

# Optimal Ways of Developing Blaise IS Instruments

Mark M Pierzchala, MMP Survey Services, LLC (MMPSS)

## 1 Blaise IS: Capable, Powerful, Open, but Under-Documented

The Blaise IS system for web surveys has been around for more than 10 years and has undergone several major changes in that time. In response to feedback from major users the Blaise Team has improved it into a powerful system. To update Blaise IS documentation, Mark M Pierzchala of MMP Survey Services, LLC wrote five documents. Two main goals of this project were to (1) explain in detail how the system works, and (2) to make Blaise IS development easier by providing a complete Blaise IS Mode Library, model tools such as the menu, suggested standards, and source code examples.

### 1.1 Five Documents and Supporting Examples

The five documents are summarized in the following table.

Table 1. Five Blaise IS Documents

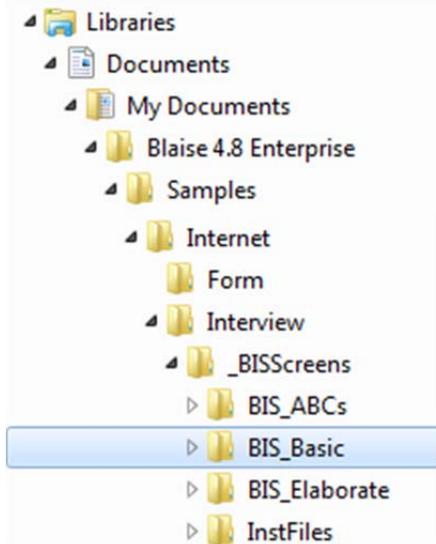
Name	Pages / Figures (Est.)	Notes	Supporting Examples
Blaise IS Samples	51 / 65	Summarizes the Blaise IS samples that come with the Blaise 4.8 distribution from <i>Ajax</i> through <i>Working Database</i> samples. It lists field pane definitions and .ASP pages that are used in each sample. It summarizes the characteristics of each sample in several different ways so that you can quickly find essential information and samples.	
Blaise IS ABCs	44 / 63	Covers the very basics of Blaise IS screens from the menu through the mode library and simple screens. It also discusses the Help language and alternate spoken languages. It covers major uses of the Blaise Internet Workshop.	BIS_ABCs, menu, mode library, datamodel properties
Blaise IS Basics	91 / 121	Demonstrates how to put together multi-question screens and edits. It explains four Blaise IS Groups including (1) Other-Specify, (2) Multi-Column; (3) Matrix, and (4) Group Table. It gives details on the use of the Group Layout Editor.	BIS_Basic, menu, mode library, datamodel properties
Blaise IS Elaborate	49 / 75	Illustrates the use of the Custom Group, and shows how to implement some miscellaneous screens. Shows an advanced use of a menu panel to implement parallel blocks.	BIS_Elaborate, menu, mode library, datamodel properties
Blaise IS Journal	40 / 51	Covers the implementation of the Blaise IS Journal including basic and advanced capabilities. Covers the new (with Blaise 4.8.3) client-side paradata capability. Illustrates how to interpret and handle the paradata that are output during data collection.	TimingTest, Travel, 3 versions of Journal, Paradata, and 2 Manipula scripts
<b>Totals</b>	<b>275 / 375</b>		

Figures are primarily screen images but there are also many diagrams. Further, there are tables and source code snippets inserted throughout the documents. In order to cover this visual subject matter, text is kept to a minimum and the material is explained as visually as possible.

### 1.2 Three New Blaise IS Datamodels and Supporting Configuration Files

Three datamodels *BIS\_ABCs*, *BIS\_Basic*, and *BIS\_Elaborate* were developed in order to give a thorough coverage of Blaise IS screen development. Figure 1 below shows the location of these examples.

Figure 1. Three Additional Blaise IS Samples



These examples are placed near the traditional Blaise IS samples. There is a main folder called *\_BIScreens*. Subfolders *BIS\_ABCs*, *BIS\_Basic*, and *BIS\_Elaborate* hold these datamodels while the subfolder *InstFiles* holds a common Mode Library, Menu File, and other supporting files. The *InstFile* folder emulates an institute’s setup which is to share configuration files across projects.

