Survey Solutions

Questionnaire Designer-User's Guide

Computational Tools, Development Research Group

ABSTRACT

Survey Solutions is a tool developed to improve survey data collection. Survey Solutions enables: 1) better communication between the enumerators and supervisors, 2) more reliable statistics due to checks performed during the interview and 3) more up to date statistics due to a reduced time lag between data collection and data analysis. This guide will help you to create your questionnaire using the Questionnaire Designer tool.

THE WORLD BANK GROUP

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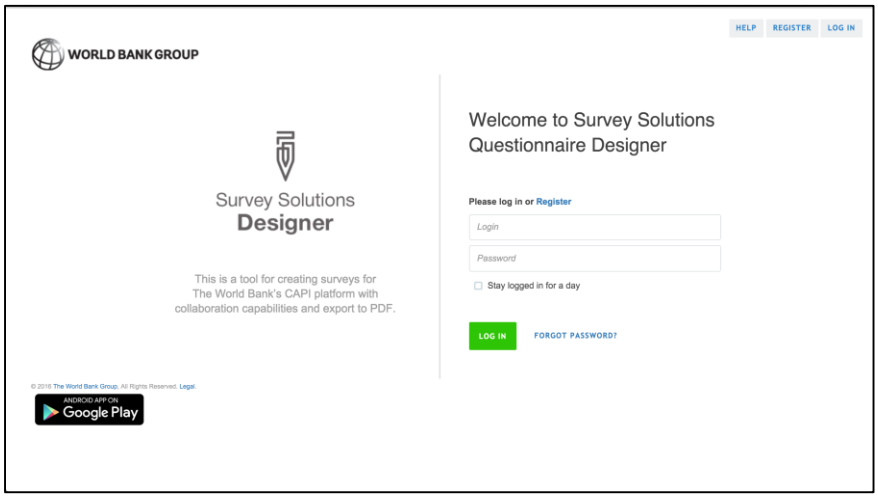
1. Getting started

1.1 Registration and signing in

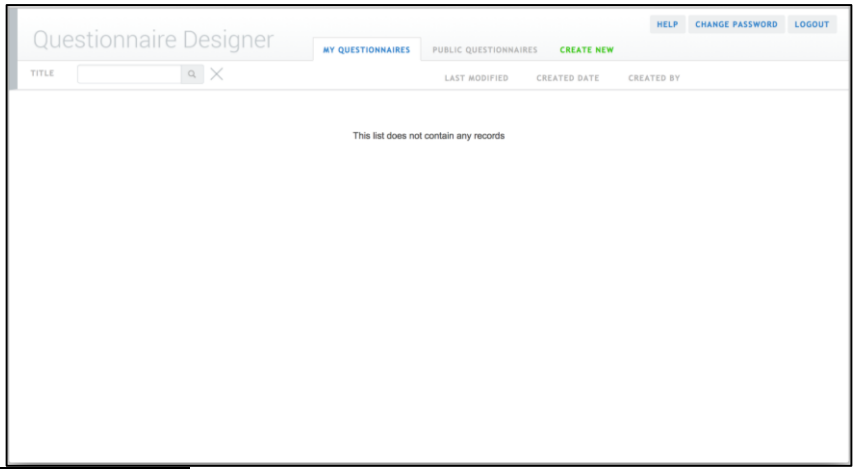
To start developing a questionnaire, open your web browser [1] and connect to the address *http://solutions.worldbank.org/.*

If you have not used the software before, you need to register with a new user account. Click on the *Register* link, choose your username and password and wait for a confirmation email to arrive in your inbox. Click on the link from the email to activate your account and sign into the system using the username and password that you had just defined.



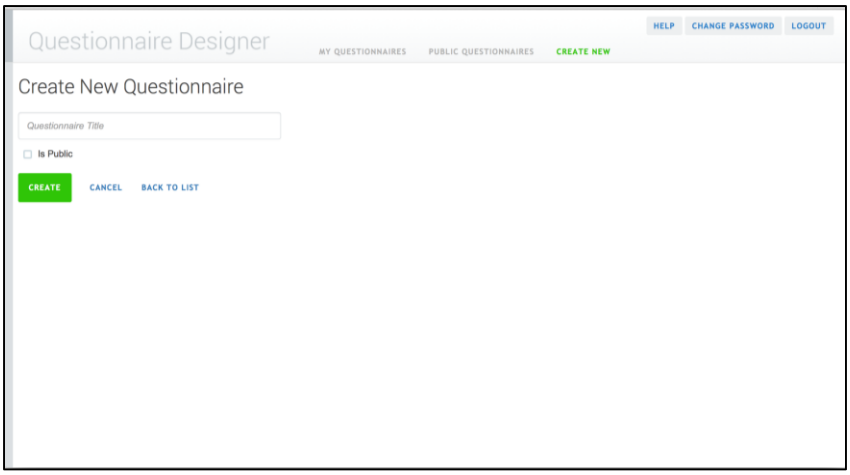
1.2 "My questionnaires" screen and creating a new questionnaire

The picture below shows the place where all the questionnaires, created by you or shared with you, are to be found. It is now empty, as you have just started working with the system. You can create a new questionnaire by clicking on the *Create new* tab at the top of the screen.



[1] Google Chrome, Internet Explorer or Mozilla Firefox

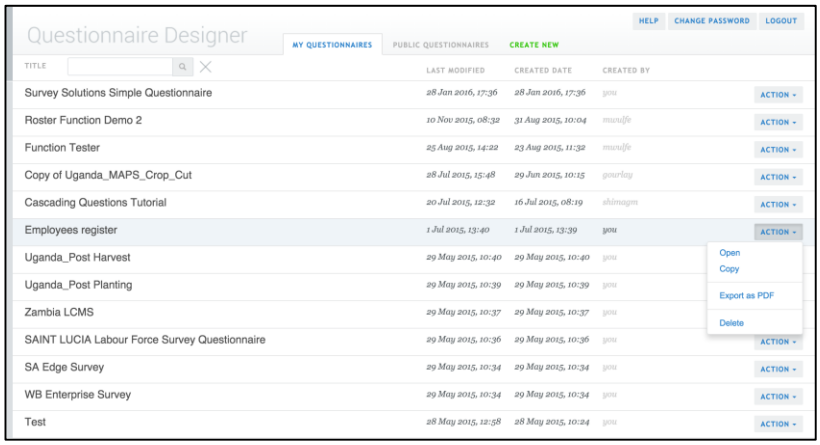
In the screen shown below, enter the name of the new questionnaire and click on the *Save changes* button.

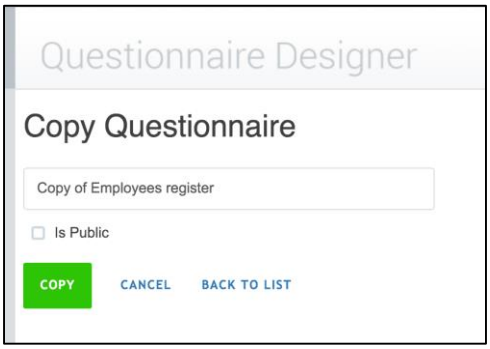


1.3 Copying a questionnaire

You can copy questionnaires that have been shared with you.

1. Click on the *Action* menu to the right of the questionnaire you would like to work on.
2. Select *copy* from the menu.
3. Enter the name for the copied questionnaire and click *copy*.





The questionnaire will now be listed on the *My questionnaires* screen.

2. Designer Interface

2.1 Edit questionnaire

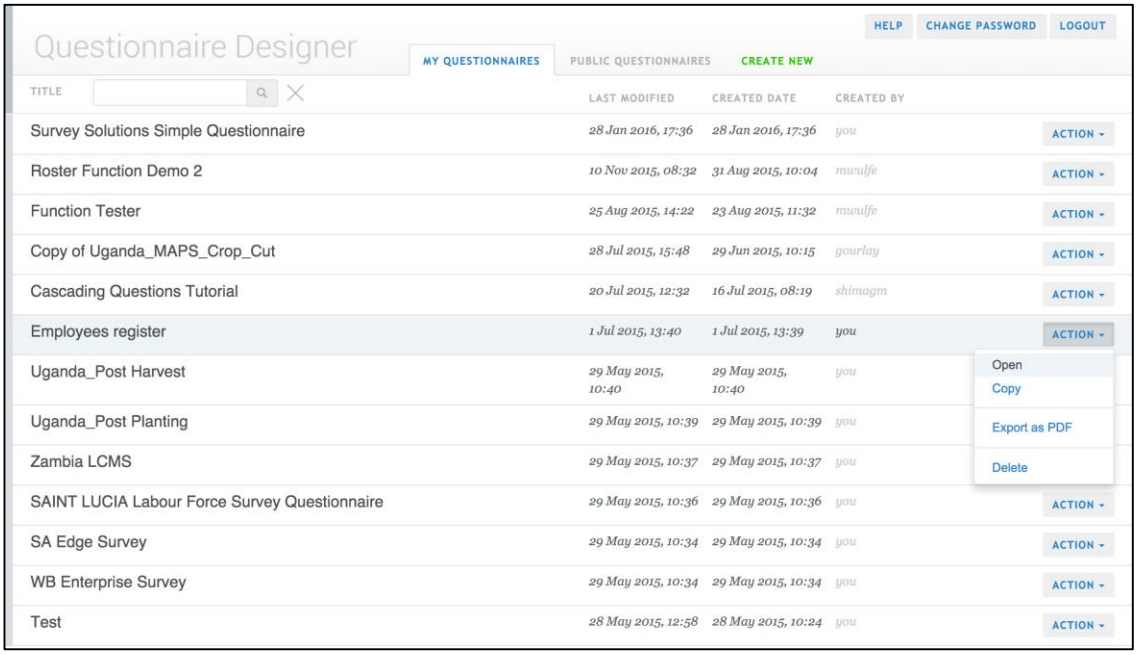
To start editing a questionnaire,

Method 1

1. Click on the *My questionnaires* tab.
2. Click on the questionnaire's name to display the editor screen.

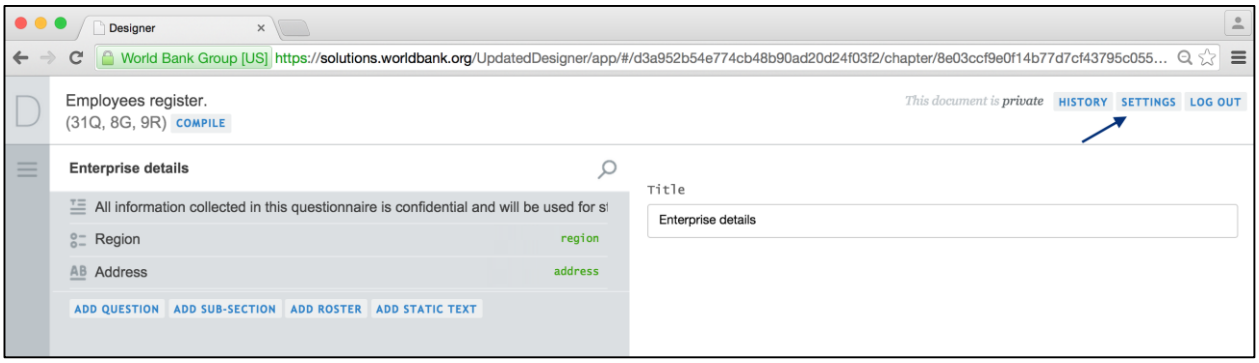
Method 2

1. Click on the *Action* button, located on the right hand side of the questionnaire's name
2. Select *Open* from the menu to display the editor screen.



2.2 Update settings

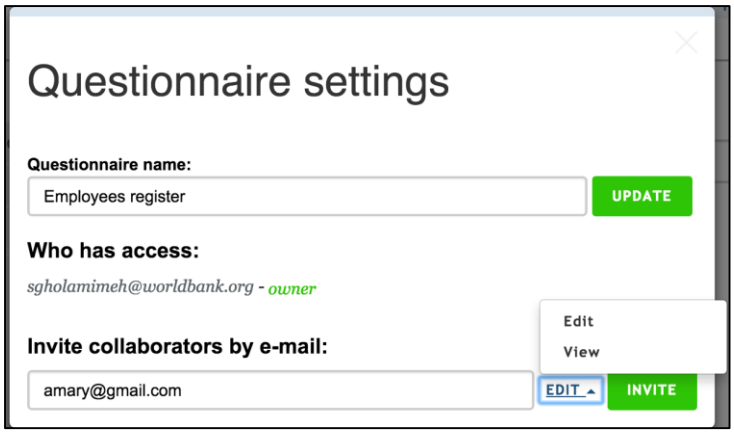
To update the settings of the questionnaire, click on the *Settings* button located at the top right of the page.



A. Update the questionnaire name in the *Questionnaire name* text box.

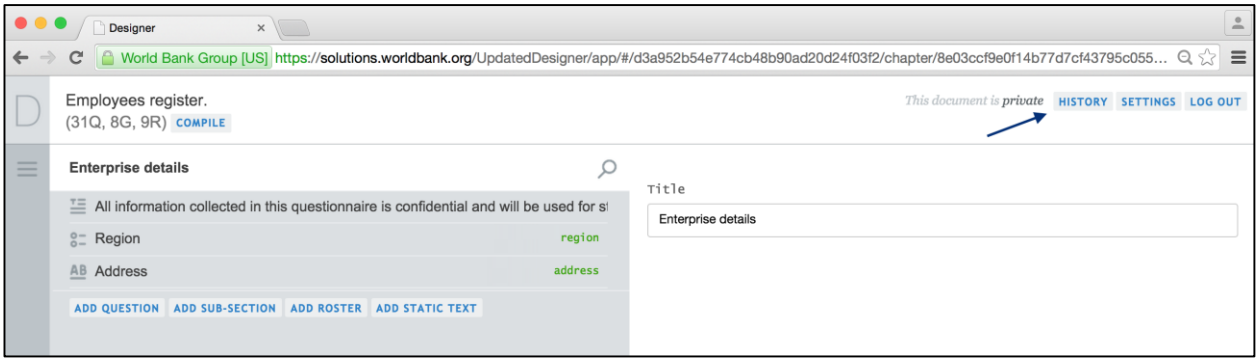
B. Share the questionnaire with more than one person to work on or only view the questionnaire at the same time. To do this, use the individual's email that has been registered with Questionnaire Designer (*http://solutions.worldbank.org/.)*

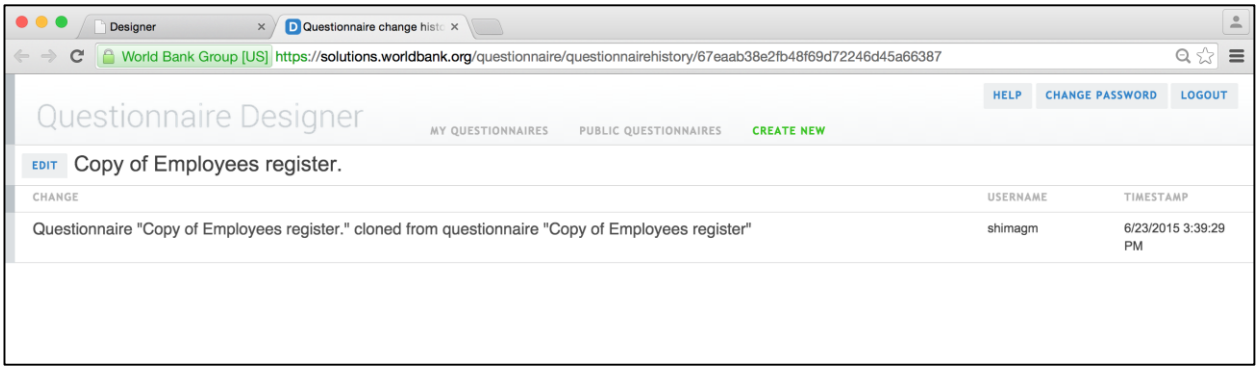
1. Type the individual's registered email in the *Invite collaborators by e-mail* text box.
2. Click on the *edit* link.
3. Either select *View* to allow read only privileges or *Edit* to allow the user to edit the questionnaire.



2.3 Recent changes to the questionnaire

To see a list of recent changes made to the questionnaire, click on the *History* button located at the top right of the page. This page will list the question that was changed along with the username of the person who made the change, and the time stamp for when the change occurred.



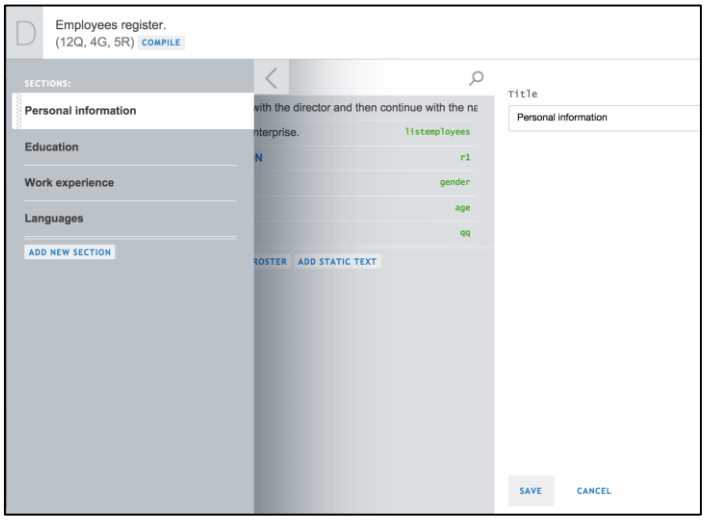
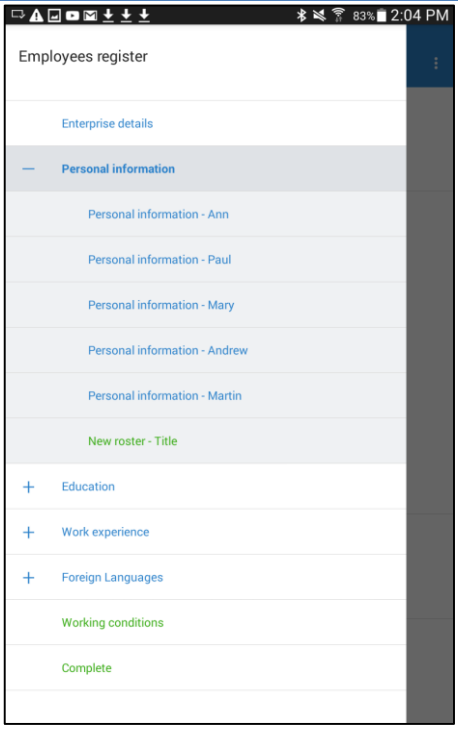


3. Sections

Any questionnaire created with this designer tool consists of sections.

Any questionnaire must have at least one section. Every section can in turn contain one or more:

- **Static-text**: sentence address to someone to deliver some information.
- **Question**: sentence (usually in interrogative form) address to someone to get specific information in reply.
- **Sub-section**: group of questions asked only once during the interview. For instance, it can be used to collect information on households' characteristics. Subsections can be nested[3].
  Roster: group of questions asked several times during the interviews. For instance, it can be used to collect information on households' members. Rosters can be nested[4].

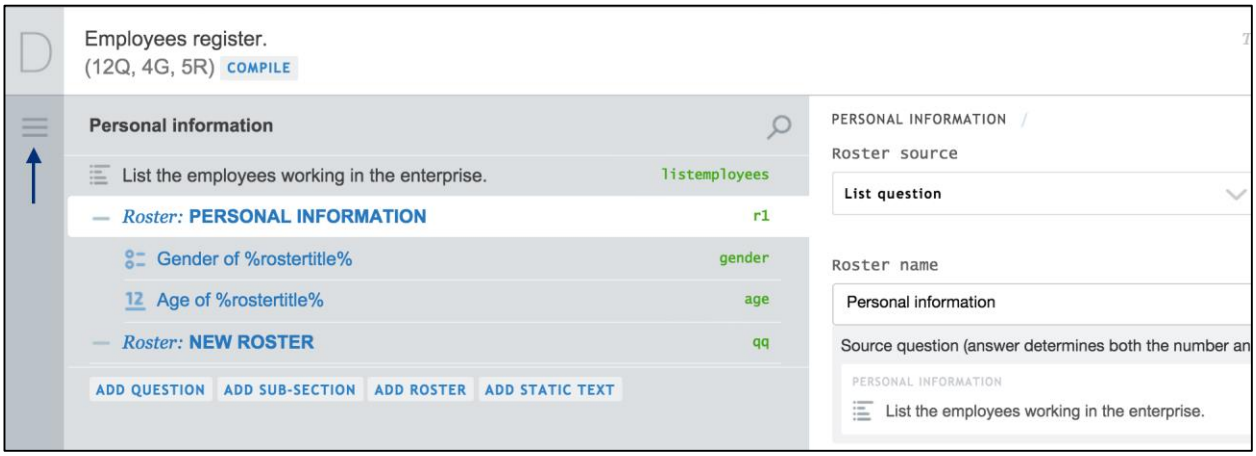
In the designer tool	On the tablet
	

[3] A subsection can contain another subsection inside.

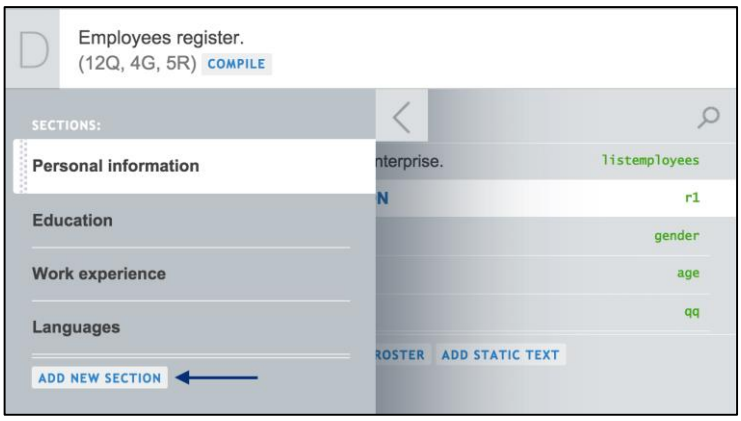
[4] A roster can contain another roster inside.

3.1 Create sections

1. Click on the button located at the top left of the screen. A new panel showing all the sections within the questionnaire will display.

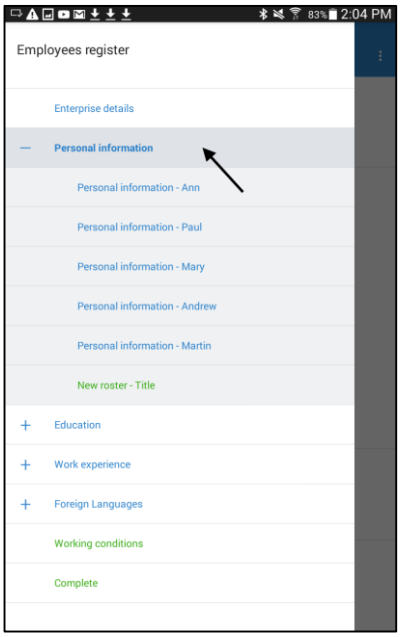


2. Click on the *Add new Section* button to add a new section.



On a tablet

Sections are displayed on the tablet as follows:



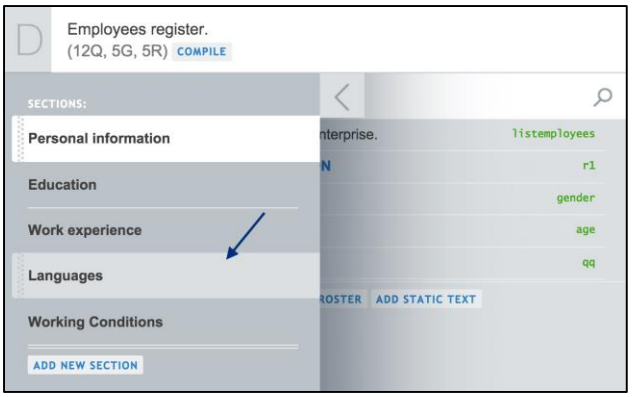
All sections are listed on the left hand panel and you can navigate through the questionnaire by clicking on the sections' names.

3.2 Selecting sections

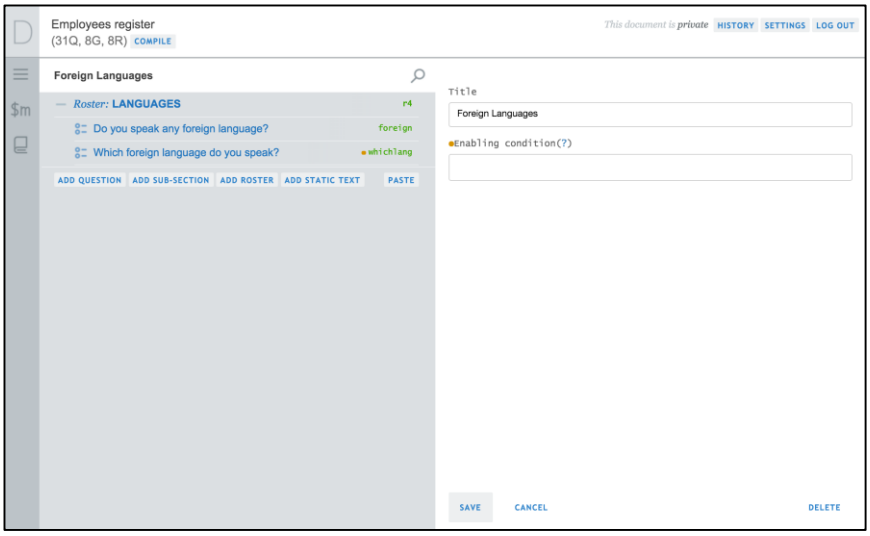
To select a section

1. Click on the button located at the top left of the screen. Doing so will display the panel containing the different sections.

2. Click on the section you would like to work with.



Once you select a section you can add, copy, move or delete questions, sub-sections, rosters and static-texts. In the right hand panel, you can add or modify section properties.



3.3 Defining section properties

To define the characteristics of a section, select the section to add or modify its properties in the right hand panel.

3.3.1 Title

The *Title* box contains the title of the section. Here, you may also use text substitution to reference questions and user-defined or system-defined variables. To do this, enclose the question or variable name with the percentage sign (%)

3.3.2 Enabling condition

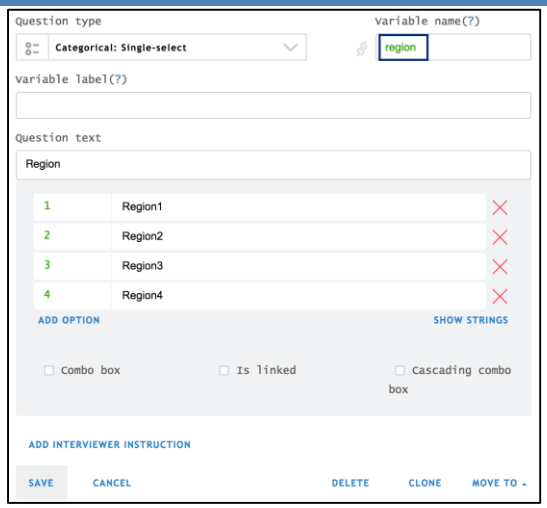
Enabling condition works in the same way as it does for questions (See 4.3.6 Enabling Condition). However, the enabling condition added to a section is applicable to every question, roster and sub-section within that section.

For example consider the categorical single-select question “Region” where: code 1 is “Region1”, code 2 is “Region2”, code 3 is “Region3” and code 4 is “Region4”. Then, there is the section “Information about the Enterprise” having questions, sub-sections of questions and rosters that we would like to ask only to

the enterprises located in “Region1” or “Region2”. To accomplish this, we add the following enabling condition: “region.InList(1,2)” to the section “Information about the Enterprise”. By doing this, the questions, sub-sections and rosters within this section will be enabled only if the answer to the question “Region” is “Region1” or “Region2” (codes 1 and 2 respectively).

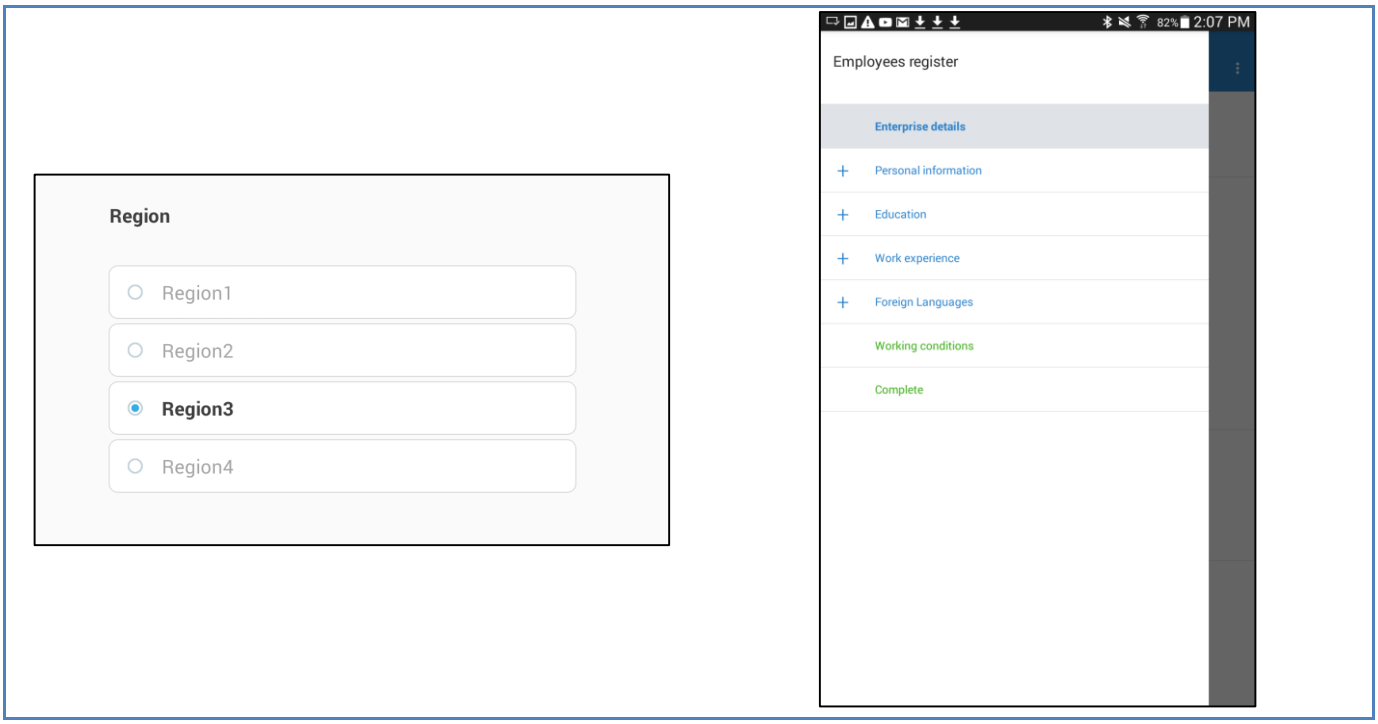
To hide the section if it is disabled, select the *Hide if disabled* check box. This option is not available for the first section in a questionnaire.

In the designer - “Region”

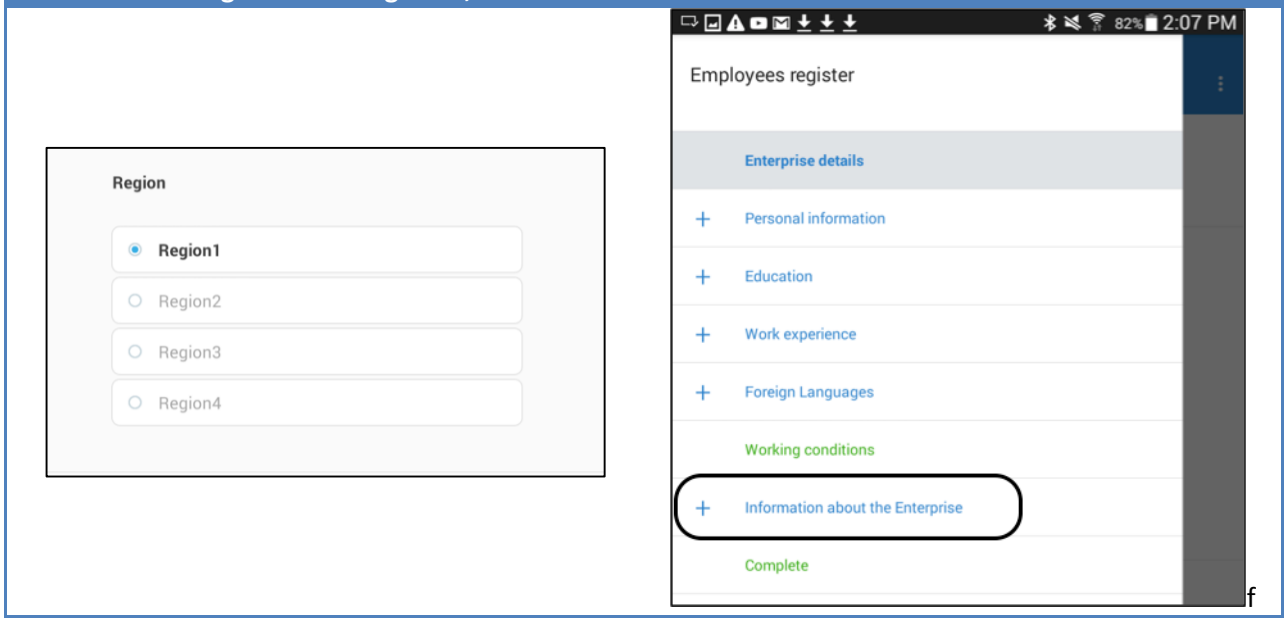


In the designer - “Information about the Enterprise”

On the tablet - When the answer to “Region“ is “Region3” or “Region4”, the objects within the section are disabled.



