

# openforis

# Collect



User's manual

Ver. November 2014

[www.openforis.org](http://www.openforis.org)

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## 1. Introduction

Open Foris Collect is the main entry point for data collected in field-based inventories. It provides a fast, easy, flexible way to set up a survey with a user-friendly interface. Collect handles multiple data types and complex validation rules, all in a multi-language environment.

Open Foris Collect provides a flexible solution for field data management, allowing full customization of inventory structure, variables and data checks. Collect promotes data quality through an integrated data entry and data cleansing workflow. Collect introduces the concept of the Inventory Data Metamodel (IDML), a formal description (i.e., metadata) of the types of variables, classifications and coding schemes used by the inventory. All inventories documented in this way may be entered and retrieved through a user-friendly interface, without additional programming. Collect is available in both standalone (offline) or web-based (online) versions.

## 2. Key features

The software key features are as follows:

- **User Friendliness:** Nice web interface; Designed based on real users' needs, No need for technical skills to use it.
- **Rapid Data Entry:** Limited use of mouse needed; Data entry using only keyboard; Auto-complete; Species list search; Immediate feedback on errors/warnings.
- **Highly Configurable:** Design the survey from scratch or starting from a template; Data entry user interface is automatically generated and metadata driven; Validation rules (distance, comparison, pattern...); Multiple layouts (form, table, multiple columns form).
- **Multiple data types:** Basic Types – Text, Number, Boolean, Date, Time. Complex types – Range, Coordinate, File, Taxon. Plus, support for calculated values.
- **Multi-user or standalone:** It can be used in a standalone environment with no need for internet connection; Data can be exported from single/standalone installations and imported into a centralized installation to create a complete data set; In multi-user environment, users can work only on owned records.
- **Controlled QA workflow:** Record goes through different steps: Data entry, Data cleansing, Data analysis. Minimized "data cooking".
- **Rich metadata:** XML format, Complex nested structure of the survey, Validation rules, Multiple Spatial Reference Systems.
- **Multilingual:** Define the survey in multiple languages - Tab labels, Input field labels, Validation messages, Code item labels, Element info tooltips. The user will see the survey in the language of his/her web browser or in the survey default language.
- **Multiple data export/import formats:** XML, CSV, Relational database.

## 3. Installation

### Prerequisites

1. Administrator rights to install new software (on your desktop computer or server, as appropriate)
2. A Flash-compatible web browser: **Google Chrome** is recommended
  - Access Adobe Flash Player test at <http://www.adobe.com/software/flash/about/> and check that Adobe Flash Player is properly installed, otherwise install it following the instructions here: <http://get.adobe.com/flashplayer/>

### Standalone Installation (single user environment)

- If running Collect offline in a single-user environment, follow these instructions.

#### 3.1. Windows systems

- Download the installer:  
<http://www.openforis.org/nexus/service/local/artifact/maven/redirect?r=releases&g=org.openforis.collect&a=collect-installer&v=LATEST&c=windows&e=exe>
- Run the .exe file and follow the instructions on the screen. Collect will be installed by default into c:\opt\OpenForisCollect.
- If the installation completes successfully, you will have a group of shortcuts in the start menu, Open Foris Collect.

### Start Collect

- In the start menu, select "All programs", then go into Open Foris Collect folder and select Start-up OF Collect
- A command prompt window should appear, do not close it and wait until you read "Server startup in NNN ms"
- If a message from Windows Firewall appears saying that Java is trying to access the network, allow it
- After Collect Tomcat started up, select "All programs" from the start menu, then go into Open Foris Collect folder and select Open OF Collect in browser: a new browser window should be opened and Collect login page should appear on the screen. Enter the system using "admin" as username and "admin" as password. You can change the password later from the user interface. [If nothing happens, open a new browser window and access this url: <http://localhost:8080/collect>

### Stop Collect

- Close all the opened browser windows that are using Collect
- In the start menu, go into All programs, then select Open Foris Collect folder and select Shutdown OF Collect

### 3.2. Linux systems

- Download the installer:  
<http://www.openforis.org/nexus/service/local/artifact/maven/redirect?r=releases&g=org.openforis.collect&a=collect-installer&v=LATEST&c=linux&e=run>
- Run the .run file as a super user and follow the instructions on the screen. Collect will be installed by default into */opt/OpenForisCollect*
- If the installation completes successfully, you will have 2 icons in the Desktop, *Start Open Foris Collect* and *Stop Open Foris Collect*

#### Start Collect

- Double click on the *Start Open Foris Collect* icon in the desktop
- Open the browser and access this url: <http://localhost:8080/collect>

#### Stop Collect

- Close all the opened browser windows that are using Collect
- Double click on the *Stop Open Foris Collect* icon in the desktop

**Note:** Further information and technical details for the installation of Open Foris COLLECT and the difference between the installations for a single (local) user versus installing a server for a multiuser environment can be found here: [http://km.fao.org/OFwiki/index.php/Open\\_Foris\\_Collect\\_Installation](http://km.fao.org/OFwiki/index.php/Open_Foris_Collect_Installation)

### 3.3. Updating Collect

Open Foris Collect developers are constantly working on improving the system also taking into consideration, and trying to address, the feedback from the users in the countries. Test versions are periodically created and tested among current users while Production versions (stable) are released for public use and made available. Following are the steps for updating Collect to the newest released version.

#### Update using Auto Updater

Starting from version 3.2.2 Collect has an Auto Updater that you can run from the start menu

1. close every browser window that is using Collect
2. shutdown Collect
3. click on "Update OF Collect" startup menu item and follow the instructions on screen
4. startup Collect

#### Update from version of Collect older than 3.2.2

If you want to upgrade Collect from an older version to the new one, follow these steps:

1. close every browser window that is using Collect
2. shutdown Collect
3. make a copy of the folder *data* (path: *c:\opt\OpenForisCollect\collect-server\tomcat\data*) and store it outside of *c:\opt\OpenForisCollect*, e.g. in your "user" folder
4. uninstall Collect

5. install Collect using the new installer
6. copy the folder *data* previously backed up into the folder `c:\opt\openforis\collect\tomcat\`
7. start Collect and verify that all old data are present

### **Upgrade Collect using the war file (for expert users)**

1. Stop the Collect Tomcat instance, if running
2. Create a backup copy of your existing Collect installation (`c:\opt\OpenForisCollect` folder)
3. Create a backup of the PostgreSQL database (if you are using that as database)
4. Download the latest war file of Collect:  
<http://www.openforis.org/nexus/service/local/artifact/maven/redirect?r=releases&g=org.openforis.collect&a=collect-webapp-tomcat&v=LATEST&e=war>
5. Delete the folder `collect-server/tomcat/webapps/collect`
6. Delete the file `collect-server/tomcat/webapps/collect.war`, if exists
7. Copy the downloaded `collect-web-VERSION.war` file into `collect-server/tomcat/webapps` folder and rename it into `collect.war`. If you are using a unix or linux system, change `collect.war` owner and group to the same as tomcat user (e.g. Change the `collect.war` owner and group to "tomcat": `sudo chown tomcat:tomcat collect.war`)
8. Start the Collect Tomcat instance

## 4. Collect Home



**Welcome to Open Foris Collect!**

Collect is an easy-to-use solution for managing complex field survey data. Collect allows full control over data hierarchy, code lists, variables, data checks and multilingual metadata, and improves data quality through an integrated data entry and data cleansing workflow.