### 1.3 Analysis of Web-Survey Browser Screens and Blaise IS Samples

In order to write Blaise IS documentation, it was necessary to fully understand its capabilities vis-à-vis industry practices and expectations. The author had already reviewed web-survey screen examples as a basic research task for Blaise 5 documentation. Additionally he led a team at Mathematica Policy Research, Inc. (MPR) that produced an internal guide of web-survey standards (Pierzchala et. al., 2009). Finally, he conducted an extensive review of the traditional Blaise IS samples that are part of the system distribution. All of this was in addition to the author’s experiences in adapting Blaise IS to diverse client needs while at MPR. Many of the examples used in this document are based on those experiences and the author thanks MPR for allowing background reference to their standards document.

The three new Blaise IS datamodels were designed to illustrate various screen styles and how to achieve them with Blaise IS capabilities. This approach helps to guarantee the relevance of this documentation. It also validates Blaise ID evolution over the years as many of its modern features are the result of user experiences and feedback.

#### 1.3.1 Web-Screen Standards

All three datamodels were designed according to a strict set of web-screen standards. These standards include font size and type, header, the use of logos and survey title, the placement of buttons, and the use of a bottom bar that holds links to FAQ and Help. They are documented in the *BIS\_ABCs* document.

#### 1.3.2 Model Mode Library

Previous experiences with Blaise IS indicated that screens with vertical arrangements of fields were easy to produce while those with horizontal layouts could be unexpectedly difficult. A particular problem with adapting Blaise IS had been in understanding how Mode Library fieldpane definitions influenced rendering of screens especially with Blaise IS groups (horizontal displays).

A major goal of this documentation was to produce an industrial-strength Mode Library file that met display standards and objectives. This would give an institute a ready-made set of fieldpane and grid definitions that would enable it to accomplish the vast majority of its work.

The resulting Mode Library *BIS\_Screens.bml* contains 26 fieldpane and 9 grid definitions. These are used throughout the three sample datamodels. A feature of this Mode Library is that it has group-specific fieldpane definitions. There are 4 fieldpane definitions for the *Custom* group, 2 intended for the *Group Table* group, 6 to be used with the *Multi-Column* group, 2 that work with the *Other Specify* group, and 1 used with the *Matrix* group.

Eight of the fieldpane definitions are variations on the *Default Field Pane* definition. These allow for a range of adaptations to the vertical display of fields. An example is the display of a large number of radio buttons in 2 columns. Finally, there are a few other miscellaneous fieldpane definitions such as *Scaling*.

Fieldpanes in this model Mode Library are documented in *Appendix Delta* of the *BIS\_Basic* document.

### 1.3.3 Model Menu File

A model Menu File called *BIS\_Screens.bmf* is also used by the three new sample datamodels. It has illustrative panes and panels that show how to implement a variety of Blaise IS menu-related features. These include the header, the footer, the buttons, and elements of these items as well as references to expressions and field names in the datamodel. The menu forms the skeleton of the Blaise IS web screen.

## 2 Blaise IS Samples

The first document is *Blaise IS Samples*. While on one hand the traditional Blaise IS examples are diverse, on the other hand, it can take a very long time to find the information you want. The document solves this problem. It provides an extensive summary of these 18 samples. This summary takes the form of cross reference tables and images. Through either, you can find the information you need.