On the tablet - When the answer to "Region" is "Region1" or "Region2", the objects within the section are enabled.



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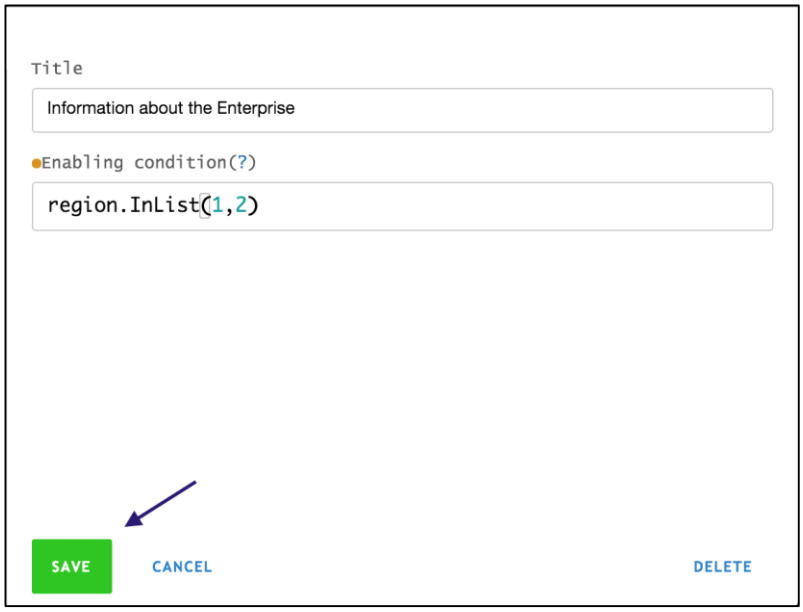
3.4 Saving sections

Once you have finished defining the characteristics of the section in the right hand panel, click *SAVE* to confirm the changes.



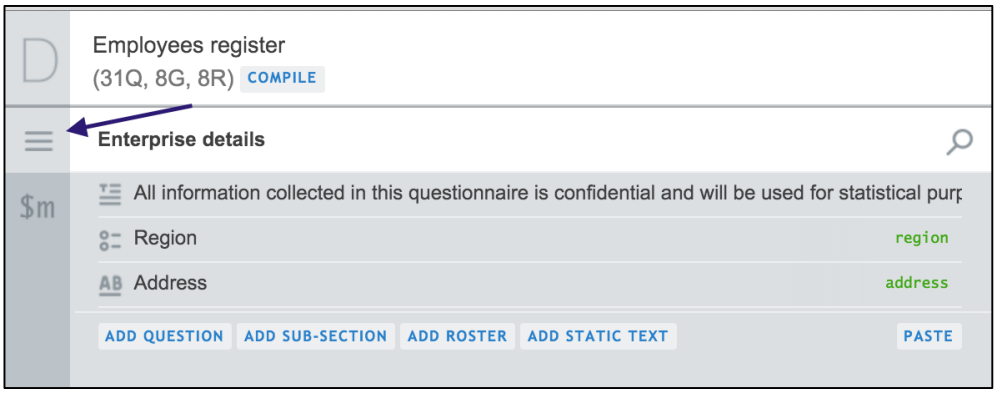
3.5 Copying sections

There are two ways to copy and paste a section from another questionnaire or from within a questionnaire you are currently working on.

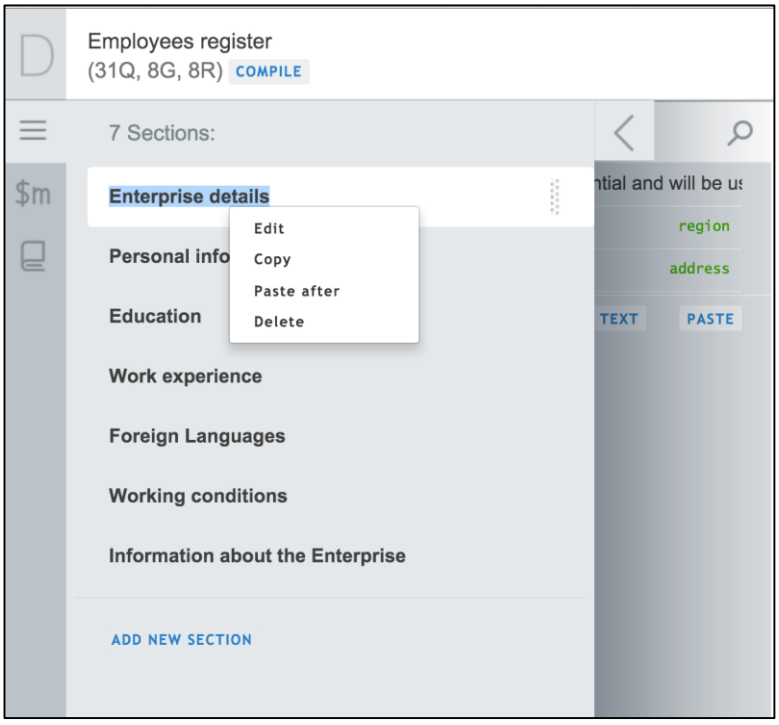
3.5.1 First Method

To copy and paste a section,

1. Click on the navigation button on the left hand panel.

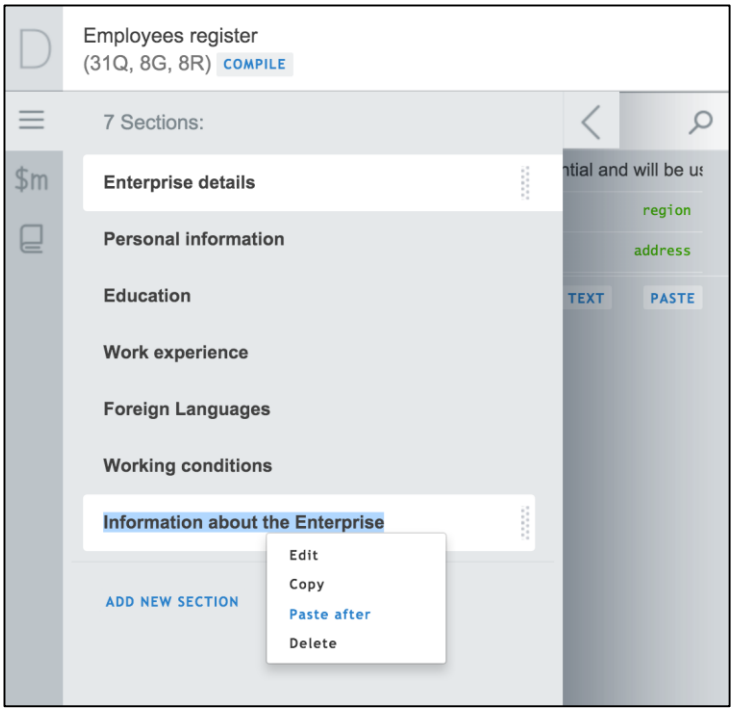


2. Right click on the section that you want to copy and select *COPY*.



(If you want to past the section in another questionnaire, open that questionnaire in Designer.)

3. In the navigation menu on the left hand panel, right click on the section that should precede the section you have copied.
4. Click *PASTE AFTER*.

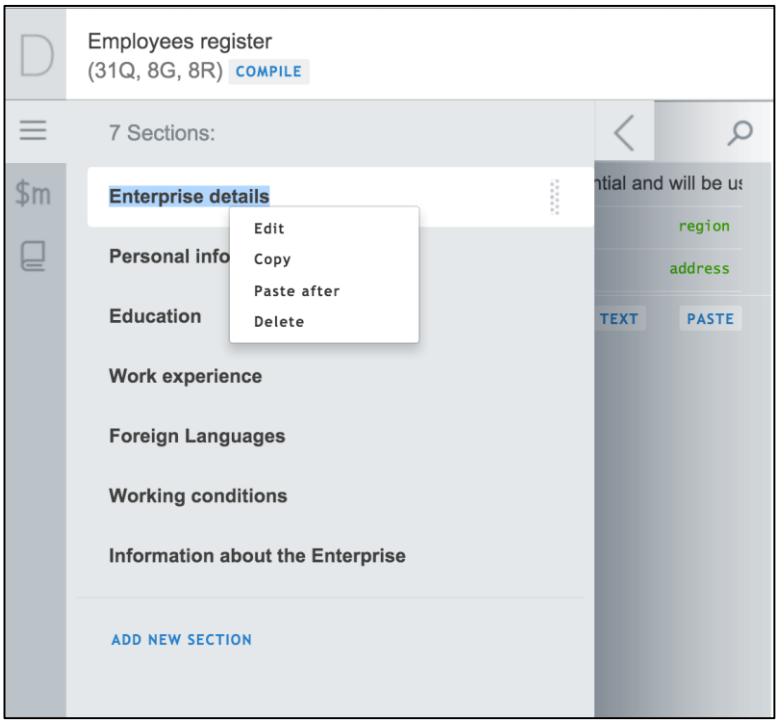


3.5.2 Second Method

To copy and paste a section,

1. Click on the navigation button on the left hand panel.

2. Right click on the section that you want to copy, and select *COPY*.



(If you want to past the section in another questionnaire, open that questionnaire in Designer.)

1. In the navigation menu on the left hand panel, open the section where you want to copy the section in.
2. Click *PASTE* on the bottom right side of the section navigation pane.

Note the following:

- Copying sections from a different questionnaire doesn't necessarily create a valid questionnaire. The copied questions may refer to the variables that don't exist in the new questionnaire or contain variable names already utilized elsewhere in the new questionnaire. These inconsistencies must be resolved with manual edits.

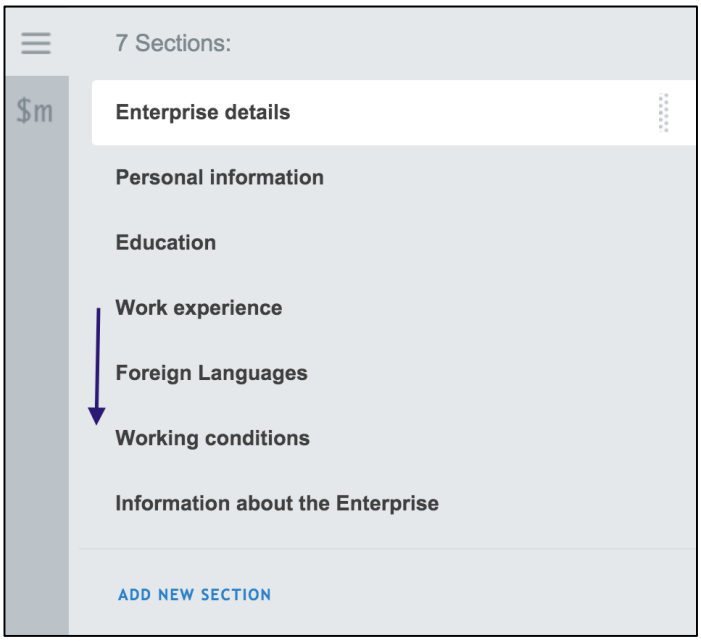
- Copying and pasting must be done with the same browser. One can't copy and paste to a different browser or any other program.

3.6 Moving sections

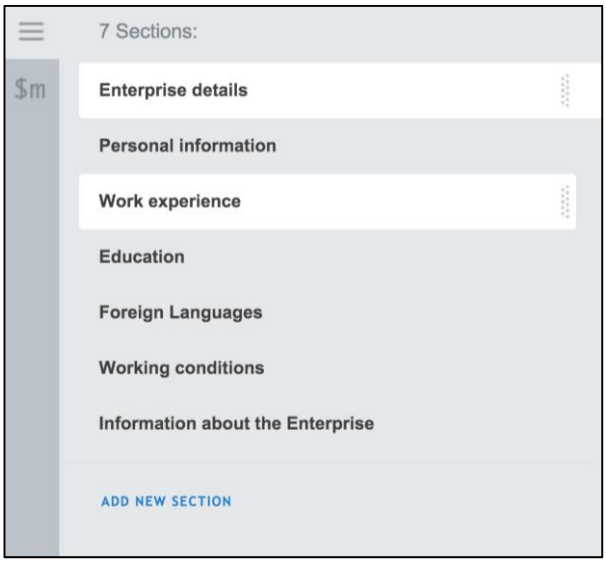
To move a section,

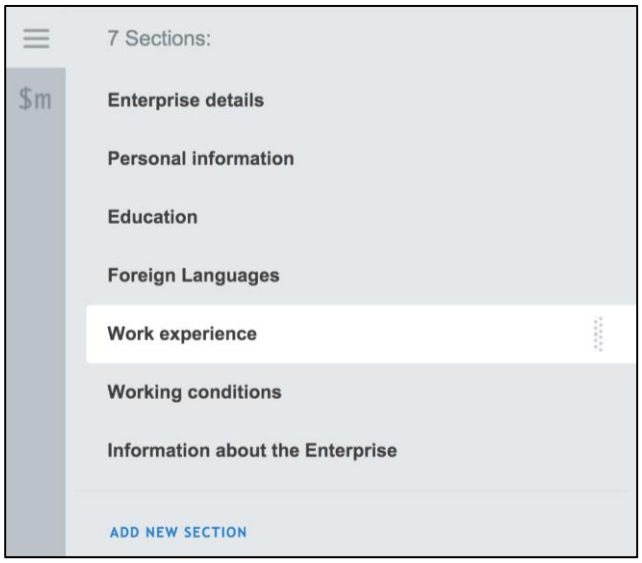
1. Click on the button located at the top left of the screen. Doing so will display the panel containing the different sections.

2. Now, move your mouse over the left hand side of the section you would like to move and click.



3. Drag the section and release it in its new location.





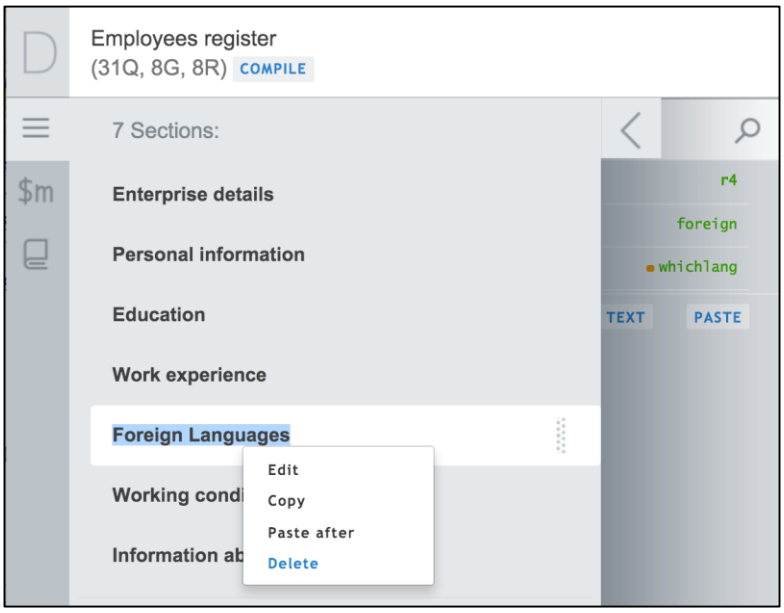
3.7 Deleting sections

There are two methods for deleting a section.

3.7.1 First method

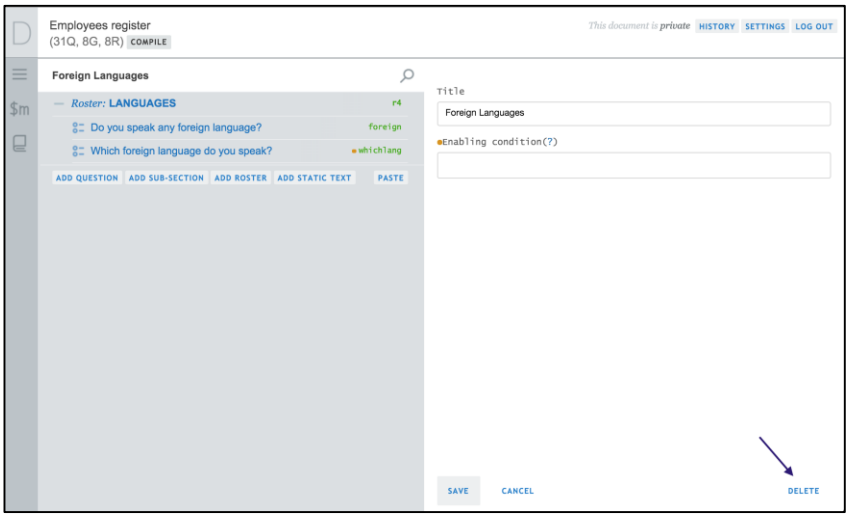
1. Click on the button located at the top left of the screen. Doing so will display the panel containing the different sections.

2. Right click on the section you would like to delete.
3. In the pop-up menu click on the *DELETE* link.



3.7.2 Second method

1. Select the section you would like to delete
2. Click on the *DELETE* link in the right hand panel.

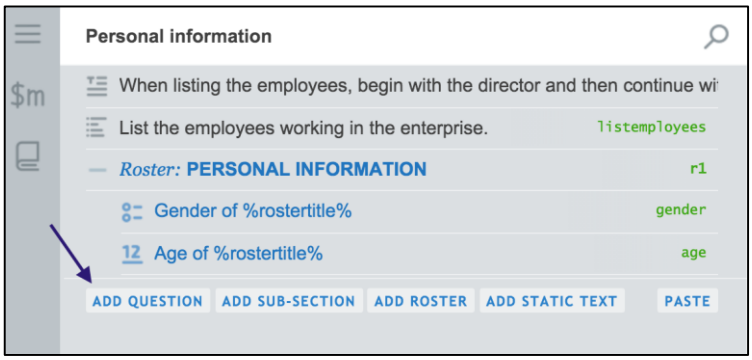


4. Questions

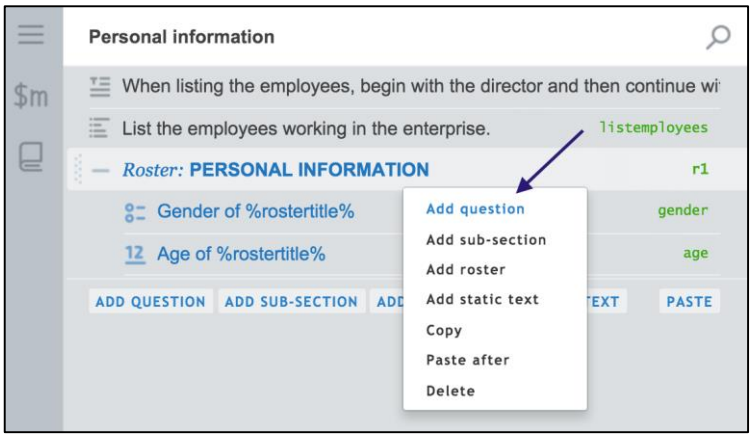
4.1 Adding questions

You can add a question at the section level (not included in any sub-section or roster), within sub-sections or rosters, or after any question in the questionnaire.

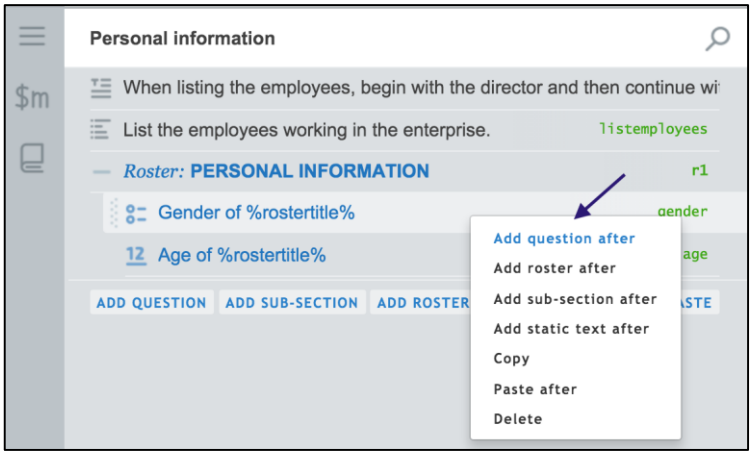
To add a question at the section level, click on the *Add Question* button located on the left hand panel.
These questions are created in black. See the example of "List the employees working in the enterprise".



To add a question within a specific sub-section or roster, right click on the group. Then, in the pop-up menu bar displayed click on *Add Question*.

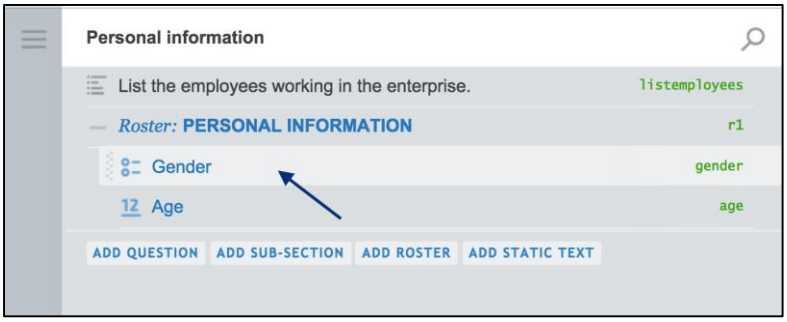


To add a question after a specific question, right click on the question. Then, in the pop-up menu bar displayed click on *Add Question After*.

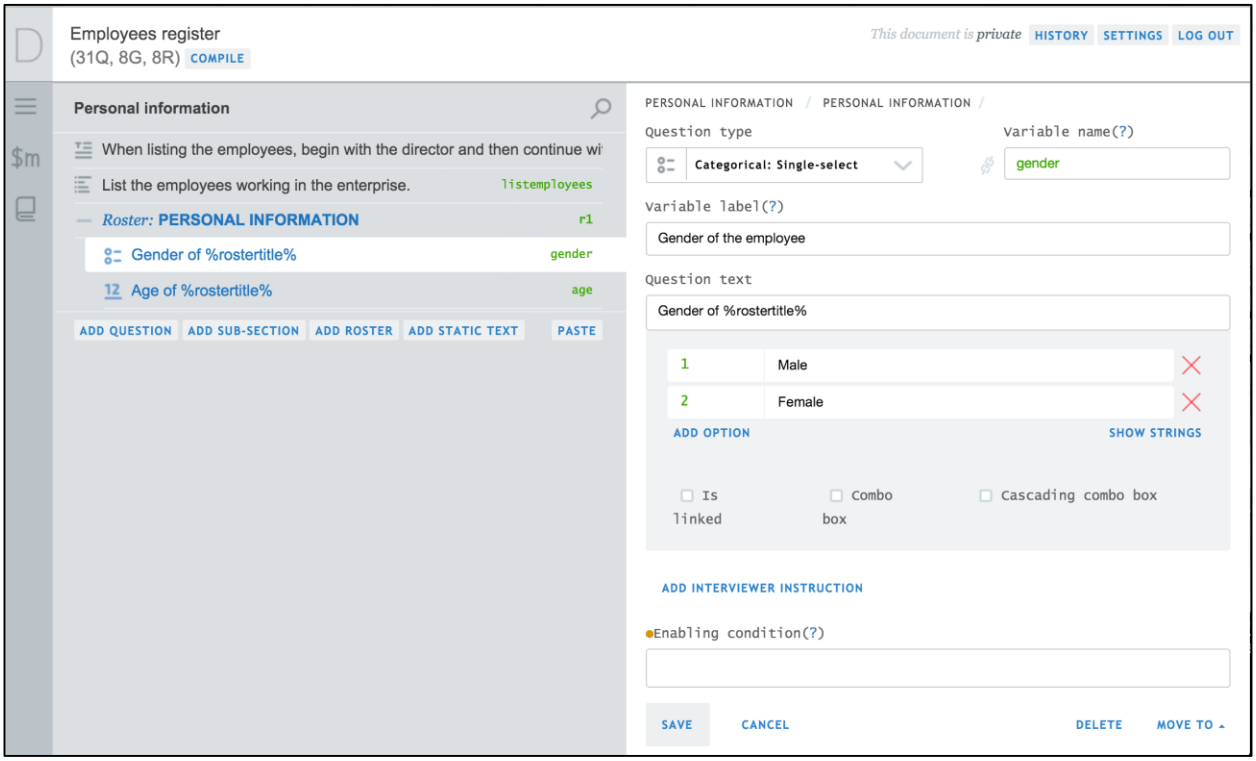


4.2 Selecting questions

In the left hand panel, click on the question you would like to work with.



Once you select a question, you can add or modify the question's properties in the right hand panel.

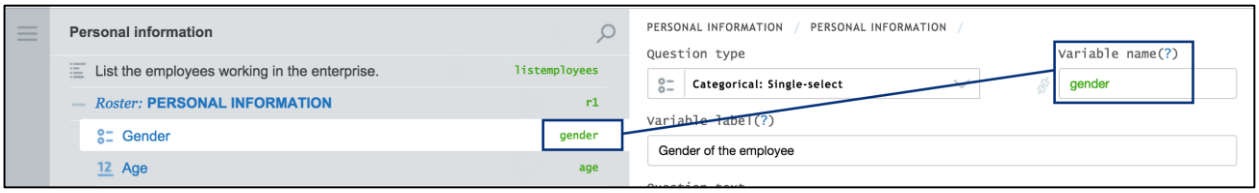


4.3 Defining question properties

When you select a question, you can see its details on the right hand panel. Questions are defined by a set of properties. Some features are common to almost all question types, and others are defined for a specific question type.

4.3.1 Variable name

The *variable name* is the unique identifier of a question, which is useful when exporting the data for analysis. It has to start with a letter, but can also contain numbers and the underscore symbol. As it is not needed during the interview, the variable name is not visible on the tablet.



4.3.2 Label

The *variable label* is the description of the data captured by the question and it will be associated to the variable name when exporting the data to a statistical software package. If the variable label is not entered, the system automatically exports the question text as its label. As it is not needed during the interview, the variable label is not visible on the tablet.

4.3.3 Question text

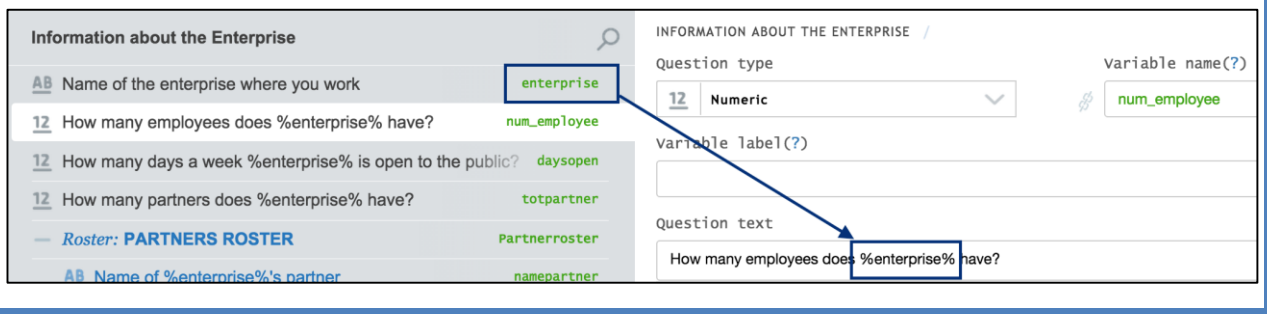
The *Question text* box contains the text that the enumerator will read to the interviewee. Therefore, it is suggested to use regular language when defining the text. For instance, *"How many people live in your household?"* instead of *"People living in the HH".*

The text of the question can be interactive; this means that it can change according to answers given in previous questions. There are two methods for applying this feature.

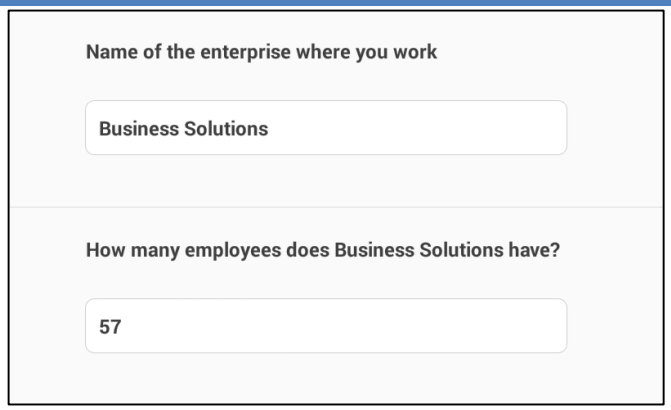
4.3.2.1 First method

Use an answer given in any previous question in another question's text. To do this, include in the question's text the variable name of a previous question within percentage symbols.

Dynamic title in the designer



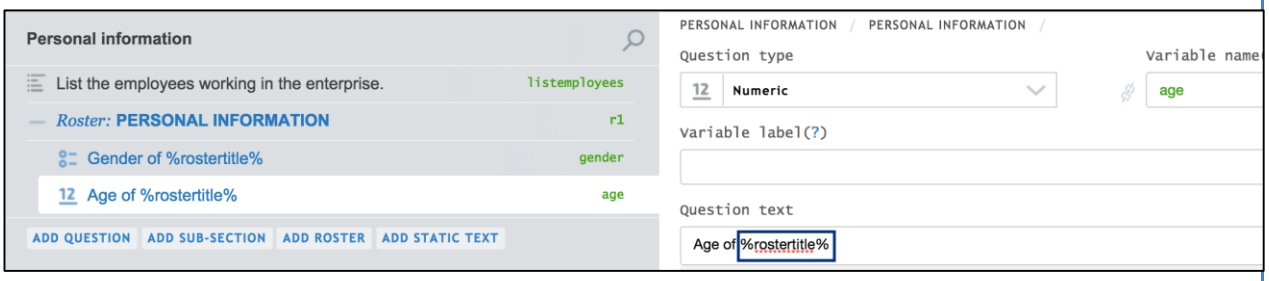
Dynamic title on the tablet



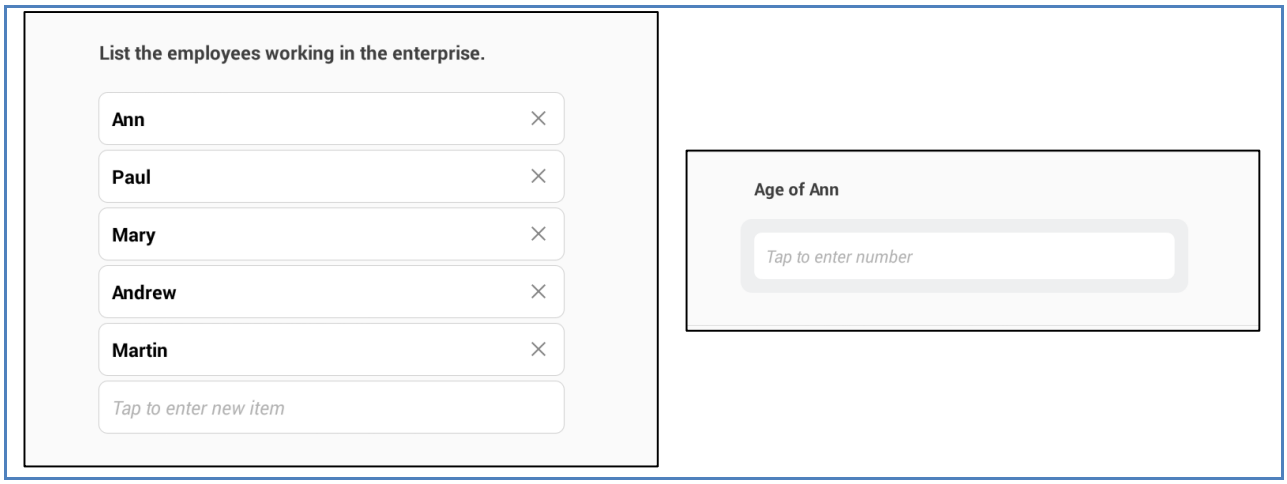
4.3.2.2 Second method

Use an answer given to a previous question that triggers a roster in the *question text*. To do this, include "rostertitle" within percentage symbols in the question text.

Dynamic title in the designer



Dynamic title on the tablet



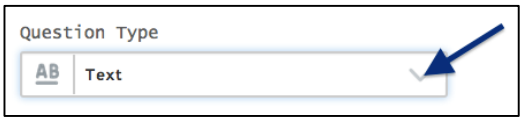
4.3.4 Type

The expected answer type determines the *question type* [5] to use.