Through a single Collect installation, multiple users may enter, clean and extract data for one or more surveys, simultaneously. In locations without limited network connectivity, Collect may be installed locally on Linux, PC or MacOS and run completely off-line.

Data is made accessible in CSV and XML formats and may be loaded into most popular software applications (e.g. R, Excel, SPSS, SAP).

To begin, click "Survey designer" to set up your first database.

**Data management**

**Survey designer**

**Users accounts**

**Settings**

Application version: 3.2.2-a2      Logged as: admin

Collect welcome page offers four options: *Data management, Survey designer, Users accounts and Configuration.*

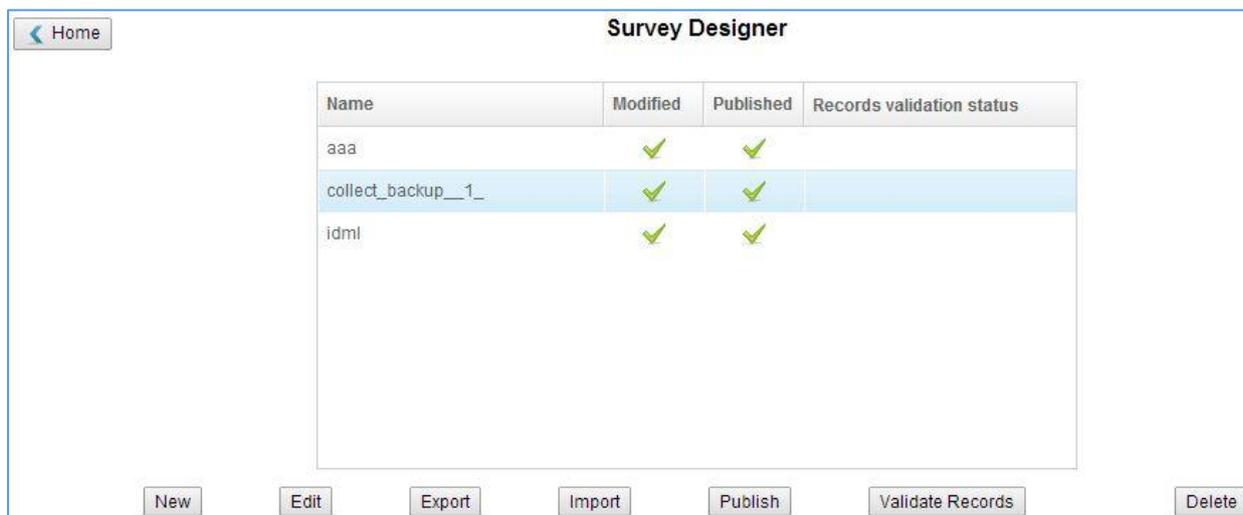
- **Survey designer:** the starting point for setting up and manage your survey. Select Survey designer to Create, Import, Export, Edit, Publish or Delete surveys.
- **Data management:** once a survey has been created select Data management to start entering data and manage data workflow. Stored surveys can be accessed and records can be managed and edited.
- **Users accounts:** create a personal user profile (password protected) specifying role in the workflow: Data Entry, Data Cleansing, Data Analysis, Administrator.
- **Settings:** customize upload path, record index path and graphical elements of Collect.

in the **footer:** Collect current version and user login/logout

## 5. Survey Designer

### 5.1. New Survey

In the Survey Designer Management Panel you will see the Surveys currently uploaded (if any) and their status: whether they have been *Modified* or *Published* as well as their *Records validation status*. The operations available from this panel include: *Survey Edit*, *Export*, *Import*, *Publish*, *Record validation*, *Delete*. Details on these operations will be covered after the instructions on how to set up a new survey.

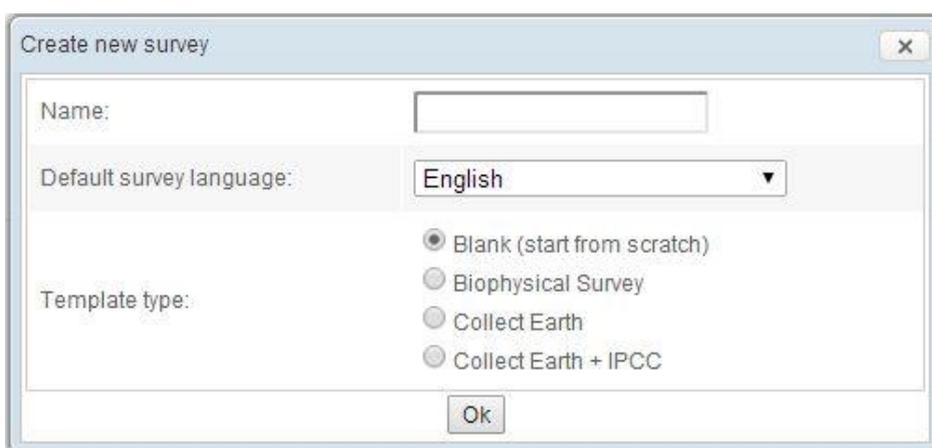


Name	Modified	Published	Records validation status
aaa	✓	✓	
collect_backup__1_	✓	✓	
idml	✓	✓	

Buttons: New, Edit, Export, Import, Publish, Validate Records, Delete

To start setting up your first Survey click on **New**.

A pop up window will open requesting the user to enter a *name* for the survey, select the *default survey language* and choose from a *template type*. Selecting a *Blank* template means starting from scratch, with no preset information loaded. Alternatively, it is possible to choose from templates in which some fields in the Code Lists are prefilled in accordance to pre-set survey specifications.



Create new survey

Name:

Default survey language: English

Template type:

