Creating the "MyCAPI_Intro" Data Entry Application.
(This assumes you have a working knowledge of CSPro Data Dictionary concepts, creating a CSPro Data Entry Application, and program logic fundamentals.)
(This example uses CSPro 6.1))

The examples folder contains an example of a CSPro Computer Assisted Personal Interviewing (CAPI) application – **MyCAPI_Intro.ent**.   The application illustrates:

1. The MyCAPI dictionary
2. Creating a basic CAPI application for entering
    NAME, SEX, RELATIONSHIP, AGE, and LITERACY
3. Adding CAPI text for each item being entered
4. Dynamically selecting value set
5. Transferring CAPI application to an Android device
6. The various controls available for data entry
7. Navigating using the Case Tree
8. Copy the data file using USB.

    CAPI applications are developed in Windows. This document includes steps for exporting the application to an Android device.

1. The MyCAPI data dictionary

All of the MyCAPI applications use the **MyCAPI** data dictionary. We begin by examining the **MyCAPI** CSPro data dictionary:

We create the dictionary in as we would any CSPro dictionary by entering the item label, name, length, etc. for each item. This dictionary defines:

1. **Household ID** – a four digit field identifying the household.
2. **Name** – a 20 character alpha field to enter a respondent name. The **NAME** can then be included in the CAPI question text.
3. **SEX** – a single digit numeric field with possible values of 1(for male) or 2(for female).
4. **RELATIONSHIP** – a one-digit field containing two value sets; one value set for male relationships, the second for female relationships. The **SEX** entered will determine which responses for relationship will be displayed.


5. **AGE** – a three digit numeric field allowing for ages 0 to 115.
6. **LITERATE** – a single digit numeric field with possible values of 1(for literate) or 2(for not literate).

## 2. Create the MyCAPI_Intro data entry application

Now that we've examined the dictionary let's build the application. Open CSPro and select, "File", "New", "CAPI Data Entry Application"
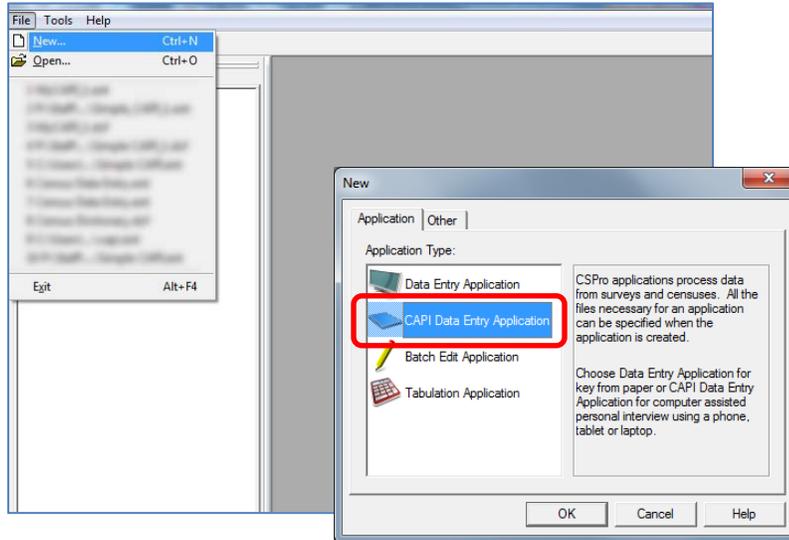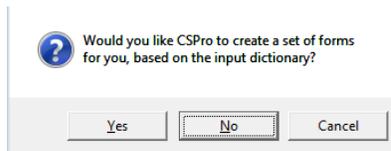