Expected answer	Question type
Select one answer from a list of possible answers	Categorical: Single-select
Select more than one answer from a list of possible answers	Categorical: Multi-select
A number (integer or decimal)	Numeric
A date	Date
A text	Text
A GPS coordinate	GPS
A list of answers	List
Capture a barcode	Barcode
Capture a binary file e.g. photo	Picture

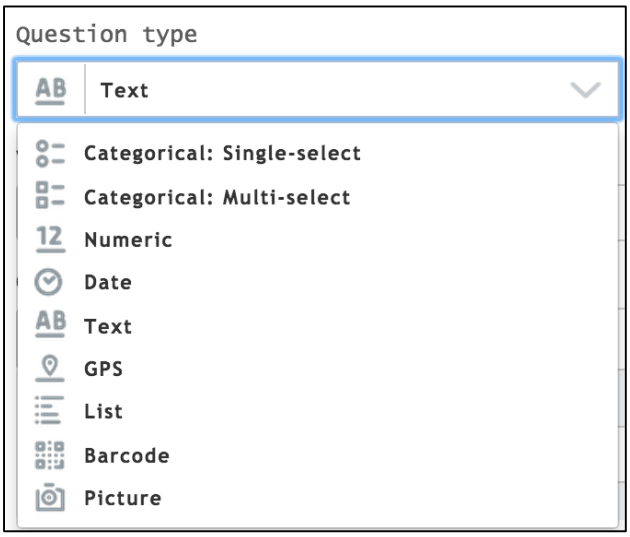
To define the question type,

1. Click on the *question type* dropdown box.



[5] For a detail description of the different types of question refer to: "A guide to different question types" that can be found at http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTCOMPTOOLS/0,,contentMDK:23568084~pagePK:64168176~piPK:64168140~theSitePK:8213597,00.html

2. From the pop-up menu select the question type by clicking on it.

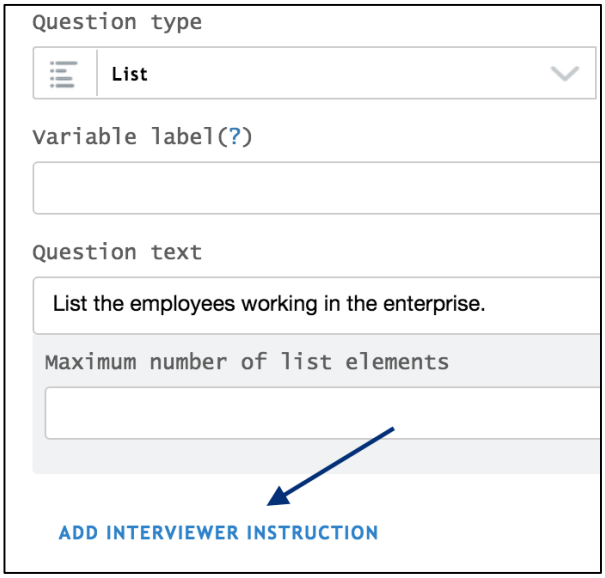


4.3.5 Instructions

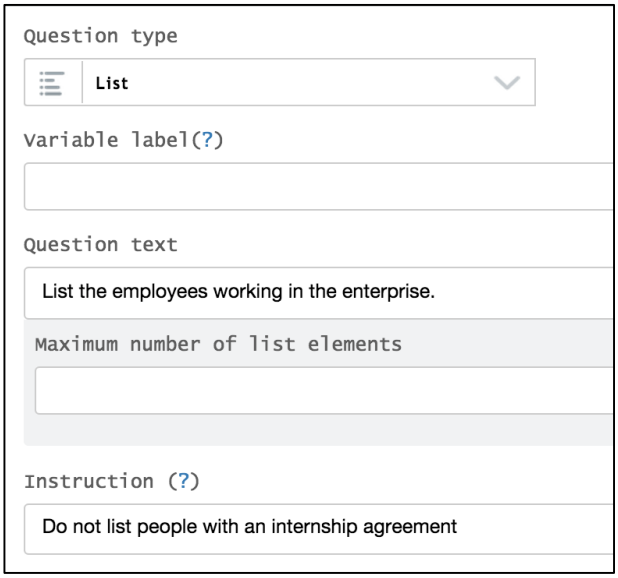
For each question, you can add instructions to be read by the enumerator while performing the interview.

In the designer

To add an instruction first click on the *Add Interviewer instructions* link.

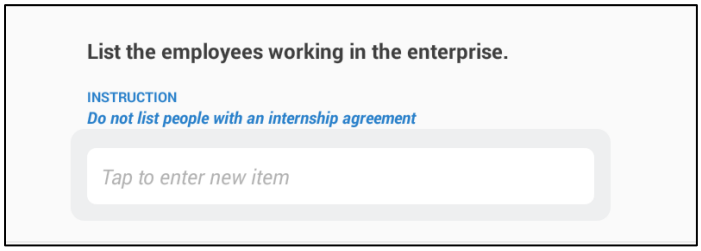


Then, add the text in the field.

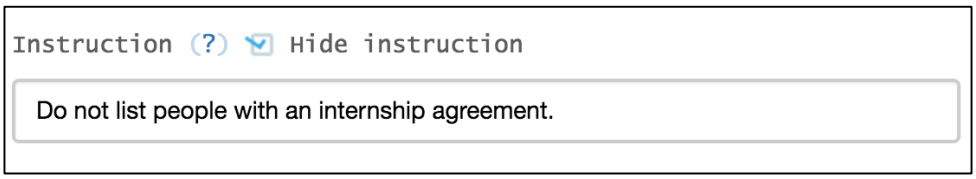


On the tablet

The instructions will be shown in blue on the tablet.



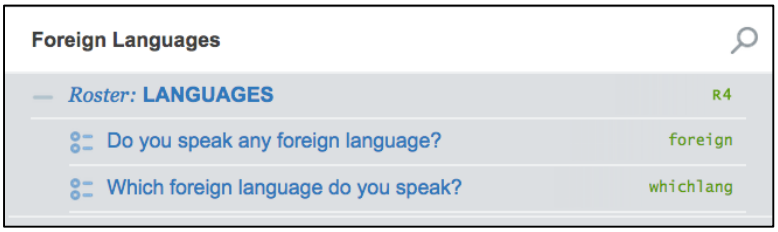
The instructions specified can also be hidden until the interviewer clicks on Instruction link to reveal the text. To do this, check the *Hide instruction* check box.



4.3.6 Enabling condition

Enabling conditions are the Survey Solutions equivalents of skip patterns in paper-based questionnaires. By using conditions you can enable or disable certain questions based on the answers an interviewee has given in previous questions. For this reason, at least two questions are involved, let's call them: the unleash question and the recipient question.

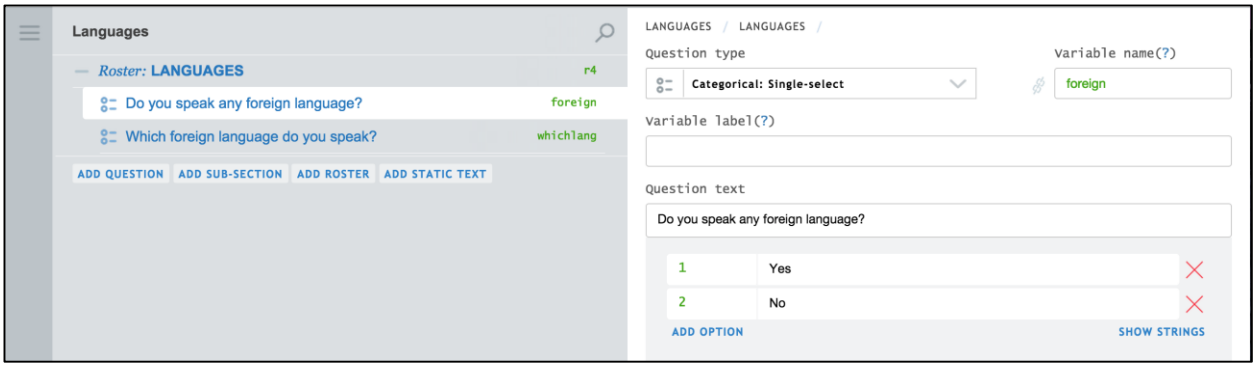
For example, if the template has the questions "Do you speak any foreign language?" and "Which foreign language do you speak?"



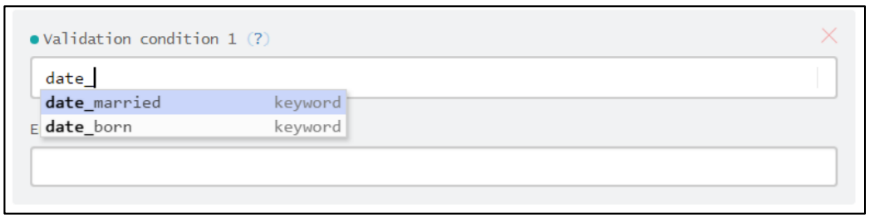
it does not make sense to ask the second question if the interviewee does not speak a foreign language. Therefore, in this example the first question is the unleash one and the second is the recipient one. If the answer to the unleash question is "Yes", the recipient question is enabled. On the contrary if the answer is "No", the recipient question remains disabled.

Conditions are written in C# programming language, which is very easy to learn. You simply have to connect a variable name[6] with values or another variable name using logical operators.

For this example, the unleash question is a *categorical: Single-select* question with variable name *foreign* and possible answers: 1-"*Yes*" and 2-"*No*"



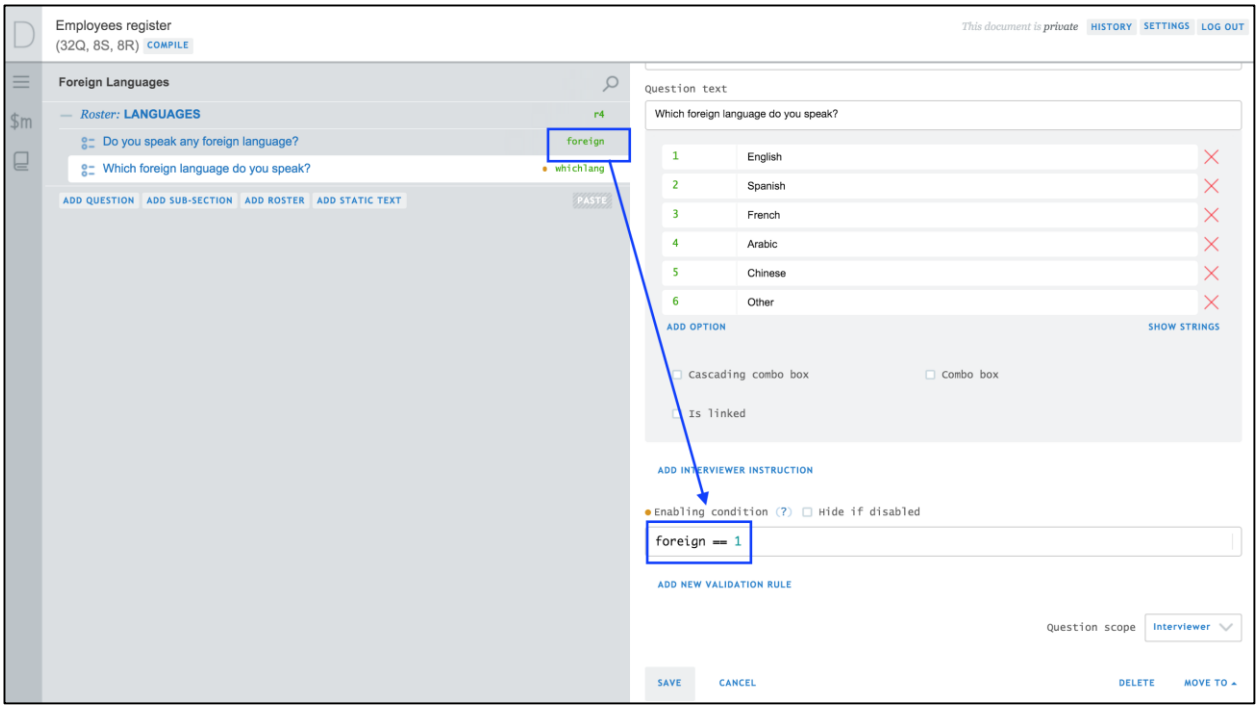
Write the logical expression in the *Enabling condition* text field of the recipient question. The text box autosuggests roster names and variable names as you type syntax conditions and helps avoid confusion with numerous standard C# keywords.



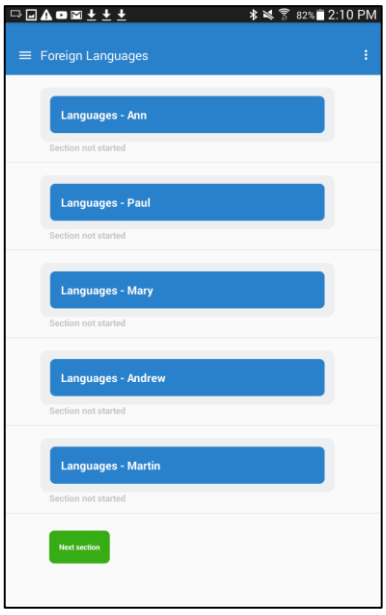
The question will appear greyed out if it is disabled. To hide the recipient question if it is disabled, select the *Hide if disabled* check box.

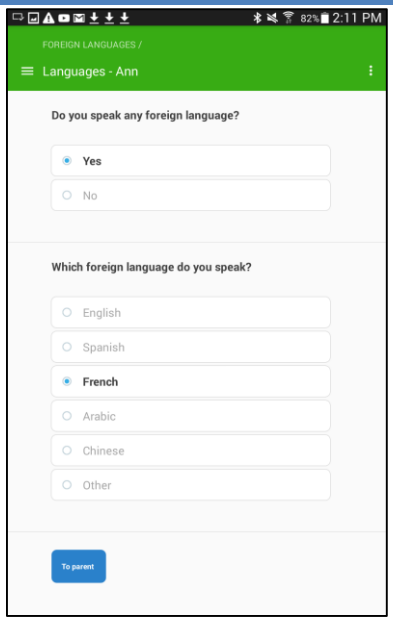
In the example the condition expression to enable the recipient question is: `foreign== 1`

[6] Defined in the *Variable* field



How does this example look on the tablet?





In the tables below you can find a list of logical operators and functions corresponding with specific question types and some examples that you can use in condition expressions.

Logical operator	Description	Type of questions
>	Greater than	Numeric and Categorical: Single-select
<	Less than	Numeric and Categorical: Single-select
==	Equal to	Text, Numeric and Categorical: Single-select
!=	Not equal to	Text, Numeric and Categorical: Single-select
<=	Less than or equal to	Numeric and Categorical: Single-select
>=	Greater than or equal to	Numeric and Categorical: Single-select
variableName.InList(x,y)	Is within a list of options (x or y)	Categorical: Single-select
variableName.ContainsAny(x,y)	Contains x, or y, or both	Categorical: Multi-select
variableName.Contains(x)	Equal to x	Categorical: Multi-select

Function	Description	Type of questions
variableName.InList(x,y)	Is within a list of options (x or y)	Categorical: Single-select
variableName.ContainsAny(x,y)	Contains x, or y, or both	Categorical: Multi-select
variableName.Contains(x)	Equal to x	Categorical: Multi-select
variableName.Yes.Contains(x,y)	Items X and Y are marked “yes”	Categorical: Multi-select in Yes/No mode

Many functions are available, such as calculating body mass index (BMI), checking if a value is between two specified values, and so on. For a complete list of functions, refer to the Functions Index document.[7]

[7] For a list of available functions refer to: “Survey Solutions: Functions Index” that can be found at http://siteresources.worldbank.org/INTCOMPTOOLS/Resources/8213623-1380598436379/func_index.pdf.

Unleash questions	Categories in unleash questions	Recipient question	Condition expression in recipient question
How many children does %name% have? *Variable name: children*		How many of them are males?	children>0
At what age has %name% started working? *Variable name: startwork*		What is the reason for which %name% started working?	startwork<12
Gender of %name% *Variable name: gender*	1. Male, 2. Female	Has %name% ever been pregnant?	gender==2
Short description of %name%'s primary occupation. (if unemployed write: none) *Variable name: occupation*		What is %name% total income?	occupation!=”none”
Age of %name% *Variable name: age*		What is %name%'s height?	age<=2
Age of %name% *Variable name: age*		Has %name% ever been employed?	age>=12
What is %name%'s marital status? *Variable name: maritalstatus*	1. Single 2. Married 3. Divorced 4. Widow/er	Does %name% receive a pension from their former partner?	maritalstatus.InList(3,4)
Select the cereals cultivated in your land. *Variable name: cereals*	1. Rice 2. Maize 3. Wheat 4. Barley 5. Other	How many tones of Wheat do you produce yearly?	cereals.Contains(3)

You can connect different conditions by using the symbols "&&" and "||", for the logical operators *and* and Or, respectively. For example:

```
age < 18 || age > 65
age > 18 && employed == 1
```

Also conditions can be grouped using parenthesis. For example:

```
(age < 18 || age > 65) && employed == 1
```

Expressions can also include references to specific rows within rosters by using the system-generated variables displayed in the table below. It is advisable to refrain from using @rowindex, due to the dynamic nature of rosters.

System generated variables	Description
@rowcode	Row code
@rowname	Row title
@rowindex	System generated code
@roster	Alias for the roster variable name from the perspective of the current cell

Expressions can also include any one of the 70 Math functions to perform mathematical transformations. For example, functions like Math.Round(), Math.Floor(), Math.Ceiling() can be used for rounding fractions to integer values, Math.Abs() can be used to obtain an absolute value, etc. The full description of the Math library functions is available from Microsoft at the following address: https://msdn.microsoft.com/en-us/library/system.math(v=vs.110).aspx .

4.3.7 Validation condition

Validation conditions are created similarly to enabling conditions. Instead of evaluating whether the question has to be displayed, it determines whether the answer given by the interviewee is acceptable. You can have up to 10 validation conditions for each question.

For instance, consider the question "How many employees does %enterprise% have?" with *variable* name "*num_employee*". If the value 0 is not an acceptable answer, the validation condition to prevent this answer would be:

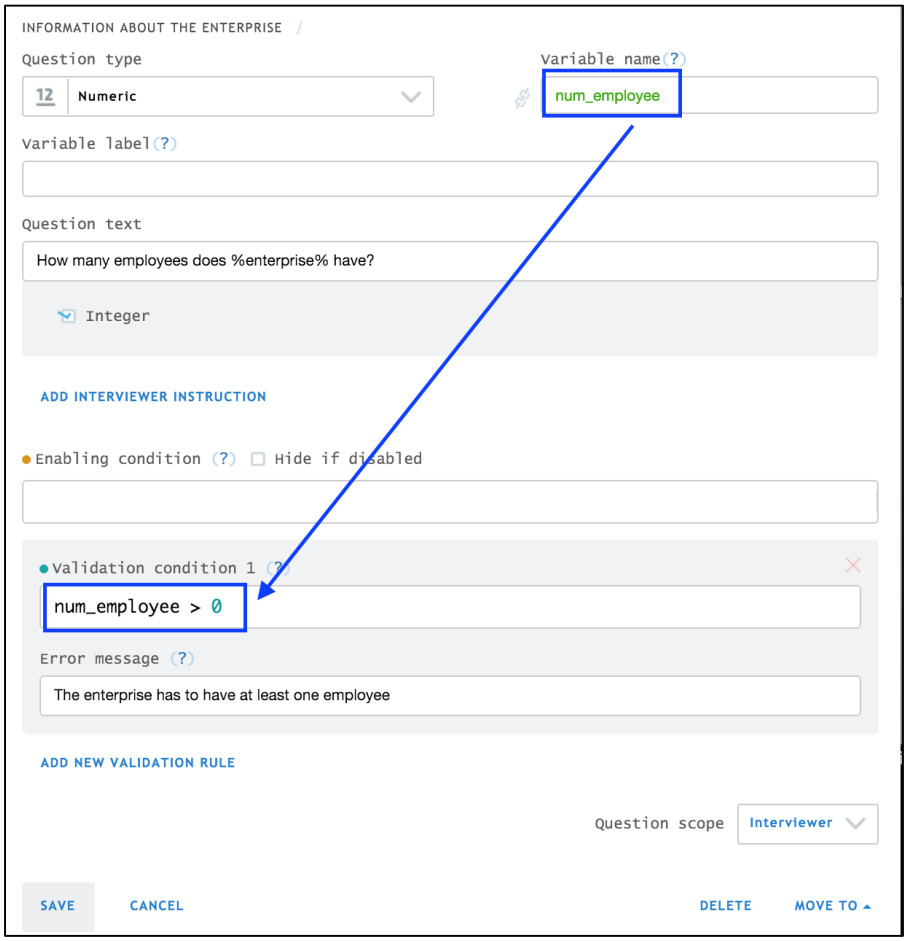
```
num_employee > 0
```

or equivalently (using special variable *self,* which denotes the value of the answer being validated):

```
self > 0
```

To add a validation condition,

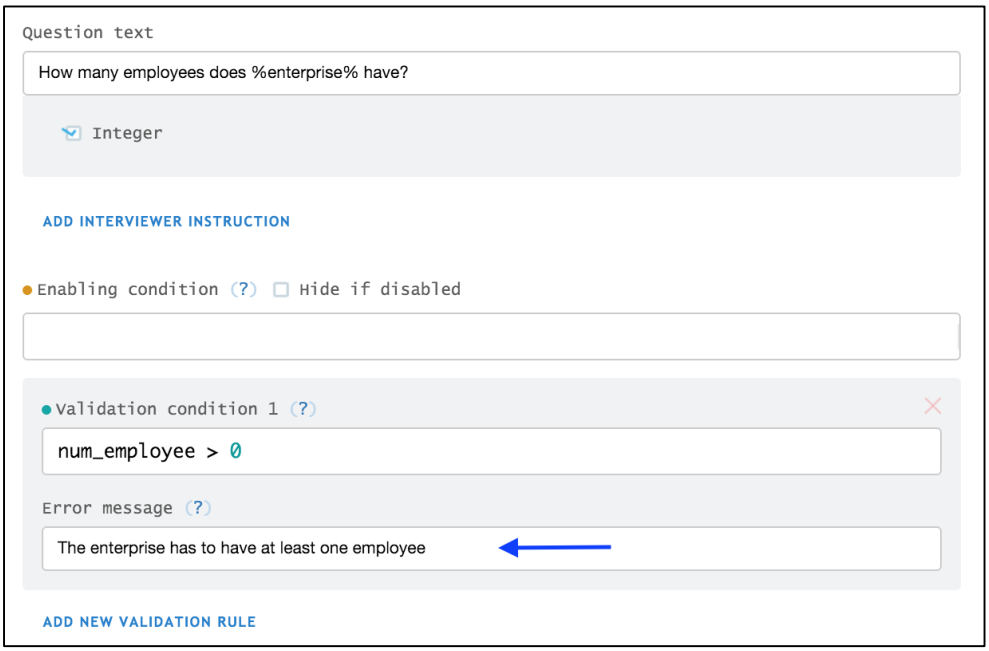
1. Click on the *Add New Validation Rule* link.
2. Write the logical expression in the *Validation condition* field.



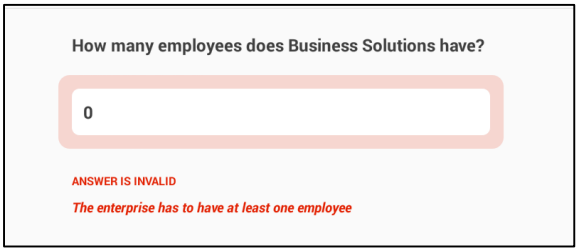
4.3.8 Error message

The *Error message* is the text that will be displayed on the tablet when the answer to the question is not validated by that *validation condition*.

To add an error message, write the text of the message in the *error message* field. You may also use text substitution to reference questions and user-defined or system-defined variables. To do this, enclose the question or variable name with the percentage sign (%)



How the error message is displayed on the tablet.



4.3.9 Locate questions with enabling or validation conditions

Questions that have enabling or validation conditions attached to them are marked with colored dots to indicate this visually:

An orange dot indicates the presence of the enabling condition and a blue dot indicates presence of the validation condition. Both can be present at the same time.

4.3.10 Question scope

The scope of the question defines who will be responsible for answering it. The scopes are: prefilled, hidden, enumerator and supervisor.

4.3.10. 1 Prefilled

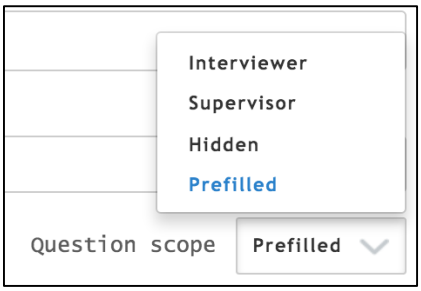
The role of the questions defined as prefilled includes the definition of uniqueness for the interviews and supplies 'driving directions' for the enumerators. Different types of information can be provided through these questions. Some examples are: province, household id, household address, national identification number and name of the household head.

Prefilled questions can only be *text*, *numeric*, *date and categorical: Single-select* questions.

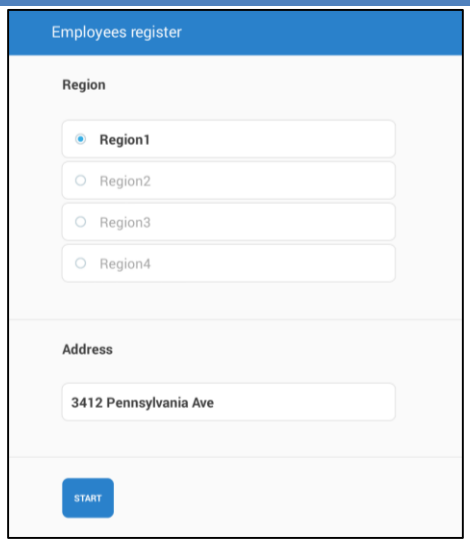
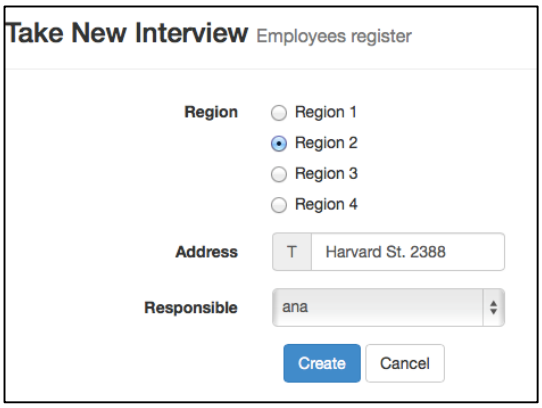
To define questions as Prefilled,

1. Click on the *Question scope* dropdown box.

2. From the pop-up menu select *Prefilled.*

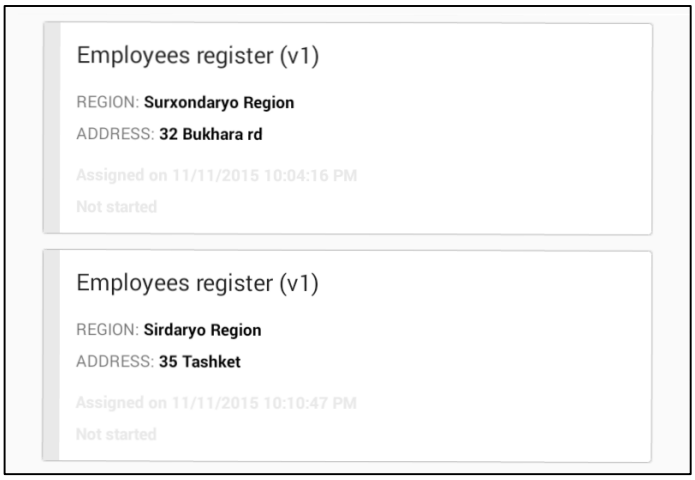


The behavior of questions defined as prefilled and who is responsible for answering them depend on how the questionnaire is imported from the designer tool to the headquarters[8] dashboard. A questionnaire can be imported in census or not census mode. In census mode, enumerators answer the prefilled questions within questionnaires and the answers can be modified before completing the interview. When not in census mode, headquarters answers the prefilled questions within questionnaires and the answers cannot be modified once the interview is created.

Enumerator answers prefilled questions on the tablet. Census mode.	Headquarters answers prefilled questions on the headquarters dashboard. Not census mode.
	

[8] People who create and assign the interviews to supervisors

The enumerator sees the answers to the prefilled questions on the *Dashboard* screen within the application on the tablet.



4.3.10.2 Supervisor

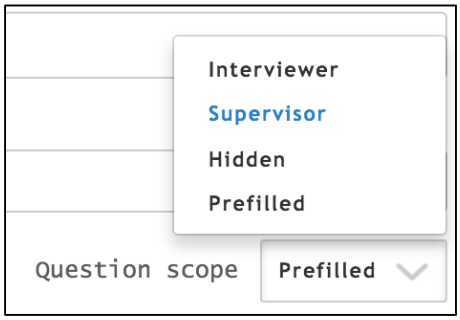
Supervisors and/or headquarters answer the questions defined as filled by supervisor once the enumerator completes the interview and sends it back to the supervisor. For this reason, these questions are not displayed on the tablet.

Filled by supervisor questions can only be *text*, *numeric*, *categorical: Single-select* and *categorical: multi-select* questions.

To define questions as filled by supervisor,

1. Click on the *Question scope* dropdown box.

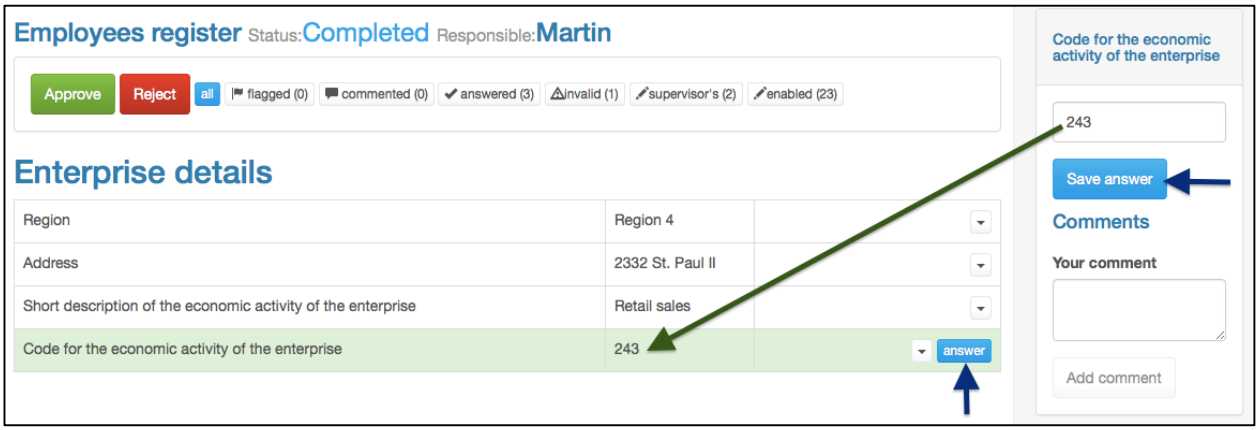
2. Fom the pop-up menu select *supervisor*.



The supervisor or headquarters answer the question in their respective dashboards.

1. Select the question and click on the blue *Answer* button, which appears within the same row of the question.
2. In the new panel displayed at the right of the screen, enter the answer within the empty field.

3. Save the answer by clicking on the blue *Save answer* button.



4.3.10.3 Interviewer

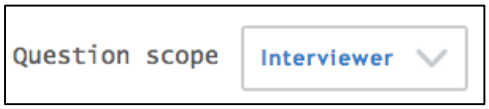
When the scope *interviewer* is selected, enumerators ask the questions from the interviewee and enter their responses on the tablet. The default *Question scope* is *interviewer*.

4.3.10.4 Hidden

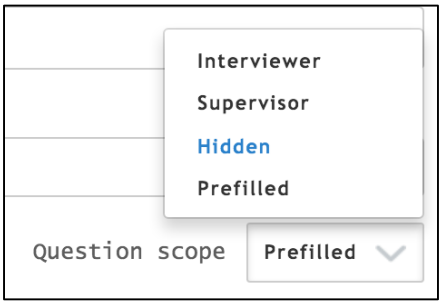
When the scope *HIDDEN* is selected, the question is destined to be hidden and store the prefilled values to be used in validations and enabling conditions. For example, one may create a validation that the highest educational attainment of a person now is no lower than it was during the last visit. At the same time, because they are hidden, they do not reveal their value to the interviewer, thus eliminating the possibility for a simple carry-over of the values from the previous wave of the survey without asking the respondent for the updated information.

Note that *Picture* and *linked questions* cannot be hidden.

To define questions as hidden,



1. Click on the *Question scope* dropdown box.



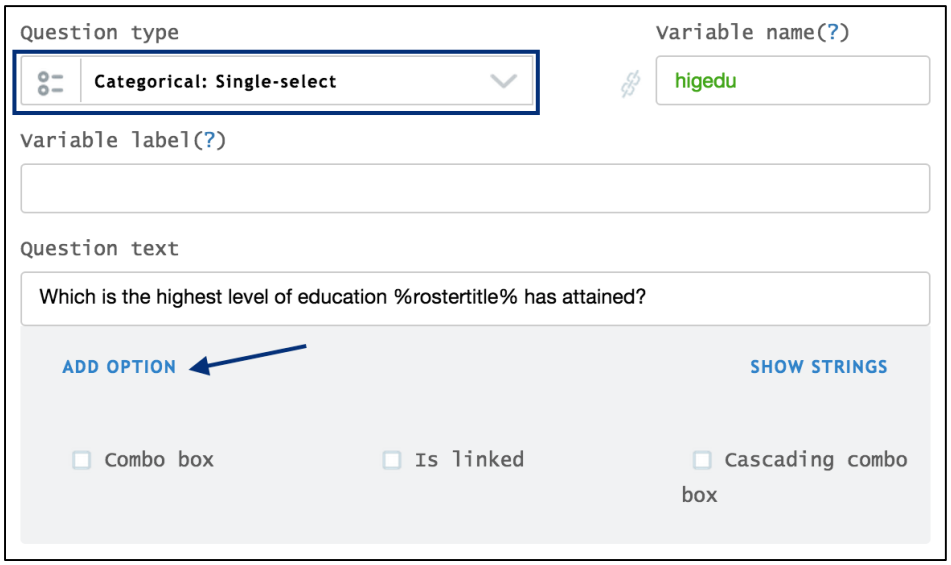
2. From the pop-up menu select *HIDDEN*.