### 2.1 Cross-Reference Tables of Characteristics of the Traditional Blaise IS Samples

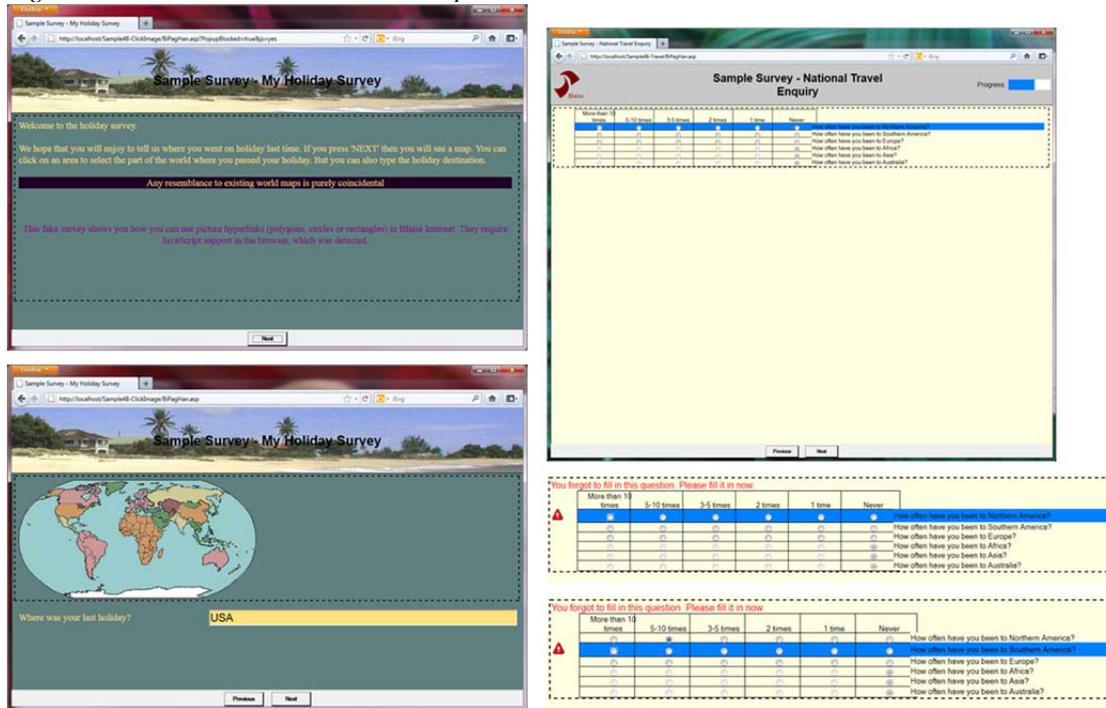
There are 9 tables that characterize the features of these samples in various ways.

- Blaise IS Samples and their Purposes
- Use of .ASP Files
- Summary of .XML Files
- Blaise IS Samples and the Fieldpanes Available to Each
- Blaise IS Samples and the Fieldpanes Used in Each
- Blaise IS Samples and the Groupings Used in Each
- Blaise IS Samples vs. Type of Grouping vs. Fieldpanes
- Fieldpanes vs. Groupings
- Groupings vs. Fieldpanes

### 2.2 Screen Images of the Traditional Blaise IS Samples

There are 41 pages of many screen images from these datamodels. These are provided so that you can quickly determine which datamodel example is suited for your needs. Following is a sample of some of these screen images.

Figure 2. Some Traditional Blaise IS Sample Screens



### 3 Blaise IS ABCs

Blaise IS ABCs is the first of a trilogy of documents that explain how to generate Blaise IS browser screens. It explains the fundamentals of screen design. Blaise IS does not have a drag-and-drop interface design. It does have a variety of features that speed instrument development.

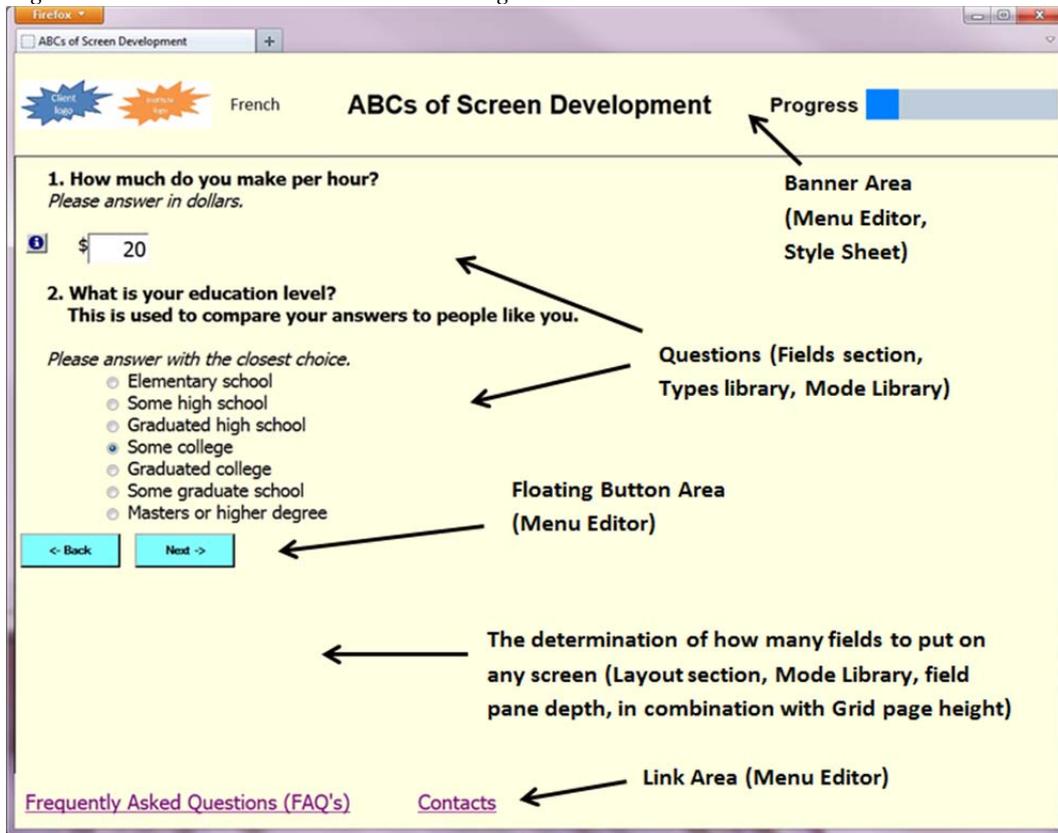
#### 3.1 Blaise Modules and their Impact on Screen Design