Click OK and the CAPI Data Entry Application Name dialog box appears. Navigate to the folder for the application and enter the name of the application. In this example, I use MyCAPI_Intro.
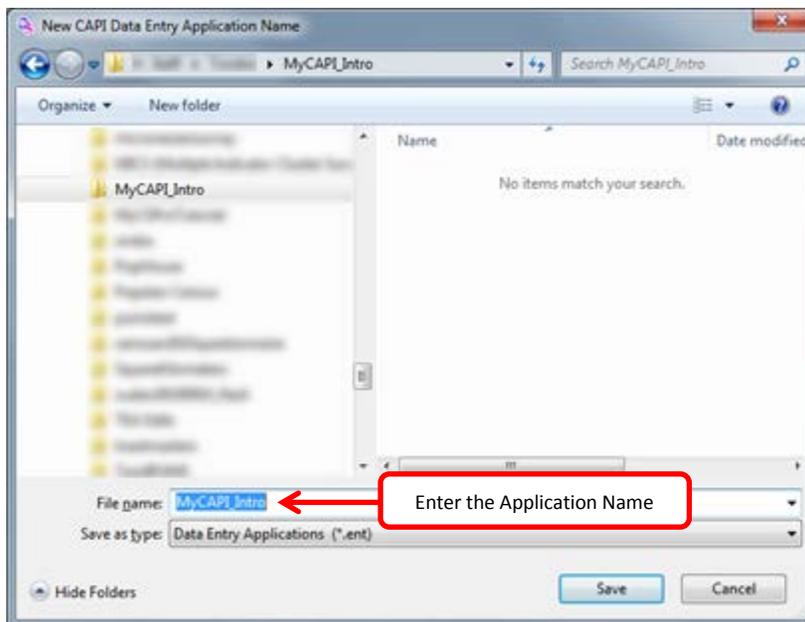
Click on "Save". CSPro then asks for the data dictionary. For this example, we will use the **MyCAPI** data dictionary:
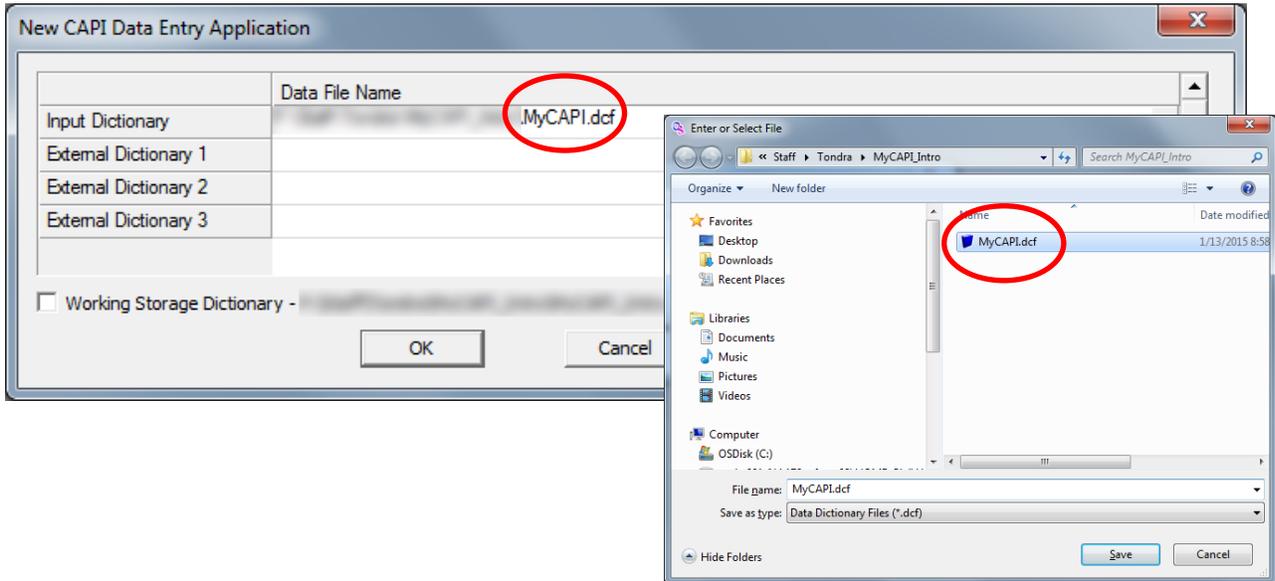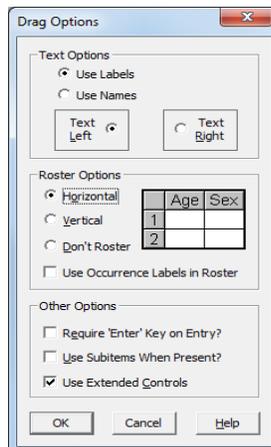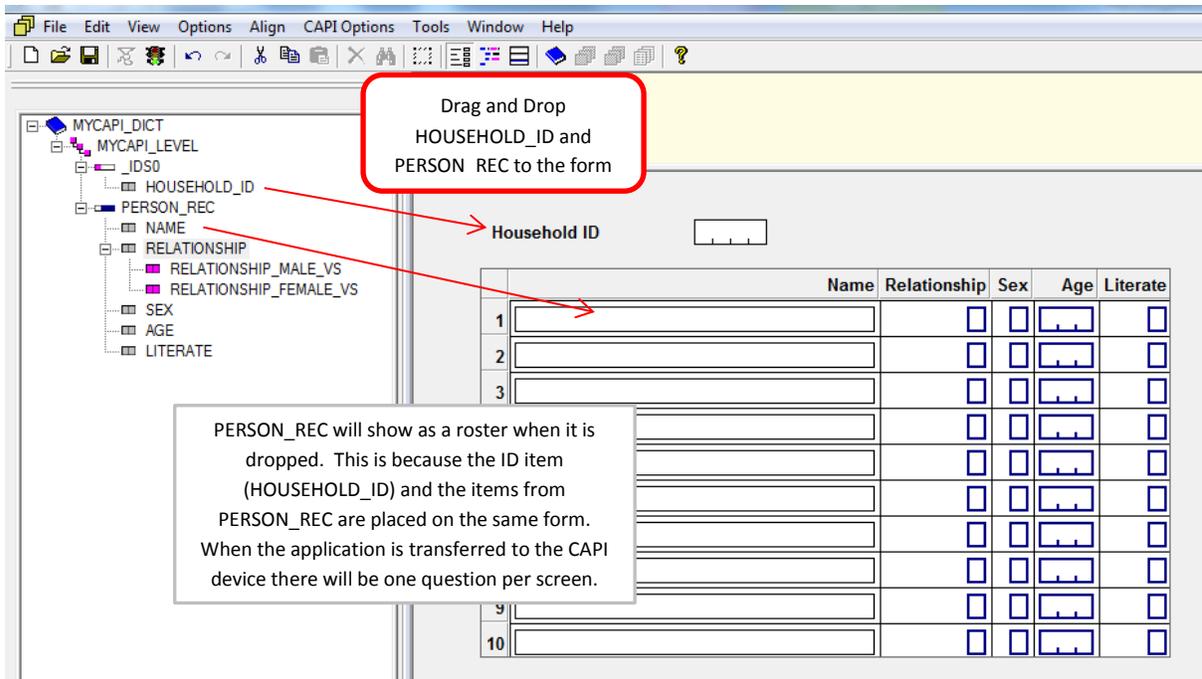

When CSPro asks Select "No".