4.3.11 Defining categories

Categorical: Single-select or categorical multi-select questions are multiple-choice questions, where the interviewee can select only one or more than one answer (among the possible categories) respectively. The list of categories can be fixed or interactive. Fixed categories are defined during the design of the questionnaire. On the contrary, interactive categories are created during the interview and they depend on the answers given in a previous question.

4.3.11.1 One by one

This procedure is used when the list of categories is short and it involves each category being added manually one at time. To do so, first define the question type as categorical: single-select or multi-select and then click on the *Add option* link.

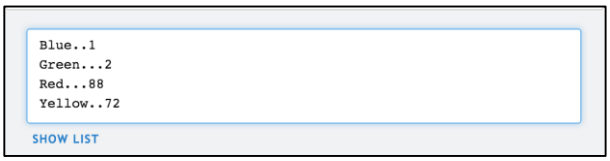


Each time the *add option* link is clicked; a new row with two empty fields is created to represent a category. You need to add a numeric code on the left field and the corresponding text in the right one.

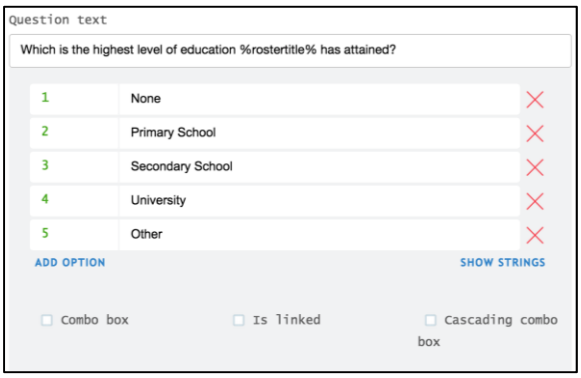
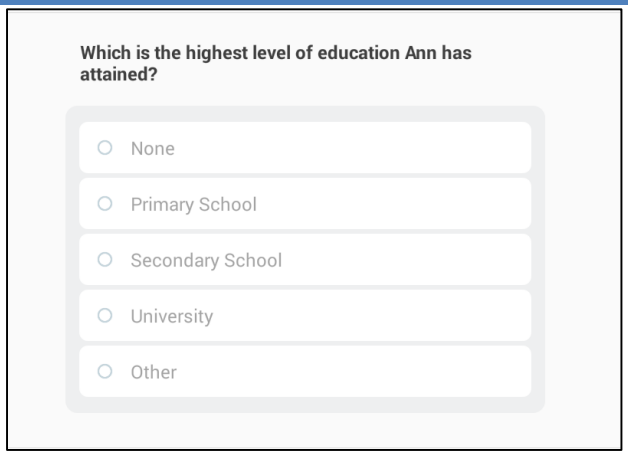
For example, in the question "What is the highest level of education %rostertitle% has attained?" the possible answers (None, Primary School, Secondary School, University and Other) are entered manually.

4.3.11.2 Copy and paste

This procedure is used when the list of categories are copied from an external document. To do so, first define the question type as categorical: single-select or multi-select and then click on **SHOW STRINGS** link.



Paste the category titles and their corresponding codes (positive integer value) in the box. Note that the format accepted is the category title followed by one or more dots (“.”).

How it looks in the designer	How it looks on the tablet
	

4.3.11.3 Combo box

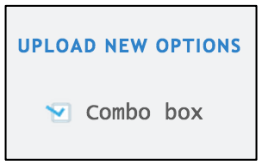
This procedure is applied when the list of categories is large. The *Combo box* feature involves uploading categories from a tab-delimited file.

The steps to apply this feature are as follows:

1. Create the tab-delimited file containing the codes in the first column and the corresponding descriptions in the second column.

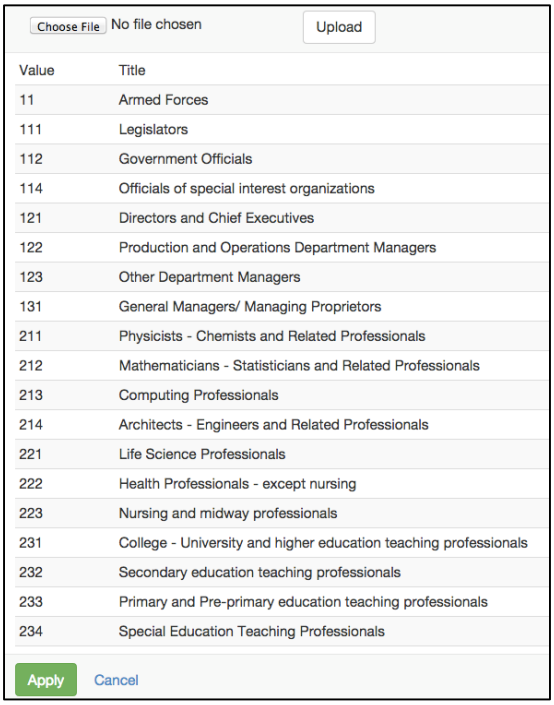
	A	B
1	11	Armed Forces
2	111	Legislators
3	112	Government Officials
4	114	Officials of special interest organizations
5	121	Directors and Chief Executives
6	122	Production and Operations Department Managers
7	123	Other Department Managers
8	131	General Managers/ Managing Proprietors
9	211	Physicists - Chemists and Related Professionals
10	212	Mathematicians - Statisticians and Related Professionals
11	213	Computing Professionals
12	214	Architects - Engineers and Related Professionals
13	221	Life Science Professionals
14	222	Health Professionals - except nursing
15	223	Nursing and midway professionals
16	231	College - University and higher education teaching professionals
17	232	Secondary education teaching professionals
18	233	Primary and Pre-primary education teaching professionals
19	234	Special Education Teaching Professionals
20	235	Other teaching professionals
21	241	Business professionals
22	242	Legal professionals
23	243	Archivists - Librarians and Related Information Professionals
24	244	Social Science and Related Professionals
25	245	Writers and creative or performing artists
26	246	Religious Professionals
27	311	Physical and Engineering Science Technicians
28	312	Computer Associate Professionals
29	313	Optical and Electronic Equipment Operators
30	314	Aircraft Controllers and Technicians
31	315	Safety and Quality Inspectors

2. Click on the *combo box*. Once the box is checked, click on the *Add options* link.

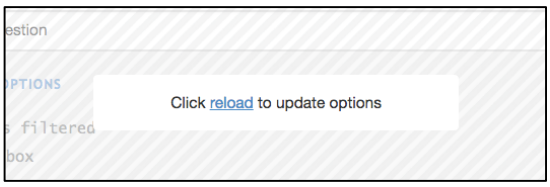


3. In the pop-up window displayed click on *Choose file* and select the tab-delimited file you have prepared.

4. Click on the *Upload* button and confirm your selection by clicking on the *Apply* button.

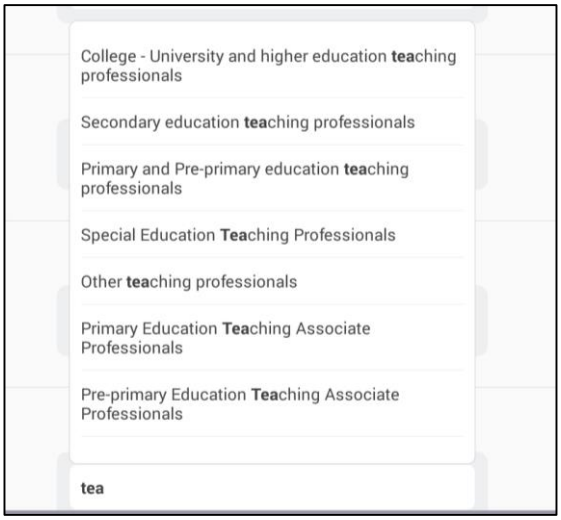


5. To update the categories click on the *reload* link.



After importing the categories you can edit them by clicking on the *Upload new Options* link.

On the tablet, once the enumerator starts typing letters a subset of options filtered by the entered letters is shown.

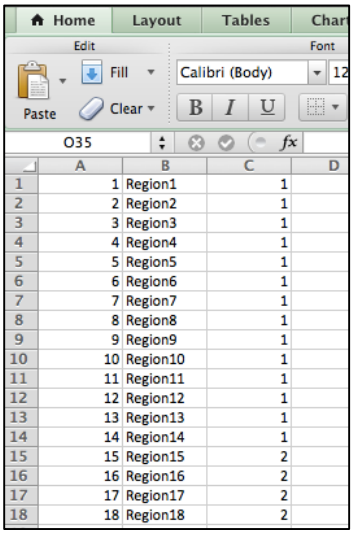


4.3.11.4 Cascading combo box

This feature is used when the list of categories is large and where the list could be filtered by an answer given to a previous question. For instance, a national survey asks for the province, the region, and the district. Consequently, the province can filter the categories for region, and region can filter the categories for district. This can be done by defining the question responsible for filtering (parent question) and uploading the categories from a tab-delimited file.

The steps to apply this are as follows:

1. Create the tab-delimited file containing the categories' codes and descriptions in the first and second columns, respectively. The third column contains the categories' codes for the parent question.



	A	B	C	D
1	1	Region1	1	
2	2	Region2	1	
3	3	Region3	1	
4	4	Region4	1	
5	5	Region5	1	
6	6	Region6	1	
7	7	Region7	1	
8	8	Region8	1	
9	9	Region9	1	
10	10	Region10	1	
11	11	Region11	1	
12	12	Region12	1	
13	13	Region13	1	
14	14	Region14	1	
15	15	Region15	2	
16	16	Region16	2	
17	17	Region17	2	
18	18	Region18	2	

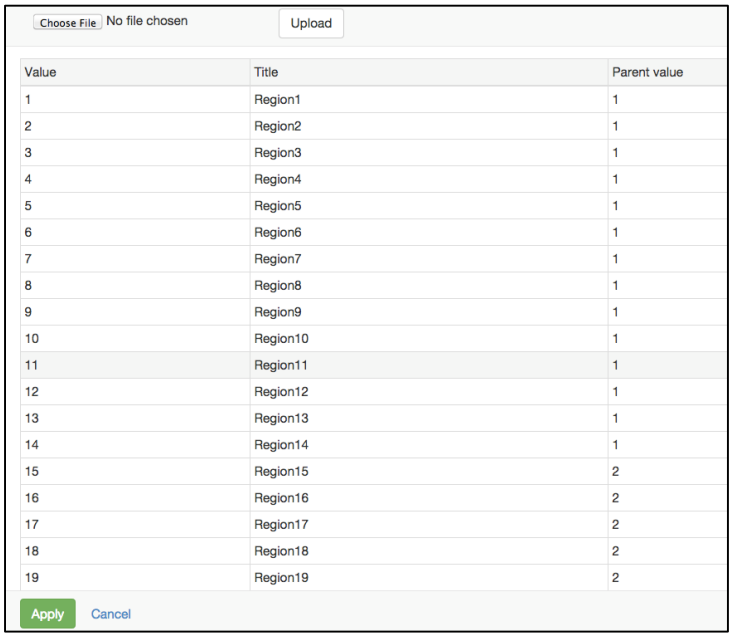
2. Click on the *Cascading combo box*. Then, define which question will filter the categories (parent question).

3. To define the parent question, click on the *Select parent question* dropdown box and select a question from those listed.

4. Add the categories by clicking on the *Add options* link.

5. In the pop-up window displayed click on *Choose file* and select the tab-delimited file you had prepared.

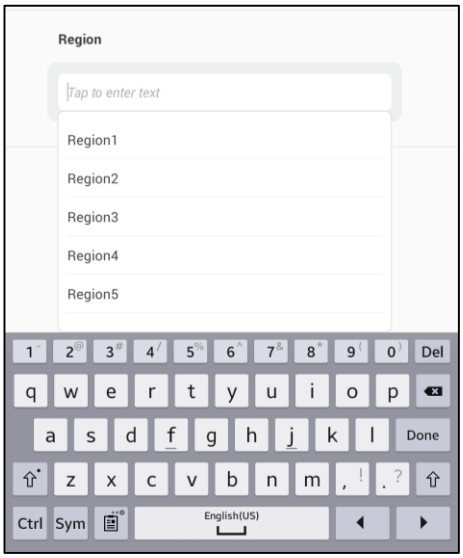
6. Click on the *Upload* button and confirm your selection by clicking on the *Apply* button.



7. To update the categories click on the *reload* link.

8. After importing the categories you can edit them by clicking on the *Upload new options* link.

On the tablet, once the enumerator starts typing letters a subset of options filtered first by the parent question and then by the entered letters, is shown.

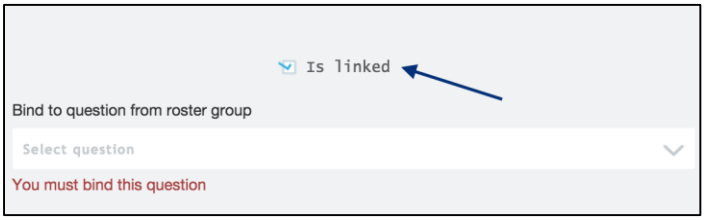


4.3.11.5 Is linked

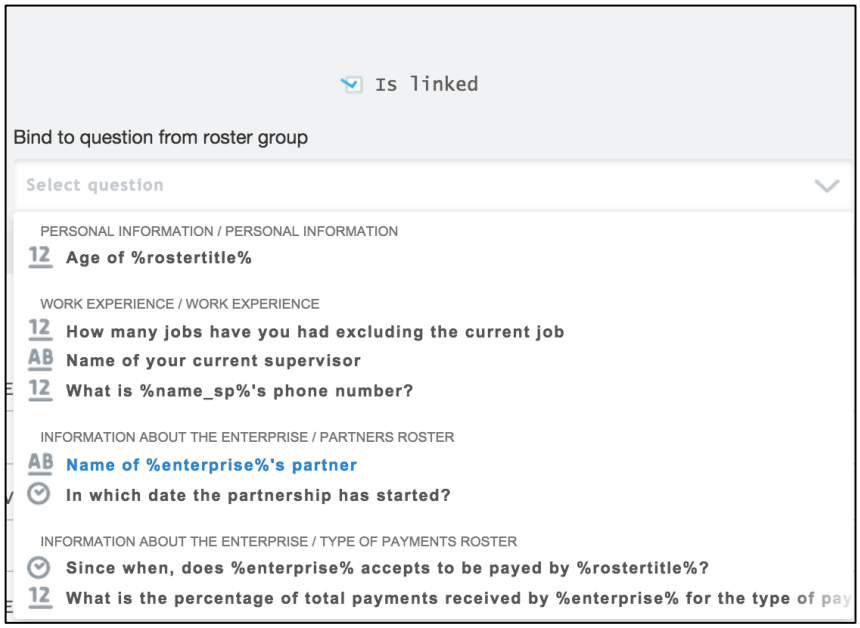
This feature automatically creates the list of categories during the interview. The categories will be the answers an interviewee has given in a previous question or roster. Both question types, categorical: single-select and multi-select, can be defined as a linked question.

To define a question as linked,

1. Click on the *Is Linked* checkbox.

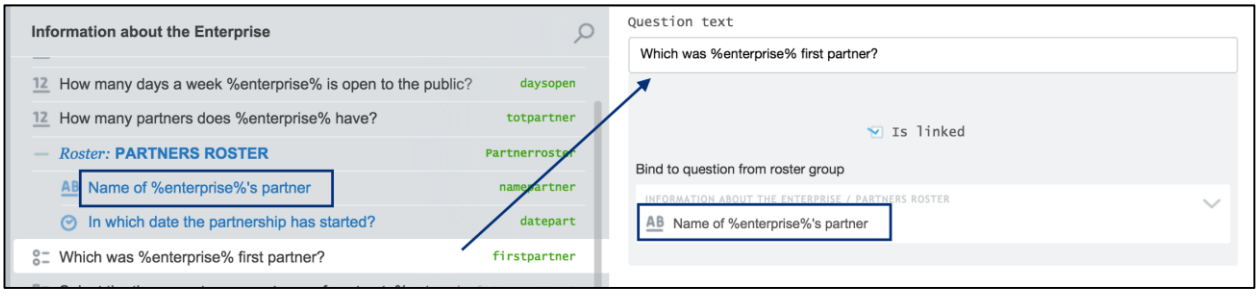


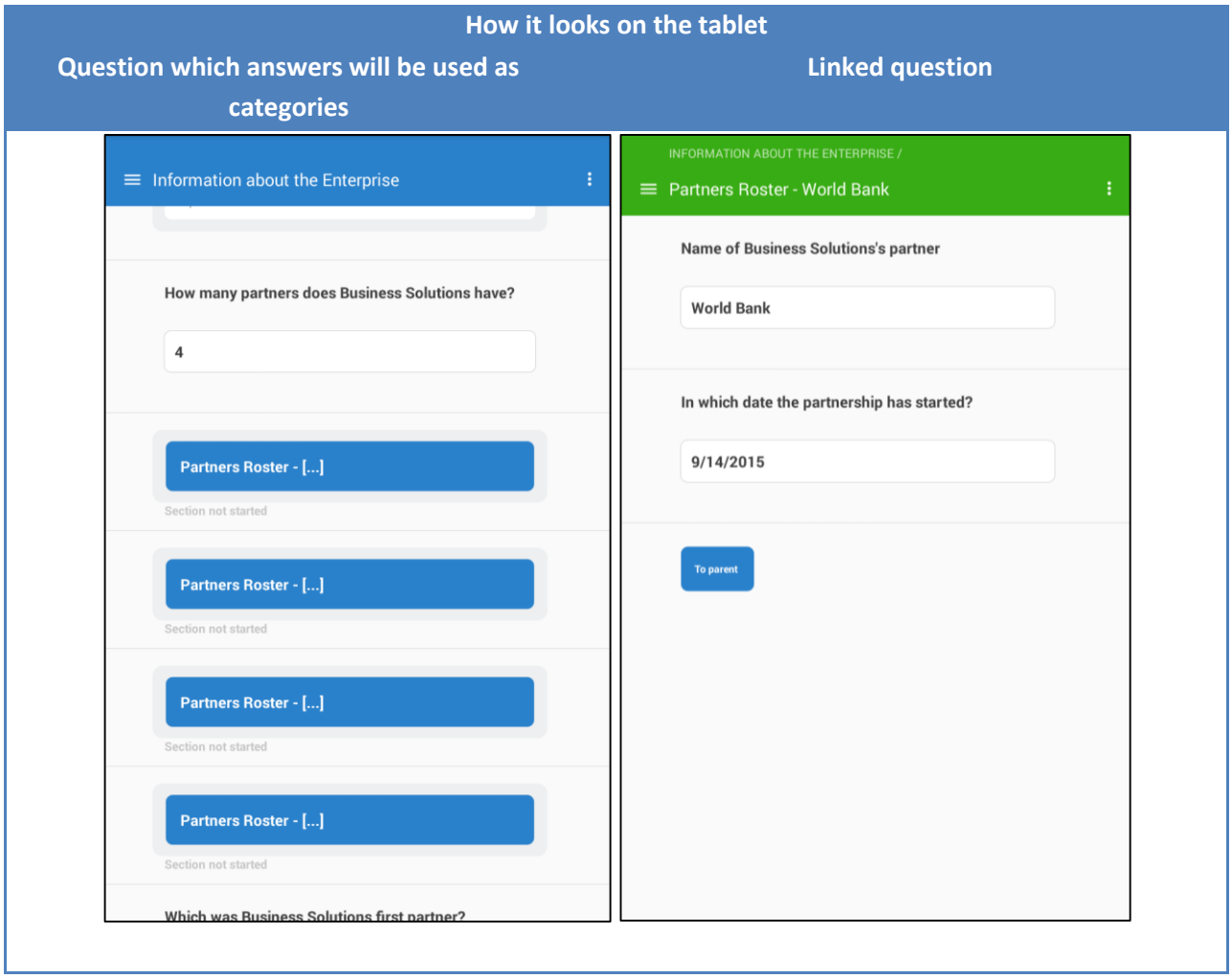
2. Click in the *Bind to question from roster group* dropdown box, and select the question or roster from which the list of categories will be created. A *roster* or a *numeric*, *text or date* questions *within a roster* can be selected in this field.



In the example, the question “Which was %enterprise%’s first partner?” is a question linked to “Name of %enterprise%'s partner”. This means, the list of categories (possible answers) for the question “Which was %enterprise%’s first partner?” is the list of names given by the interviewee, when they answer the question “Name of %enterprise%'s partner”.

How it looks in the designer



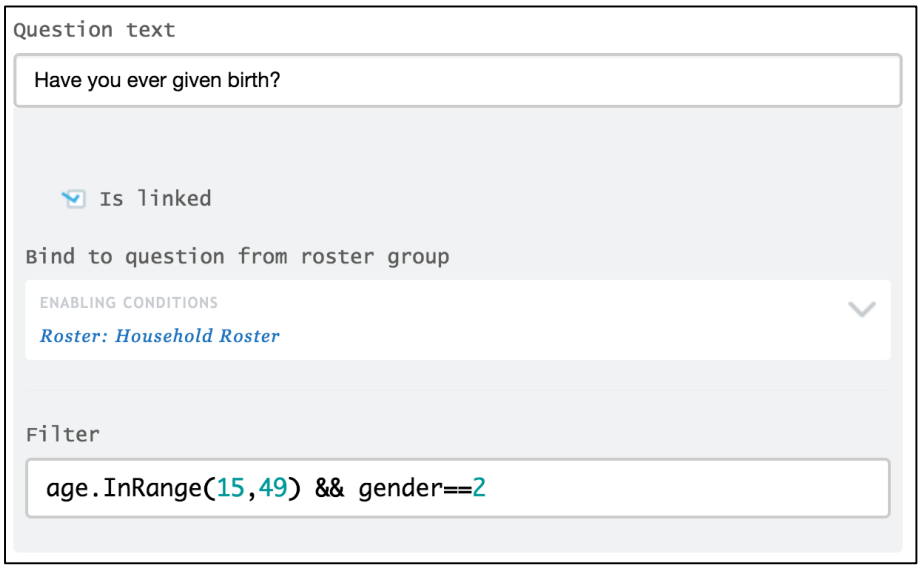


4.3.11.5.1 Filtered linked questions

The filter option enables you to specify a criteria where only answer options that satisfy that criteria will be shown. For example, you can make sure that only a person of 16 years or older may be a head of the household. Other household members will not be shown in the list. Other commonly encountered situations are selecting women of childbearing age, selecting persons of working age, selecting children who are not fully vaccinated, etc.

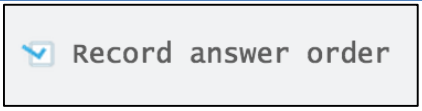
To add a condition on the answer options of a linked categorical question in your questionnaire, enter your criteria in the Filter text box.

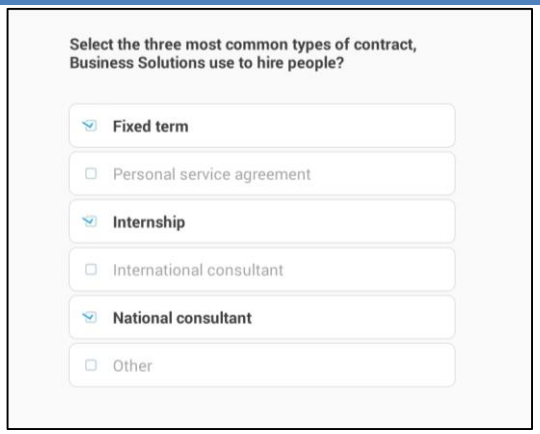
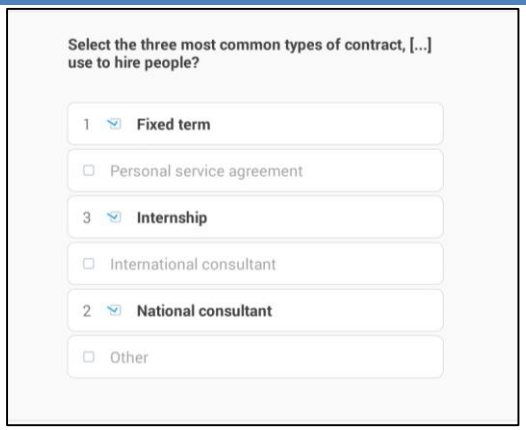
For example, to display females from the household roster between the ages of 15 and 49 as answer options, use the following criteria: age.InRange(15,49) && gender==2.



4.3.11.6 Record answer order

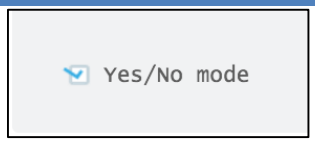
A *categorical: Multi-select* question is a multiple-choice question, where the interviewee can select one or more options from the possible answers. You can choose to display (on the tablet) and save (when exporting the data) the answers in the order given by the interviewee.

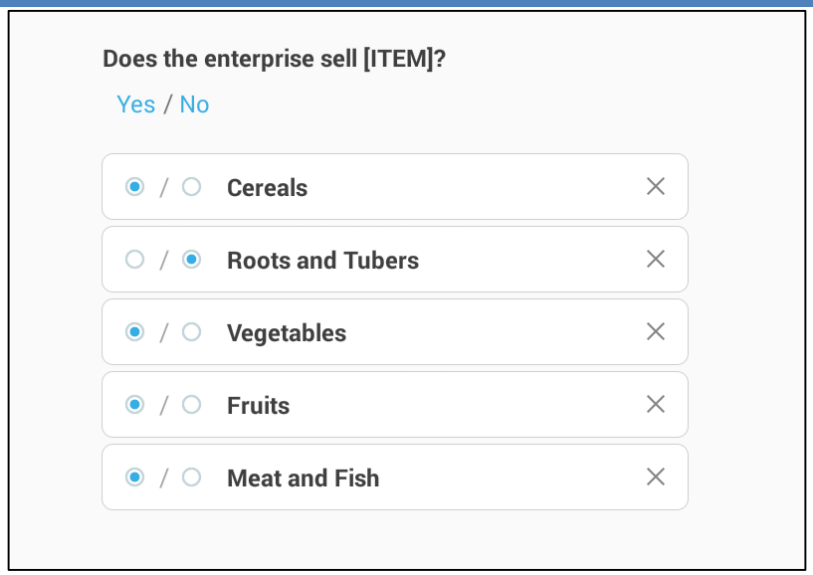
In the designer	
If you expect the answers to be ordered, check the *record answer order* box.	

On the tablet – Answers are not ordered	On the tablet – Answers are ordered
	

4.3.11.7 Yes/no mode

A *categorical: Multi-select* question is a multiple-choice question, where the interviewee can select "yes" or "no" for all options listed.

In the designer	
If you want to display yes/no radio buttons for each item, check the *Yes/NO mode* box.	

On the tablet – Yes/No mode


4.3.11.8 Filtered Answer Options

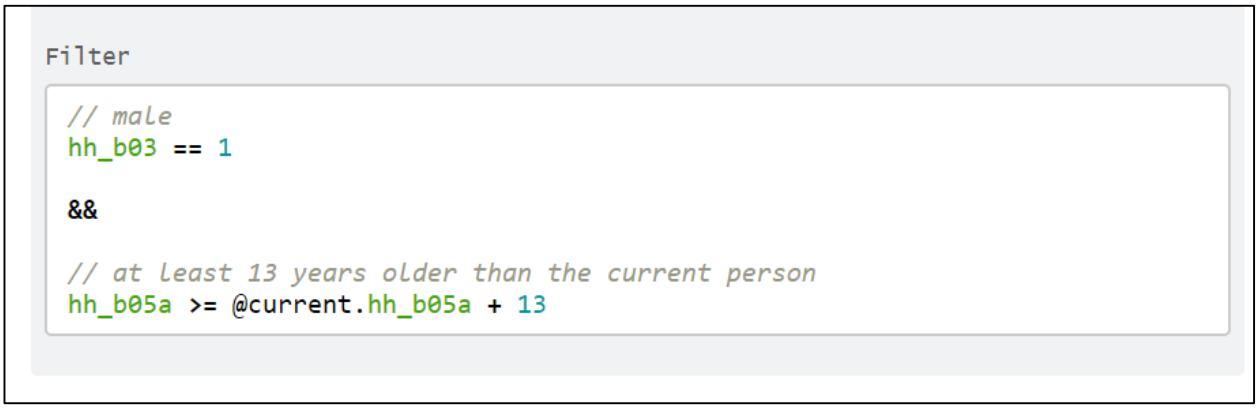
You can define a filter to describe the conditions under which answer options will be displayed to the interviewer via the Filter field for single and multi-select categorical questions. Linked questions can also include a filter.

In food consumption modules, questionnaire designers can limit answer options to those that make sense for each food item (e.g., weight units for solids, volume units for liquids). In demographic modules, you can filter a linked question that lists potential owners of the household's dwelling to the set of age relevant household members.

The Filter field contains a condition that is evaluated against each potential answer option. When the condition is true for a particular answer option, that answer option is displayed. When the condition is false (or yields an exception), that option is not displayed in Interviewer. In other words, the feature functions like an enabling condition for answer options, enabling only those answer options that satisfy the filter condition.

There are also two new keywords that are only available in the Filter field. For non-linked questions, the keyword @optioncode provides a way to refer to the answer options for the current question.

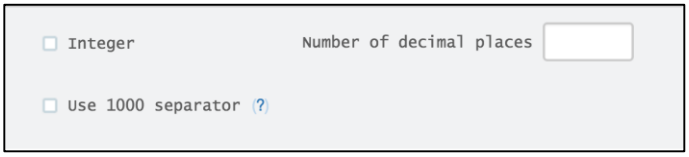
For linked questions, the keyword @current, used as a variable prefix, allows you to differentiate between the value of a variable for current roster row and that for all other rows in the current roster. For example, one may filter down the list of potential fathers to those members that are older than the current person (the child) by writing: age > @current.age.



4.3.12 Integer

A *numeric* question can only be answered with a number. You can choose between an integer[9] or a real[10] number as the type of answer you expect. You also have the option of assigning a maximum integer value or the number of decimals places to be accepted in the answer.

By default a numeric question expects a real number answer. You have the option of assigning a maximum number of decimals or not. You do this by entering the value in the *number of decimal places* field or leaving it blank.



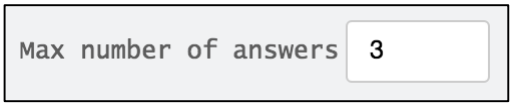
If you expect an integer answer you need to click on the *integer* check box.

Answers entered in numeric questions can be formatted to language specific thousands and decimal separator. To enable this feature, click on the *use thousand separator* check box.

4.3.13 Maximum number of answers

A *categorical multi-select* question is a multiple-choice question, where the interviewee can select one or more options from the possible answers. Meanwhile, a *list* question can expect a very long list of answers. In both question types you have the option of defining the maximum number of allowed answers.

In a categorical multiple-answer question you insert the value in the *Max number of answers* field.



In a list question you insert the value in the *Maximum number of list elements* field.

[9] An integer is a positive or negative number without decimals, or the number zero

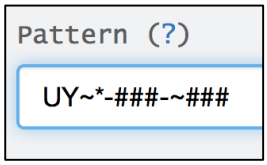
[10] A real number Includes integers and numbers with decimals

4.3.14 Pattern

A *text* question can only be answered with a string[11]. The structure of the string can be defined using a pattern. This may be used for phone numbers, id codes and flight numbers.

If you know the format of the expected answer you can add a pattern in the *Pattern* field, otherwise leave this field blank. You can see some examples of patterns in the table below .

Examples	Represent
~	Alpha character (A-Z,a-z)
#	Numeric character (0-9)
*	Alphanumeric character (A-Z,a-z,0-9)
##/##/####	Date
(###) ###-####	Phone number
AA####	Flight number
~*-###-~###	Id code

Pattern in the designer	Unanswered question on the tablet	Answered question on the tablet
		

[11] Composed by alphanumeric characters (A-Z,a-z,0-9), basic punctuation symbols and spaces

4.3.15 Current time date question

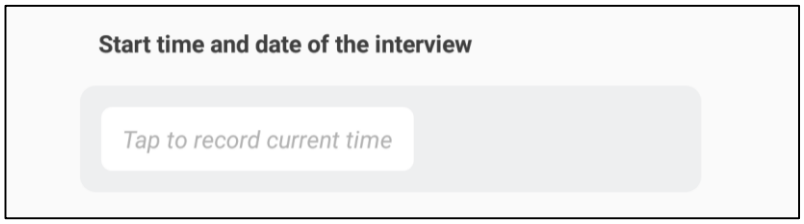
The current time feature in date questions allows interviewers to automatically record the current time on the tablet.

To create a current time question, check the box labeled Current Time.