One of the challenges of Blaise IS Screen design is determining which parts of the Blaise system influence the interface. This document, and the others, identifies these modules which include:

- Mode Library Font Settings, Grid and Fieldpane definitions, languages, and more
- Menu
- Datamodel Properties
- Style sheets
- Blaise Internet Workshop, especially the Group Layout Designer
- Blaise source code syntax and datamodel settings
- Expressions

How these items come together to create the overall screen is not always obvious. Figure 3 below is an example of the kind of diagram in the document that helps to explain the underpinnings of the system.

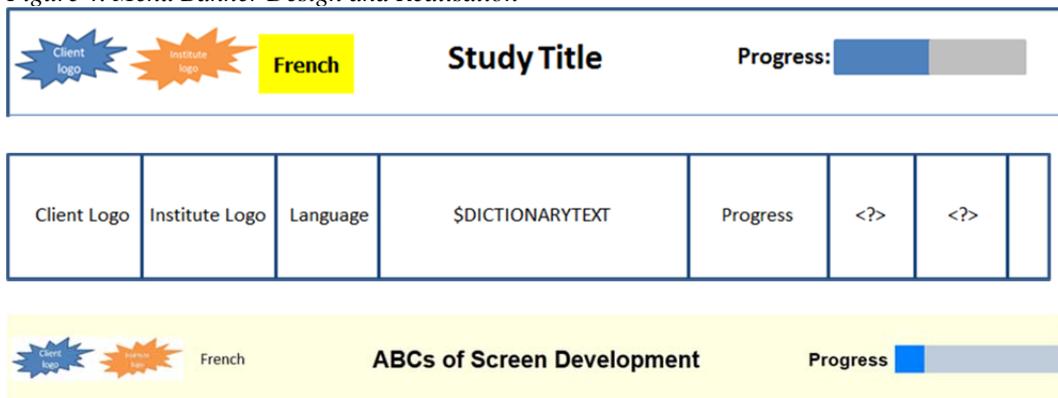
Figure 3. Browser Screen Parts and their Origins



### 3.2 The Menu as the Browser Screen Skeleton

A great deal of the *Blaise IS ABCs* document is taken with the explanation of the menu and how it comprises the header, buttons, and footer of a browser screen. It covers some advance topics such as setting up language switching in the menu, and it explains how to put in a simple progress bar. Figure 4 shows some images used to explain the design of the banner.

Figure 4. Menu Banner Design and Realisation



### 3.3 Design Fundamentals

Through the conceptual use of diagrams, and screen shots of parts of the Mode Library, there is thorough coverage of grids and other underlying concepts that impact screen layout.

### 3.4 Miscellaneous Topics

A few miscellaneous topics are covered in this first document. These include handling languages (English and French), use of Help, links to HTML documents, image files, and the basics of writing effective edits.

### 3.5 Optimal Use of Blaise IS Tools

This document starts to explain how to optimally use the Blaise IS Internet Workshop and the best way to integrate it with the Blaise Control Centre. It covers the relative uses of the Preview versus using a browser screen to evaluate layout.