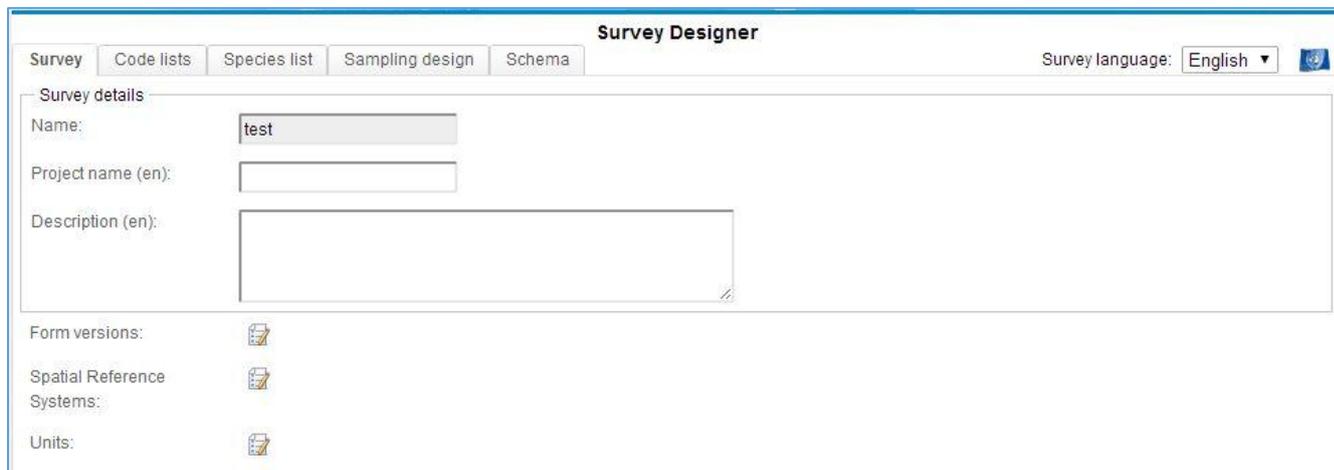
- Blank (start from scratch)
- Biophysical Survey
- Collect Earth
- Collect Earth + IPCC

Ok

**Note:** additional languages can also be added at a later stage by clicking on the UN flag (top right corner) and select and add additional languages for the survey. The user can then switch from one language to another by selecting a language in the drop down menu on the top right corner of the screen. Note that the fields that allow multiple language will show a codified language abbreviation in parenthesis, for example (en) for English.

The user can now proceed to fill in the fields in each of the five tabs of the Survey designer: *Survey*, *Code lists*, *Species list*, *Sampling Design* and *Schema*.

## 5.2. Survey



In this tab the user is asked to provide general and basic information about the Survey.

The fields to be filled in are as follows:

**Name:** (defined when the survey was created)

- **Project name** (): can be filled in to specify an additional name for the project.
- **Description** (): can be filled to include any additional note to describe the Survey

**NOTE:** Mandatory fields are bordered in red, while all others, when clicked, are bordered in blue.

**Additional fields:** *Form versions*, *Spatial Reference System* and *Units*.

Popup windows open by clicking the icon  to the right of field name. Inside of each pop up window, new items can be: created by clicking on the Green "plus" button; moved up or down by clicking the up and down arrow; deleted by clicking the Red "minus"

button. 

Once finished, close the window by clicking **Apply**.

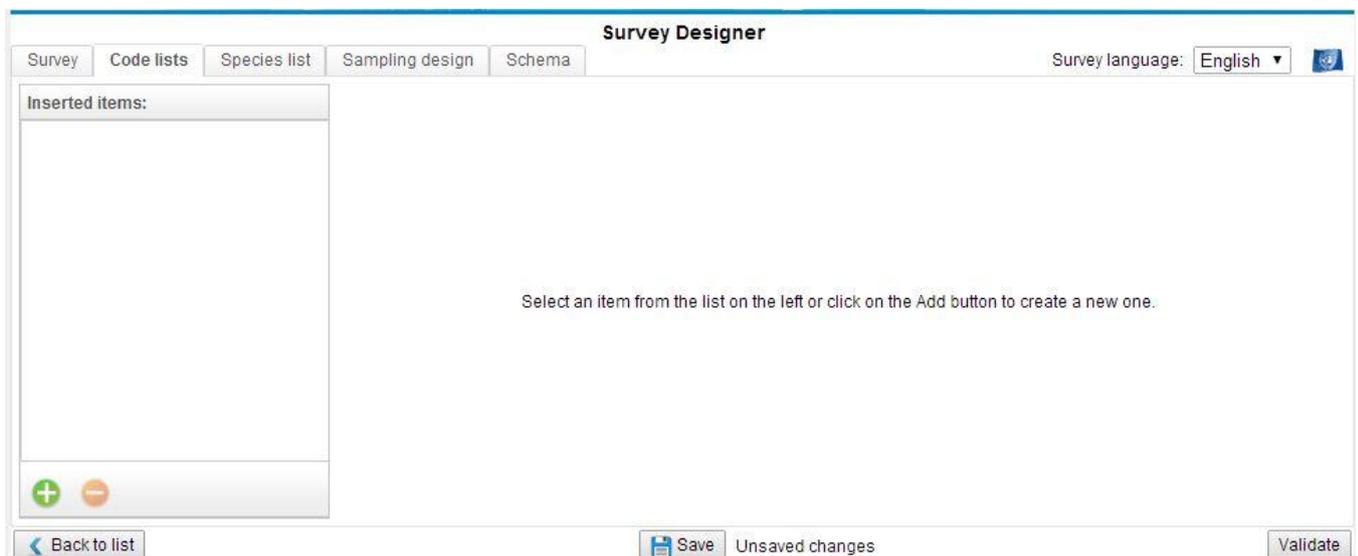
**Form versions:** This field can be used to keep track of successive versions of the Survey forms (for entering data). The user can add a new form version by clicking the Green "plus" button and specifying: Name (e.g. 1.0, 1.1 etc.); Label (a codified label used to express useful information (e.g. date, form version, location [e.g. BP 1.3.2010])); Description (any additional information); Date (usually the date of when that form version was first used).

**Spatial Reference Systems (SRS):** This field is used to specify the geospatial settings used in the survey by selecting a predefined SRS from the list (bottom left of the window). The user can enter information related to the Spatial Reference System(s) used in the survey by specifying: Id, Label, Description and Well Known Text.

**Units:** This field is used to define the units of measure that will be used throughout the Survey. A set of predefined units are automatically loaded. They include units to measure for Angles, Areas, Currency, Length, Mass, Ratio and Time. Should the user wish to include additional units he/she may do so by clicking the green "+" button and filling in the relevant fields: Name, Label, Abbreviation, selecting a Dimension, and Conversion factor.

### 5.3. Code lists

This tab is used to define lists of codified information that will be used throughout the survey to provide options for specific fields during the data entry phase. If the user selected one of the pre-filled templates, several Code lists are loaded automatically. They include codified lists to define, for example, accessibility, land use classes, ownership etc. These fields are set up in accordance to pre-defined classification schemes however the user is free to add, remove or modify them. Code lists can be used to classify a wide range of attributes such as administrative levels, personnel, topographic elements and many more.



