

Rendering a Blaise 5 Survey on Different Devices

Richard Frey, Kathleen O'Reagan and Karen Robbins, Westat

Summary

Blaise is a powerful and flexible system used for computer-assisted survey processing in various modes like Computer-Assisted Personal Interviewing (CAPI), Computer-Assisted Self-Interviewing (CASI), and Computer-Assisted Web-Interviewing (CAWI) on various devices like laptops, tablets or smart phones. Rendering surveys on these devices requires survey management planning, designing for the general features of the target devices and implementing the resources.

The focus of this paper is to describe the basic modifications that need to be made for devices such as a smart phone or tablet. In addition we'll point out the pitfalls inherent to the device and ways to get around them such as dealing with tables and grids on a phone, scrolling and the use of arrows versus next/previous buttons. The paper will also discuss considerations when running a Blaise survey from a native Blaise App, either in connected or disconnected mode.

Introduction

With the introduction of Blaise 5, Blaise has moved from the constrained development and deployment environment of Blaise 4 to an expanded user friendly and accessible environment of mobile devices and tablets. The new visual elements of Blaise 5 have made it possible to present surveys on these devices, as well as enhance those that run on browsers and desktops.

This advancement of survey presentation is made possible with a more integrated approach to survey layout, significantly improved presentation customization capabilities and better support for mixed-mode surveys.

However, the widespread adoption of mobile devices, such as smartphones and tablets, is having a major impact on how survey research is done. Because these devices are lightweight and relatively inexpensive, they make it easy to collect data using such existing survey modes as computer-assisted personal interviewing (CAPI).

There are also a number of challenges associated with utilizing mobile devices for survey data collection:

Can respondents effectively use them? The input methods that these devices permit, particularly their touchscreen interfaces, may be relatively unfamiliar to some users (e.g. older respondents) and may create difficulties interacting with the device

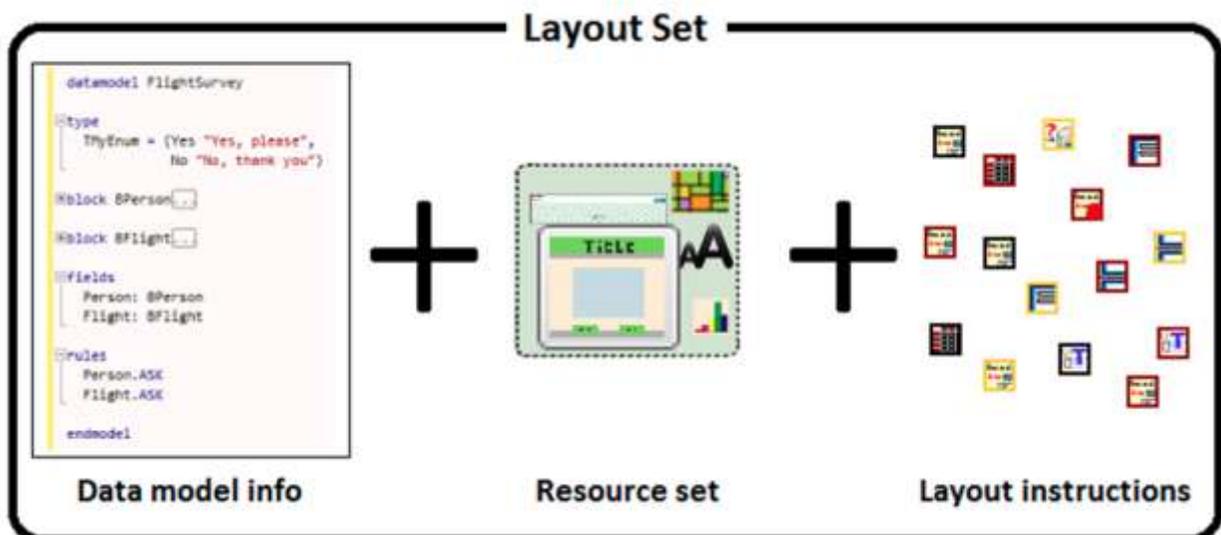
Will respondent candidness be affected by mobile devices? Although respondents are willing to reveal sensitive information about themselves in computerized self-administered surveys, it is unclear whether respondents will display the same level of candor when the survey is administered wirelessly on a tablet or a smartphone. Specifically is there potential for increased candidness given that with mobile devices respondents can more easily manipulate or shield them from view?