## 4 Blaise IS Basic

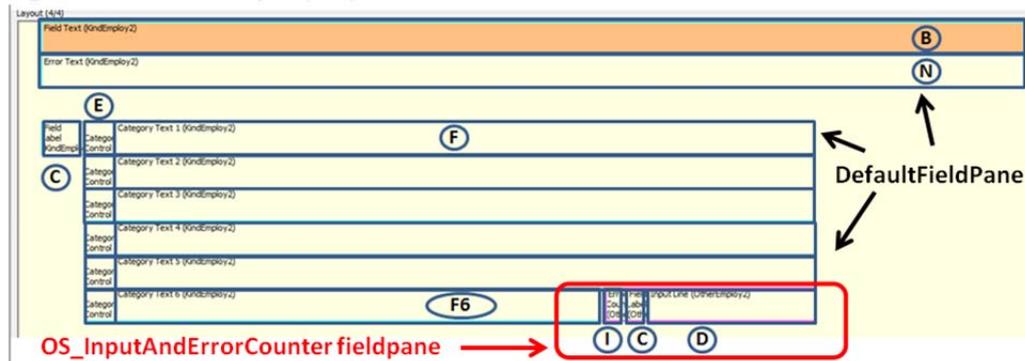
*Blaise IS Basic* is the second of the trilogy of documents that explain how to generate Blaise IS browser displays. It explains the design goals of bringing multiple fields onto the same page. There can be multiple fields vertically arranged, or horizontally arranged, or both. With multi-field displays, there are specification issues, such as how you handle skip patterns and edits.

The horizontal display of fields can be achieved through a group. Blaise IS supplies four oft-used groups: (1) Other Specify, (2) Multi Column, (3) Group Table, and (4) Matrix. A fifth group, the catch-all Custom Group is saved for the third document.

### 4.1 Groups

Diagrams and screen shots are used to explain how the groups work. For example, the Other Specify Group makes use of two fields using two different field panes as shown in Figure 5.

Figure 5. A Schematic of an Other Specify Group

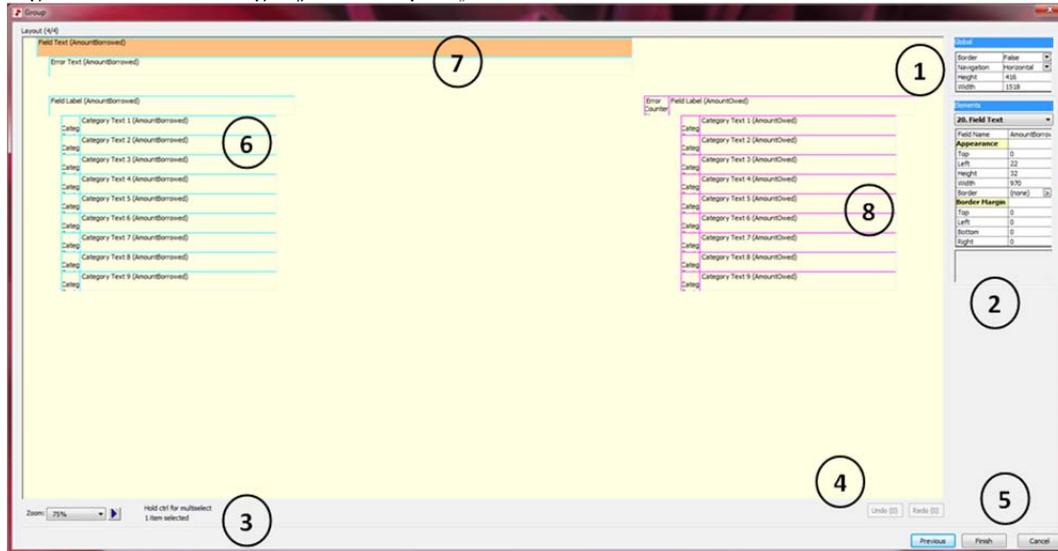


The letter labels in Figure 5 refer to parts of the fieldpane definitions in the Mode Library.

### 4.2 Group Layout Editor

The Group Layout Editor is a tool you can use to make the final adjustments to a group's screen layout. There is an appendix that explains how to use this tool easily ('with alacrity'). Another set of labeled images help to explain the concepts as shown in Figure 6.

