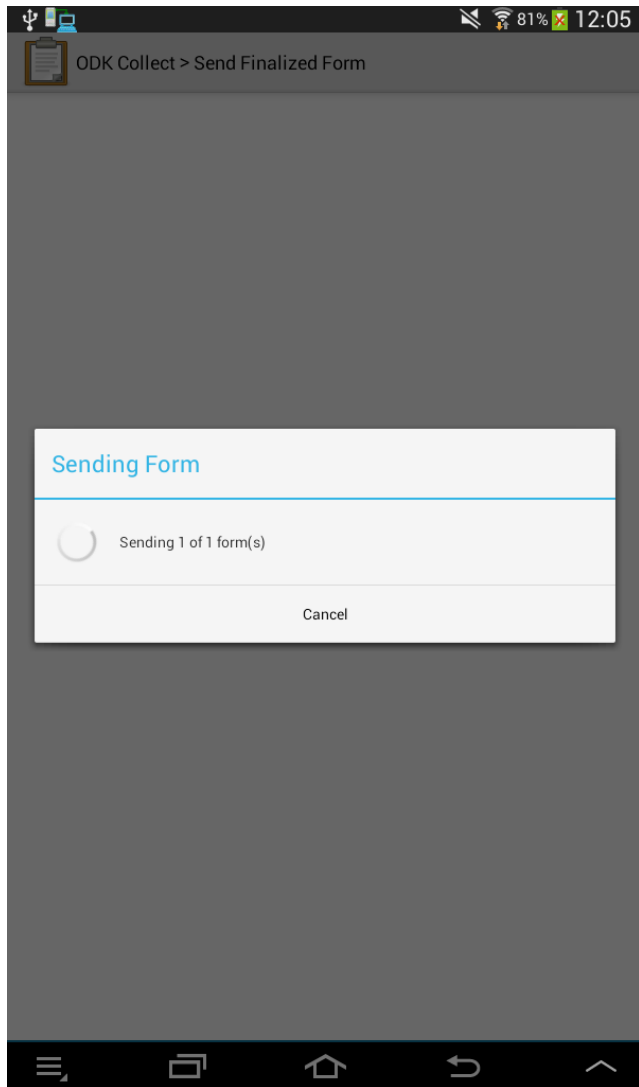
## Submit data

Click on 'Send selected' to synchronize the finalized forms

# Submit data (5)

## Submit data

The finalized forms are sent to the ODKAggregate server



# ODKAggregate

## Submissions View

Open the ODKAggregate Webapplication and go to the *Submissions* tab

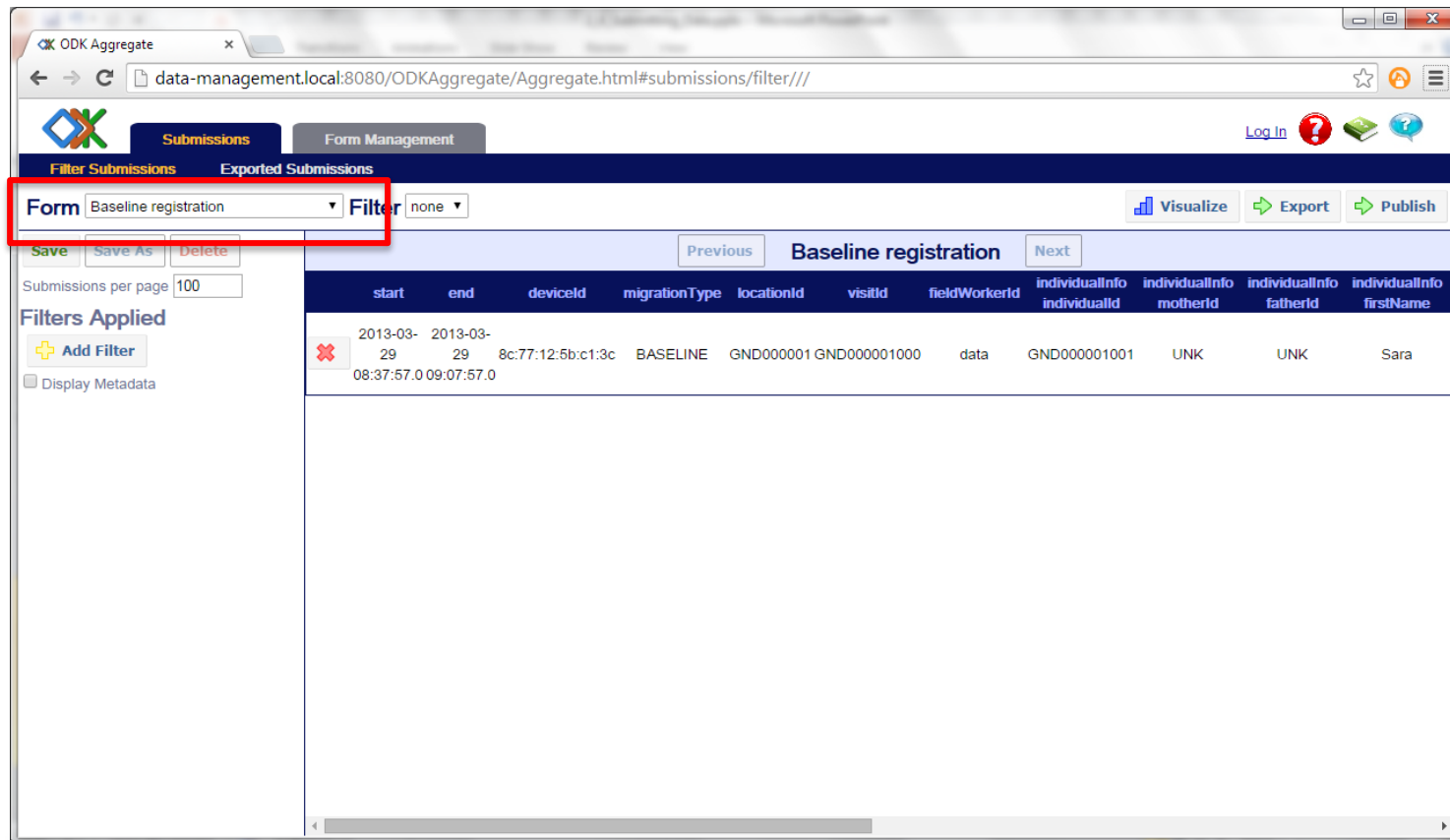
The screenshot shows the ODK Aggregate web application interface. The browser address bar displays the URL: `data-management.local:8080/ODKAggregate/Aggregate.html#submissions/filter///`. The application has a navigation bar with 'Submissions' and 'Form Management' tabs. The 'Submissions' tab is active, and a green arrow points to it from the text above. Below the navigation bar, there are options for 'Filter Submissions' and 'Exported Submissions'. The main content area shows a table of submissions for the form 'Baseline registration'. The table has columns for 'start', 'end', 'deviceId', 'migrationType', 'locationId', 'visitId', 'fieldWorkerId', 'individualInfo individualId', 'individualInfo motherId', 'individualInfo fatherId', and 'individualInfo firstName'. A single submission is visible, with a red 'X' icon in the first column. The submission details are: start: 2013-03-29 08:37:57.0, end: 2013-03-29 09:07:57.0, deviceId: 8c:77:12:5b:c1:3c, migrationType: BASELINE, locationId: GND000001, visitId: GND000001000, fieldWorkerId: data, individualInfo individualId: GND000001001, individualInfo motherId: UNK, individualInfo fatherId: UNK, individualInfo firstName: Sara. The interface also includes a 'Filters Applied' section on the left with an 'Add Filter' button and a 'Display Metadata' checkbox.

start	end	deviceId	migrationType	locationId	visitId	fieldWorkerId	individualInfo individualId	individualInfo motherId	individualInfo fatherId	individualInfo firstName
2013-03-29 08:37:57.0	2013-03-29 09:07:57.0	8c:77:12:5b:c1:3c	BASELINE	GND000001	GND000001000	data	GND000001001	UNK	UNK	Sara

# ODKAggregate (2)

## Submissions View

Switch to different Forms from the drop-down to view the submitted data



The screenshot shows the ODK Aggregate Submissions View interface. The 'Form' dropdown menu is highlighted with a red box, showing 'Baseline registration' selected. The 'Filter' dropdown is set to 'none'. The main content area displays a table of submission data for the 'Baseline registration' form.

start	end	deviceId	migrationType	locationId	visitId	fieldWorkerId	individualInfo individualId	individualInfo motherId	individualInfo fatherId	individualInfo firstName
2013-03-29 08:37:57.0	2013-03-29 09:07:57.0	8c:77:12:5b:c1:3c	BASELINE	GND000001	GND000001000	data	GND000001001	UNK	UNK	Sara