How much information can be displayed? Because of the small screens on mobile devices, it may be much harder to make all of the potentially useful information visible to respondents than it is with a laptop or desktop computer. Experiments on web surveys demonstrate that any information that respondents need to use should be immediately visible to them without their having to perform any action; the need for a mouse click or even a small eye movement may render information effectively invisible.

While the solutions to the challenges are ongoing the new Blaise 5 concept of Layout Sets structures the screen layout so that the optimum amount of information visible to respondents is presented in a visibly pleasing manner.

New Presentation Concepts

In a multimode survey, an institute might need a self-administered browser-based interface for web respondents, a much denser and more capable interface for its trained CAPI interviewers, and yet another interface altogether for mobile device users. Each user employs the same data model but has visual needs and possibilities related to their tasks. Each kind of user can be accommodated by using a different presentation known as a Layout Set.



A Layout Set consists of the blending of the datamodel source, a resource set, and layout instructions:

- **Resource Set(s)** – are a defined collection of font definitions, media, styles, texts and templates, that are standards intended to be used across projects
- **Templates** – define the layout of the content of a questionnaire: Master Pages, Field Panes, Grids, Input Controls, Navigation Controls, Panels, Property Parameter, etc.
- **Layout Instructions** – define page breaks, number of items per page, group instructions, critical items, etc.

Modifications

We were asked to replicate one of our corporate methodological surveys using Blaise 5. The survey was to determine the user's experience answering questions on different devices using different visual elements. We were tasked to utilize one set of code that could be run on specific devices (desktop, iPhone and iPad) in connected mode.

Most organizations will define the look and feel of a survey and the mode of collection. For each mode there will be a defined page layout based on organizational standards. These standards might establish the look of the company logo and name on a tablet vs. a smartphone. They might also include the number of questions on a page such as four on a desktop browser and one on a smartphone, as well as how one would navigate through the survey.

Field display modifications

Blaise 5 includes out of the box a number of field display layouts that can be used across devices. Then there are device specific layouts such as the navigation controls on a master page of a desktop browser versus a smartphone. These differences caused us to make basic modifications to the provided templates.

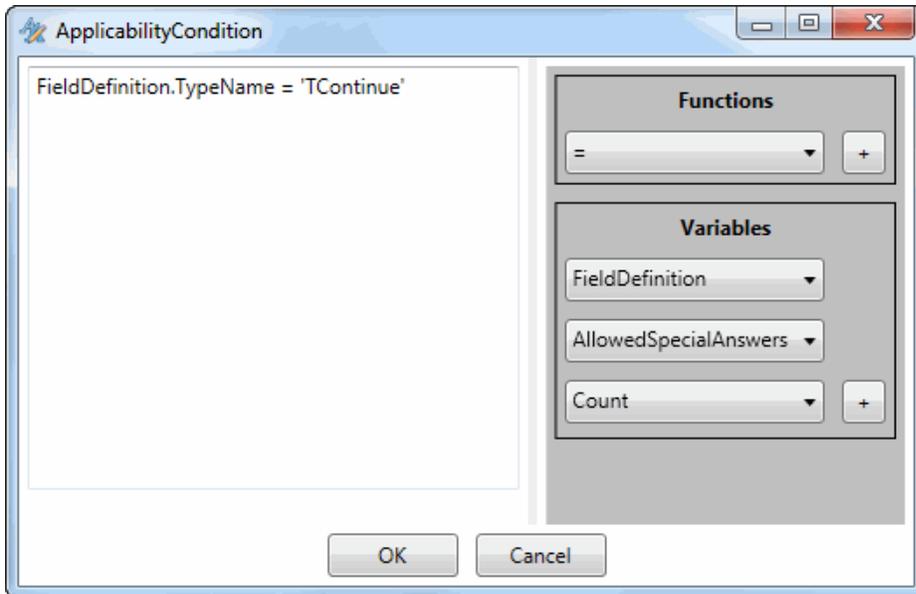
One of the modifications included the creation of user defined types that would determine the template to be used with fields of that type. Some of the user defined types we created were displays for currency, decimal currency, distance, and section introductions.