Figure 6. Labelled Image of the Group Layout Editor



### 4.3 Appendices

The last third of the *Blaise IS Basic* document is given to 5 appendices. They are:

- Alpha: Parts of the Screen
- Beta: Using the Group Layout Editor with Alacrity
- Gamma: Taking Care of Special Circumstances
- Delta: Table of Fieldpane Properties
- Epsilon: Page-by-Page Summary of the *BIS\_Basic* Datamodel

## 5 Blaise IS Elaborate

*Blaise IS Elaborate* is the third member of the trilogy. This document starts with the rendering of more miscellaneous examples. For example, it covers alternate methods of implementing hierarchical coding. It then explains some of the uses of the catch-all Custom Group.

### 5.1 Custom Group

Significant space is given to the philosophy and use of Custom Group and the use of the Group Layout Editor to achieve desired displays. The Custom Group is available in case the four standard groups are not sufficient. It has considerable flexibility and this flexibility is usually achieved in the Group Layout Editor. Figures 7 give starting-and-after views of an address display.

Figures 7. Starting and Final Layouts of an Address Collection Screen

*Starting*

*Final*

## 5.2 Applying a Group to an Arrayed Block

While the optimal use of the Group Layout Editor is an acquired skill, it has a number of features that speed the design of a Blaise IS instrument. One of the very nice surprises that came in writing this document is the way a group can be applied to an array of a block. Figures 8 and 9 give an idea of this capability. Figure 8 shows part of the Grouping Dialog while Figure 9 shows screen captures of the 5 resulting grouped-pages.

Figure 8. Grouping Dialog Showing 5 Generated Group Pages

Role	Index	Begin Question	End Question
✓ Custom (Principal Em...	1	PrincipalEmployer_	Header4
✓ Custom (Name)	2	NameLabel	Suffix
✓ Custom (Address)	3	StreetLabel	Zip4
✓ Custom	4	Names[1].NameLabel	Names[1].Suffix
✓ Custom	5	Names[2].NameLabel	Names[2].Suffix
✓ Custom	6	Names[3].NameLabel	Names[3].Suffix
✓ Custom	7	Names[4].NameLabel	Names[4].Suffix
✓ Custom	8	Names[5].NameLabel	Names[5].Suffix

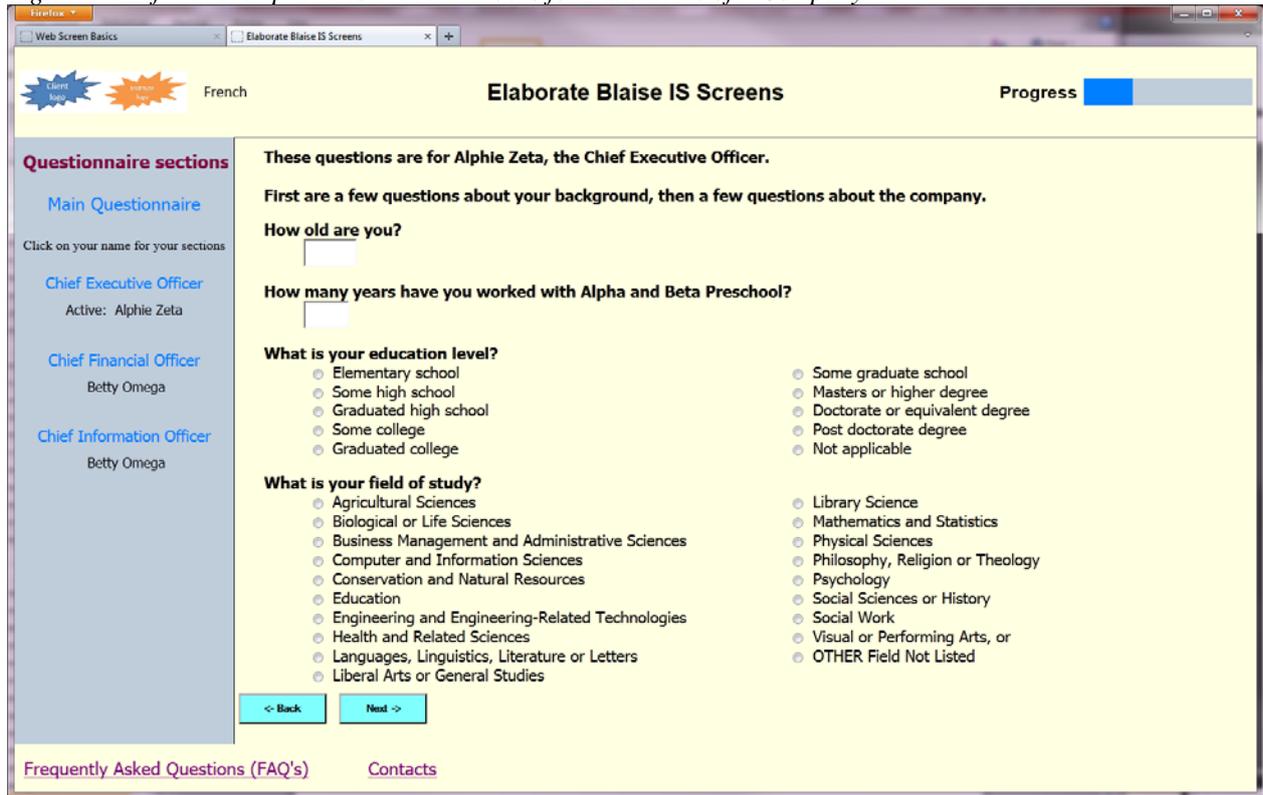
Figure 9. Five Identical Generated Group Pages

