

Converting a CATI Instrument from Blaise 4 to Blaise 5 for Pilot Testing

Emily Caron, Vito Wagner – U.S. National Agricultural Statistics Service, and Kathleen O'Reagan – Westat, United States

1. Abstract

This project was collaboration between Westat and NASS. For an ongoing data collection we began to explore how to convert a Blaise 4.8 CATI instrument for multi-mode Blaise 5 data collection. The study involves collecting information about agricultural products. Respondents report on an annual basis so there are many complex edits between questions and a number of questions involving multiple responses and grids.

We describe our initial approach to converting this instrument and using the default layouts available in Blaise 5. A goal of the conversion was to test the Blaise 4 to Blaise 5 tools available, and determine if the code would run successfully as a connected web application as well as through an app on iOS tablets or phones. We present information about the conversion tools used and the process of creating software for a pilot test of this survey in Blaise 5.

2. Introduction

The National Agricultural Statistics Service (NASS) is an agency of the United States Department of Agriculture and is responsible for collecting, editing, and summarizing agriculture data. NASS is the sole agency for producing Agriculture Statistics for the United States. NASS is currently using Blaise build 4.8.4.1915 for CATI data collection and interactive editing, which handles over 120 distinct surveys per year conducted as over 350 separate survey instances. Other non-Blaise systems are currently being used for CAWI and CAPI data collection.

The Blaise development group at NASS contacted Westat in January 2016 to request a demo of Blaise 5 capabilities. Migrating from Blaise 4 to Blaise 5 was inevitable, but how long would it take? What all was involved with this conversion? NASS use of Blaise thus far involved CATI and interactive edit modes, but with Blaise 5 should this expand to CAWI and/or CAPI? More information was needed.

Westat staff visited NASS headquarters in February 2016 and provided an initial demo of Blaise 5. This was a very high level demo geared toward upper management which showcased Westat Blaise 5 instruments across various modes. The demo generated a good deal of interest and discussion at NASS for how Blaise 5 software would play into future data collection efforts. Westat was requested to take a look at one of NASS' shorter surveys to see what time and effort would be involved in converting it from Blaise 4 to Blaise 5.

The 2016 Mink Survey was selected as a prime candidate for this pilot test. This annual survey collects data from Mink operations across the U.S. regarding mink pelts taken and females bred across 10 different color classes. Westat began the pilot test by reviewing the Mink Survey hard copy instrument, which consists of over 30 data items across two pages. The main Mink table from the hard copy is shown in the image below.

Figure 1. Main Mink Table

	Pelts taken from 2015 crop for marketing	Females bred & to be bred to produce kits in 2016
	(Number)	(Number)
Of the total in Items 2 and 3, how many are in each of the following color classes?		
a. Black - (Standard, Pure Dark)	101	201
b. Demi/Wild - (Dark Brown, Ranch Wild, Demi-buff)	102	202
c. Pastel - (Dawn, Orchid)	103	203
d. Sapphire	104	204
e. Blue Iris - (Aleutian, Gunmetal)	105	205
f. Mahogany	106	206
g. Pearl	107	207
h. Lavender - (Lavender-Hope)	108	208
i. Violet - (Cameo, <u>Winterblue</u> , Glacial)	109	209
j. White	110	210
k. Palomino	112	212
l. Other (Specify: _____)	111	211

The 2016 Mink Survey was programmed in Blaise 4.8 and ran as a CATI instrument with interactive edit functionality. Even though the hard copy instrument appeared relatively simple, the source code was made up of over 30 modules due to NASS shell code being included in the instrument. Shell code holds administrative-type fields and rules shared across most NASS Blaise instruments. Some of the questions involved very complex skip and edit logic. In addition the data was monitored across years, so edits are executed related to prior information provided by the survey respondent. Westat received a preload database with prior year data which was needed to populate the data fills and other variables needed to support the interactive edits.

3. Goals of the Conversion Pilot Test.

The primary goal of the pilot test was to determine if the Blaise 4.8 code could be successfully converted into Blaise 5. NASS intends to utilize the multimode capabilities of Blaise 5 in the future and there is a significant amount of code developed in Blaise 4.8 that requires conversion. Blaise's capabilities to use the same code base and execute in different modes is particularly advantageous for this work.