To answer a current time date question,

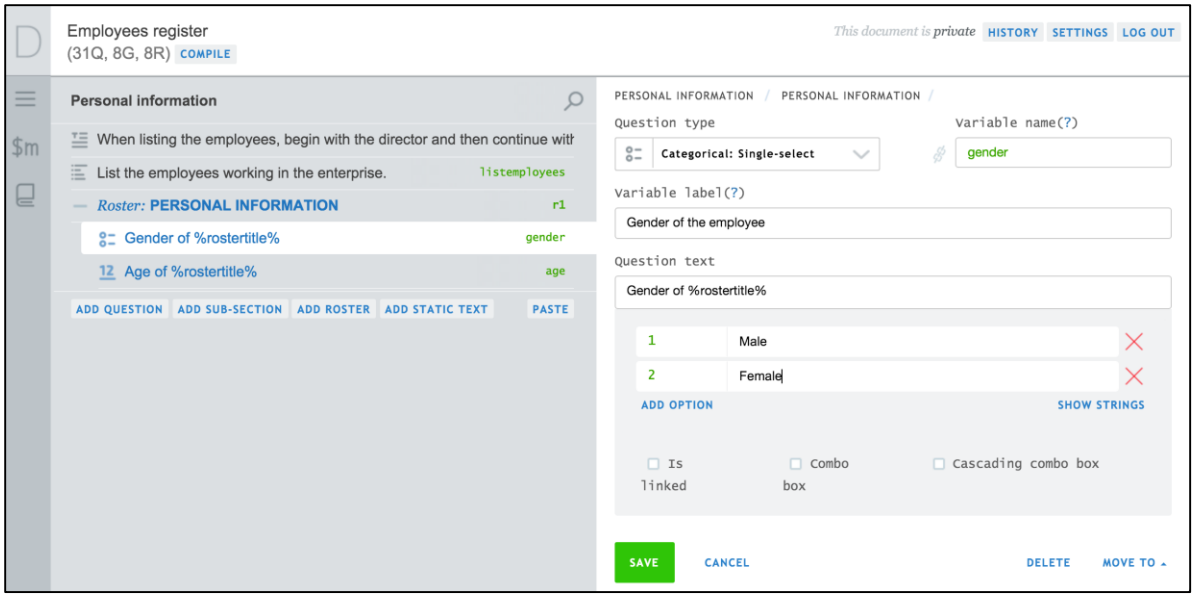
1. Tap on the “Tap to record current time” box.

2. The current time on the tablet will automatically be recorded.



4.4 Saving questions

Once you finish defining the question’s properties, use the *Save* button on the bottom of the screen to save the changes. The *Save* button will be green if changes made to the question properties have not been saved. Once you save the changes, the button will turn grey.



4.5 Copying questions

There are two ways to copy and paste a question from another questionnaire or from within a questionnaire you are currently working on.

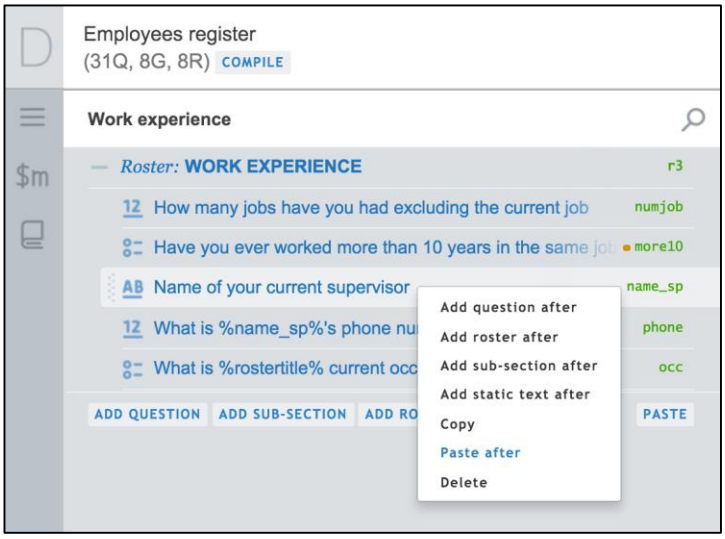
4.5.1 First Method

To copy and paste a question,

1. Right click on the question that you want to copy.
2. Click on *Copy* from the pop-up menu.

(If you want to past the question in another questionnaire, open that questionnaire in Designer.)

1. Right click on the question, sub-section, or roster that should precede the question you have copied.
2. Click *Paste after*.



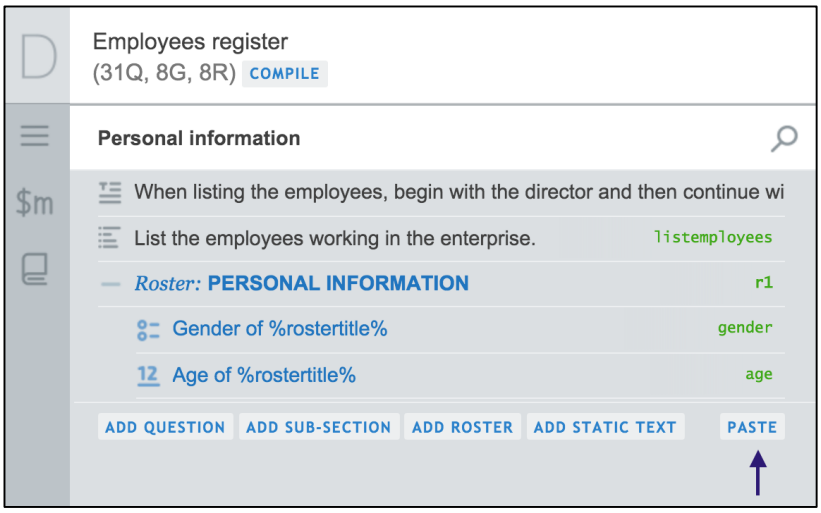
4.5.2 Second Method

To copy and paste a question,

1. Right click on the question that you want to copy.
2. Click on *Copy* from the pop-up menu.

(If you want to paste the question in another questionnaire, open that questionnaire in Designer.)

3. In the navigation menu on the left hand panel, open the section where you want to copy the question in.
4. Click *PASTE* on the bottom right of the section navigation pane.

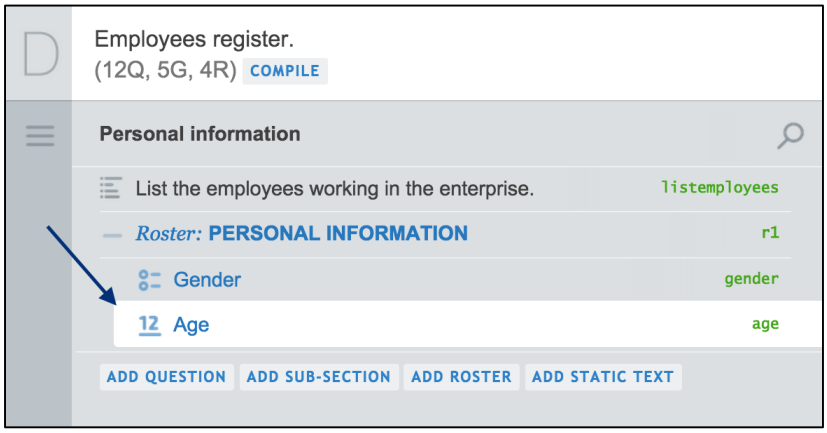


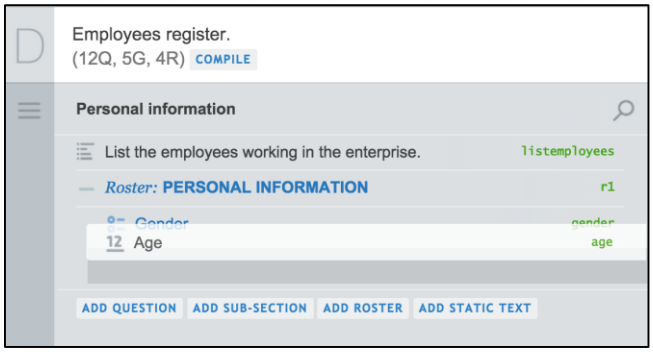
4.6 Moving questions

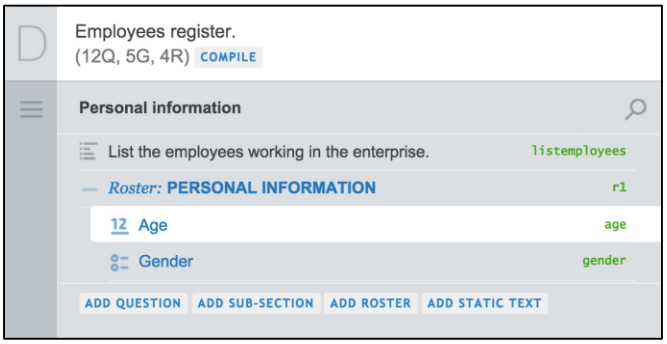
4.6.1 Within a section

To move a question within the same section,

1. In the left panel, move your mouse over the left hand side of the question .
2. Click on it and drag the question to its new location.



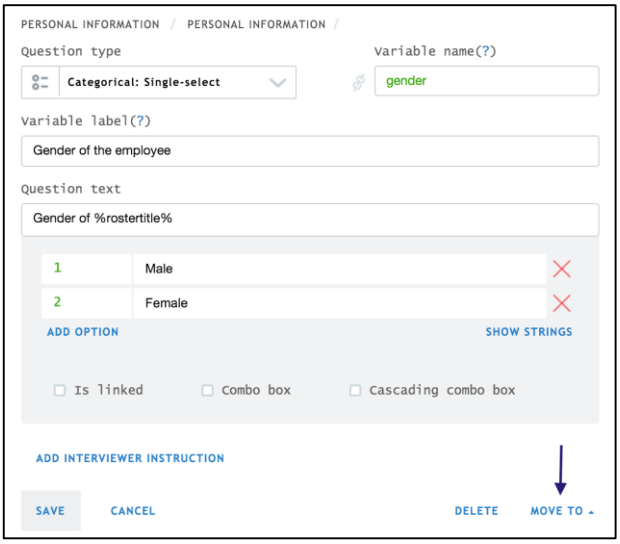


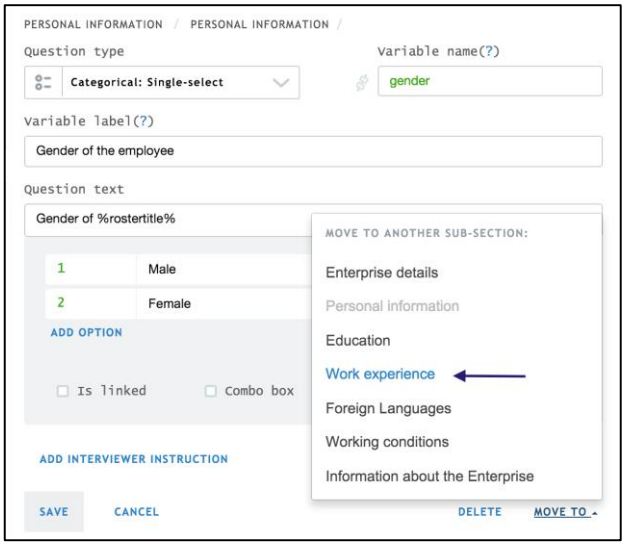


4.6.2 Between sections

To move a question between sections,

1. Select the question
2. Click on the *MOVE TO* link in the right hand panel.
3. In the pop-up window displayed, click on the section to which you would like to move the question to.



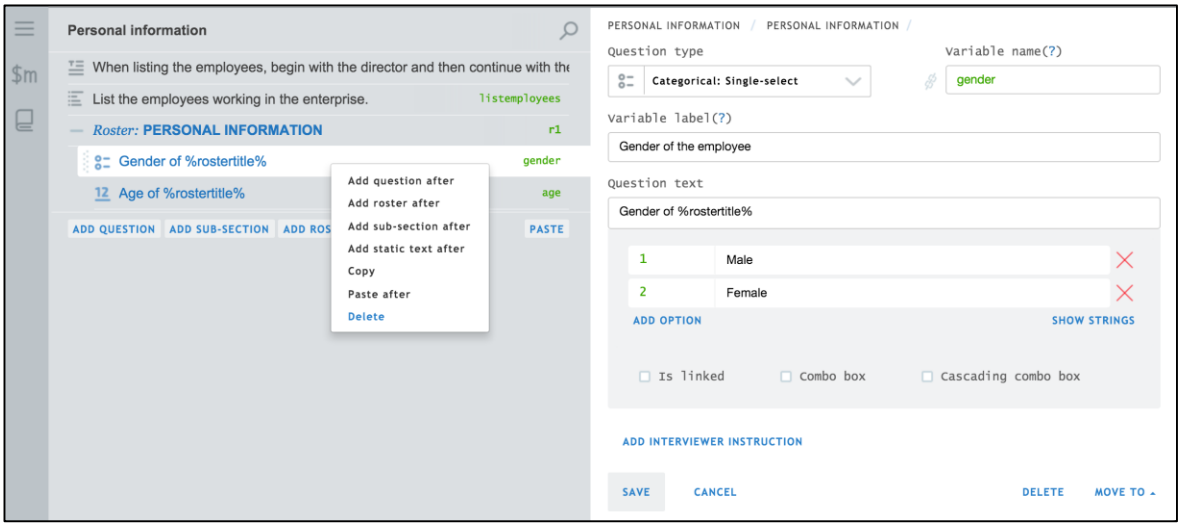


4.7 Deleting questions

There are two methods for deleting a question:

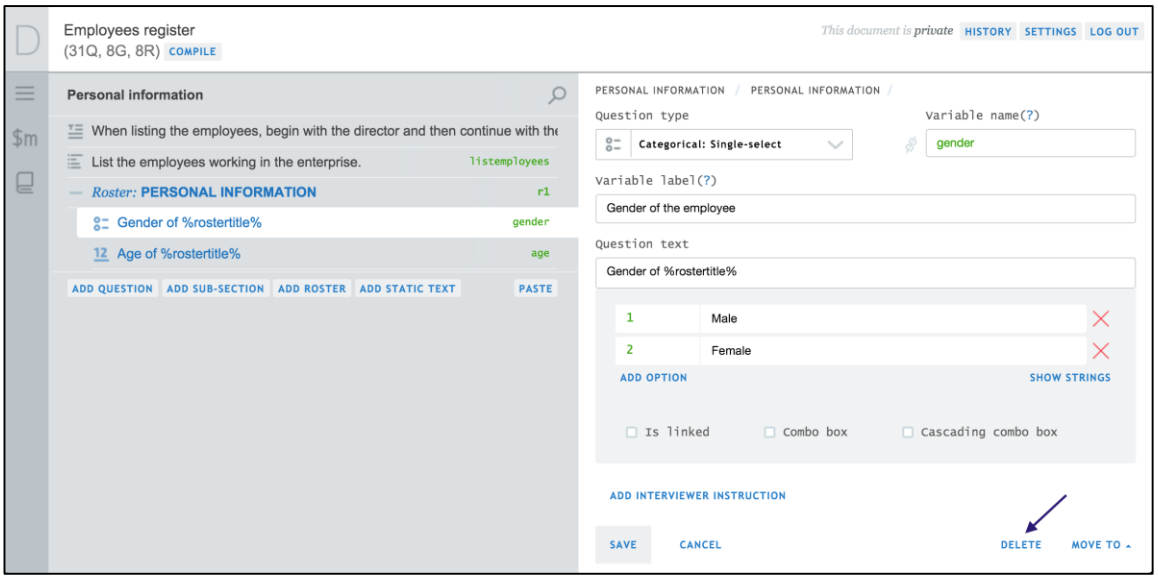
4.7.1 First method

1. In the left hand panel, right click on the question.
2. In the pop-up menu bar displayed click on *DELETE*.



4.7.2 Second method

1. Select the question you would like to delete.
2. Click on the *DELETE* link in the right hand panel.



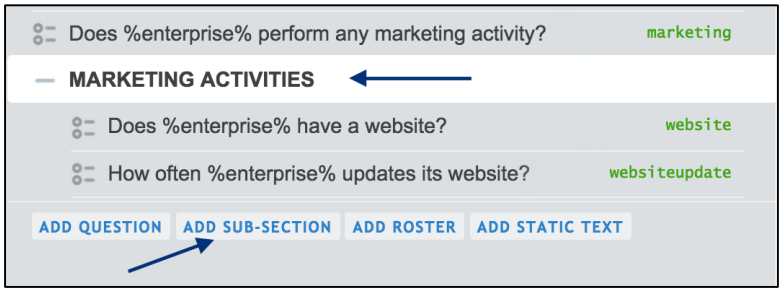
5. Sub-sections

Subsections can contain one or more static-texts, questions, other sub-sections and rosters. They are used to group a set of questions related to a specific topic. For instance in household surveys a subsection can be used to group the questions related to the household's characteristics. The main difference between subsections and rosters is that the questions within a sub-section are only asked once in an interview.

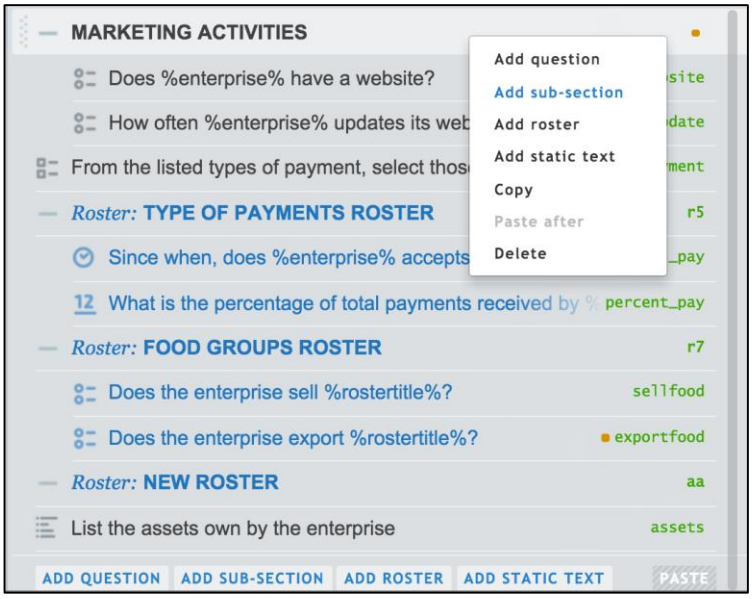
5.1 Adding sub-sections

You can add a sub-section at the section level (not included in any subsection or roster) or within sub-sections or rosters.

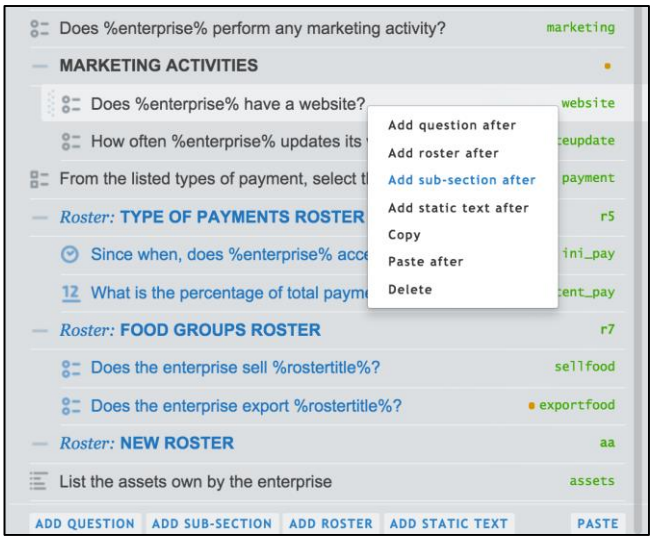
To add a sub-section at the section level click on the *Add sub-section* button located on the left hand panel.
See the subsection example "MARKETING ACTIVITIES".



To add a sub-section within a specific sub-section or roster, right click on the group. In the pop-up menu bar displayed, click on *Add SUB-Section*.



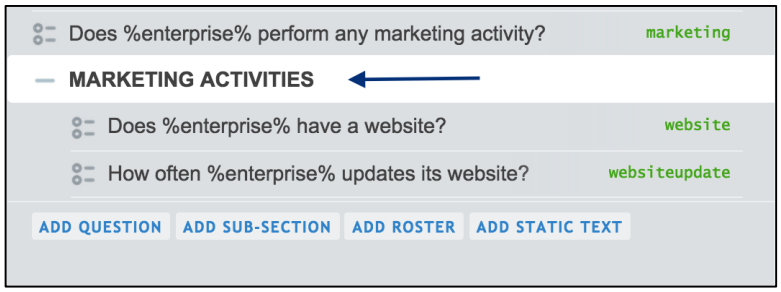
To add a sub-section after a specific question either at the section level or within a sub-section or roster, right click on that question. Then, in the pop-up menu bar displayed, click on *Add SUB-section AFTER*.



5.2 Selecting sub-sections

In the left hand panel, click on the sub-section you would like to work with.

Once you select a sub-section, in the right hand panel you can add or modify the sub-section's properties.



5.3 Defining sub-sections' properties

To define the characteristic of a sub-section you need to first select the sub-section. Then, in the right hand panel you can add or modify its properties.

5.3.1 Title

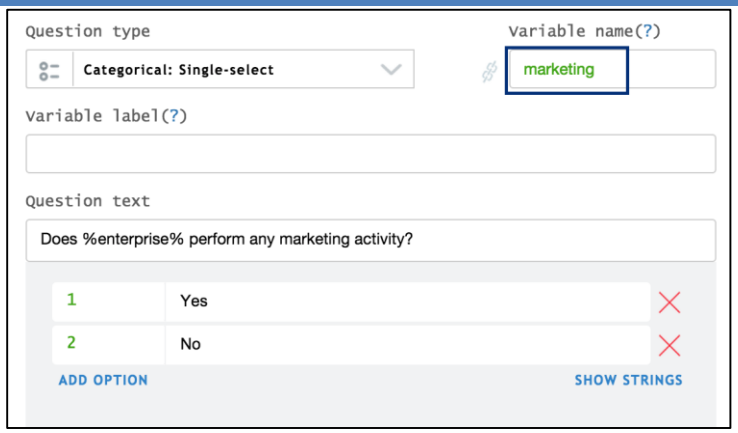
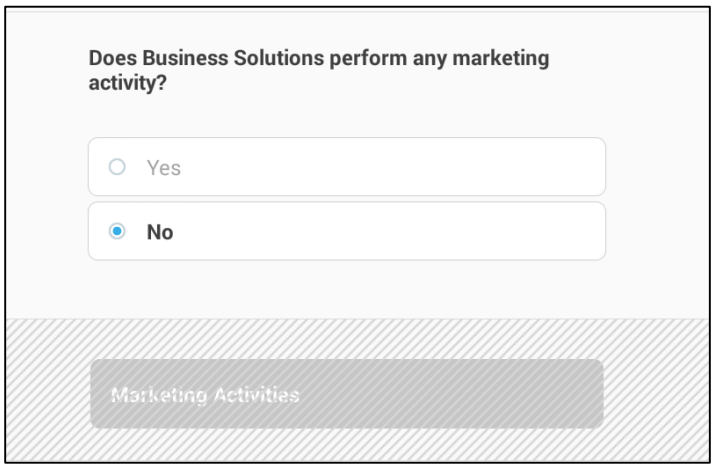
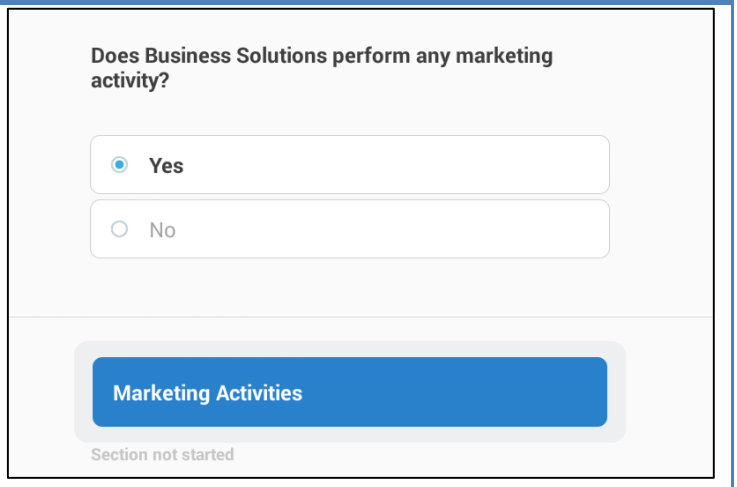
The *Title* box contains the title of the subsection. Here, you may also use text substitution to reference questions and user-defined or system-defined variables. To do this, enclose the question or variable name with the percentage sign (%)

5.3.2 Enabling conditions

Enabling conditions for sub-sections work in the same way as they do for questions (See 4.3.6). However, the enabling condition added to a sub-section is applicable to every object within that sub-section.

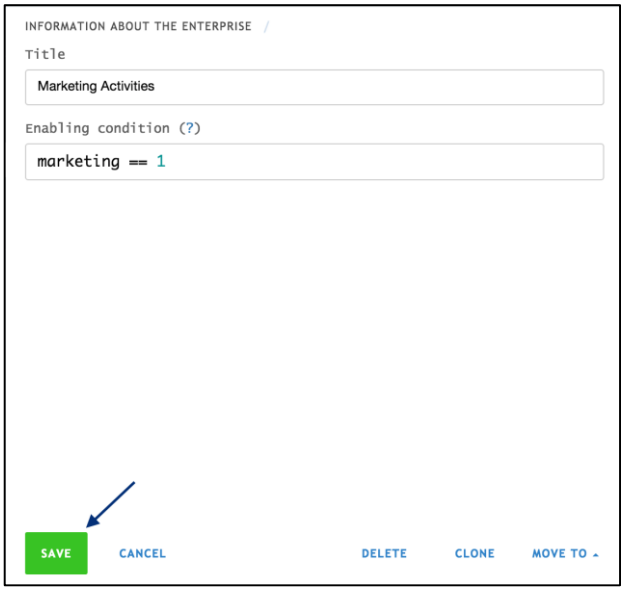
For example consider the categorical single-select question “Does %enterprise% perform any marketing activity?” where: code 1 is “Yes” and code 2 is “No”. Then, there is the subsection “Marketing Activities” having questions that we would like to ask only if the enterprise performs any marketing activity. To accomplish this behavior, we add the enabling condition: “marketing==1” to the “Marketing Activities sub-section”. By doing this, the questions within the sub-section will be enabled only if the answer to the question “Does %enterprise% perform any marketing activity?“ is “Yes“ (code 1).

If disabled, the subsection button will be greyed out. To hide the disabled subsection, select the *Hide if disabled* check box.

In the designer - “Does %enterprise% perform any marketing activity?“	In the designer - “Marketing Activities”
	
On the tablet - When the answer to “Does %enterprise% perform any marketing activity?“ is “No”, the subsection is disabled.	**On the tablet - When the answer to “Does %enterprise% perform any marketing activity?“ is “Yes”, the subsection is enabled.**
	

5.4 Saving sub-sections

Once you finish defining the sub-section's properties, use the *Save* button on the bottom of the screen to save the changes.



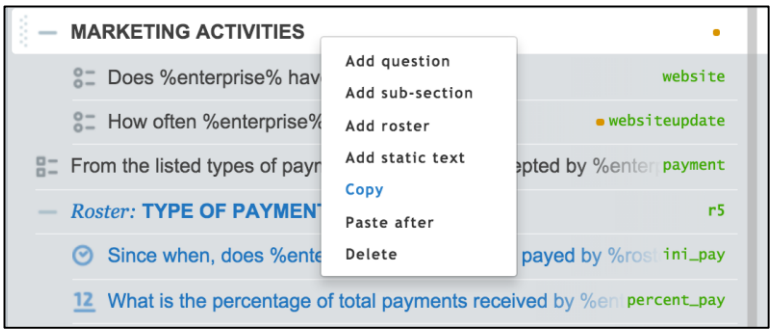
5.5 Copying sub-sections

There are two ways to copy and paste a sub-section from another questionnaire or from within a questionnaire you are currently working on.

5.5.1 First Method

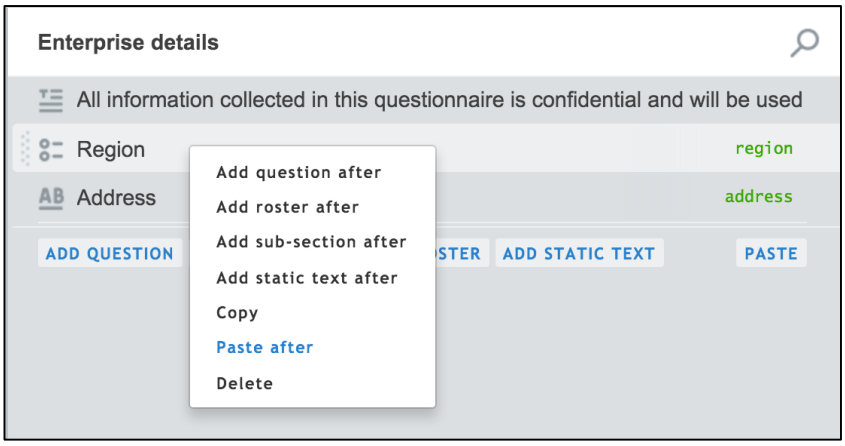
To copy and paste a sub-section,

1. Right click on the sub-section that you want to copy.
2. Select *Copy* from the pop-up menu.



(If you want to past the sub-section in another questionnaire, open that questionnaire in Designer.)

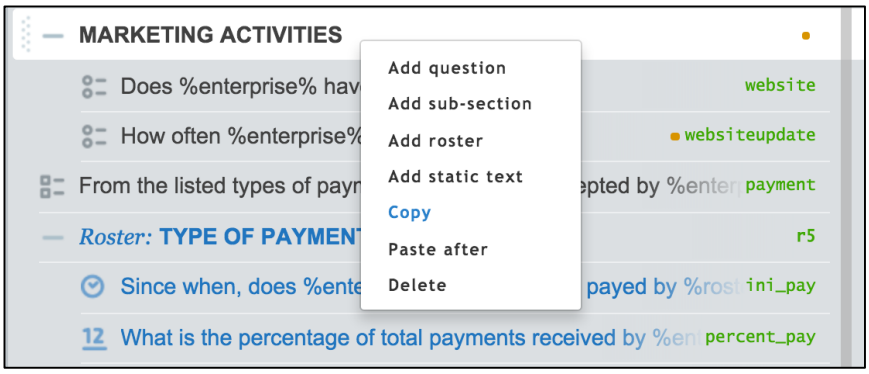
1. Right click on the question, sub-section, or roster that should precede the sub-section you have copied.
2. Click on *PASTE AFTER* in the pop-up menu.



5.5.2 Second Method

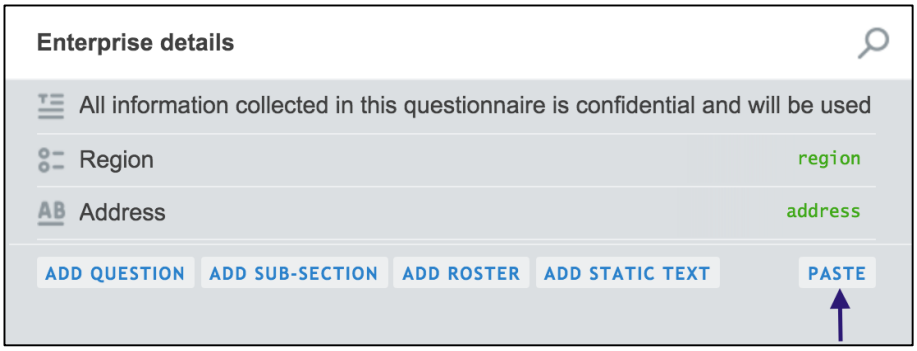
To copy and paste a sub-section,

1. Right click on the sub-section that you want to copy.
2. Click on *Copy* from the pop-up menu.



(If you want to past the section in another questionnaire, open that questionnaire in Designer.)

3. In the navigation menu on the left hand panel, open the section where you want to copy the sub-section in.
4. Click on *PASTE* on the bottom right side of the section navigation pane.

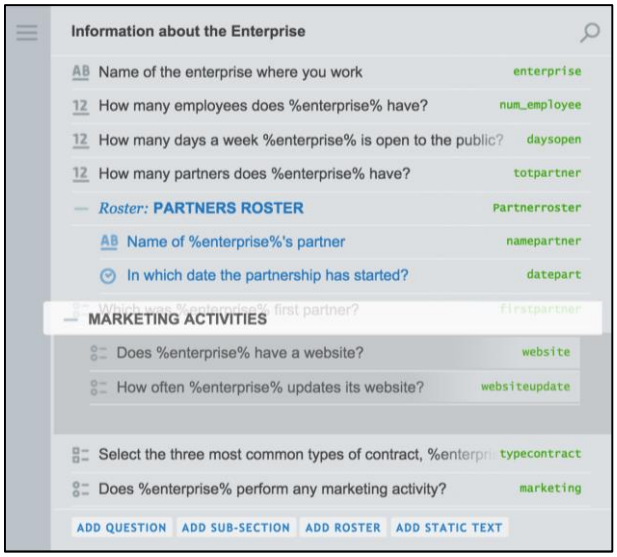


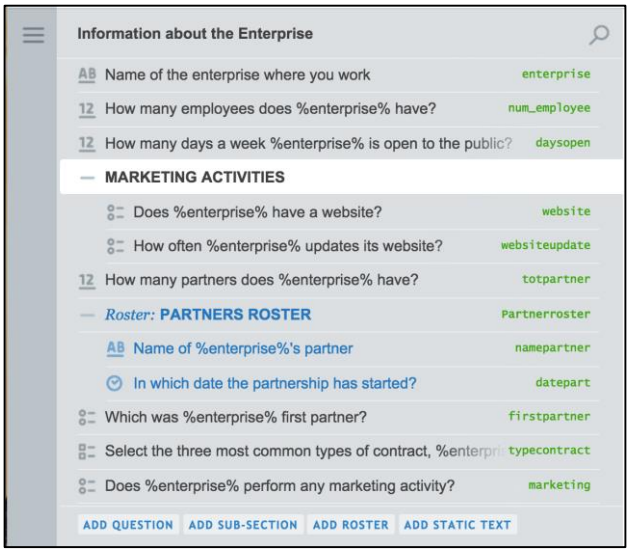
5.6 Moving sub-sections

5.6.1 Within a section

To move a sub-section within the same section,

1. In the left panel, move your mouse over the left hand side of the sub-section .
2. Click on it and drag the sub-section to its new location.