The generated group pages were incredibly easy to generate. In the instrument, they apply to up to 5 corporate officers in succession.

### **5.3 Handling Parallel Blocks**

A powerful way to handle parallel blocks is explained in this document. In Blaise IS you have to do a bit of work to handle parallel blocks in a way that a methodologist is apt to agree with. This topic represents a return to the menu file. The handling of parallel blocks is done through a panel in the menu. In Figure 10, the light blue panel on the left suddenly appears part-way through the instrument.

Figure 10. Left Panel Implements Parallel Blocks for Individuals of a Company



The panel is dynamic and keeps track of the completion status of the requisite individuals. It is achieved in part through the clever use of expressions in the menu file. Expressions are covered to a strategic degree in this document.

#### 5.4 Choices for DK and RF and Other Configuration Settings

Blaise IS is highly configurable. In other words, you have many choices. As an example, a few pages are spent on display options for DK and RF. Additionally, Blaise IS has settings for style sheets, file handling, layout, languages, and many other aspects. The document displays several dialogs in order to give you an idea of these options. You have to experiment to see what these settings really do for you.

### 6 Blaise IS Journal

The document *Blaise IS Journal* takes on an entirely different aspect of Blaise IS. This concerns the implementation, use, interpretation, and summary of paradata<sup>1</sup> that are generated through *Journal*. Paradata give information about the survey taking process.

#### 6.1 Implementation of Journal and Paradata Capabilities

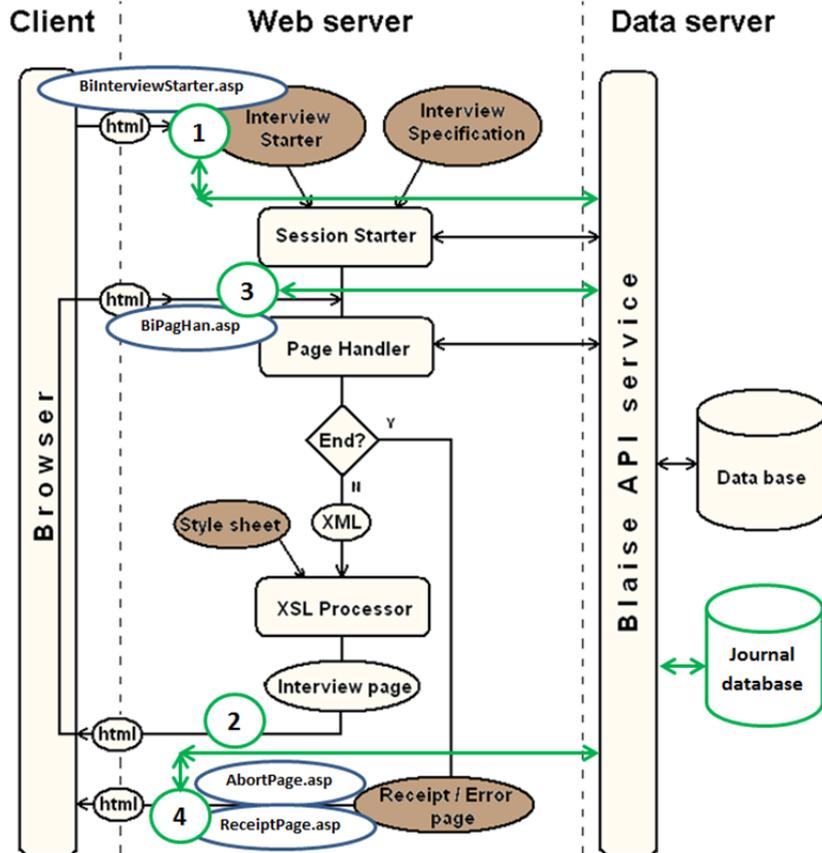
The document starts by covering the traditional *Journal* that accesses web server information. It continues with a new capability (Blaise 4.8.3, January 2012) that can access client-side paradata. This latter manifestation of *Journal* is implemented with a datamodel called *Paradata*. This capability was developed and motivated by work done by the University of Michigan Survey Research Center (Ostergren and Liu, 2010). The implementation of Blaise IS Journal ranges from fairly easy to very easy.