After converting the instrument, Westat converted the preload database. The conversion tool works for converting data in both directions: from Blaise 4 to Blaise 5 and also from Blaise 5 to Blaise 4. This is important because NASS has backend systems that use Blaise 4 database files.

Since the goals were focused on a proof of concept for larger production activities, Westat did not make any modifications to question wording or formatting to accommodate changes in mode from interviewer administered to self-administered. They also used default question formats, and did not make updates to presentation items such as fonts, logos, or color palate.

4. Converting Survey Instruments to Blaise 5

Blaise 5 includes several tools to support the conversion of existing survey instruments and data from Blaise 4. Source code is converted using the Blaise4to5Source.exe executable.

This is executed by clicking on the Convert Blaise 4 Sources button in the Control Center, filling in the information and clicking the Convert button.

5. After the Conversion

After the source files and database files were converted there were still some conversion coding items that needed to be addressed. Among those were the removal of Blaise 4 functions that are no longer valid in Blaise 5 such as the EnvVar. In addition, some Blaise 4 defaults needed to be stated in Blaise 5 such as setting the attributes of the instrument's Primary Key.

Figure 2. Converting Files

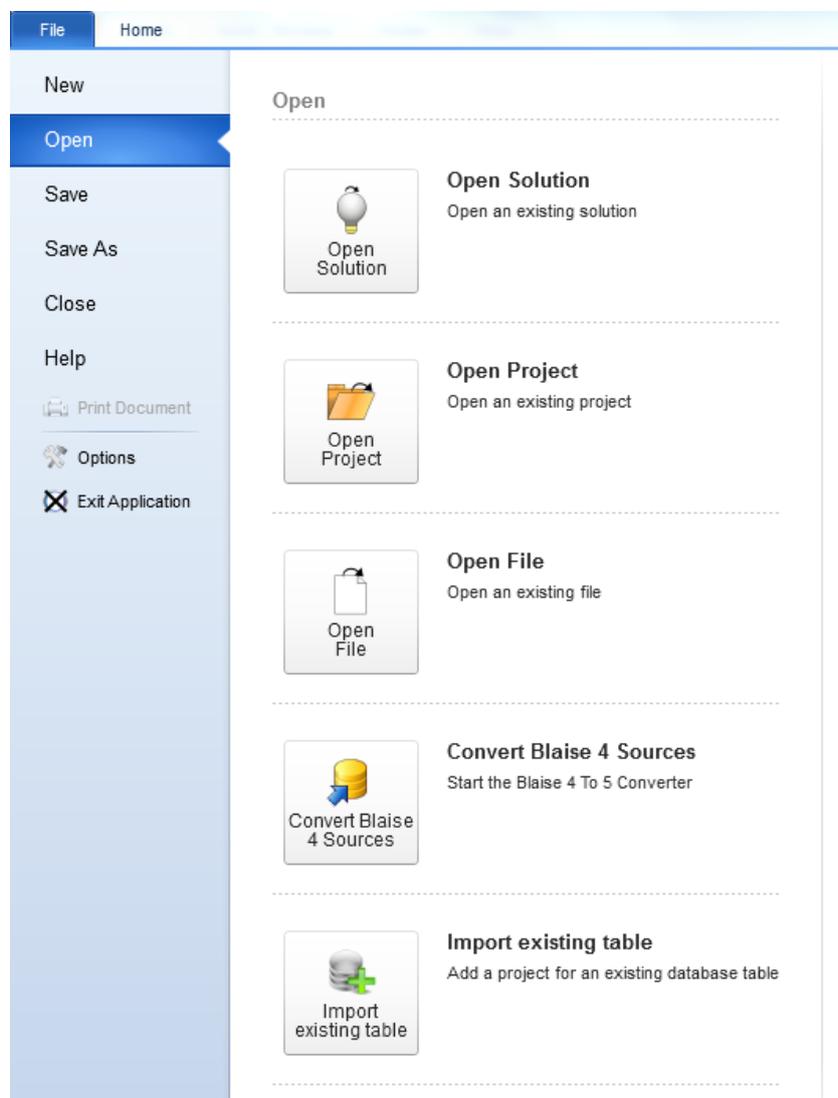
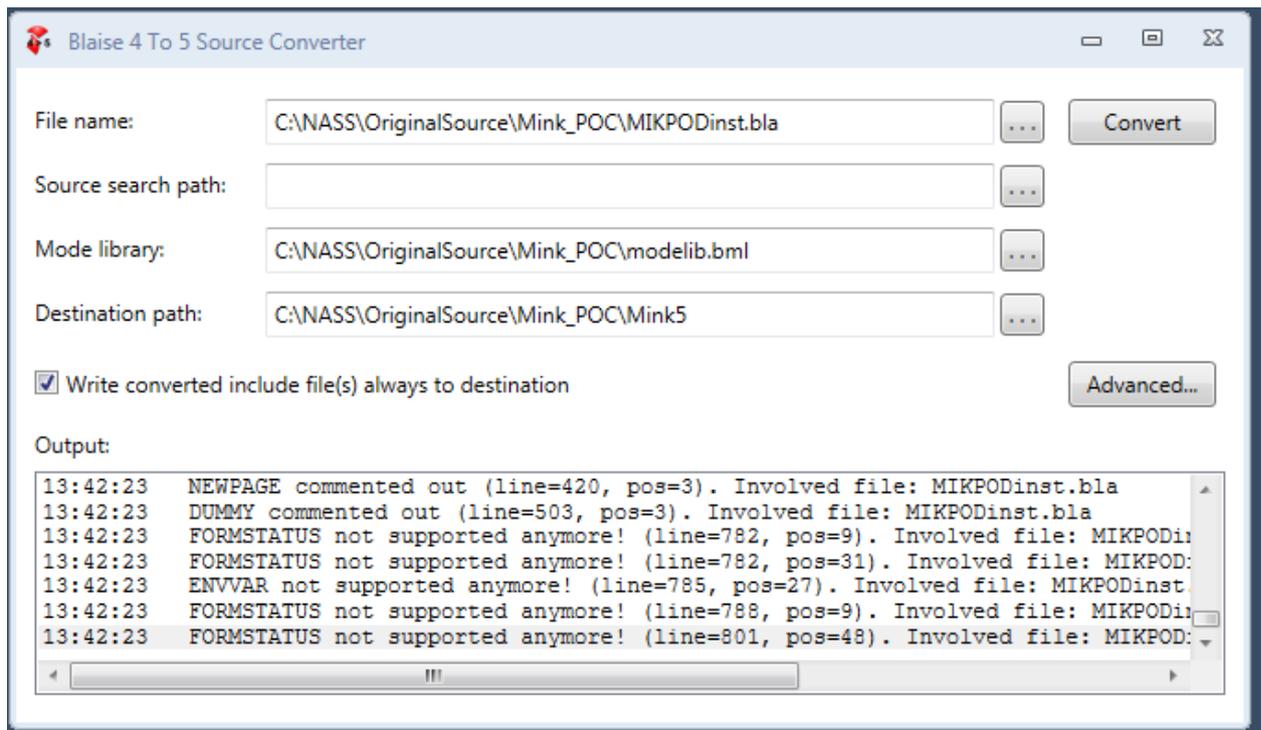