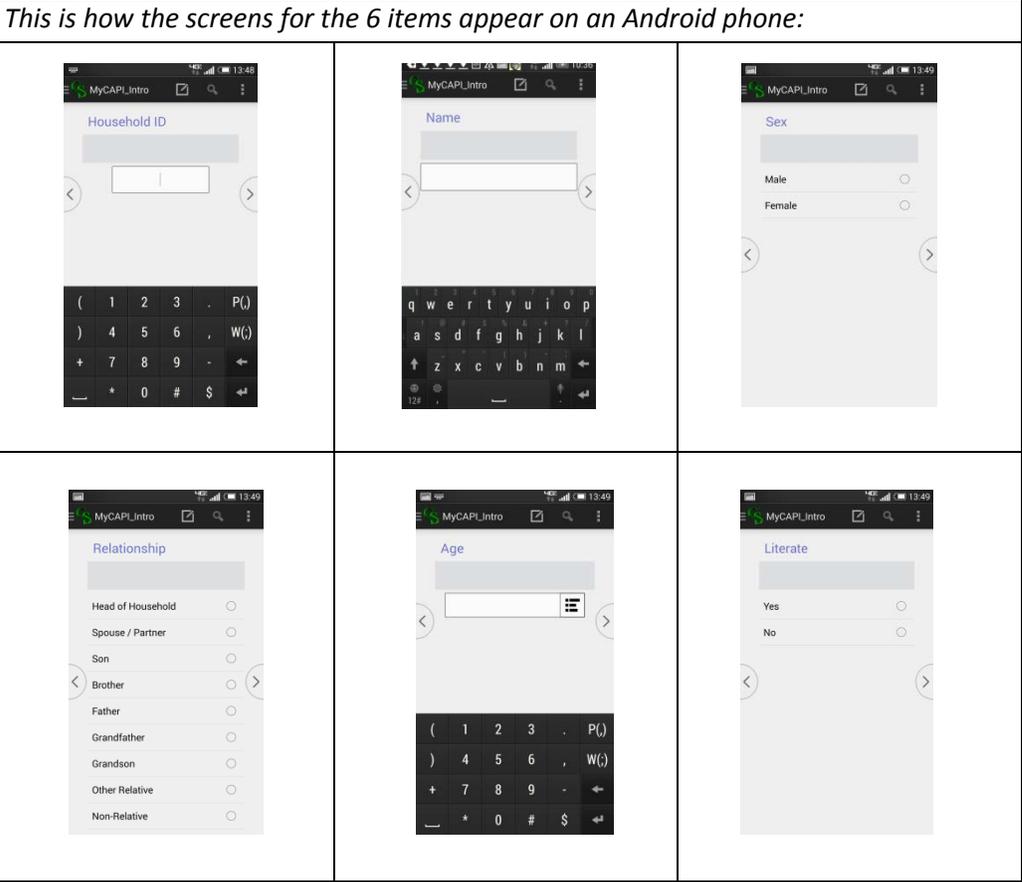We will manually drag the items from the dictionary tree to the form.

CSPro has created a data entry application template. At this point, there are no items on the form. We will now add them by dragging the items from the dictionary tree to the form.

When dragging you may get the Drag Options dialogue box. Accept the defaults.

Drag and Drop HOUSEHOLD_ID and PERSON REC to the form

PERSON_REC will show as a roster when it is dropped. This is because the ID item (HOUSEHOLD_ID) and the items from PERSON_REC are placed on the same form. When the application is transferred to the CAPI device there will be one question per screen.

When this is transferred to the device, each question will be on a separate screen:

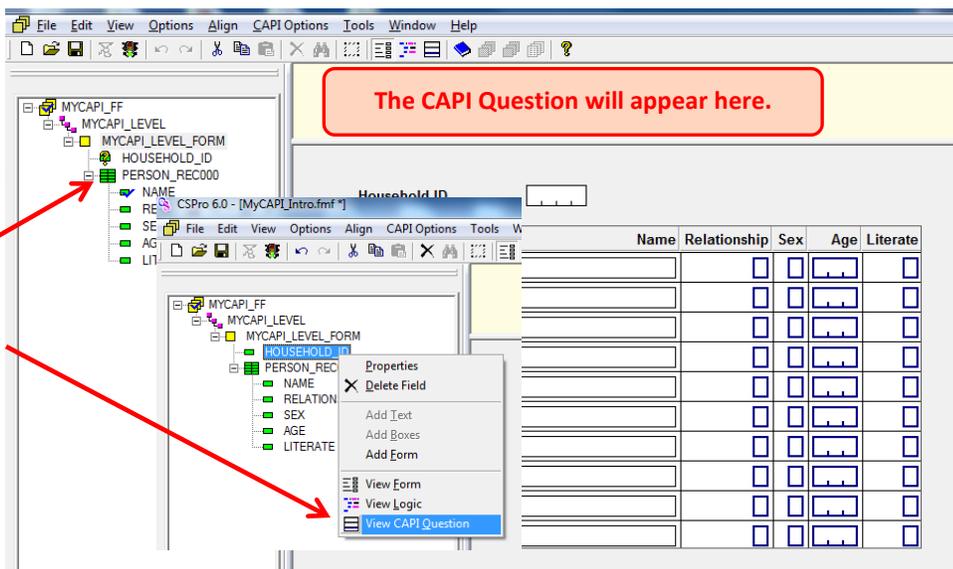*This is how the screens for the 6 items appear on an Android phone:*