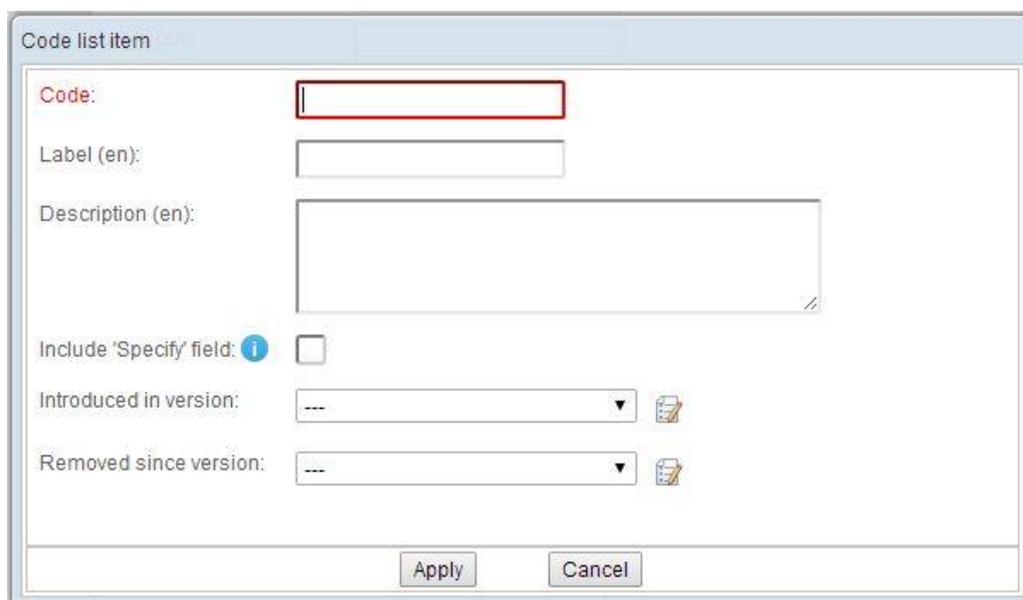
## Adding a Code list

Code lists can be added in two ways: "manually" or by importing a pre-prepared file in csv format.

To add a code list manually click on the Green "+" button (bottom left corner of the window) and proceed to fill in: *Name* [mandatory field] (e.g. region), *Label*: (e.g. AdmLev-1-Reg), and *Description* (any additional specification). Then select the *List type*: whether the code list is flat or hierarchical. A flat list has a binary structure while a hierarchical list allows for sub (nested) levels. [See list types examples below].

Once a code list has been named, the actual items (codes and labels) should be entered.

Code and Label of each item of the code list can be added by clicking the smaller green "+" button and filling in Code [mandatory field] (e.g. "1") and Label (e.g. Northern). This should be repeated for as many items there are in the Code list. Each item can then be edited (click on edit icon) or deleted (red "-") button.



The user can also wish to include a Specify field by clicking the appropriate box. In this way, it will be possible to specify unlisted values in a text input field that will appear next to the code list item in the data entry form.

In order to keep a separate record of the code list, it is suggested to Export the code list by clicking the Export button (at the bottom of the window). This will automatically generate and download a csv file.

In the case of hierarchical Code lists, multiple levels can be added by clicking on the "Add level" button.

List type:  Hierarchical  Flat

level1

level2

While the manual process for adding code lists is perfectly legitimate and can be used for simple lists, for more complex list (e.g. list that have many items or with a hierarchical structure) it is strongly recommended to prepare them in advance and upload them into Collect by clicking the Import button (at the bottom of the window). When clicking Import a pop up window will open and the user can import a code list (flat or hierarchical) from a csv file. From the same window the user can also download an example file, while clicking on the blue "i" button will open a window with specifications on how to set up the csv file.

To import the csv file, click on Select file, locate the file within your directory and then click on Start import. Upon successful upload an Import completed message will appear, click ok and proceed with a new upload or, if done, click close at the bottom of the window.

### Example of Flat Code list

	A	B
1	item_code	item_label_en
2	logging	Logging
3	fire	Fire
4	grazing	Grazing
5	gardening	Gardening
6	other_human_impact	Other
7	none	None

### Example of Hierarchical Code list

	A	B	C	D
1	use_code	use_label_en	type_code	type_label_en
2	forest	Forest		
3	forest	Forest	forest_subdivision	Forest subdivision (example)
4	forest	Forest	unknown_forest	Unknown Forest
5	cropland	Cropland		
6	cropland	Cropland	crop_subdivision	Crop subdivision (example)
7	cropland	Cropland	unknown_crop	Unknown crop
8	grassland	Grassland		
9	grassland	Grassland	grassland_subdivision	Grassland subdivision (example)
10	grassland	Grassland	unknown_grassland	Unknown grassland
11	settlement	Settlement		
12	settlement	Settlement	settlement_example	Settlement (example)
13	settlement	Settlement	other_settlement	Other settlement
14	otherLand	Other Land		
15	otherLand	Other Land	other_example	Other (example)
16	wetLand	Wet Land		
17	wetLand	Wet Land	wetland_example	Wetland example
18	wetLand	Wet Land	other_wetland	Other wetland
19	noData	No data reason		
20	noData	No data reason	sea	Sea
21	noData	No data reason	clouds	Clouds
22	noData	No data reason	other_reason	Other reason

## 5.4. Species list

This tab allows the user to add one or more species lists by uploading a file in csv format. The list should contain all the taxonomical species that the user will select from during data entry. Species lists should be as comprehensive as possible and should be created using all resources available in the country: taxonomical books, expert's knowledge etc. For security reasons it will not be possible to add species during data entry. Additional species should instead be added to the csv file (by a system administrator) and the updated species list uploaded to Collect.

### Adding a Species list:

The species list (CSV file) file should be prepared in advance following the formatting requirements indicated below.

The required columns are:

- **no**: numeric unique identifier associated to the species
- **code**: alphanumeric unique identifier code associated to the species
- **family**: family name of the species
- **scientific\_name**: latin name of the species (genus + [optionally] species name + [optionally] subspecies name e.g. *Pinus* spp. or *Pinus radiata*).

**Note:** An Example file can be downloaded by clicking the button at the bottom center of the screen.

Optionally the user can specify other columns for the vernacular names of the species using the language code (in 3 characters ISO-639-2 format, e.g. 'swh' for Swahili, 'eng' for English) as header of these columns. The user can specify synonyms using "lat" as header (Latin language). Multiple values are allowed for vernacular names and they need to be separated with a slash (/) character.

	A	B	C	D	E	F
1	no	code	family	scientific_name	swh	eng
2	5	OLE/CAP/macrocarpa	Oleaceae	Olea capensis ssp. macrocarpa		
3	6	OLE/EUR	Oleaceae	Olea europaea		
4	7	OLE/EUR/cuspidata	Oleaceae	Olea europaea subsp. cuspidata		
5	12	ALB/SCH/amaniensis	Fabaceae	Albizia schimperiana var. amaniensis		
6	9	ALB	Fabaceae	Albizia spp.		
7	8	AFZ/QUA	Fabaceae	Afzelia quanzensis Welw.	Mbambakofi	Mahogany
8	10	ALB/ADI	Fabaceae	Albizia adianthifolia		
9	11	ALB/GLA	Fabaceae	Albizia glaberrima (Shumach.&Thonn)Benth	Mgerenge / Mchani	
10	13	BOU/PET	Boraginaceae	Bourreria petiolaris(Lam.)Thulin / Syn:Ehretia petiolaris Lam.	Mpanda jongoo	
11	14	BOM/RHO	Bombacaceae	Bombax rhodognaphalon K.Schum. / Syn:Rhodognaphalon schu	Msufi mwitu	
12						

When the csv file is ready for upload, click **New** and specify a Name for the list. Then click **Import**, select the file to be uploaded and wait for the confirmation window. The screen will now show the records present in the species list. Species lists can also be Renamed, Deleted or Exported. If needed, additional species lists can be created and uploaded in the same manner.