In addition to the basic modifications the specifications called for question displays to be changed between respondents. These included taking related questions and displaying them in a table format or one by one on a page, the display of questions with differing help aids, the number of questions on a page and response scales.

Some Basic Modifications

For Section introductions we created a User Type named TContinue to be used in the Applicability Condition of the QuestionText template. Next the Type Reference in the Resource

Database was updated with the type TContinue. The TContinue type reference then ties the datamodel fields to the Applicability property of a template where it is used in its Expression to automatically use the QuestionText template.



Another modification was to change the watermark to provide information as to what is to be entered and its format. We had to create a template, CurrencyReal, which includes a dollar sign and decimal. There were three ways to add a watermark *Dollars and Cents*:

- Using Text Roles
- Creating a user defined text in the resource database
- Defining a literal in the Watermark property of the template

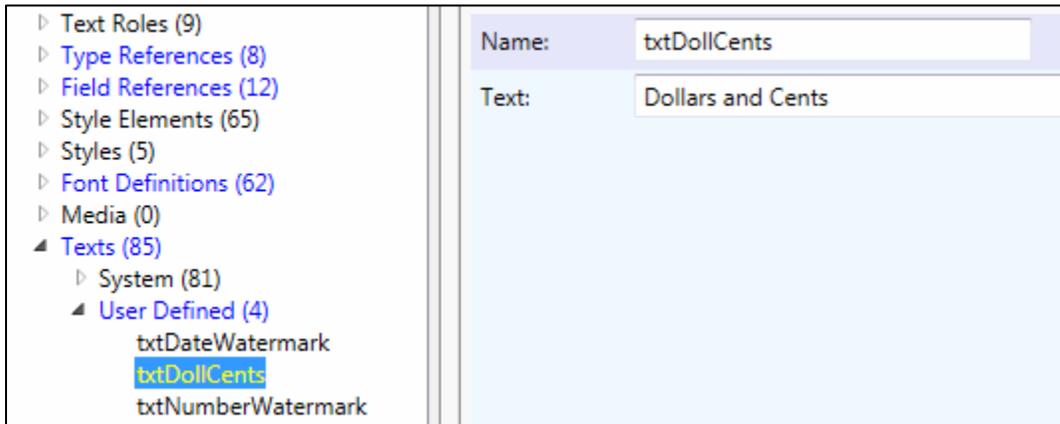
The Watermark text role is part of the initial Resource database and is linked to the datamodel through the ROLES section.

```
roles = Help      "The Help role provides a help button that the user can
                  click to display question help text.",
      Watermark  "The Watermark role provides a hint to the user as
                  to what input elements are used for.",
      ToolTip    "The ToolTip role provides a popup hint when the user
                  hovers over a control."
```

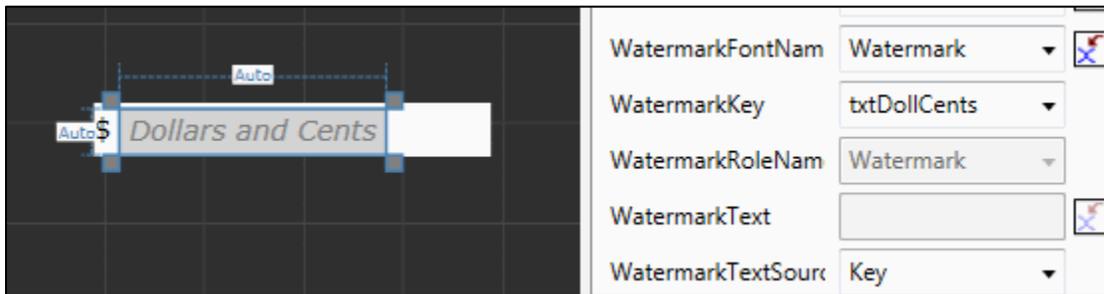
For the Gas question we added Watermark “Dollars and Cents”.

```
Gas "How much do you pay per gallon of gas?"  
WATERMARK "Dollars and Cents"  
: TCurrencyReal
```