3. Enter the CAPI Questions

The next step is to create the CAPI Questions. Right click on the question in the Forms Tree then "View CAPI Questions". Make sure the forms tree is displayed:
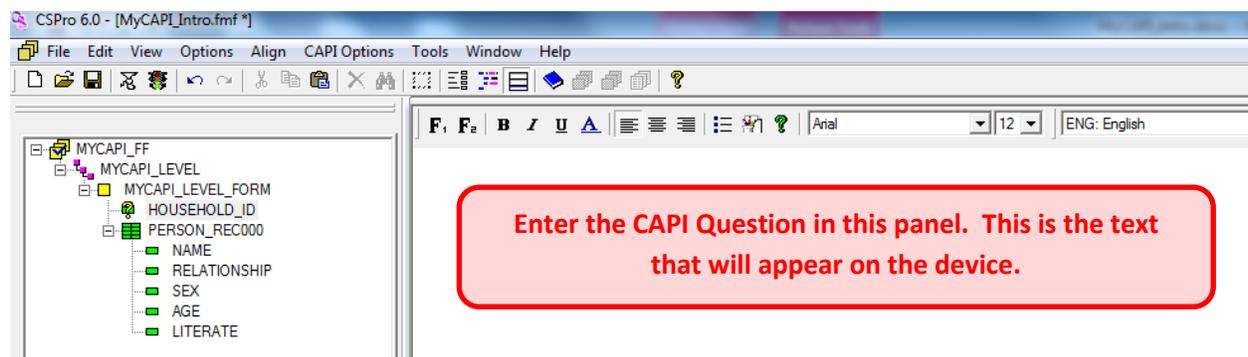
Right-click on the item in the Forms Tree and select "View CAPI Question" to bring up the dialog box to enter the CAPI Question.
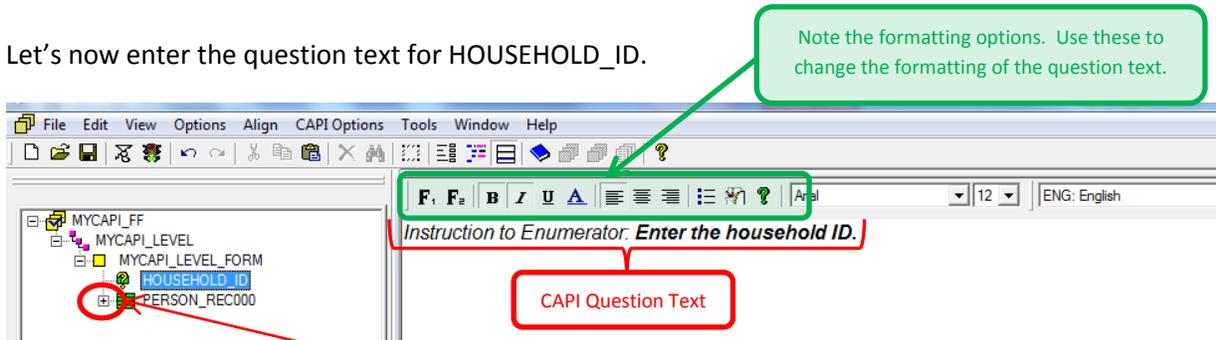
The CAPI Question will appear here.

CSPro shows the dialog box to enter the question text:

Enter the CAPI Question in this panel. This is the text that will appear on the device.

Let's now enter the question text for HOUSEHOLD_ID.

> Note the formatting options. Use these to change the formatting of the question text.

CAPI Question Text

If the items are not visible, click on the "+" sign to open the items.

We continue to enter the CAPI question for the remaining items. We can use a "Fill" to customize the question text. To do this we specify the item name surround by "%" (**%item-name%**). We create the following fills for the question text.

Item	CAPI Question Text
HOUSEHOLD ID	*Instruction to Enumerator:* **Enter the household ID.**
NAME	*Enter the name of the next person in the household. Include everyone living or staying in this household.* *Do not enter anything and press Next if all persons have been recorded.*
SEX	Is **%NAME%** male or female?
RELATIONSHIP	What is **%NAME%**'s relationship to the head of household?
AGE	What is **%NAME%**'s age?
LITERATE	Can **%NAME%** read and write with understanding in any language?

In this example, if "**John Doe**" is entered for the **NAME** item, the question text for **SEX** would appears as

"**Is John Doe male or female?**"

4. Which value set to use.

There are three different value sets in the data dictionary for **RELATIONSHIP**, on gender neutral, one for **Males,** and one for **Females**.

We determine which value set will be displayed (the value set for *males* or the value set for *females*) by using the setvalueset function:

```
PROC RELATIONSHIP
OnFocus

    // customize the value set based on whether the person is a male or female
    if SEX = 1 then setvalueset(RELATIONSHIP,RELATIONSHIP_MALE_VS);    // set to use the MALE value set
    else             setvalueset(RELATIONSHIP,RELATIONSHIP_FEMALE_VS); // set to use the FEMALE value set
    endif;
```
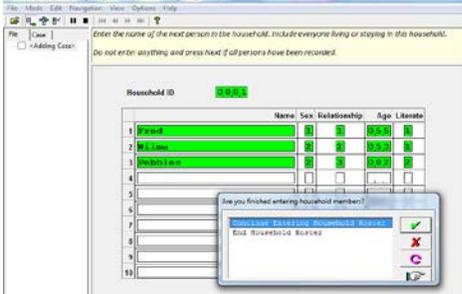
Note that we do this in the **RELATIONSHIP OnFocus** so that the value set is set prior to the display of relationships.