## 5.5. Sampling Design

This tab is used to define the list of coordinates of each sample point location. This can be done by importing a CSV file that should be prepared following the formatting indicated below:

The csv file should contain:

- **levelX\_code columns:** 1 column for each level X (maximum 3 levels, e.g. if you have 2 levels, cluster and plot, you will have a column "level1\_code" with cluster id value and a column "level2\_code" for plot id value);
- **x:** easting
- **y:** northing
- **srs\_id:** id of the coordinate reference system, the same used as in the Coordinate Reference Systems settings of the survey

The csv file can be uploaded by clicking on the **Import** button. An Example file can be downloaded by clicking the button at the bottom center of the screen (see below). If needed, the file can also be Exported.

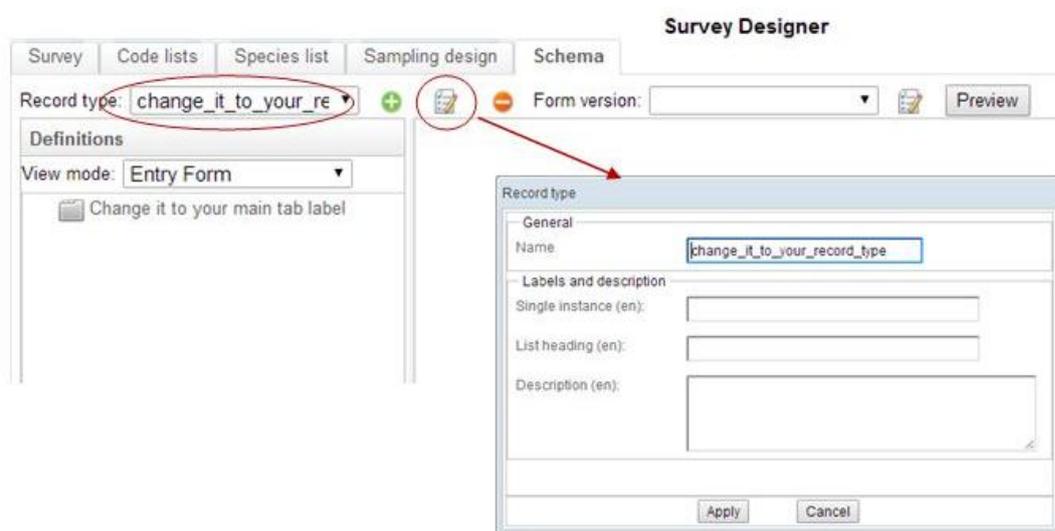
	A	B	C	D	E	F
1	level1_code	level2_code	level3_code	x	y	srs_id
2	7_81			792200	9484420	EPSG:21035
3	7_81	2		792200	9484420	EPSG:21035
4	7_81	3		792200	9484670	EPSG:21035
5	7_81	4		792200	9484920	EPSG:21035
6	7_81	5		792200	9485170	EPSG:21035
7	7_81	6		792450	9485420	EPSG:21035
8	7_81	7		792700	9485420	EPSG:21035
9	7_81	8		792950	9485420	EPSG:21035
10	7_81	9		793200	9485420	EPSG:21035
11	10_117			806680	9305020	EPSG:21035
12	10_117	6		805680	9305020	EPSG:21035
13	10_117	7		805930	9305020	EPSG:21035
14	10_117	8		806180	9305020	EPSG:21035
15	10_117	9		806430	9305020	EPSG:21035
16	10_117	10		806680	9305020	EPSG:21035

Additional columns (to a maximum of 10) can be added to the csv file in order to record additional information related to the sampling points (e.g. slope, administrative units, etc.) These values can be used as source data for expressions or calculated values in the survey definition.

## 5.6. Schema

This tab constitutes the core of the Survey design. It is at this stage that the user defines every item (entity) and related attributes that should be measured. Before starting to work on the Schema it is necessary to have a very clear idea of the logical structure of the survey and a detailed list of the variables to be measured during field work (and in general during the survey) and also decide on the optimal way of measuring each variable.

The first step is to define one (or more) **Record type** (the highest level of the hierarchical structure of the sampling design, typically the cluster, which contains plots. If the user started to work on the Survey Designer by selecting a blank template, it is now necessary to assign a name to the Record type (click on icon to the right of “Change it to your main tab label”) and give it an appropriate name (typically Cluster), then click Apply. Then don’t forget click Save (at the bottom of the page).



If additional Record types are needed (for example to define variables for a socio economic survey or any other type of survey) the user can do so by clicking on the green “+” button (edit and delete buttons are also available).

At this point **Tabs**, **Entities** and **Attributes** can be added.

**Tabs** do not have a role in the hierarchical and logical structure, rather they are used to arrange the way the data entry form will appear. At any time click on *Preview* to display the layout of the data entry form. If more tabs are present, they will be visible at the top of the form.

**Entities:** When adding an Entity, the user can choose among three types: *Single (grouping)*, *Multiple (form layout)* or *Multiple (table layout)*.

- **Single (grouping):** A Single entity is used to record an item (variable) that will appear only once (with a relationship 1:1 with its parent Entity). For example: start date (the date when the measurement work started on any given plot, will necessarily have a 1:1 relationship with its parent entity (for example, the plot). The term “grouping” means that a single entity can also be used to group a number of attributes all depending on the same entity (in our example, starting time, ending time etc.).

- **Multiple (Form or Table layout):** Multiple Entity are used when the relationship is 1:N meaning that there will be more instances of that entity all related to the parent entity. For example, plot (there will be more plots all referring to the parent entity Cluster, or, another example, tree: there will be more trees referring to the parent entity Plot. The difference between Form and Table layout refers to the graphical representation that the user wishes to give to that entity in the data entry form.

**Attributes** are always added in relation to an Entity and define the way in which the data is recorded. Attribute types are the following (each one with a unique recognizable label).