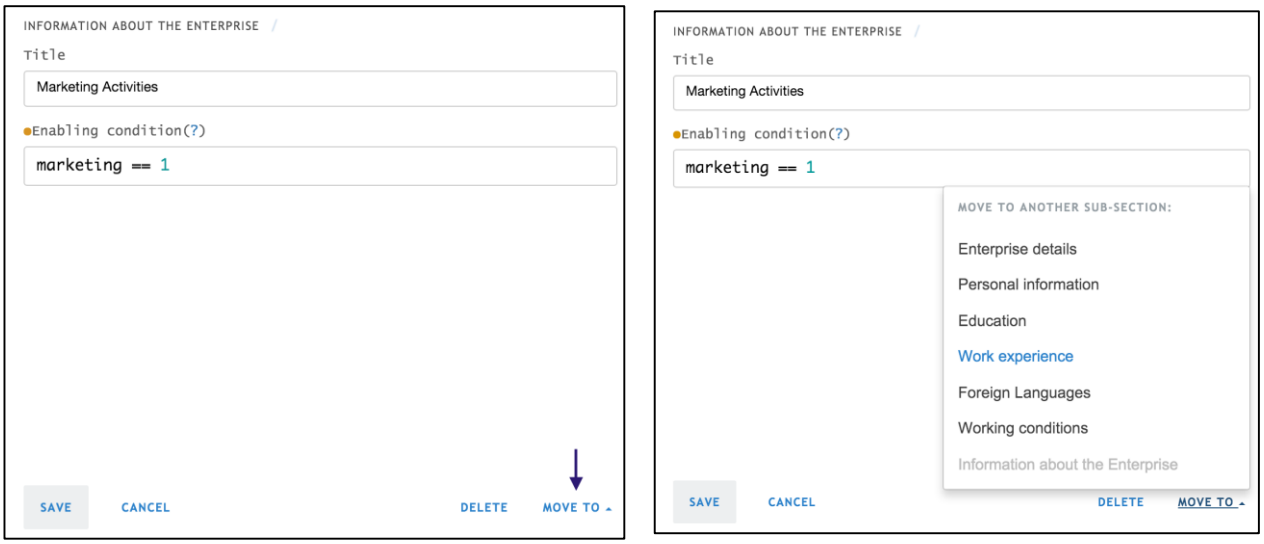




5.6.2 Between sections

To move a sub-section between sections,

1. Select the sub-section you would like to move.
2. Click on the *MOVE TO* link in the right hand panel.
3. In the pop-up window displayed, click on the section that you would like to move the sub-section to.



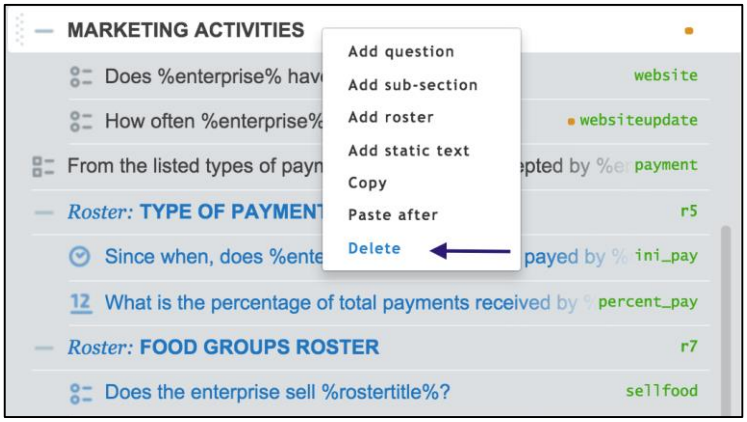
5.7 Deleting sub-sections

There are two methods for deleting a sub-section:

5.7.1 First method

In the left hand panel,

1. Right click on the subsection
2. In the pop-up menu bar displayed click on *DELETE*.



If you have questions that are linked through enabling conditions and validation conditions within the sub-section to other questions elsewhere in the questionnaire, an error message displaying the dependent questions will first confirm that you would like to delete the sub-section.

5.7.2 Second method

1. Select the sub-section you would like to delete.
2. Click on the *DELETE* link in the right hand panel.

Exactly, like the first method described above a error message will be displayed if there are links between questions within that specific sub-section and the rest of the questionnaire.

6. Rosters

Sometimes it is necessary to repeat the same set of questions multiple times. *Rosters* allow you to create an auto-propagated group of questions. In other words, roster groups are used to display the same set of questions several times.

For instance, a roster group can be implemented in national household or agricultural surveys. In the former the enumerator collects data on name, age, gender, etc. per household member. In the latter the enumerator collects data on crop, quantity harvested, unit of the quantity, etc. per plot of land.

As all the questions within the group will be asked for each individual or item, it is necessary to have an individual or item id (titles of the rows) that identifies each set of questions. These titles can be created automatically (during the interview) or manually (during the creation of the questionnaire). The latter are also called fixed set of items.

Survey Solutions has 4 roster sources. Three of them depend on the question type linked to the roster : *numeric question*, *list question* and *multi-select question*. No question is linked to the fourth roster source: *fixed set of items*.

6.1 Adding rosters

With the exception of the *fixed set of items* roster source, the first step in adding a roster is to create the question that will link to the roster.

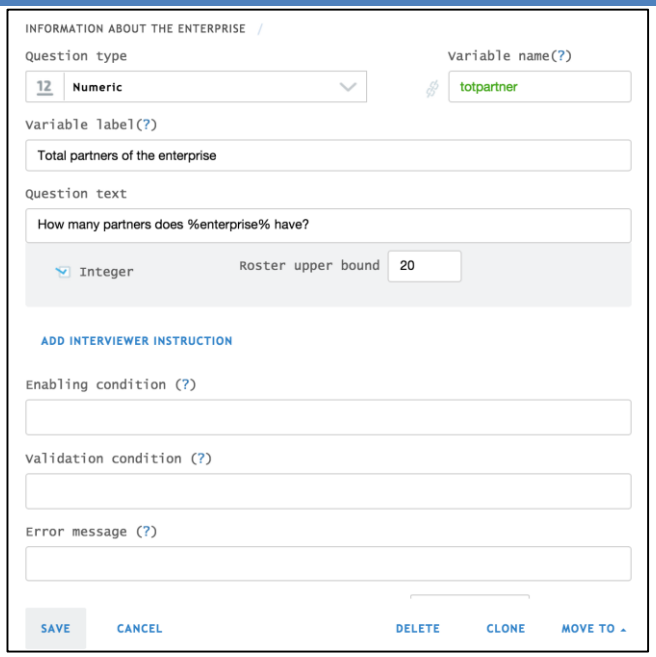
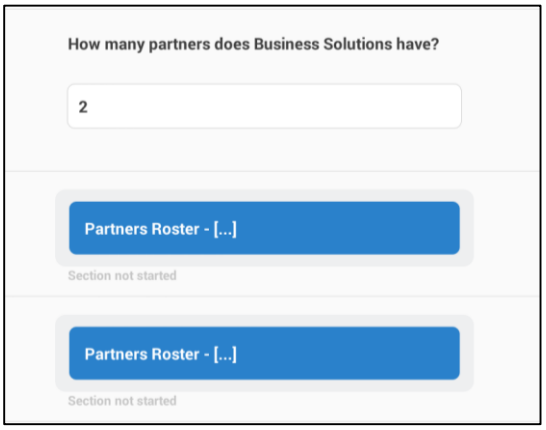
6.1.1 Numeric question roster source

The source question usually starts with “How many…?”. The expected answer is a number. For instance:

Question which triggers the roster	Triggers the questions within the roster for
“How many people live in the household?”	Each household member
“How many partners does the enterprise have?”	Each partner
“How many lands do you cultivate?”	Each land
“How many crops did you harvest in the land?”	Each crop

The total number of household members, partners, lands or crops determines how many times the questions within the roster will be repeated.

The pictures below show an example for the question: “How many partners does the enterprise have?”

In the designer	On the tablet
	

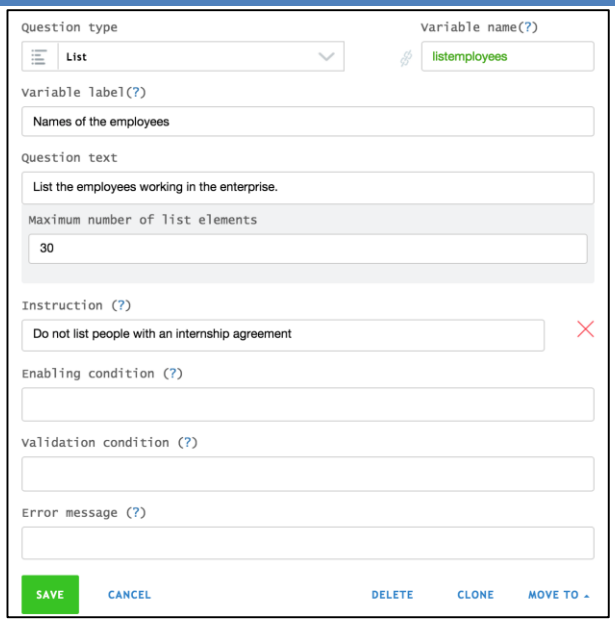
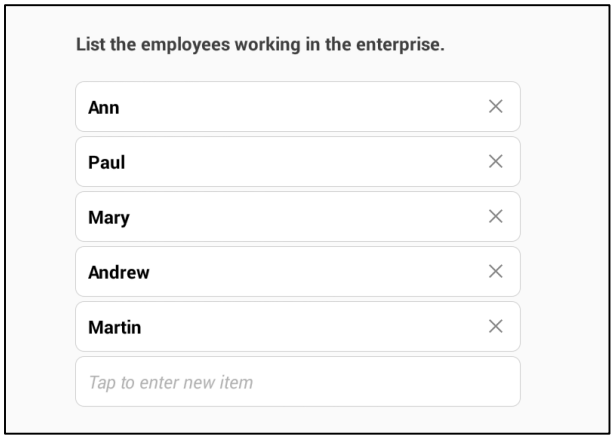
6.1.2 List question roster source

The source question usually starts with “List…”. The expected answer is an open list. For instance:

Question which triggers the roster	Triggers the questions within the roster for
“List the people living in the household”	Each household member
“List the employees working in the enterprise?”	Each employee
“List the lands you cultivate”	Each land
“List the crops you harvested in the land”	Each crop

The total number of listed household members, employees, lands or crops determines how many times the questions within the roster will be repeated.

The pictures below show an example for the question: “List the employees working in the enterprise?

In the designer	On the tablet
	

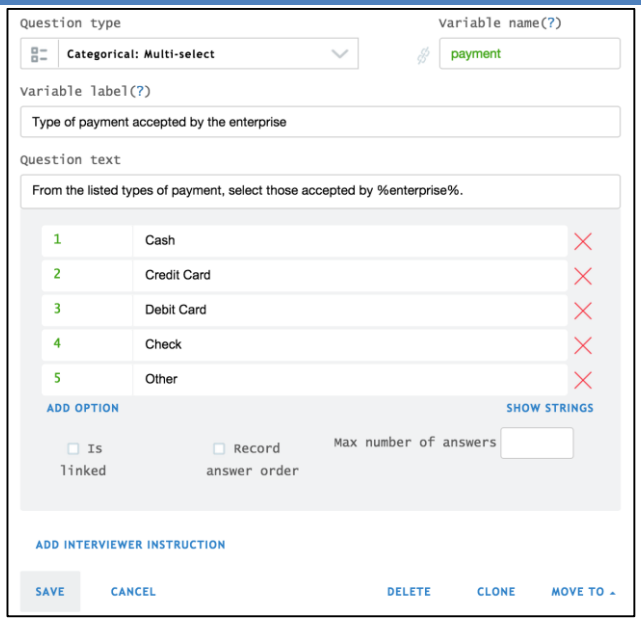
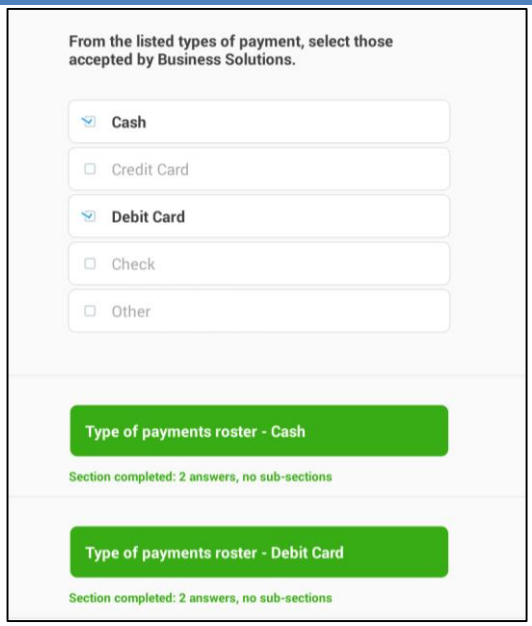
6.1.3 Categorical: multi-select source question

The source question usually starts with “From the listed…”. The expected answer is one or more options selected. For instance:

Question which triggers the roster	Triggers the questions within the roster for
“From the listed food items select those purchased last week”	Each food item selected within those listed
“From the listed crops select those cultivated in your land”	Each crop selected within those listed
“From the listed types of payment, select those accepted by the enterprise”	Each type of payment selected within those listed
“From the listed sports select those you frequently practice”	Each sport selected within those listed

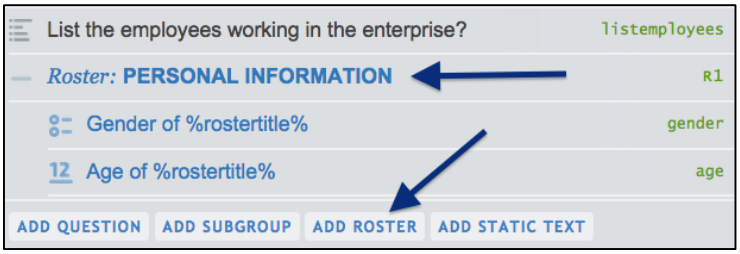
The total number of selected food items, crops, types of payment or sports determines how many times the questions within the roster will be repeated.

The pictures below show an example for the question: “From the listed types of payment, select those accepted by the enterprise”.

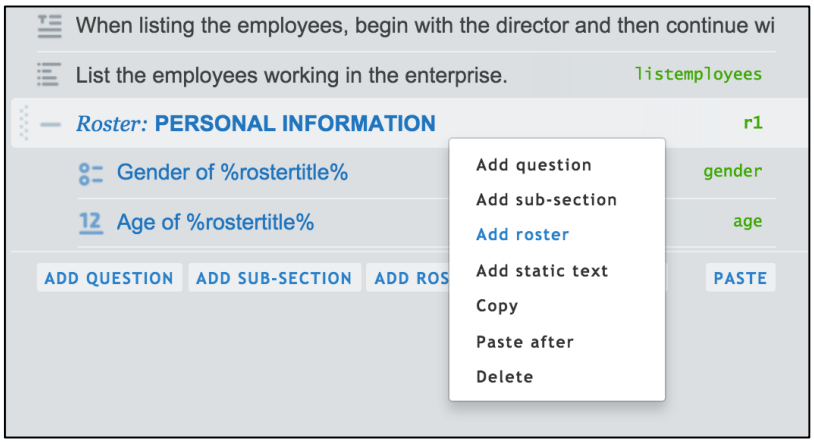
In the designer	On the tablet
	

Once you define the source question you can proceed by adding the roster. In the case of a *fixed set of items* roster where you do not need to define a source question, you can go ahead and add the roster. You can add a roster at the section level (not included in any sub-section or roster) or within sub-sections or rosters.

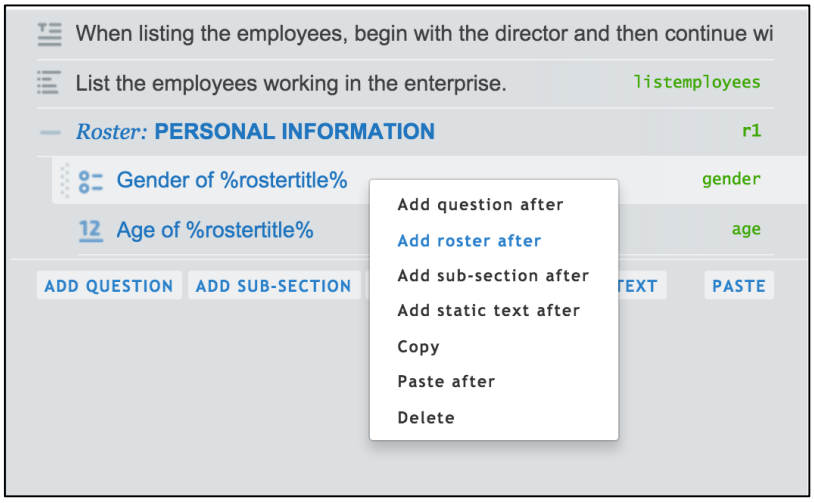
To add a roster at the section level click on the *Add ROSTER* button located on the left hand panel.
See the roster example “PERSONAL INFORMATION”.



To add a roster within a specific sub-section or roster, right click on the sub-section. In the pop-up menu bar displayed click on *Add roster*.



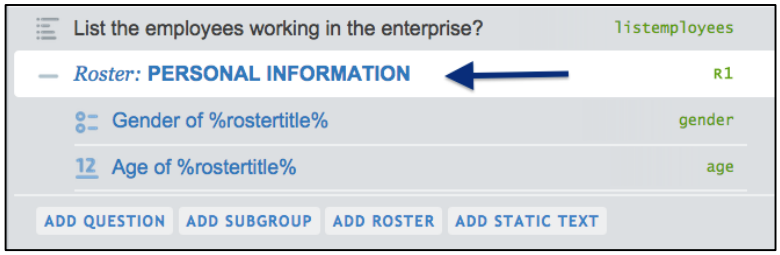
To add a roster after a specific question either at the section level or within a sub-section or roster, right click on that question. Then, in the pop-up menu bar displayed, click on *Add ROSTER AFTER.*



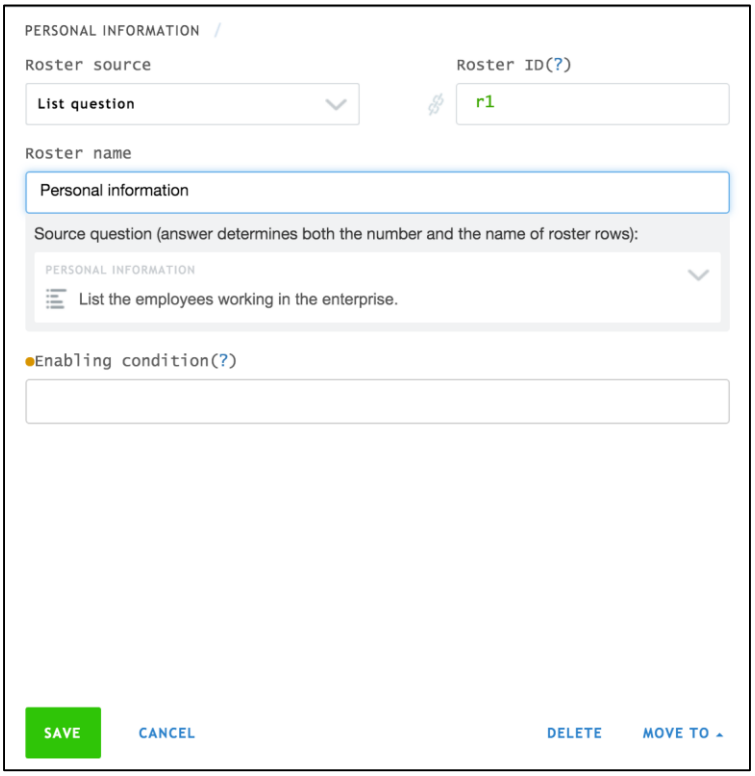
6.2 Selecting rosters

In the left hand panel,

1. Click on the roster you would like to work with.



2. Once you select a roster, in the right hand panel you can add or modify the roster's properties.



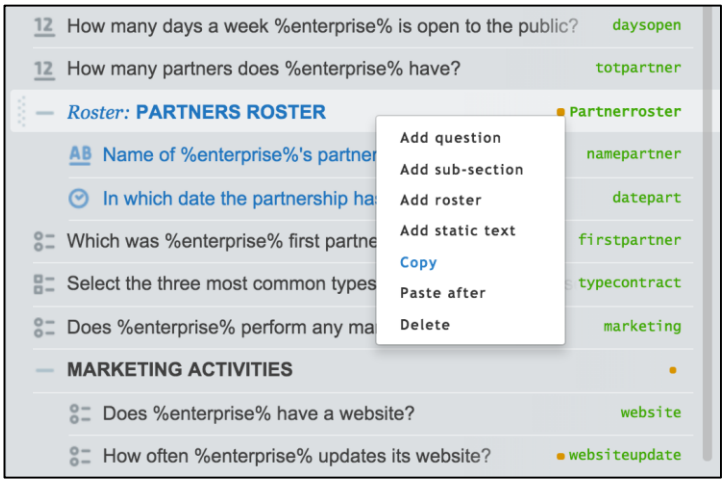
6.3 Copying rosters

There are two ways to copy and paste a roster from another questionnaire or from within a questionnaire you are currently working on.

6.3.1 First Method

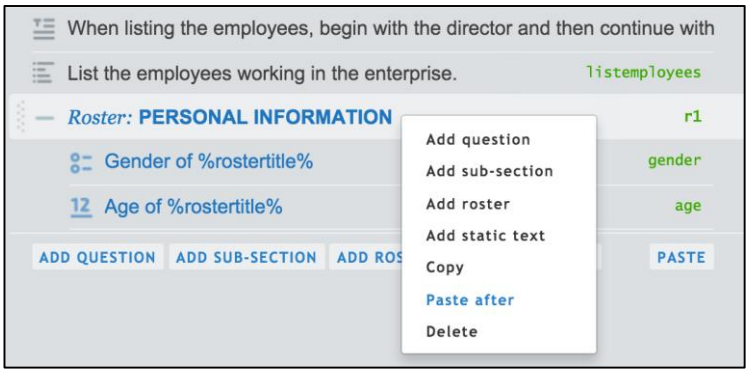
To copy and paste a roster,

1. Right click on the roster that you want to copy.
2. Click on *Copy* in the pop-up menu.

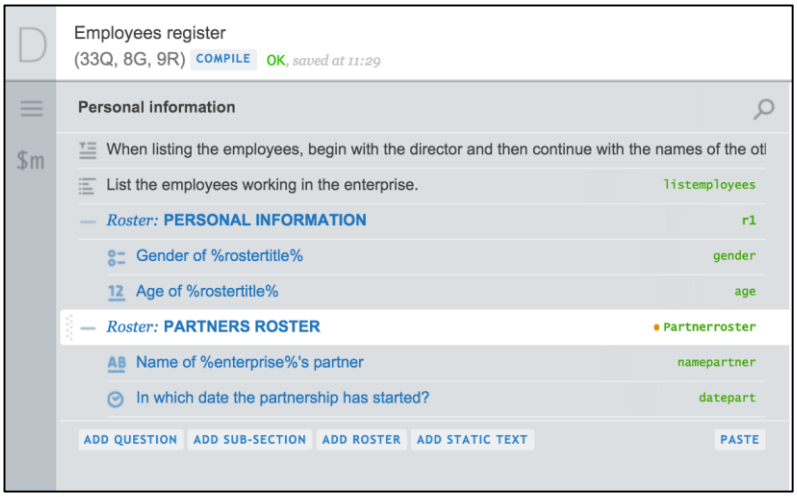


(If you want to past the roster in another questionnaire, open that questionnaire in Designer.)

3. Right click on the question, sub-section, or roster that should precede the roster you have copied.



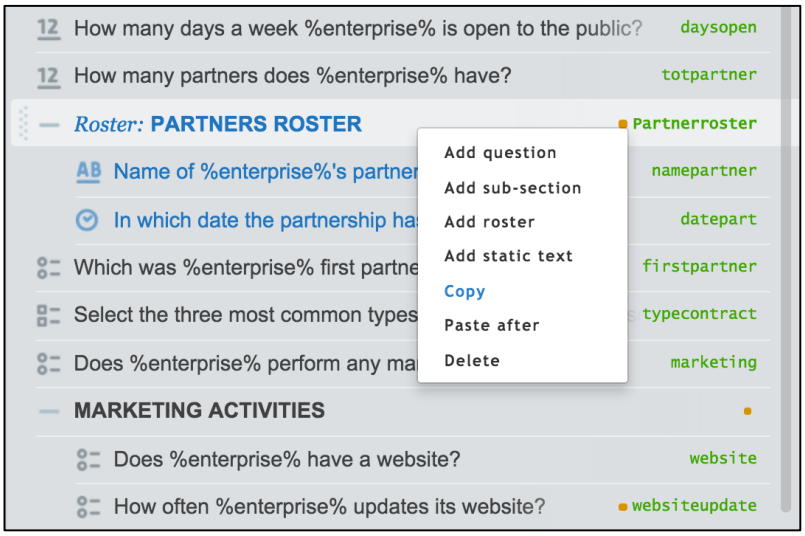
4. Click *PASTE AFTER*.



6.3.2 Second Method

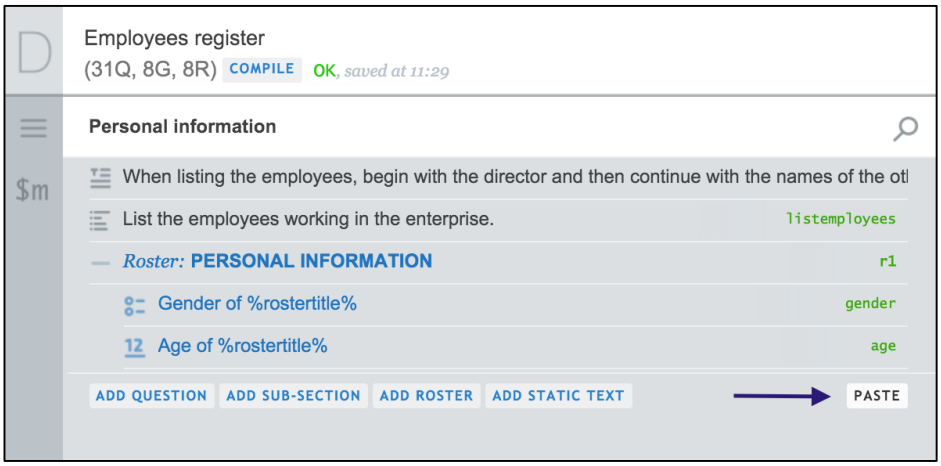
To copy and paste a roster,

1. Right click on the roster that you want to copy.
2. Click on *Copy* in the pop-up menu.



(If you want to paste the roster in another questionnaire, open that questionnaire in Designer.)

3. In the navigation menu on the left hand panel, open the section where you want to copy the roster in.
4. Click *PASTE* on the bottom right of the section navigation pane.



One thing to note is that rosters may not be pasted as the top-level elements (sections); instead rosters must be inserted into an existing section (or sub-section).

6.4 Defining rosters' properties

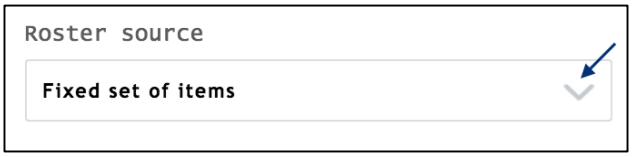
When you select a roster, you can see its details in the right hand panel. Rosters are defined by a set of properties. While some features are common to all roster types, others are defined for a specific roster source.

6.4.1 Roster source

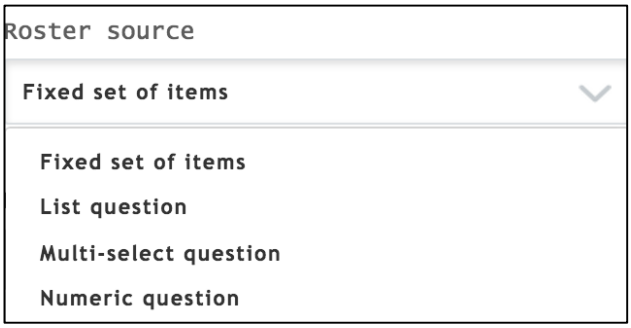
Survey Solutions has 4 roster sources. Three of them depend on the question type linked to the roster : *numeric question*, *list question* and *multi-select question*. No question is linked to the fourth roster source: *fixed set of items*. (For details on the trigger questions, see 6.1 Adding rosters).

Roster type	Source question types
Numeric question	Numeric
List question	List
Categorical: Multi-select question	Categorical: Multi-select
Fixed set of items	Not applicable

To select the roster source, first click on the *Roster source* dropdown box.

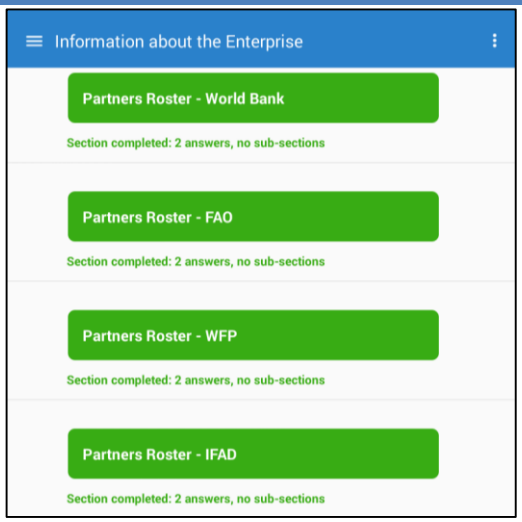


From the pop-up menu select the roster source by clicking on it.

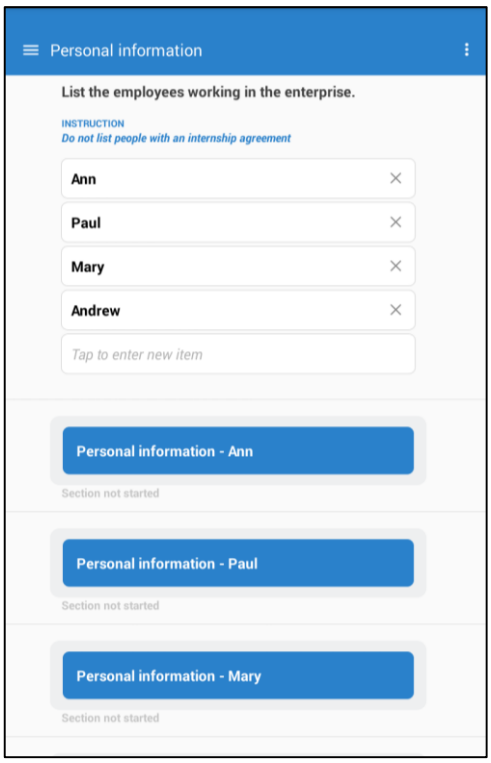


The answer to the source question or the number of fixed set of items, defines the number of times the questions within the roster are repeated. This means that there will be a set of questions for each subject (individual, enterprise, crop, land, food item, non-food item, etc.). For this reason, a subject id (name, code id, etc.) is needed to differentiate the set of questions among the different subjects. The subject's id can either be created automatically during the interview or be fixed.

Roster type: Numeric question
The subject ids are the answer given to a question within any roster having the same trigger question as the current roster.

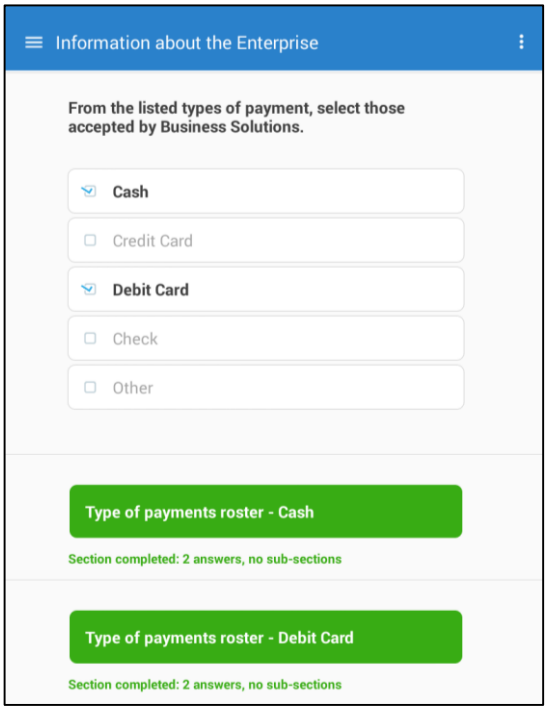


Roster type: List question
The subject ids are the answers listed in the trigger question.