5. Ending the Roster.

The method we will use to complete data entry for this household and continue with the next household is to leave the **NAME** field blank. That is, if the name is blank, ask the operator whether to:

1. Continue with the roster
2. End the Household Roster

<table>
<tr><td rowspan="2">This is the code to do this.</td><td>

```
PROC NAME

    if NAME = "" then

        numeric selection = accept("Are you finished entering household members?",
                                    "Continue Entering Household Roster",
                                    "End Household Roster");

        if selection = 1 then // continue with the household roster
            reenter;
        else
            endgroup;
        endif;

    endif;
```
</td></tr>
</table>

Appearance on the Desktop	Explanation	Appearance on an Android Device
	Entering a "Blank" for the name presents an "Accept" dialogue box asking the whether to continue with the roster or end the roster. **endgroup** is used to end the roster.	

6. Copying the application to an Android device

You will need to have CSEntry on your device. If you do not have it, you can download it from the Play Store:
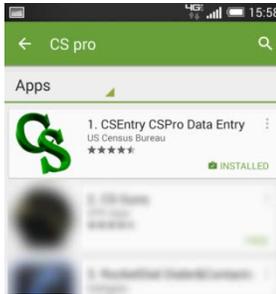
The steps for copying the application to and Android device are:

1.   Create the .PFF file if it does not already exist.
2.   Create the .PEN file
3.   Copy the .PFF file and the .PEN file to the CSEntry folder on the device.

1.   **Creating the .PFF File**

     Running the application on Windows will automatically create the .PFF file.

2.   **Creating the .PEN file**

     Select "Publish Entry Application(.pen)" from the "**F**ile"   menu
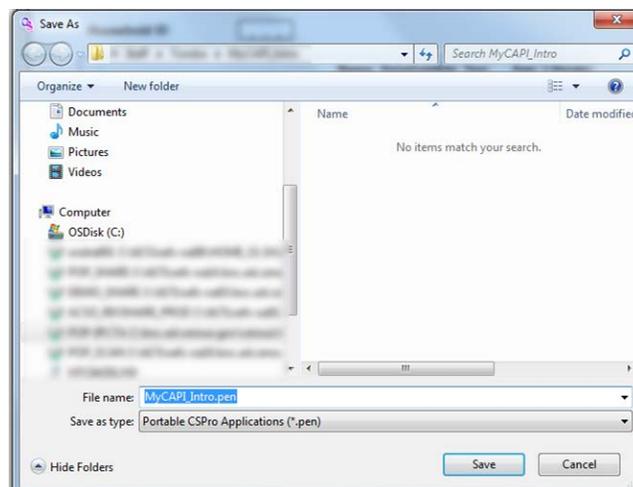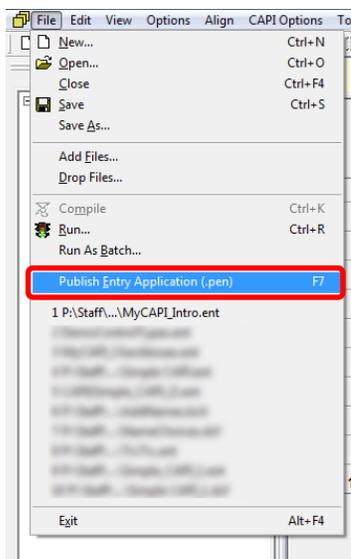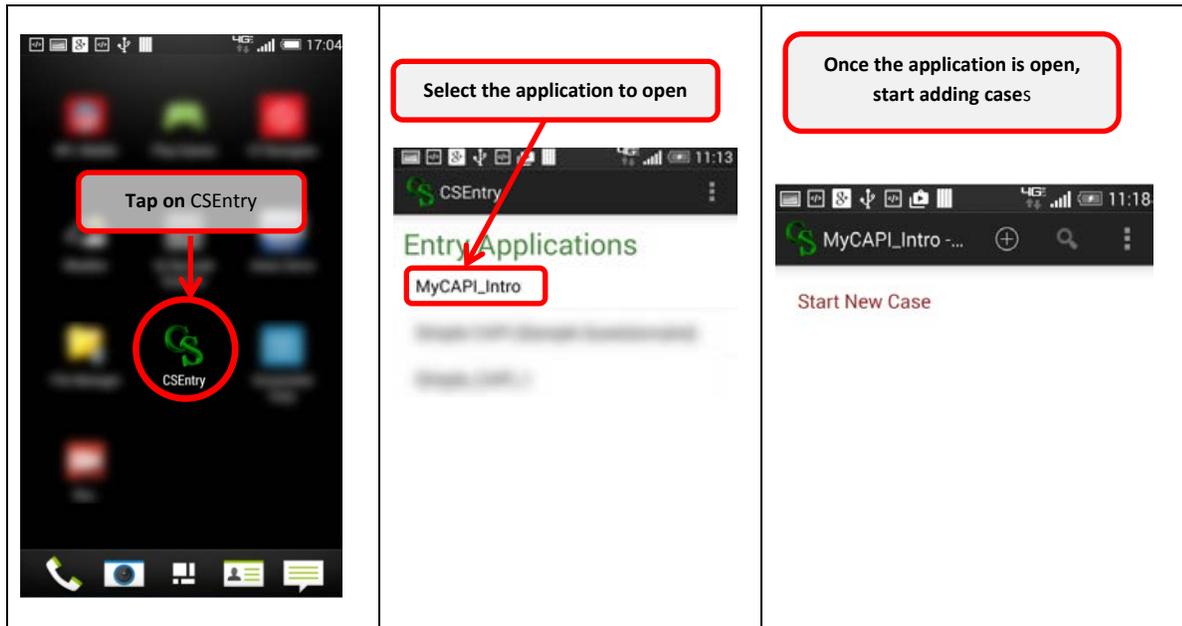
3. **Copy the .PFF and the .PEN file to csentry Folder on the Devicec**