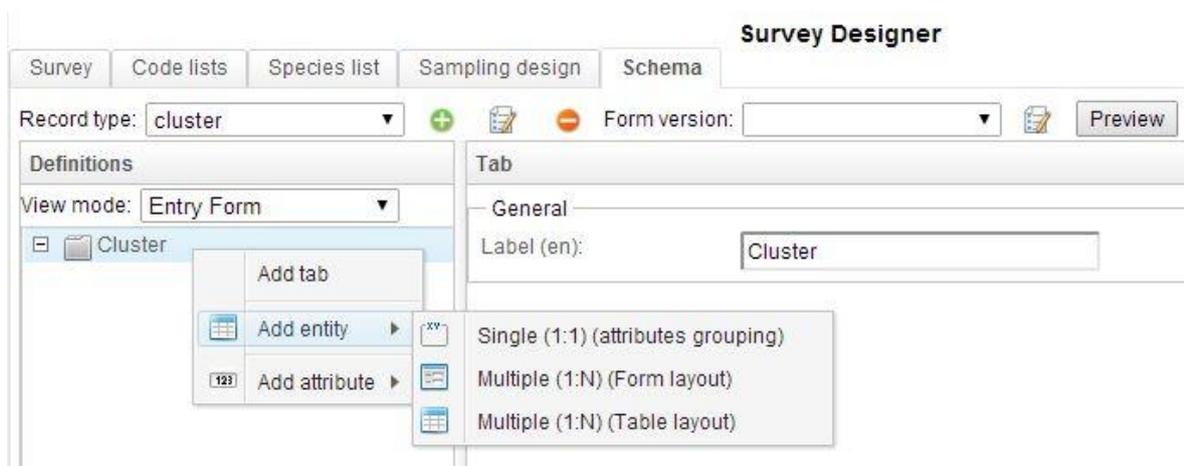
- **Boolean:** check/un-check
- **Code:** refers to a previously added *Code lists*
- **Coordinate:** allows to enter geographical coordinates (See *Sampling design* section)
- **Date:** entered in dd/mm/yyyy format
- **File:** allows to upload a file (e.g. photos, notes, etc.)
- **Number:** numeric value (integer or real)
- **Range:** allows to define a numerical range
- **Taxon:** allows to add a record from a previously added *Species list*
- **Text:** allows to add free text
- **Time:** entered in hh:mm format

For each of the items that the user wishes to measure in the field, it is necessary to determine whether it is best expressed as an entity or an attribute and of which kind. As an example, a few variables measured at the Cluster level are listed below, indicating the type of considerations needed to determine whether it should be expressed as an entity or attribute.

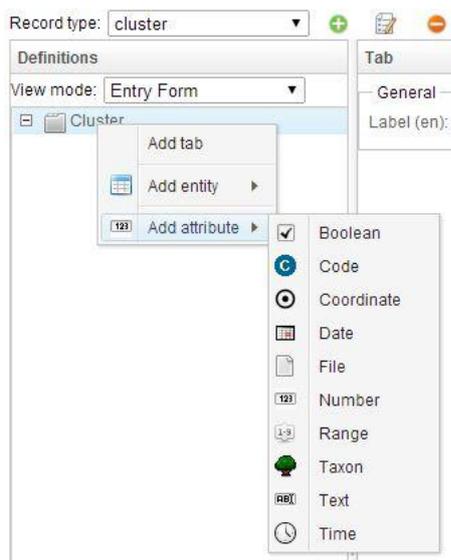
- *Cluster No.:* is intended as a unique numerical identifier for each cluster, therefore it should be added as Number attribute.
- *Accessibility:* if it is used to indicate whether the Cluster was accessible or not, then it could be entered as a Boolean attribute (yes/no); in the case the user wishes to be able to include other “categories” of accessibility, thus it will be entered as a Code attribute.
- *Starting Position:* is clearly a Coordinate attribute as it indicates the geographical coordinates of where field work for a specific cluster started from.
- *Time Study:* the intention here is to record multiple information simultaneously: date and starting and ending time of the field work. In this case the most appropriate way is to enter it as a Multiple Entity in Table layout.
- *Remarks:* is simply allow for a space where notes can be added, clearly a Text attribute.

To **add Entities and Attributes** right-clicking on the previously created *record type folder* and make the appropriate choice.

### Adding entities:



### Adding attributes:



While adding entities and attributes, the user is required to fill in a number of related characteristics, in the main window as for example shown in the image below.

**Survey Designer**

Survey language: English

Record type: cluster    Form version:     Preview    Export summary

**Definitions**

View mode: Entry Form

- Cluster
  - cluster\_no
  - cluster\_accessibility
  - cluster\_starting\_position
  - time\_study
  - cluster\_remarks
- Plot

**Number attribute**    Path: /cluster/cluster\_no

**General**

Name:

Is key?:

Type:  Integer  Real

Calculated:

Multiple:

Required:

Relevant expression:     Hide when not relevant:

**Units of measurement:**

Is default?	Unit	Decimal digits

**Labels and description**

Single instance (en):

List heading (en):

Field number (en):

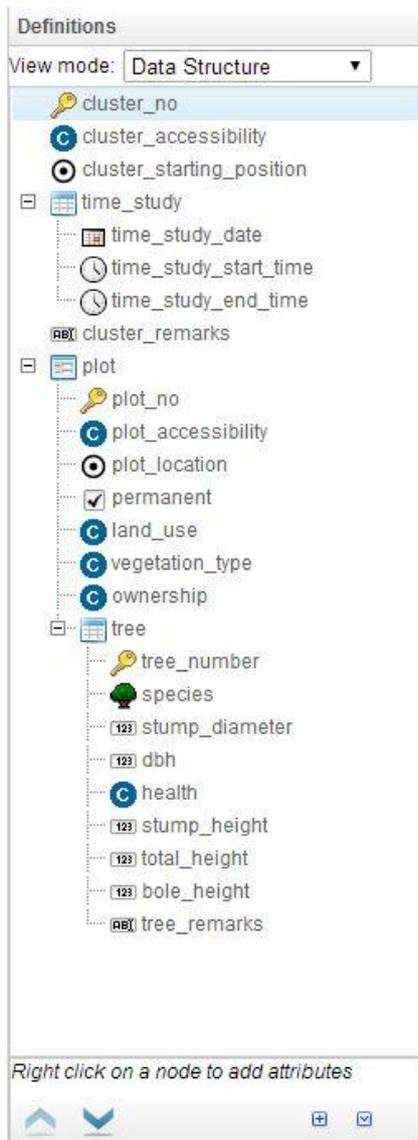
Some of the parameters are common for different types of Entities or Attributes, while others are unique to a specific type. Below is a list of groups of parameters and related explanation.

### General

Name	attribute's or Entity's name
Type	for Boolean (Y/N/Blank or Y/Blank); for Number (numerical type: integer / real); for Text (text box style: short= one row / memo= text box)
Multiple	allows multiple entries for this attribute
- Min count	fixes minimum number of entries allowed
- Max count	fixes minimum number of entries allowed
Required	if checked, the record can be saved only if a valid value is entered for this attribute
- Required when	expression that specifies when the attribute is required (when "Required" is not checked)
Relevant when	function that determines under what conditions the field is applicable
- Hide when not relevant	if checked, the field will be hidden in the data entry form when the condition is not verified
Is key	if checked, this attribute serves as a unique identifier
Code list	select a code list already created or create one
- Strict	if checked, once code list is defined, no additional code options can be added
Calculated	if checked, the input field won't be editable and the value will be generated at runtime according to the specified Default Value
Max size MB	defines max allowed size for file upload
- Allowed extension	defines allowed extension types for file upload
Species list	Select a species list
- Highest rank	Defines highest rank in species taxonomy (family, genus, species, sub-species, variety)
Auto-complete group	(only for text attributes) if specified, text auto complete will retrieve entries from the list of previously digitized values
Show row number in tables	If checked, it allows to show row number in tables
Show count in record summary list	If checked, it allows to Show count in record summary list
Units of measurements (only for numerical attributes)	
Is default	specifies which unit of measure is default
Unit	select from the list of unit of measurement (defined in the survey tab)
Decimal digits	controls number of decimal digits that will be displayed
<b>Labels and description</b>	