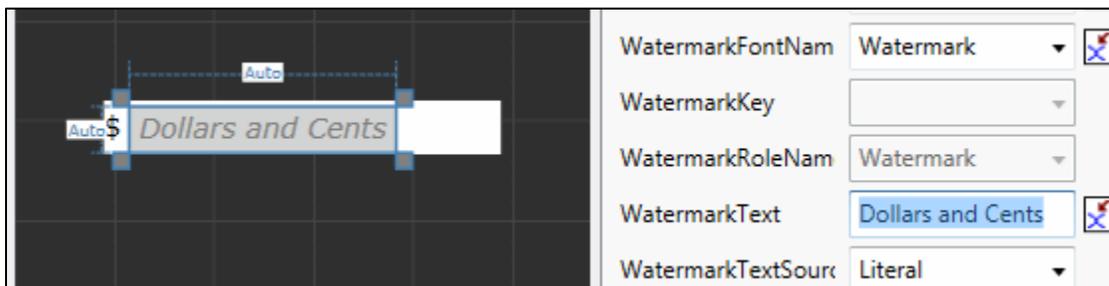
The second way is to add a User Defined text to the Texts in the Resource database. If there are multiple languages, this technique is the preferred way.



Each text has a name and is linked via the Watermark properties of the template.



The final way is to use a literal in the Watermark Text property of the template.



No matter which way you choose to implement the Watermark the result is the same.

Health Activities and Lifestyle Survey

Health Activities and Lifestyle Survey

How much do you pay per gallon of gas?

\$

[<Previous](#) [Next>](#)

[Save and Continue Later](#)

Technical Assistance: Blaise@Westat.com , x4172

Other Watermarks we used included the range for the year of birth and the number of characters for a string field.

Health Activities & Lifestyle Survey

What year were you born?

[<Previous](#) [Next>](#)

[Save and Continue Later](#)

Health Activities & Lifestyle Survey

Why do you say that?