We can use a USB cable to connect the device device to the computer. You may wish to set up the folder for the application within the **csentry** folder. In this example, the application is in the MyCAPI_Intro folder of the **csentry** folder on the device.

Copy the .PFF and .PEN files to **csentry** folder on the device
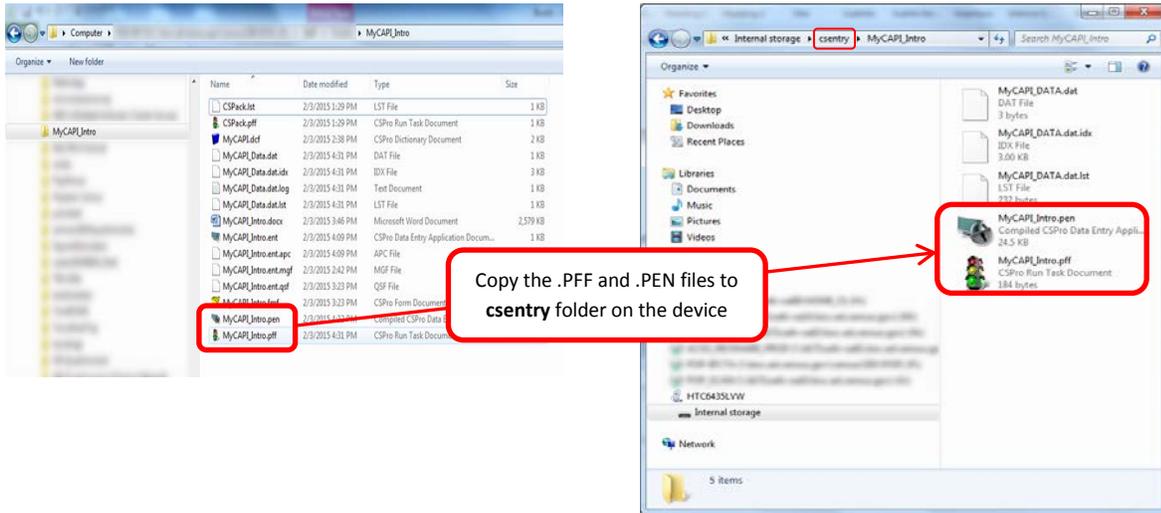
After we've copied the .PFF and .PEN files we are ready to execute the application on the device. Open **CSEntry** on your device and run the application.

Tap on CSEntry

Select the application to open

Entry Applications

MyCAPI_Intro

Once the application is open, start adding cases

MyCAPI_Intro -...

Start New Case

7. Controls available for data entry

CSPro has the following controls available for use. Collectively we refer to these as "Extended Controls":

1.	Text Box	6.	Combo Box
2.	Text Box(No Tickmarks)	7.	Check Box
3.	Textbox (Multiline)	8.	Number Pad
4.	Radio Button	9.	Date Control
5.	Drop Down		

This is how these controls appear on a Windows desktop:
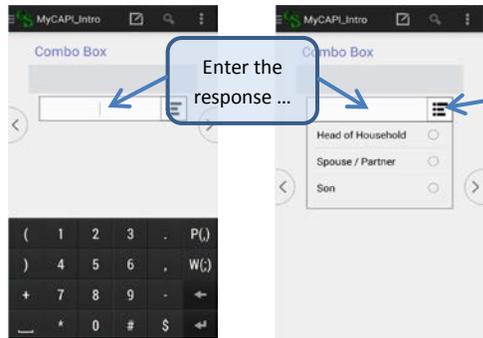
This is how these controls appear on an Android device:
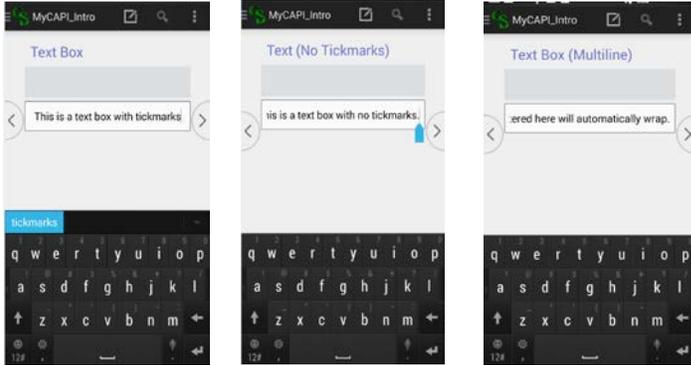
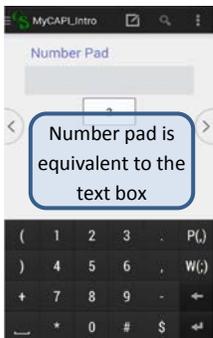All text boxes have the same appearance regardless of type.
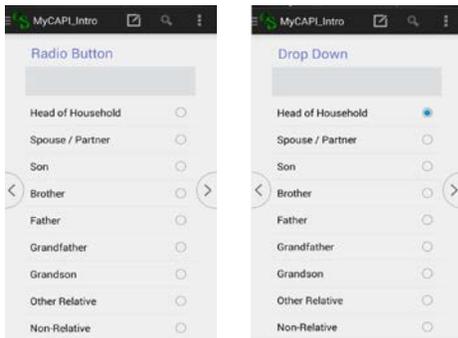
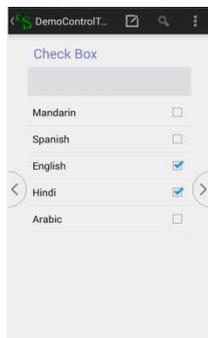Radio Buttons and Dropdowns have the same appearance