Single instance	Label if single instance
List heading	Label if multiple instances
Field number	Additional labeling field
Description	Free text description
<b>Versioning</b>	
Introduced in version	allows to keep track of since which survey version a specific Entity/Attribute has been added to the schema.
Removed since version	allows to keep track of since which survey version a specific Entity/Attribute has been removed to the schema.
<b>Layout</b>	
Column	determines the position of the node (entity/attribute) in the field form layout.
Column span	determines the number of columns that the node (entity/attribute) should span across *** (click 'i' button to view an example
Width	sets the width of the column ((blank=default)
Label width	sets the width of the label ((blank=default)
Default Value	used to determine how to handle empty values when record is submitted from data entry phase to data cleansing phase
Constant value	value that will replace empty field
Expression	expression that will calculate the value to replace empty field
Apply when	sets the condition for when the replacement should occur
Checks	used to automatically flag errors during field data collection (using Collect Mobile) or during data entry. Using checks greatly minimizes data entry mistakes and facilitates data cleansing
Type	<p>Comparison - checks the value entered against a value or range of values</p> <p>Custom - freely customizable check with an expression</p> <p>Distance - (only for coordinate attributes) checks that the coordinate entered is within previously specified limits</p> <p>Pattern - (only for text attributes) checks that the text is entered according to a predefined format</p> <p>Uniqueness - checks that the entered values is unique (not repeated) within a specified group of values</p>
Severity	<p>Error - blocks the data entry user from submitting the record to data cleansing</p> <p>Warning - assigns a warning flag to the record but does not prevent submission to data cleansing</p>
Message	message to be displayed to flag error/warning
Apply when	allows to specify when the check is applicable.
Expression	expression that defines the logic of the check

Once all entities and attributes have been entered and defined, the hierarchical structure of the survey will look similar to the image below.



### Data Structure vs. Entry Form

While constructing the hierarchical structure of Entities and Attributes, and their organization in Tabs (folders), it is possible to switch the View mode: **Data Structure** or **Entry Form**. The first option will open all the branches and sub-branches to reveal every element and its properties (as in the image above), while the second option will collapse the elements into their respective Folders (image below). The same process can be achieved by clicking the small buttons [+ ] and [- ] to Expand or collapse all nodes. This option becomes useful as the structure becomes more and more complex. The two arrows pointing up and down are used to move nodes accordingly.

**Definitions**

View mode: Entry Form ▼

- Cluster
- Plot
- Informant Interviews
- Household Surveys
- QA

At any time it is possible to visualize the appearance of the data entry form by clicking on the **Preview** button.



**OPENFORIS**  
**COLLECT**



Cluster
Plot
Informant Interviews
Household Surveys
QA

**Quality assurance field**

Task	Person	Date
Form filled out	<input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/> 
Form checked	<input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/> 
Data entered	<input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/> 
Data cleaned	<input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/> 

**Id**

**Wrong Coordinate**

**Measurement**  

**Region**  

**District**  

**Crew no.**

**Map sheet**

Add 

**Accessibility**  

Form Version: BP 28.12.2010 - SE 26.12.2010
Application version: 3.2.2-a2
Logged as: demo 

## 6. Data Management

This section of Collect is the starting point for **Data Entry** and **Data Management**. In this section records can be entered, edited and managed. Once records are entered into Collect, this section presents a log of errors and warnings encountered during data entry as well as information on when records were created or modified and their status in the data cleansing process. In addition, it is also possible to visualize which user entered a specific record.

Specifications on the **Open Foris Collect Workflow** (Data entry, Data cleansing and Data analysis) can be found at

[http://km.fao.org/OFwiki/index.php/Open\\_Foris\\_Collect\\_Workflow](http://km.fao.org/OFwiki/index.php/Open_Foris_Collect_Workflow)

Clicking on **Data Management** opens the list of records present (if any).

A typical Data Management view is shown in the example image below. Note that different user types will have different views and editing permissions as outlined in the “Users accounts” section.

Home ▼

**Atlantis legendary island - Cluster list**

Id	Measurement	Errors	Warnings	Created	Modified	Owner	Entered	Cleaned
50_003	P	2	11	31-05-2011 09:01	17-03-2014 15:14	admin	✓	✓
30_012	P	0	11	27-10-2011 12:15	17-03-2014 15:14	-Unassign...	✓	✓
20_005	P	0	11		17-03-2014 15:14	-Unassign...	✓	✓
60_007	P	0	11		17-03-2014 15:15	-Unassign...	✓	✓
50_004	P	0	11	26-05-2011 11:16	17-03-2014 15:14	-Unassign...	✓	✓
30_013	P	4	11	24-08-2011 13:15	17-03-2014 15:14	-Unassign...	✓	✓
60_008	P	0	11	15-06-2011 07:27	17-03-2014 15:15	dalsgaard	✓	✓
60_009	P	0	11	05-12-2011 11:51	17-03-2014 15:15	tamminen	✓	✓
50_002	P	0	11	12-12-2011 11:05	17-03-2014 15:14	akida	✓	✓
50_001	P	23	11	07-09-2011 07:14	17-03-2014 15:14	-Unassign...	✓	✓
40_015	P	0	11		17-03-2014 15:14	admin	✓	✓
30_011	P	8	11	27-07-2011 06:18	17-03-2014 15:14	-Unassign...	✓	✓
60_010	P	7	11	16-01-2012 07:47	17-03-2014 15:15	-Unassign...	✓	✓
10_001	P	0	11	05-01-2012 10:11	17-03-2014 15:13	boniphace	✓	✓
60_002	P	0	11	07-09-2011 07:34	17-03-2014 15:15	-Unassign...	✓	✓
20_009	P	0	11	22-02-2012 09:13	17-03-2014 15:14	-Unassign...	✓	✓
10_003	P	0	11	06-09-2011 06:46	17-03-2014 15:13	tunzo	✓	✓
60_003	P	0	11	13-01-2012 08:40	17-03-2014 15:15	thadeus	✓	✓
10_002	P	0	11	18-12-2011 05:53	17-03-2014 15:13	thadeus	✓	✓
20_008	P	0	11	28-10-2011 07:57	17-03-2014 15:14	-Unassign...	✓	✓