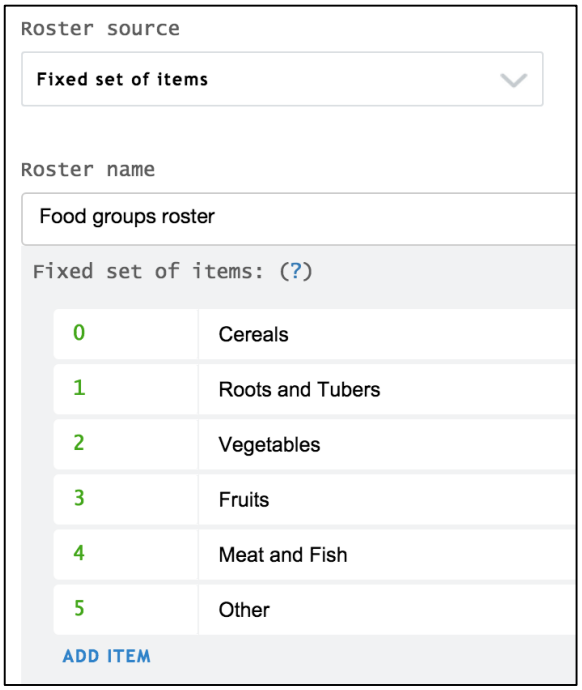


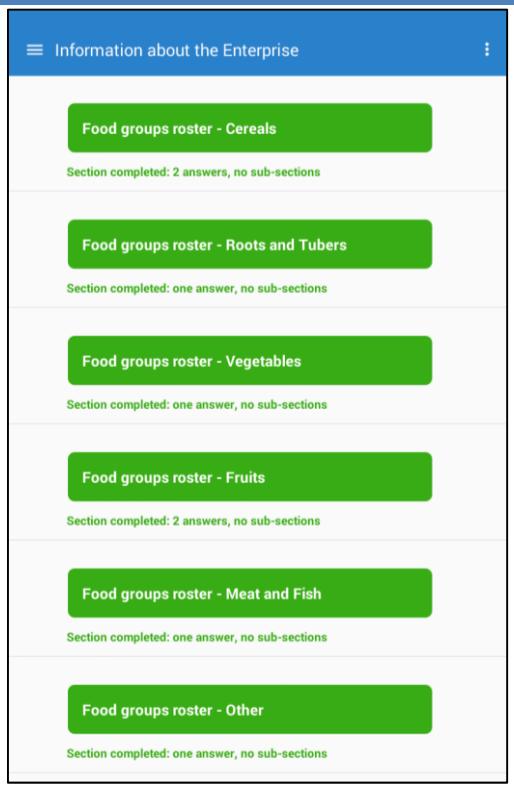
Roster type: Multi-select

The subject ids are the answers selected in the trigger question. In this example: Cash and Debit Card.



Roster type: Fixed set of items
The subject ids are the fixed items defined in the designer.

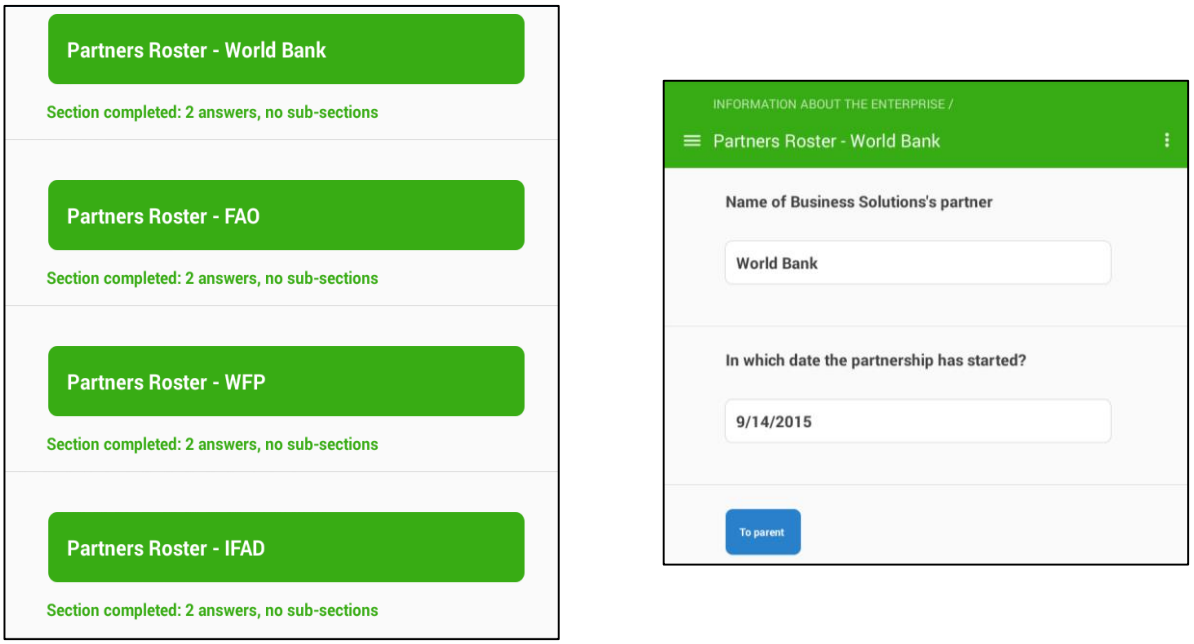


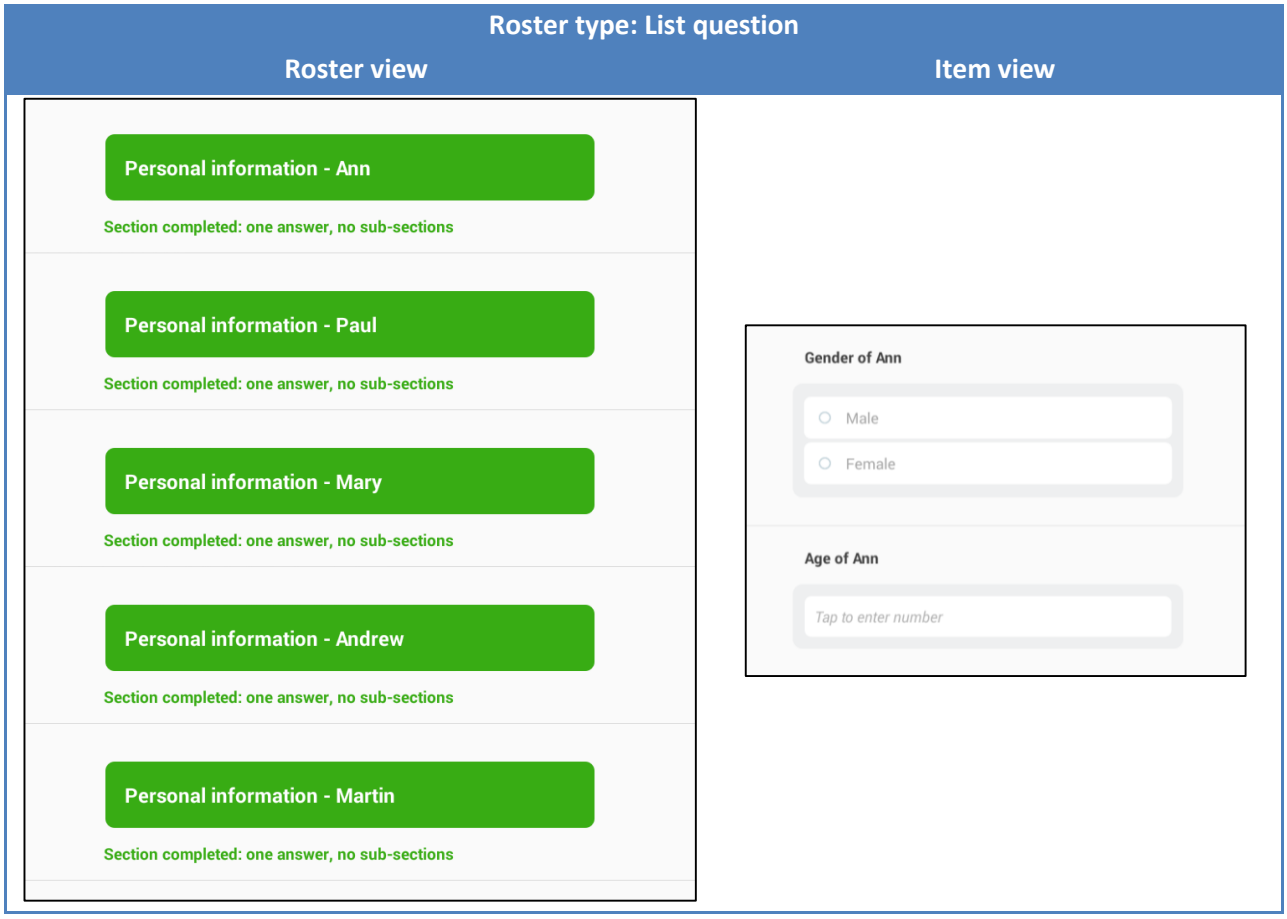


The tablet displays the roster groups in a single row mode. To navigate to the next row, click on the To Parent button to go back to the list of all the roster items and choose another row to complete.

Roster type: Numeric question

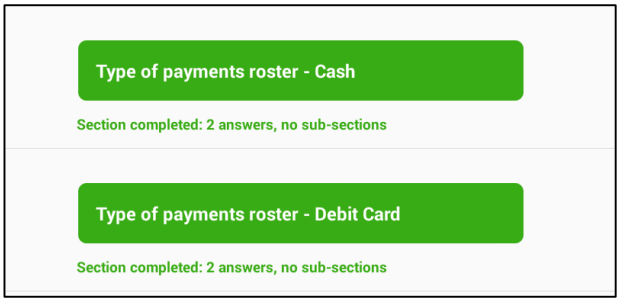
Roster view	Item view



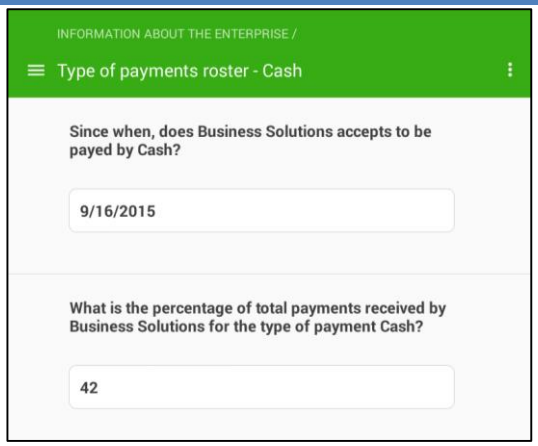

Roster type: List question
Roster view
Item view
Personal information - Ann
Section completed: one answer, no sub-sections
Personal information - Paul
Section completed: one answer, no sub-sections
Personal information - Mary
Section completed: one answer, no sub-sections
Personal information - Andrew
Section completed: one answer, no sub-sections
Personal information - Martin
Section completed: one answer, no sub-sections
Gender of Ann
Male
Female
Age of Ann
Tap to enter number

Roster type: Multi-select

Roster view

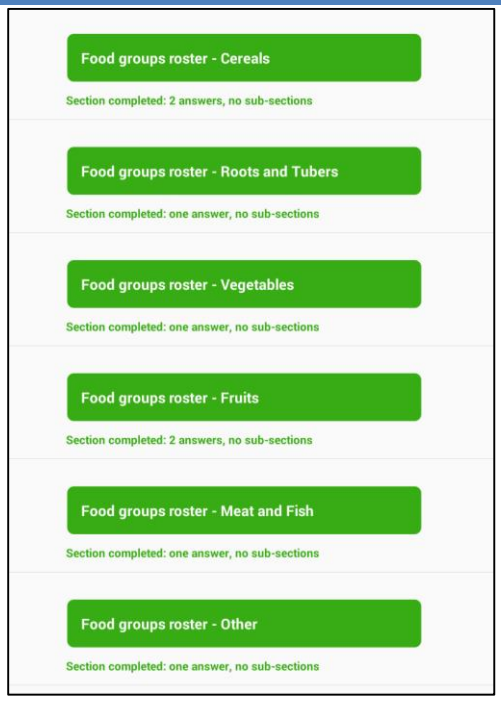


Item view

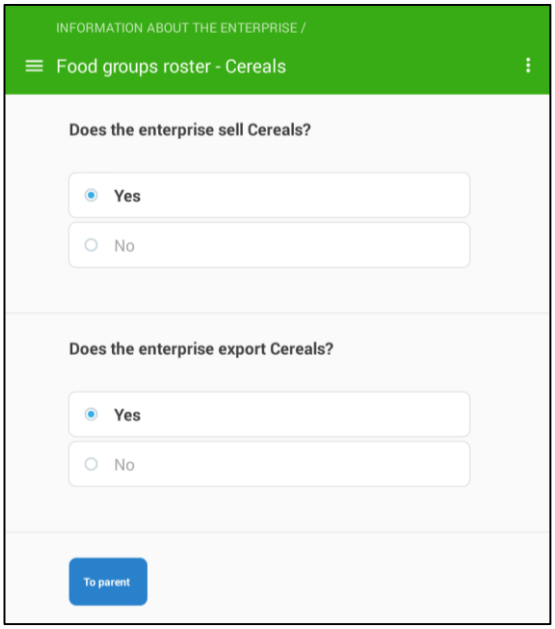


Roster type: Fixed set of items

Roster view



Item view



6.4.2 Variable name

The *Roster variable name* is the unique identifier of a roster. It has to start with a letter, but can contain numbers and the underscore symbol. As it is not needed during the interview, the variable name is not visible on the tablet.

6.4.3 Roster name

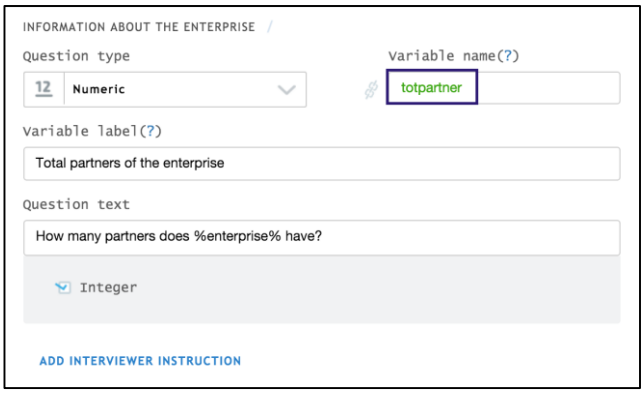
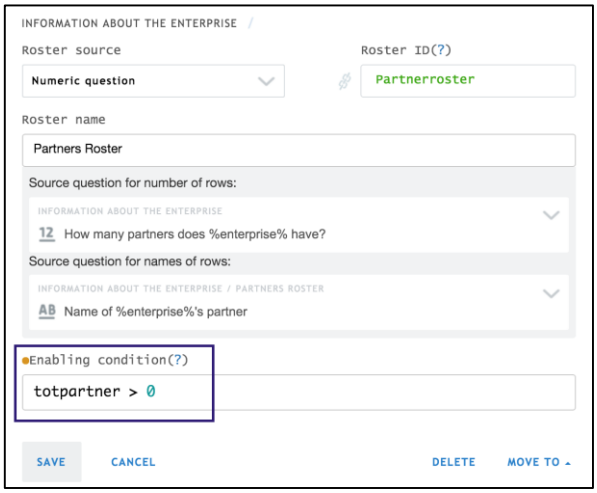
The *Roster name* box contains the name of the roster.

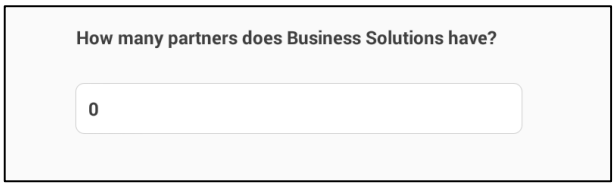
6.4.4 Enabling condition

Enabling conditions for rosters work in the same way as they do for questions (See 4.3.6 Enabling condition). However, the enabling condition added to a roster is applicable to every object within that roster.

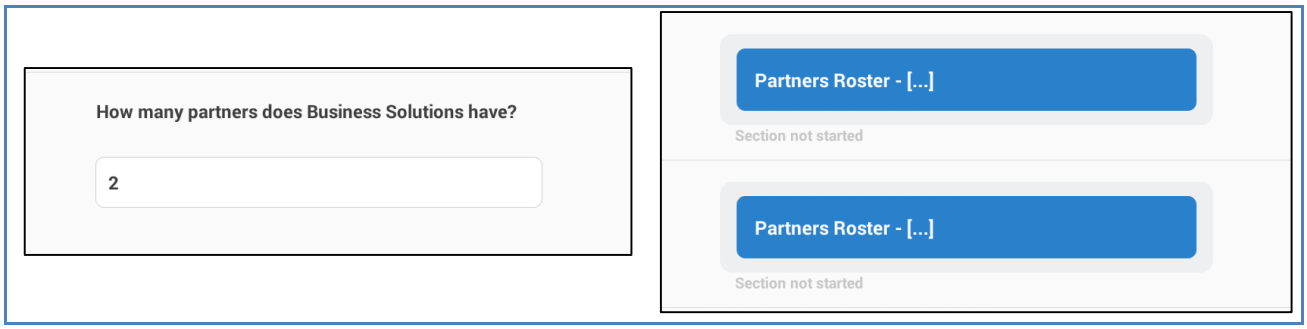
To visualize this with an example, let's imagine the numeric question "How many partners does %enterprise% have?" with the variable name "totpartner". Then, there is the roster "Partners Roster" that has questions we would like to ask only from enterprises that have partners. To accomplish this behavior, we add the enabling condition: "totpartner>0" to the roster "Partners Roster". By doing this, the questions within this roster will be enabled only if the answer to the question "How many partners does %enterprise% have?" is higher than 0.

To hide roster if it is disabled, select the *Hide if disabled* check box.

In the designer - “How many partners does %enterprise% have?“	In the designer - “Partners Roster”
	

On the tablet - When the answer to “How many partners does %enterprise% have?“ is 0,	the questions within the roster are not shown and the text “Questions are absent“ is displayed.
	

On the tablet - When the answer to “How many partners does %enterprise% have?“ is higher than 0,	the questions within the roster are displayed.

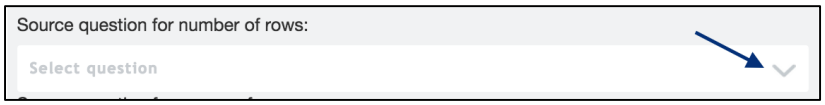


6.4.5 Source question

For the roster types: *numeric question*, *list question* and *categorical: multi-select*, you need to associate the roster to its source question.

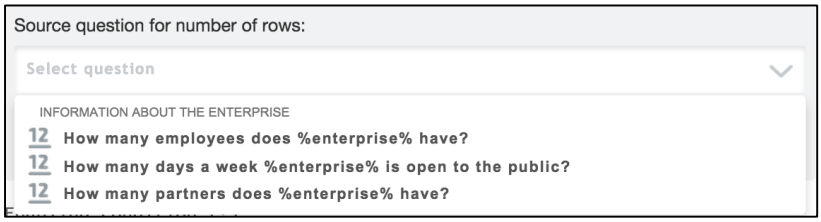
To do this,

1. Click on the *Source question (answer determines both the number and the name of roster rows)*, drop down box.

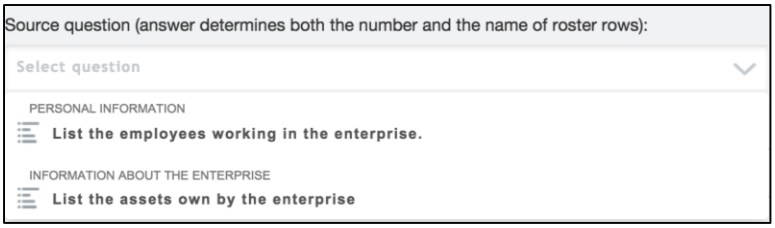


2. Select the question from the list of questions displayed.

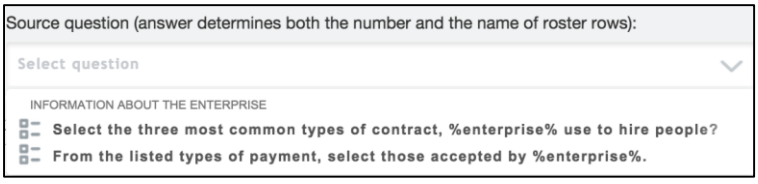
A *numeric question* roster is comprised of *numeric* questions.



A *list question* roster is comprised of *list* questions.



A *multi-select question* roster is comprised of *categorical: multi-select* questions.

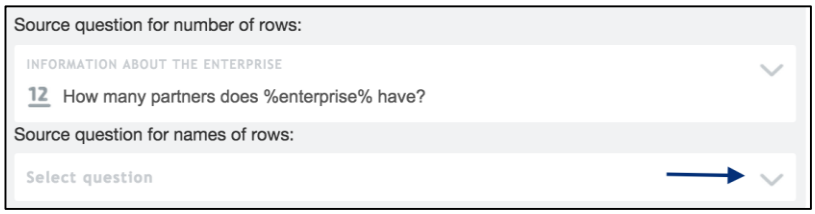


6.4.6 Source question for names of rows

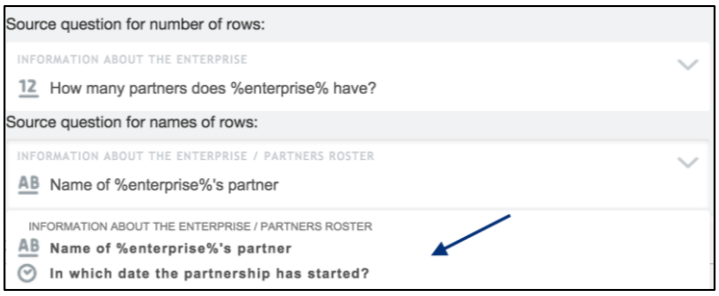
For a *numeric question* roster, the titles of rows (subject ids) are the answer to a question within any roster having the same source question as the current roster. Therefore, when defining the roster's properties it is necessary to associate the roster to the question whose answer will be the titles of rows.

To do this,

1. Click on the *Source question (answer determines both the number and the name of roster rows)*, drop down box.

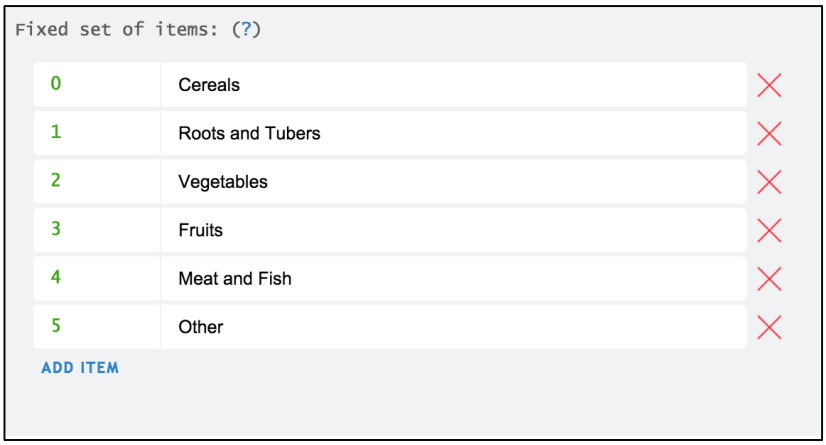


2. Select the question from the list of questions displayed.



6.4.7 Fixed set of items

In the case of a *fixed set of items* roster, the subject ids are the fixed items defined in the designer. To define them, click on the ADD ITEM link to manually add each subject id and code.



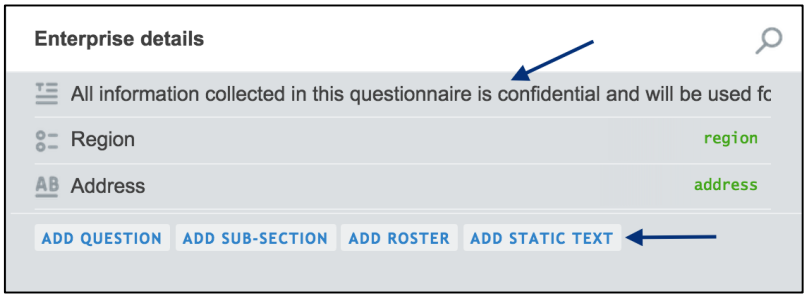
7. Static-text

Static-texts are used to convey information to the enumerator or the interviewee. An example of the former can be: “When listing the employees, begin with the director and then continue with the names of the other employees in order of responsibility, from highest to lowest.” An example for the latter can be: “All information collected in this questionnaire is confidential and will be used for statistical purposes only.”

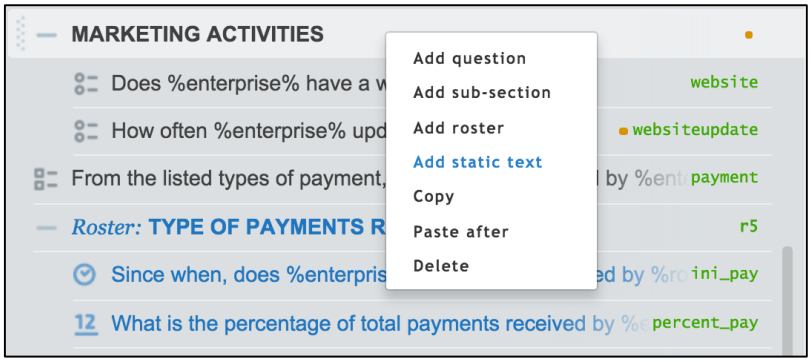
7.1 Adding static-texts

You can add a static-text at the section level (not included in any sub-section or roster) or within sub-section or rosters.

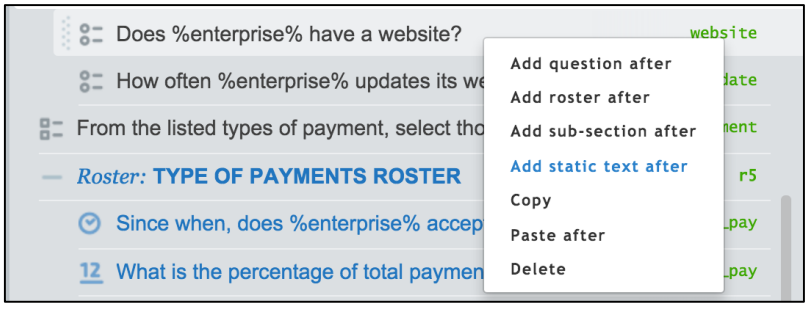
To add a static-text at the section level click on the *Add static-text* button located on the left hand panel.



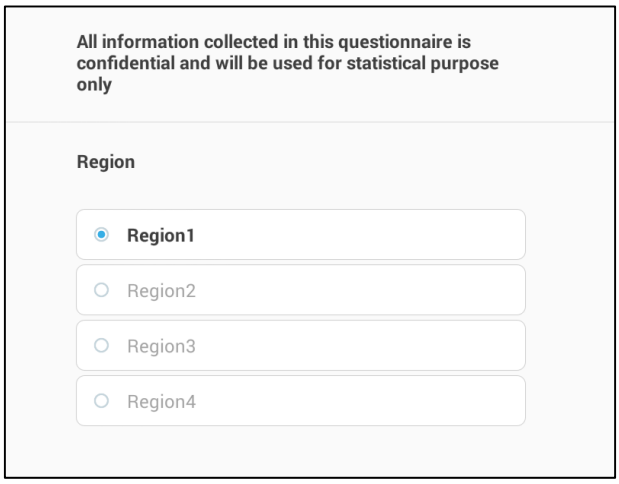
To add a static-text within a specific sub-section or roster, right click on the group. Then, in the pop-up menu bar displayed click on *Add static-text*.



To add a static-text after a specific question either at the section level or within a sub-section or roster, right click on that question. Then, in the pop-up menu bar displayed click on *Add STATIC-TEXT AFTER*.

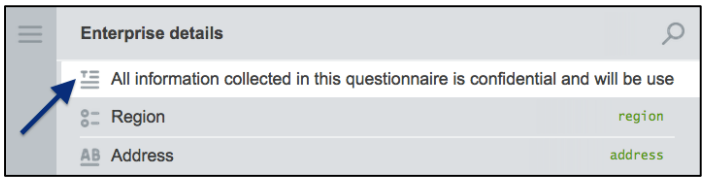


A static-text displayed on the tablet.



7.2 Selecting static-texts

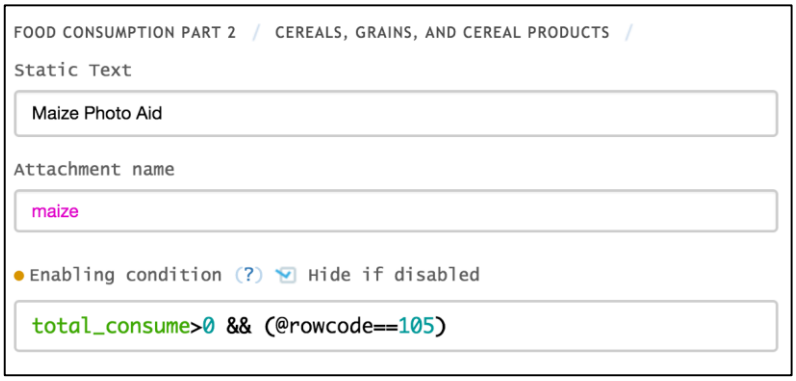
In the left hand panel, click on the static-text you would like to work with. Once you select a static-text, in the right hand panel you can add or modify the static-text's properties.



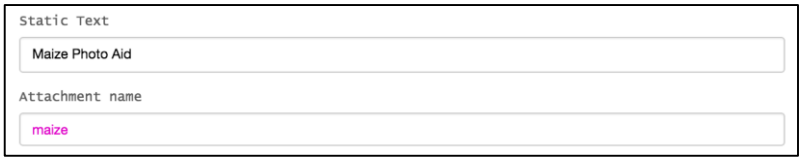
7.3 Defining static-texts' properties

To define the static-text properties, first select the static-text you would like to work with. Then, add or modify its properties in the right hand panel.

In the *static-text* field you can add or modify the content. You may also use text substitution to reference questions and user-defined or system-defined variables. To do this, enclose the question or variable name with the percentage sign (%).
You may also add an attachment, and/or enabling condition to the static-text.



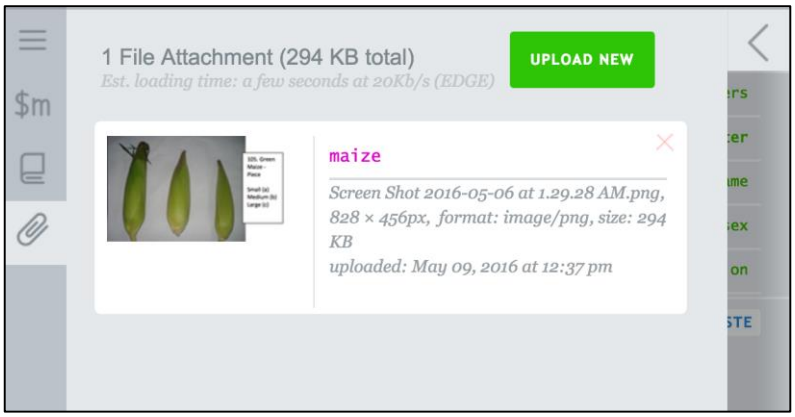
Pictures can be shown in *static-texts*, by uploading an attachment to the questionnaire and referring to the name of the attachment in



the *attachment name* text box.

To add an attachment to your questionnaire, click on the “paper clip” icon the toolbar on the left hand side.

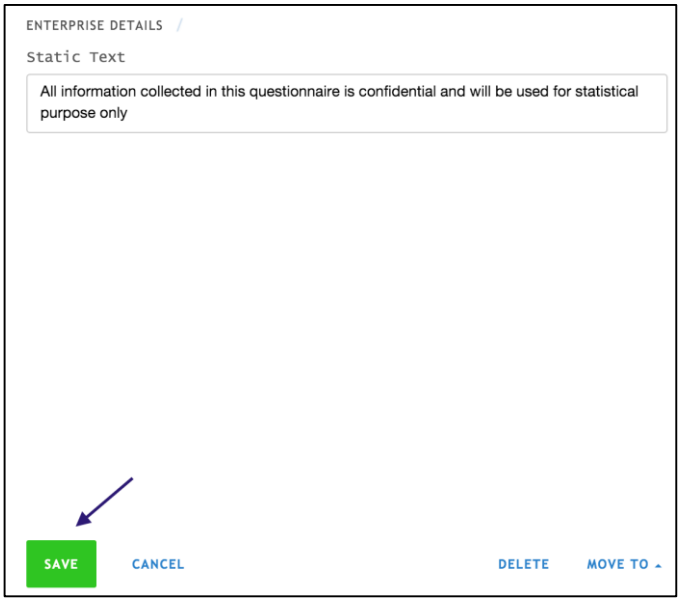
Click on the Upload New button, and load your image from your computer. Set a name for the image.



Next, add a static-text to your questionnaire and type the name of image in the *attachment name* text box.

7.4 Saving static-texts

Once you finish defining the content of the static-text, use the *Save* button on the bottom of the screen to save the changes.