Enter the response …

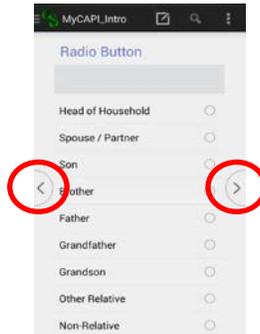… or Click(Tap) to get the drop down list. Scroll to find the option to select
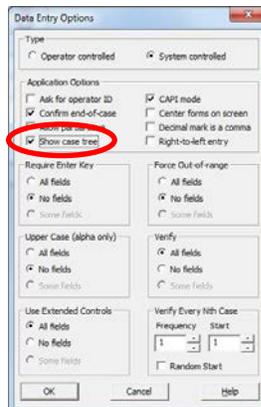

Number pad is equivalent to the text box
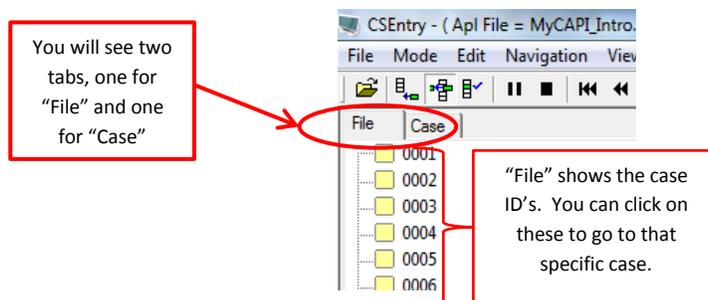
8. Navigating the Application

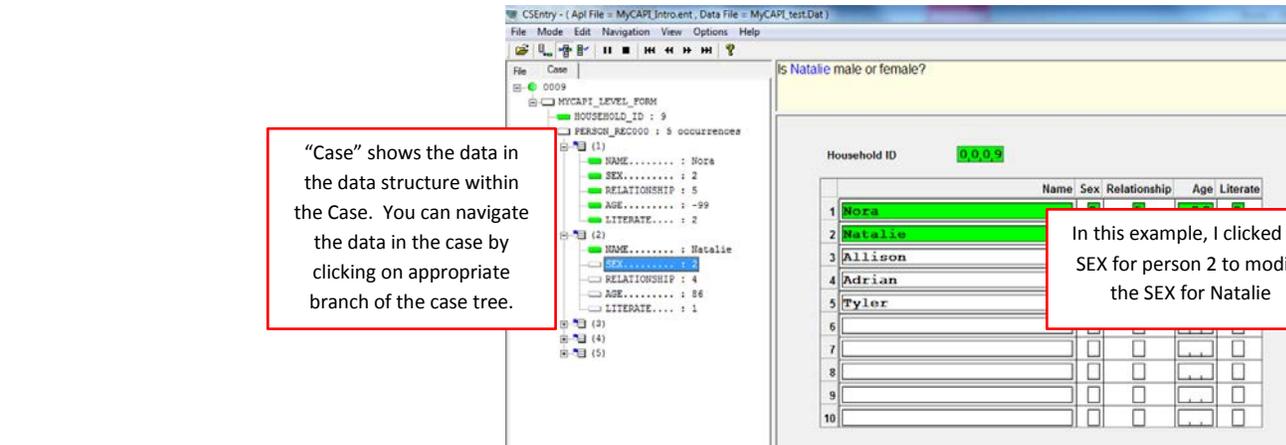You can use the back (◁) and forward (▷) buttons to navigate through the application …

To allow the case tree to show, select Options/Data Entry and make sure the "Show case tree is checked:

When running the application in Windows**:**

You will see two tabs, one for "File" and one for "Case"

"File" shows the case ID's. You can click on these to go to that specific case.
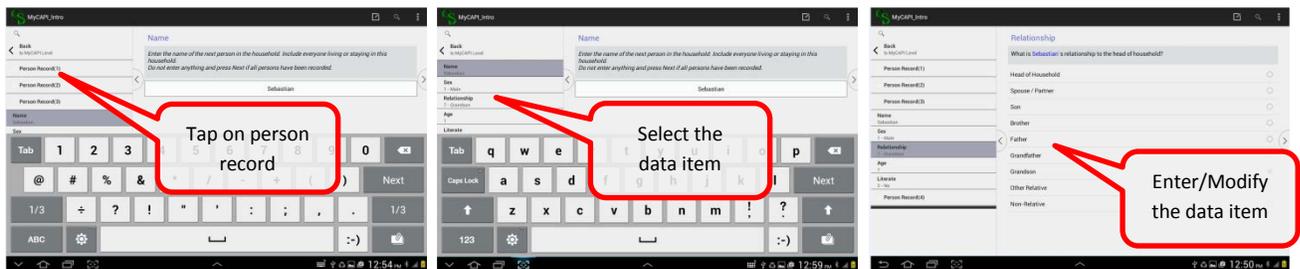
The "Show case tree" attribute has no effect on Android, it is a Windows only attribute. The case tree is always available on Android devices regardless of how this property is set.