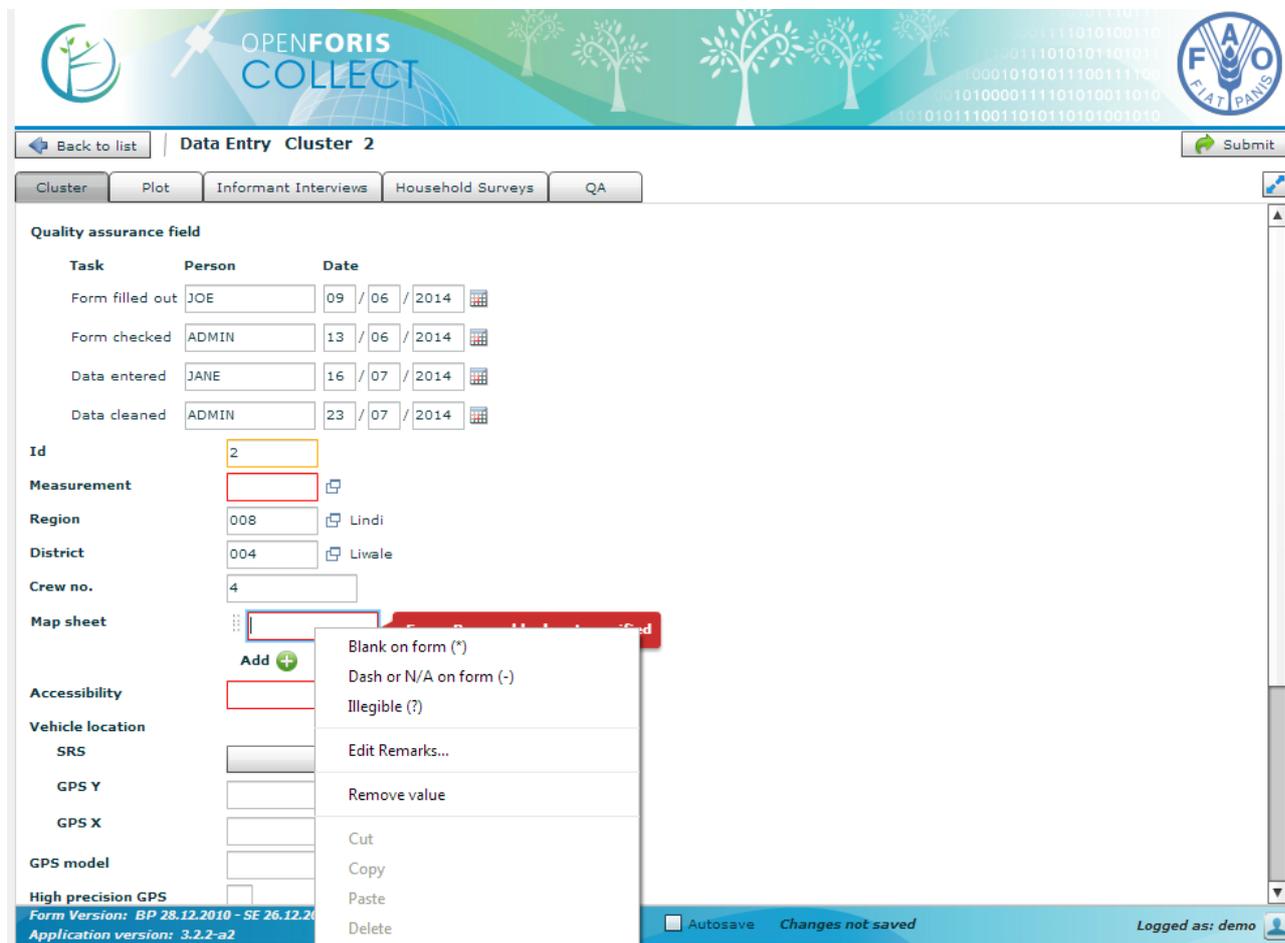
◀ ▶ 1 ▶▶  
Add Edit Delete 

Records can be *filtered* (click on filter icon in the top right corner) and *sorted* by columns. The advanced functions button (at the bottom) allows to *export* or *import* data as well as run a *Validation report*.

### Adding a record

Clicking on Add will open the data entry form as designed in the Survey Designer. The user can start to enter data moving from field to field using 'Tab'. The behaviour of each record field depends on its parameters as outlined in the Open Foris Collect Data Validation States at [http://km.fao.org/OFwiki/index.php/Open\\_Foris\\_Collect\\_Data\\_Validation\\_States](http://km.fao.org/OFwiki/index.php/Open_Foris_Collect_Data_Validation_States)

As shown in the image below, Errors will be highlighted in red, warnings in yellow. If no value was present in the paper form, the data entry user can leave the field blank and specify the reason (by right-click on the field and choosing one of the options)



**Quality assurance field**

Task	Person	Date
Form filled out	JOE	09 / 06 / 2014
Form checked	ADMIN	13 / 06 / 2014
Data entered	JANE	16 / 07 / 2014
Data cleaned	ADMIN	23 / 07 / 2014

**Id** 2

**Measurement** [Red box]

**Region** 008 Lindi

**District** 004 Livale

**Crew no.** 4

**Map sheet** [Red box]

**Accessibility** [Red box]

**Vehicle location**

**SRS**

**GPS Y**

**GPS X**

**GPS model**

**High precision GPS**

Form Version: BP 28.12.2010 - SE 26.12.2010  
Application version: 3.2.2-a2

Autosave  Changes not saved Logged as: demo

Once all the fields have been filled-in for a record, the user can **Submit** it (top-right corner). The record will be added to the log and available for the next steps in the data work flow.



User's details include Name and password and a check box for enabling access. Most importantly, each user will have a specified **Role** which will determine the level of access to different components of Collect and the ability to work on specific phases of data workflow.

#### Users' roles:

- **Data Entry:** Lowest level of permission. Data Entry users have access only to data entry phase, they are allowed to enter new records, edit own records, submit them for cleansing and export records.
- **Data Cleansing:** Same as Data entry + permission to edit records in cleansing phase and submit them to data analysis.
- **Data Analysis:** All previous rights + the ability to unlock records and re-submit them to data cleansing phase.
- **Administrator:** Full rights. All previous steps + Survey designer, Users management and ability to import data (records) in Data Management. If needed, more than one admin is allowed.

Users-Roles management can also be done from the Roles tab.



The screenshot shows the 'Users Management' interface with the 'Roles' tab selected. Below the tabs, there is a heading 'Select a role and associate it to the users'. The interface is divided into two columns: 'Roles' and 'Users'. In the 'Roles' column, 'ROLE\_ENTRY' is selected. In the 'Users' column, the 'jon' user is checked, while 'admin' is not.

Roles	Users
ROLE_ENTRY	<input type="checkbox"/> admin
ROLE_CLEANSING	<input checked="" type="checkbox"/> jon
ROLE_ANALYSIS	
ROLE_ADMIN	

## 8. Settings

From Collect Home, clicking on Settings allows the user to modify *Storage paths* customizations and *Layout images* customization.

### Storage paths customization:

- **Path of files uploaded in data entry** - this allows to modify the default path of the folder where files uploaded during data entry will be saved. For example in the case of attributes of type: file.
- **Path for the text attribute autocomplete index** - Every value entered in text fields are stored and they form the index of values available for autocomplete. Here it is possible to change the default path location.

**Note:** both customizations are mostly applicable when Collect is installed on a server in a multi-user environment. Unless needed, it is suggested not to modify the default paths.

### Layout images customization:

- This allows the users to modify the graphical appearance of Collect by modifying the Header, the top-right logo and the footer. Users can download and upload their own images paying attention to the required sizes (in pixels).