Limit is 100 characters

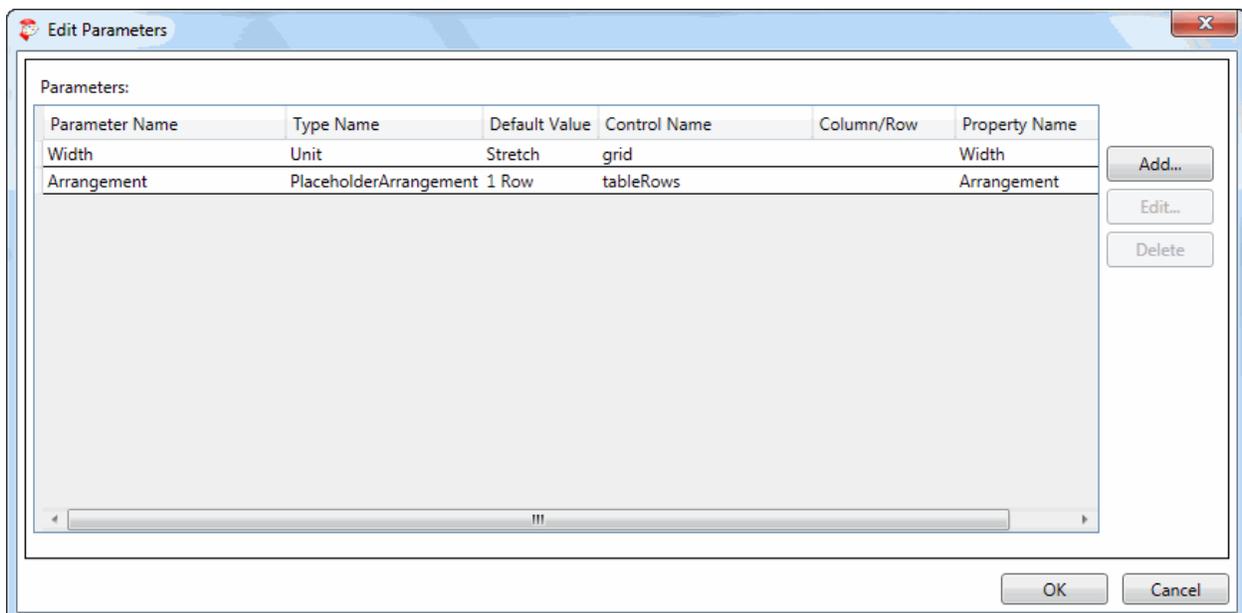
<Previous

Next>

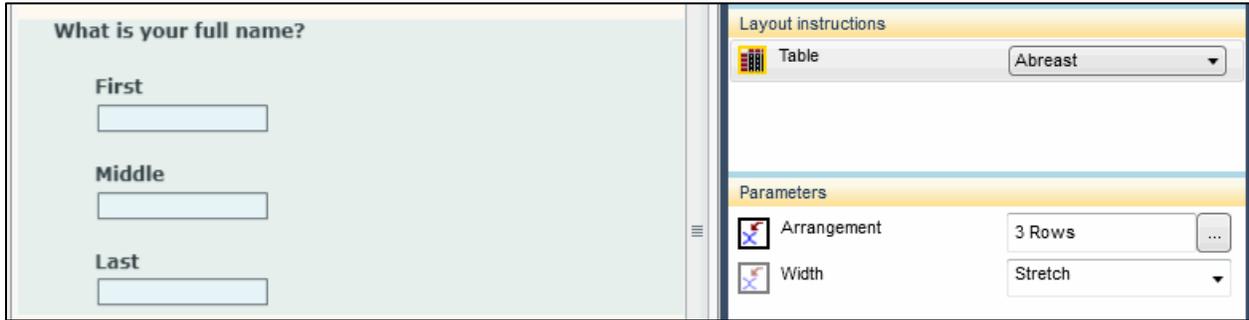
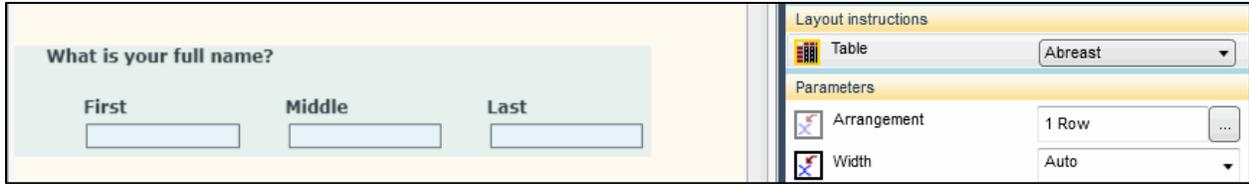
Save and Continue Later

More Technical Modifications

When using groupings we found that the displays needed dramatic changes between devices. One change required the addition of a parameter to the Abreast template to allow for the vertical or horizontal display of a three part name depending on the device's layout set. The parameter was for the Arrangement property which determines whether items on a page are arranged in columns or rows.



The following two screen shots from the Layout Designer show the implementation of the Arrangement parameter.



In keeping with using one code set and different presentations we found the grouping of fields in a table while appropriate for running on a desktop or tablet would not be appropriate for an iPhone.

Health Activities & Lifestyle Survey

Health Activities & Lifestyle Survey

Please rate how serious a problem it is to be diagnosed with the following medical conditions.