"Case" shows the data in the data structure within the Case. You can navigate the data in the case by clicking on appropriate branch of the case tree.

In this example, I clicked on SEX for person 2 to modify the SEX for Natalie

On the Android phone:

Click here to open the Case Tree

Tap on person record

Tap on Person Record (#) to show the data for that person

Select the data item

Enter/Modify the data item

On the Android tablet:

Tap on person record

Select the data item

Enter/Modify the data item

9. **Copying the data file using USB**.

Once we have entered the data file we will need to copy it from the device to our computer. We connect the device to the computer using a standard USB cable.

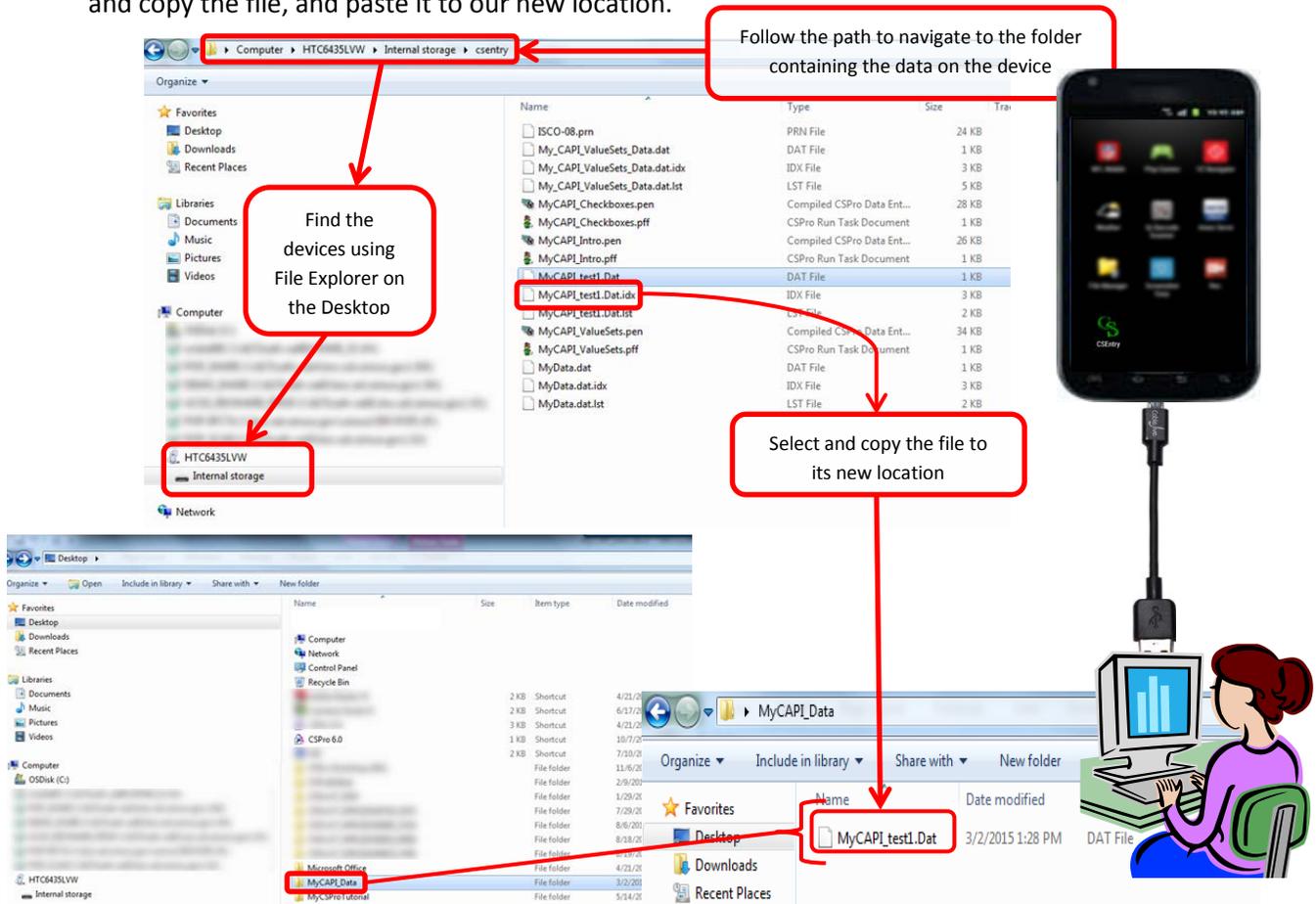We can find the data file in the folders as specified in the applications PFF file:

```
[Run Information]
Version=CSPro 6.0
AppType=Entry

[DataEntryInit]
Interactive=Ask

[Files]
Application=.\MyCAPI_Intro.ent
InputData=.\MyCAPI_test1.Dat
```

In our example, the input data file is in the same folder as the application. This is indicated by the ".\"

Using File Explorer on the desktop, we navigate to the device, folder, then the data file, select and copy the file, and paste it to our new location.