<sup>1</sup> Paradata is information about the survey process itself. According to Dirk Heerwegh, this term was coined by Mick Couper in 2000 (see references).

## 6.2 Open Implementation of Blaise IS Journal

You can access several different .ASP pages in the implementation of *Journal*. This is easy to do, yet it gives you great flexibility. Figure 11 shows places where you can gather web-survey paradata. The diagram is adapted from one found in the on-line Blaise IS documentation.

Figure 11. Blaise IS Paradata Diagram of ASP Pages



Schematic overview of how Interview Mode web surveys work

## 6.3 Interpretation and Summary of Journal Paradata

The interpretation and summary of paradata is given considerable space. Connections are drawn between what the respondent sees and does on a browser screen and what the paradata show.

Figure 12a. A Succession of Blaise IS Fields on the Same Browser Page

<p>How much did you spend on your last trip?</p> <input type="text" value="2000"/> <input type="text" value="2000"/>	<p>How much did you spend on your last trip?</p> <input type="text" value="2000"/> <p><input type="radio"/> Don't know</p>
<p>Currency</p> <p>Select <input type="button" value="v"/></p> <ul style="list-style-type: none"> <li>Select</li> <li>US Dollar</li> <li>Canadian Dollar</li> <li>Euro</li> <li>Yuan</li> <li>Yen</li> <li style="background-color: #0070C0; color: white;">Other</li> </ul>	<p>Other currency</p> <input type="text"/>

Figure 12b. Paradata Display Showing Entries from Multi-Field Screens

SessionID	PrimaryK	Action	SubmitStat	PrevPag	CurrentPag	PageStartTimeSta	PrevPageTimeSta	PrevPageLength
8164747		Start			1	20120131105820		0
8164747	1001000	Other		1	1	20120131105829	20120131105820	9
8164747	1001000	Other		1	1	20120131105855	20120131105829	26
8164747	1001000	Next		1	2	20120131105904	20120131105855	9
8164747	1001000	Next		2	3	20120131105944	20120131105904	40
8164747	1001000	Next		3	4	20120131110012	20120131105944	28
8164747	1001000	Next		4	5	20120131110022	20120131110012	10
8164747	1001000	Other		5	5	20120131110035	20120131110022	13
8164747	1001000	Other		5	5	20120131110036	20120131110035	1
8164747	1001000	Other		5	5	20120131110049	20120131110036	13
8164747	1001000	Next		5	6	20120131110100	20120131110049	11
8164747	1001000	Submit	Completed	6		20120131110103	20120131110100	3

#### 6.4 Sorting, Parsing, Extracting and Summarizing Web-Survey Paradata

Many thousands of lines of paradata can be generated for a web survey. In fact, the quantity of Blaise IS paradata can overwhelm the amount of survey data. All paradata are stored in a Blaise database, and from there relevant summaries or uses can be devised. Two Manipula programs in particular give you a start in devising your own summary software. They are:

- AnswersVsTime.man: This program generates a spreadsheet (.csv file) of the answers of a question and the time it took to answer each question. This is a highly specific program, but you can adapt it to your own needs for other surveys.
- AuditFileOut.man: This program generates audit-like files of the kind you might see for CATI or CAPI. This is a more general program, but you would still probably have to adapt it.

## 7 References

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Heerwegh, D. "The CSP Project Webpage"  
[\[https://perswww.kuleuven.be/~u0034437/public/csp.htm\]](https://perswww.kuleuven.be/~u0034437/public/csp.htm)

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