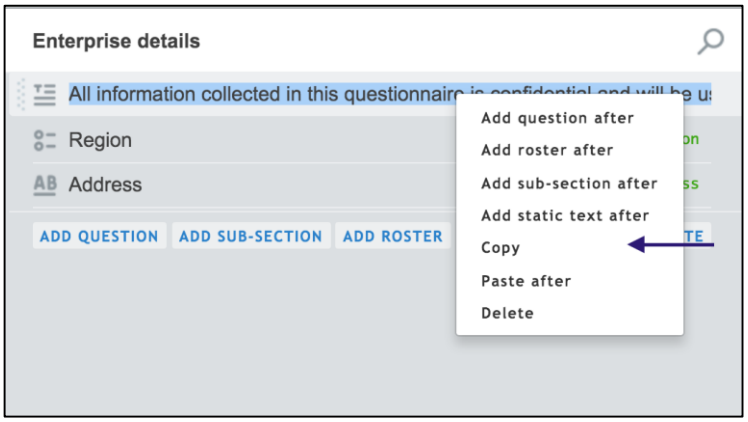
7.5 Copying static-texts

There are two methods for copying a static-text:

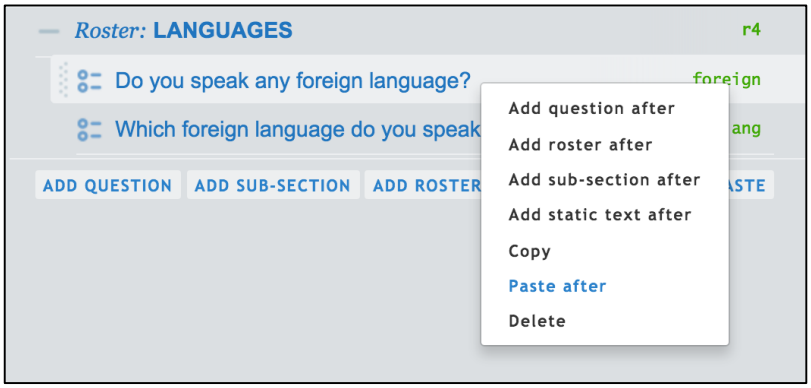
7.5.1 First method

In the left hand panel,

1. Right click on the static-text,
2. In the pop-up menu bar displayed, click on *Copy*.



(If you want to past the roster in another questionnaire, open that questionnaire in Designer.)



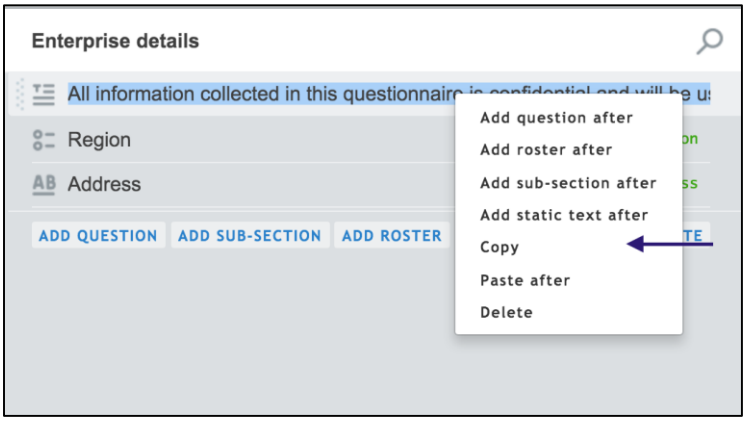
3. Right click on the question, sub-section, or roster that should precede the static-text you have copied.

4. Click *PASTE AFTER*.

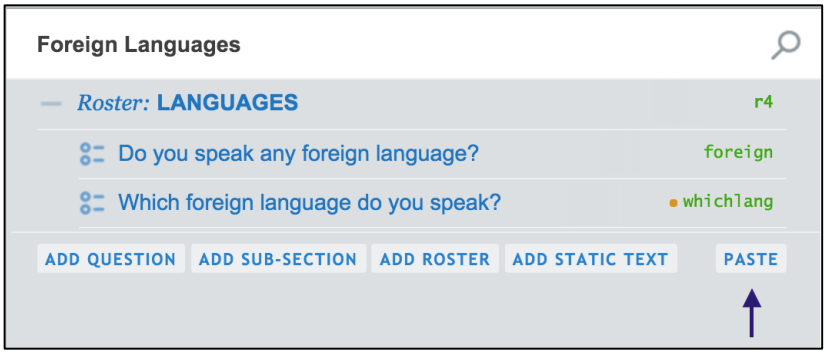
7.5.2 Second method

In the left hand panel,

1. Right click on the static-text
2. In the pop-up menu bar displayed click on *Copy*.



(If you want to paste the roster in another questionnaire, open that questionnaire in Designer.)



3. In the navigation menu on the left hand panel, open the section where you want to copy the static-text in.

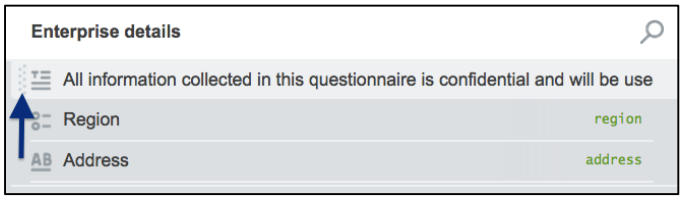
4. Click *PASTE* on the bottom right of the section navigation pane.

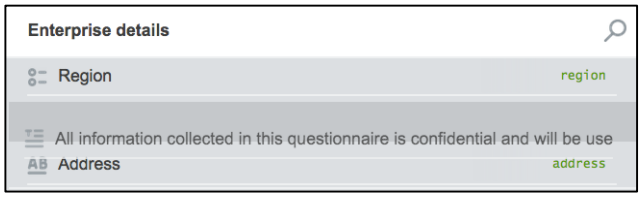
7.6 Moving static-texts

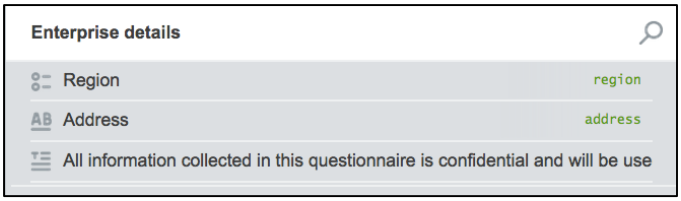
7.6.1 Within a section

To move a static-text within the same section,

1. In the left panel, move your mouse over the left hand side of the static-text .
2. Click on it and drag the static-text to its new location.



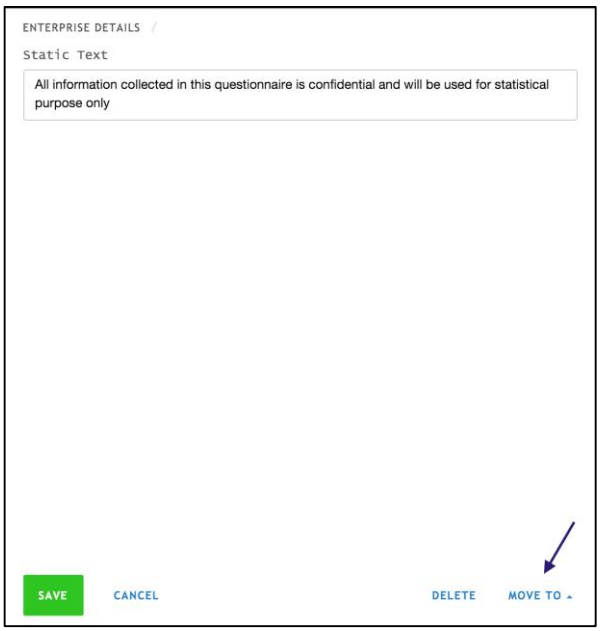


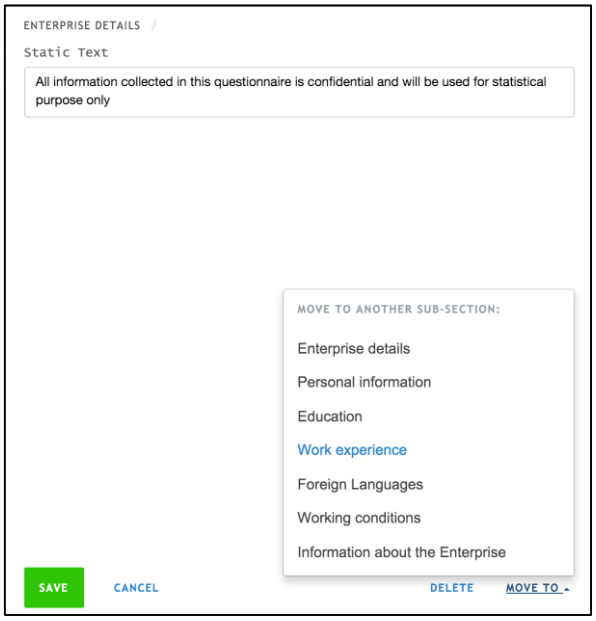


7.6.2 Between sections

To move a static-text between sections,

1. Select the static-text you would like to move.
2. In the right hand panel click on the *MOVE TO* link.
3. In the pop-up window displayed, click on the section to which you would like to move the static-text.





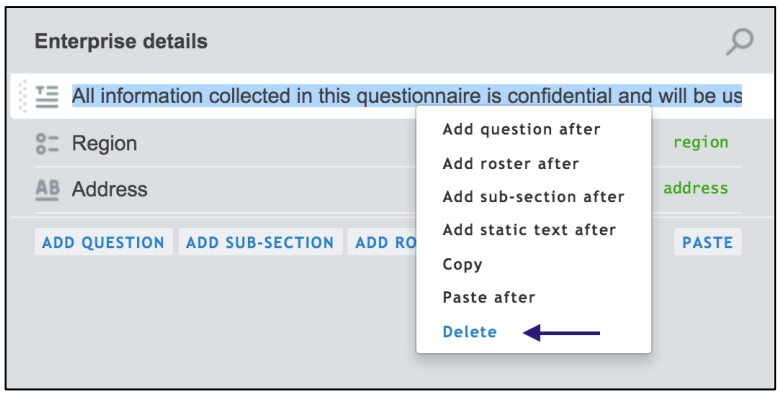
7.7 Deleting static-texts

There are two methods for deleting a static-text:

7.7.1 First method

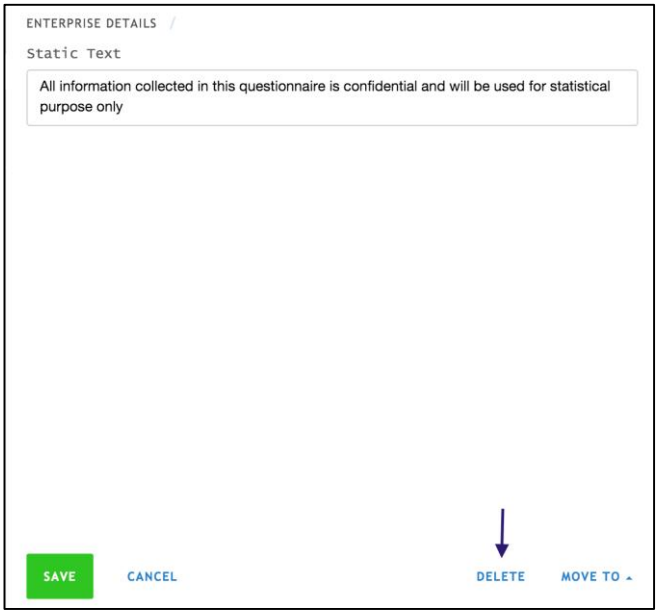
In the left hand panel,

1. Right click on the static-text
2. In the pop-up menu bar displayed click on *DELETE*.



7.7.2 Second method

1. Select the static-text you would like to delete.
2. In the right hand panel, click on the *DELETE* link.



8. Advanced Features

8.1 Macros

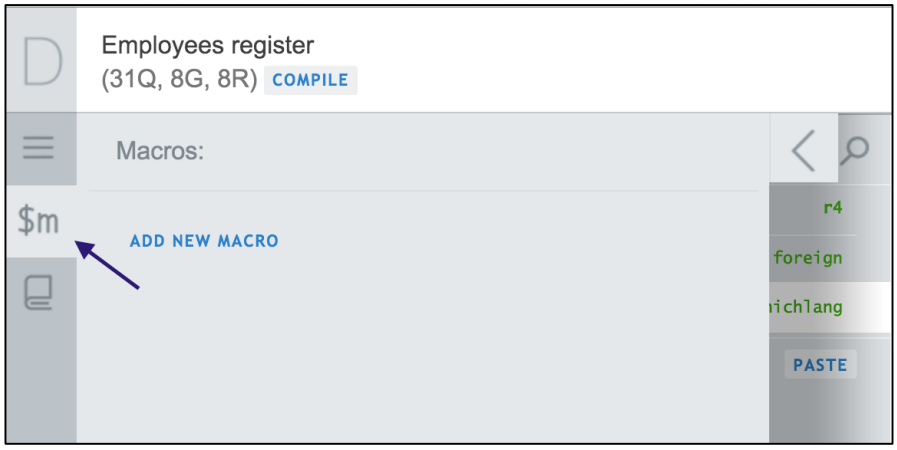
Macros simplify writing complicated expressions with repetitive sub-expressions. Consider for example, that several questions in the questionnaire are applicable to one group of persons, such as women of child-bearing age (let's say 15-44 years old, exact numbers are of no particular importance here). Suppose the variable for age is *age*, and for gender is *sex* with values 1 corresponding to males, and 2 to females. Then the following macro can be defined:

$c=(age.InRange(15,44) && (sex==2))

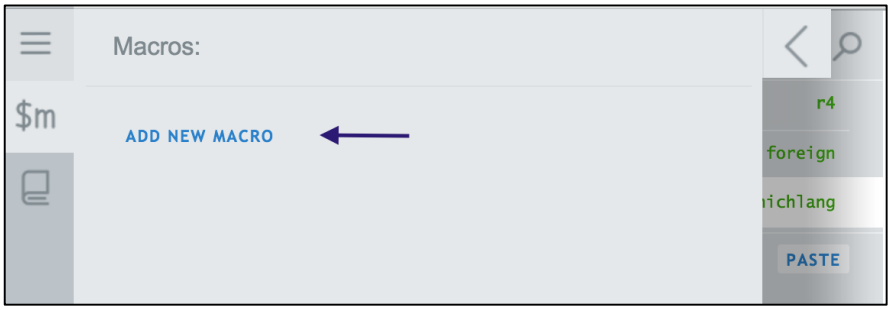
It can be subsequently used in the enabling conditions for each question directed at the women of childbearing age simply as $c, which will be substituted literally with the content of the macro as defined above.

To create a macro,

1. Click on the "$m" tab on the left hand menu.

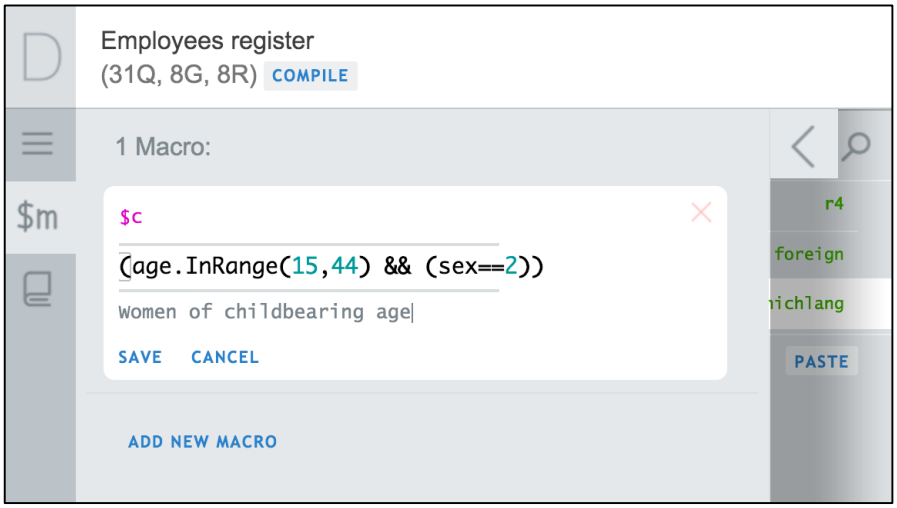


2. Click on the *ADD new Macros* link

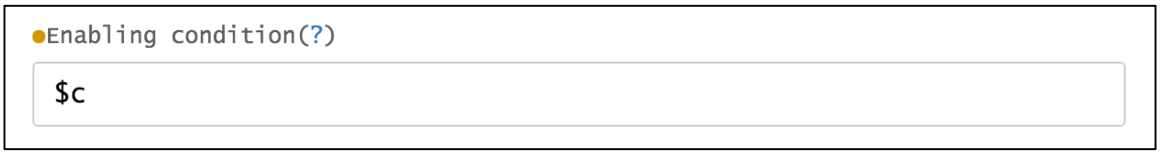


3. Define the macro name, content, and (optionally) a commentary describing the macro definition.

4. Click *save*.



5. To refer to the macro created previously in a chosen section, sub-section, question, or roster, type "$" followed by the macro name in the enabling condition field. In this example, type "$c".



To modify a syntax in a Macro,

1. Click on the "$m" tab on the left hand menu.
2. Locate the macro and click on any field in the macro specification to make all the necessary revisions.

8.1.2 Why use Macros?

- If you need to change the definition of the macro, say change the upper age limit from 44 to 45, there is a single place in the questionnaire where you need to do this;

- Groups of questions become more movable – when copying a group of questions to a different questionnaire, one can change the variable names in the definition of the macro to match the new questionnaire, again, making it simpler to integrate it into a different questionnaire;

- The conditions can be much more readable, such as:

  $worker && $publicSector && $skilled

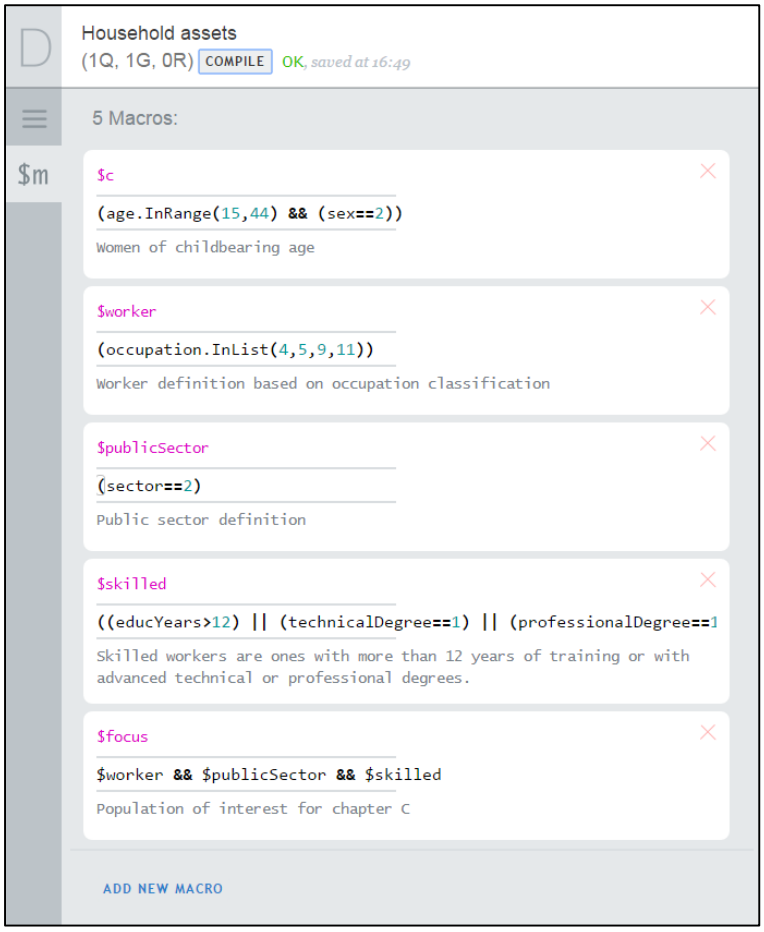
  Where, for example, the each individual macro could be defined as follows:

  $worker=(occupation.InList(4,5,9,11))

  $publicSector=(sector==2)

$skilled=((educYears>12) || (technicalDegree==1) || (professionalDegree==1))

These values will be substituted literally into the expression that refers to macros. Note that macro definitions may not refer to other macros.



8.2.1 Lookup tables

Lookup tables are reference tables that may be used in validation and enabling conditions. They are prepared as external tab-delimited files and uploaded to the questionnaire in the Designer.

We use lookup tables to find content by some code and apply it in validations and enabling conditions as part of larger expressions. Often times this lookup code is a code of an item in a price survey, occupational code in a labor force survey, or a code of crop in an agricultural survey.

Lookup tables are particularly convenient for storing time series data, such as historical exchange rates for various currencies. Other uses involve storing estimated crop yields by crop, ranges of salaries by occupation, etc. While anthropometric z-scores can be implemented via lookup tables as well, users should refer to specialized z-score functions instead.

The lookup tables must conform to the following format:

- Contain the “rowcode” column, and up to 10 other numeric columns with reference data.
- Values in “rowcode” column must be integer and unique
- Other columns may contain repetitive content, as well as fractions.

Lookup tables may include up to 5,000 rows of reference data. Multiple lookup tables may be defined within the same questionnaire.

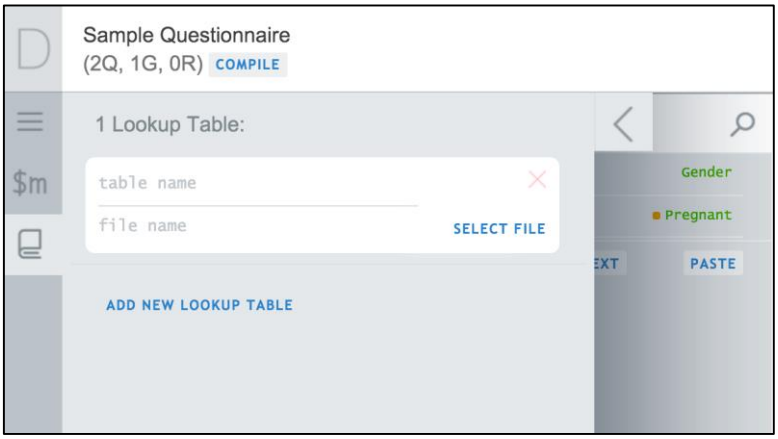
To upload a lookup table,

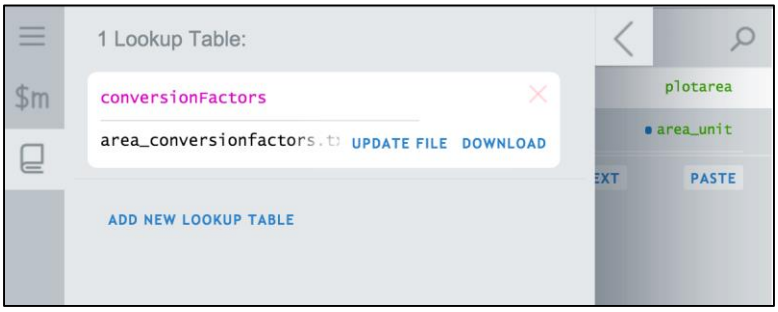
1. Click on the *lookup table icon* on the left hand panel.

2. Click on the *Add new lookup table.*

3. Type in the *table name*, and click on the *select file* link to upload the table delimited lookup table.

4. Click *save*.





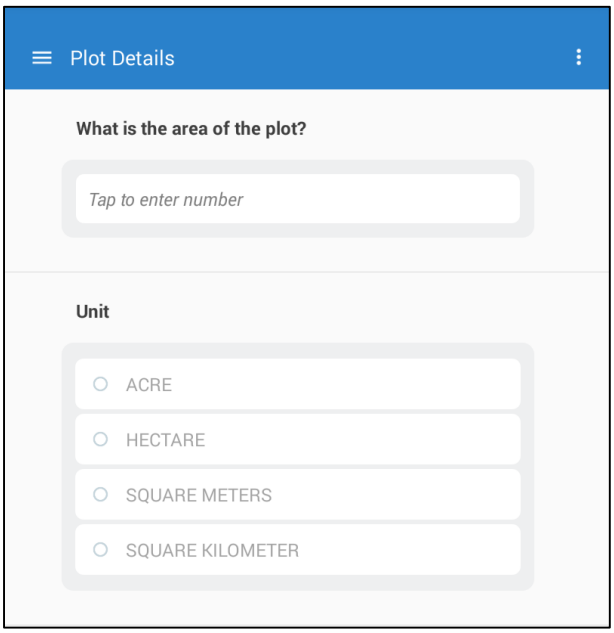
The short syntax for the reference in condition expressions is:

`LookupTableName[code].ColumnName`

It requires the name of the lookup table, the value of the code, and the name of the column for the content of interest.

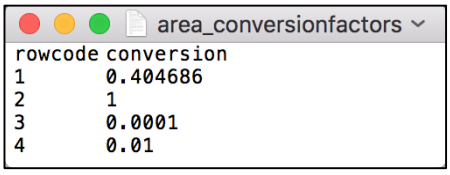
Consider the following example:

Suppose, that you want to add a validation condition that provides an error message for plot areas that are greater than 2 hectares.

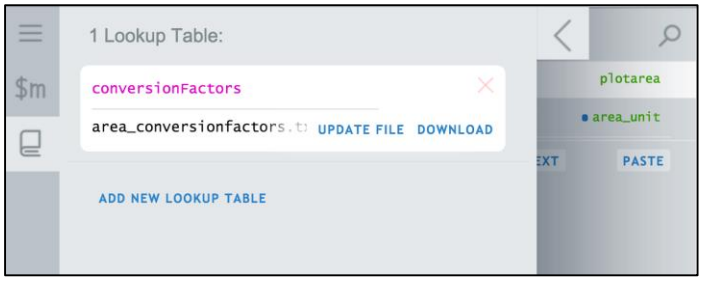


However, the single-select unit question allows for the plot area to be reported in other units of measurement in addition to hectare.

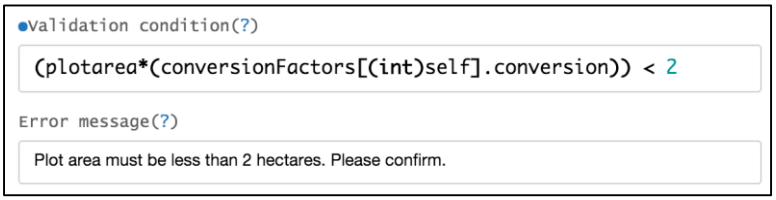
The tab delimited lookup table with unit conversion factors.



After uploading the tab-delimited lookup table following the directions explained previously,



we will add the following validation expression to the single-select unit question.



Here, *plotarea* refers to numeric area question. *ConversionFactors* is the name of the look up table we have uploaded to Designer. *Self* refers to the single-select unit question that holds the validation expression, and *conversion* refers to the conversion factor column in the lookup table.

If “Acre” is selected, then the reported plot area will be multiplied by row 1 of the “conversion” column in the lookup table. And, this calculated value must be less than 2 hectare. The same follows for the other possible units.

For more in-depth information and extended examples, please refer to the *Lookup Tables Reference*.

8.2.1 Variables

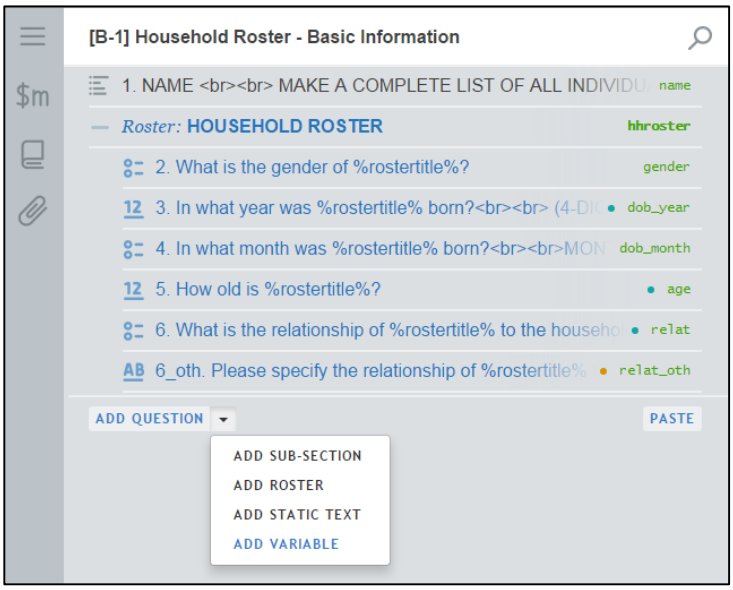
Variables are computable expressions that can be used to simplify validation and enabling conditions that use complex expressions. The content of a variable can be substituted into question text or static text to provide text that is more informative and dynamic.

To add a variable, use either of the following two methods:

METHOD 1

1. Click on the down arrow next to the *Add Question* button.

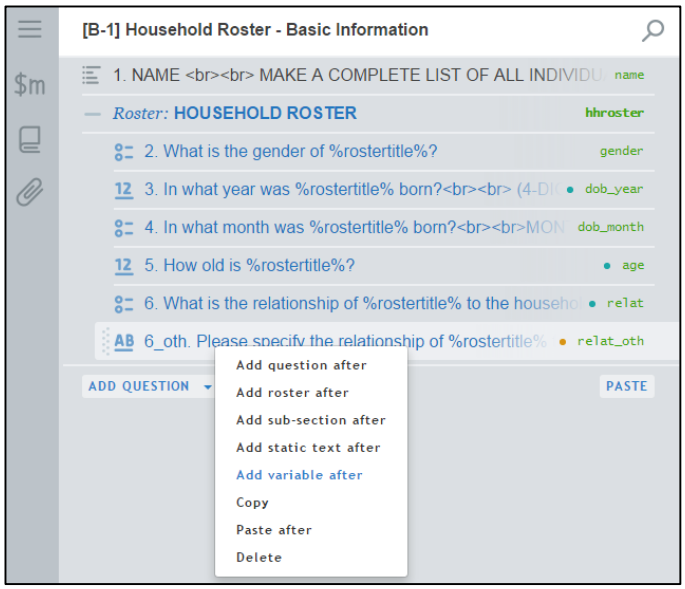
2. Select *Add Variable*



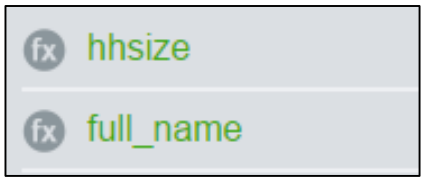
METHOD 2:

1. Right click on a question that should precede the variable.

2. Click on *Add variable after*.



Variables will appear in the section table of contents with the fx-icon.



Every variable will have a name, a type and an expression. Note that the variables do not have enabling or validation conditions, but a variable may still be disabled if it is part of the disabled section or sub-section. In that case the value of the variable is C#'s ***null.***

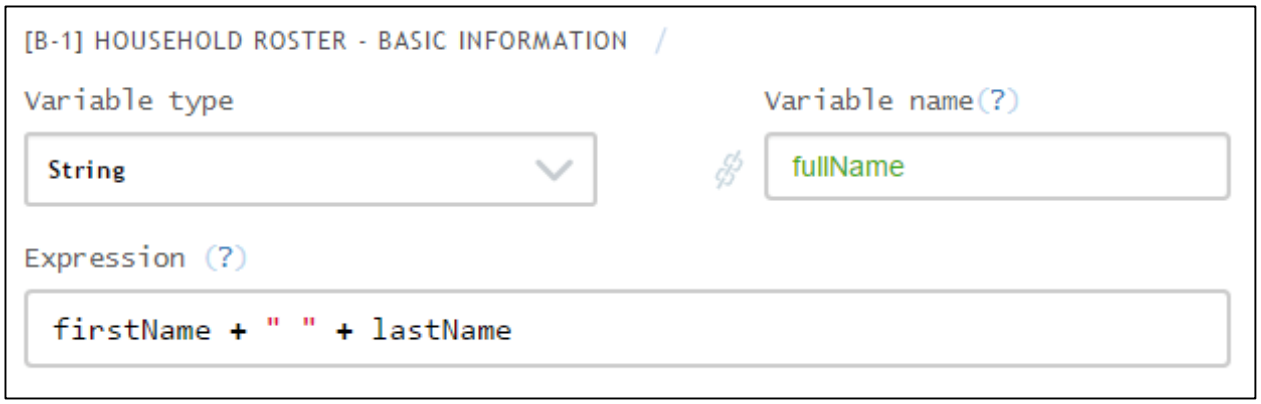
Specify variable name:
A variable name is a unique identifier for the variable. Use to the variable name to refer to the variable in enabling conditions, validation conditions, question text, static text, or in the expression of other variables.

Specify variable type:
Choose the data type that you expect the variable's expression to evaluate to (ie numeric, true/false, text). The variable type drop down menu has five possible types to choose from:

Boolean: This data type can only evaluate to true or false
Double: A numeric data type. This type allows for numbers with decimal values (e.g. 2.5, 3.42).
Date/Time: Type for values that are date and/or time
Long Integer: Type for integer values. Unlike the double type, this type will only allow for whole numbers (e.g. 2, 42, 7329)
String: Type for text values.

Specify the expression:
Add the expression that you want to be evaluated to compute the value of the variable.

Example 1:
We want to define a variable **fullName** that is a combination of a person's first name (question **firstName**) and a person's last name (question **lastName**). Here the variable would be a *String* type because the variable will be text.



Example 2:
We want to define a variable **countMissingAssets** to count the number of household assets where yes or no has not yet been filled in for categorical multi-select question (question **hhAssets**) that is in yes/no mode. Here the variable type would be *Long Integer* because we expect the number of items missing a response to be a whole number.

We can later to use it in a static text to the interviewer that will tell them how many assets they still have not filled out yes or not to.

Example 3:
We want to define a variable **hhsize** that will compute the household size. We intend to use this later in validation conditions in the household food consumption module to calculate the amount of food item that was consumed per capita.

Here the variable type would be *Long Integer* because we expect the household size to be whole number. **hhroster** is the name of the roster that the household members are listed in and **name** is the variable that contains the household member's names. To get the household size, we are counting the number of non-empty names that are listed on the roster.

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