	Not serious at all	A little serious	Somewhat serious	Serious	Extremely serious
The common cold	<input type="radio"/>				
Epilepsy	<input type="radio"/>				
Emphysema	<input type="radio"/>				
Diabetes	<input type="radio"/>				
Asthma	<input type="radio"/>				
Hypertension	<input type="radio"/>				
High cholesterol	<input type="radio"/>				
Lung Cancer	<input type="radio"/>				
Influenza, or the flu	<input type="radio"/>				
Bronchitis	<input type="radio"/>				

<Previous Next>

Save and Continue Later

Technical Assistance: Blaise@Westat.com , x4172

Therefore, another technical modification we made was to create a new template to display Group fields one per page on an iPhone. Our objective was to add the Group text (Please rate how...) to each of the Group's question display (The common cold, Epilepsy, etc.). The first display of Group text would be in black and bold with the subsequent Group texts in gray per group question as a reminder of the general question to the respondent.

We created a new template from the Vertical field pane template. We modified the template by inserting a new row at top and adding a Label control. The Label control refers to a Field Reference that is mapped to a field in the datamodel containing the Group text. The resulting display follows.

Page display modifications

One common sense change was to set one question per page for an iPhone layout set. Of course there are always exceptions such as the three part full name.

Navigation button display format can vary between iPad and iPhone. Buttons on an iPhone should be smaller due to the amount of display area. They should also be placed at the top the content area in order to be not covered by the popup keyboard. We created fingertip sized buttons for the Previous and Next pages.

Blaise App Things to Know

Blaise has been traditionally a one solution product running on the Windows platform. With the advancement and prevalence of mobile devices, surveys now need more than one solution thus making things more complicated.

Blaise 5 is entering into this complicated arena of more than one solution. Within this arena, Blaise has implemented native apps one for iOS and one for Android. With these implementations come integration issues that need to be worked through over the coming months. The following are an important subset of those issues:

- Device configuration, setup and security – protecting the device from unauthorized use
- Integration with a management system – for case deployment, tracking and auditing
- Data synchronization and encryption – transferring data from the device to the home office

Native Blaise Apps can run on tablets and smart phones either connected or disconnected mode. The following table provide by Statistics Netherlands explains these modes in more depth.

Run mode	Description
Thin client (Connected)	This is a client/server approach. Rules execution is done on the server. Data is also stored at the server. This is comparable to the internet version. Pages calculated on the server are sent to the app and displayed. In its turn the Blaise app sends a page response back to the server where a new page is calculated based on the response. The device must be online in order to run in this mode.
Thick client (Connected)	This is a hybrid mode. The survey definition must be downloaded to the device, because the rules execution is done on the device. Data retrieval and storage is done at the server. The device must be online during retrieval and saving of the data. This mode is faster than thin/client, because there is no need to visit the server between pages.
Thick client with fallback (Connected)	Same as thick client, except for the situation in case there is no connection during the save of interview data. If this is the case then the data will be stored on the device and needs to manually be uploaded once the device is online again. The app has functionality to upload the data manually.
Disconnected	Rules execution and data storage is done on the device. The survey definitions must be downloaded first before the survey can be conducted. Collected data will be stored on the device and must be manually uploaded to the server. The device does not need to be online when running this mode is being used.

In addition to the information provided in the table there are a few more things to know.

In disconnected mode:

- The rules engine that runs on the device has the same functionality as the one that is used for Windows DEP and Internet.
- You will need an iOS device that is running iOS version 5.1.1 or higher. Android needs to be 2.1 or higher. So, you can use relatively old devices with the apps, although newer is better of course.
- In Server Manager you have to set Run mode to the disconnected or thick client. You find this setting at the Server Park level. The apps will then make available a download button that lets you download and install the survey files on your device.

In connected and disconnected mode:

- Both the iOS and Android apps don't use a browser at all, they render the layout themselves directly on the device's screen. There is no difference in rendering the layout for the disconnected and connected mode.
- Client-side rules are implemented in the Blaise apps, to avoid server roundtrips.
- The default presentation on a mobile device for enumerations with a dropdown layout is a spinner.