Figure 3. Converting Files



Westat converted the main instrument (MIKPODInst.bla), the master instrument (Master15.bla), and the library (ShellType.lib).

A second tool, Blaise4to5Data.exe, is used to convert data. Data files are converted from Blaise 4 (whether stored as a bdb or through use of a .boi) to the Blaise format specified within the Blaise interface file (.bdix). The default format is the Blaise 5 database file .bdbx. Other database platforms such as MySQL or SQLServer may be configured for use with the .bdix. Once the bdix is configured, the database conversion tool is easy to execute and moves the Blaise 4 data to the database format of choice.

Figure 4. Converting Files

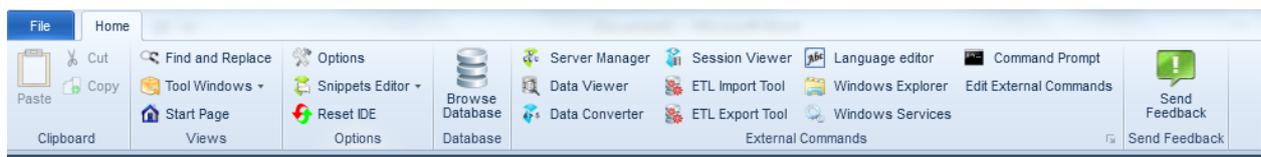


Figure 5. Converting Data

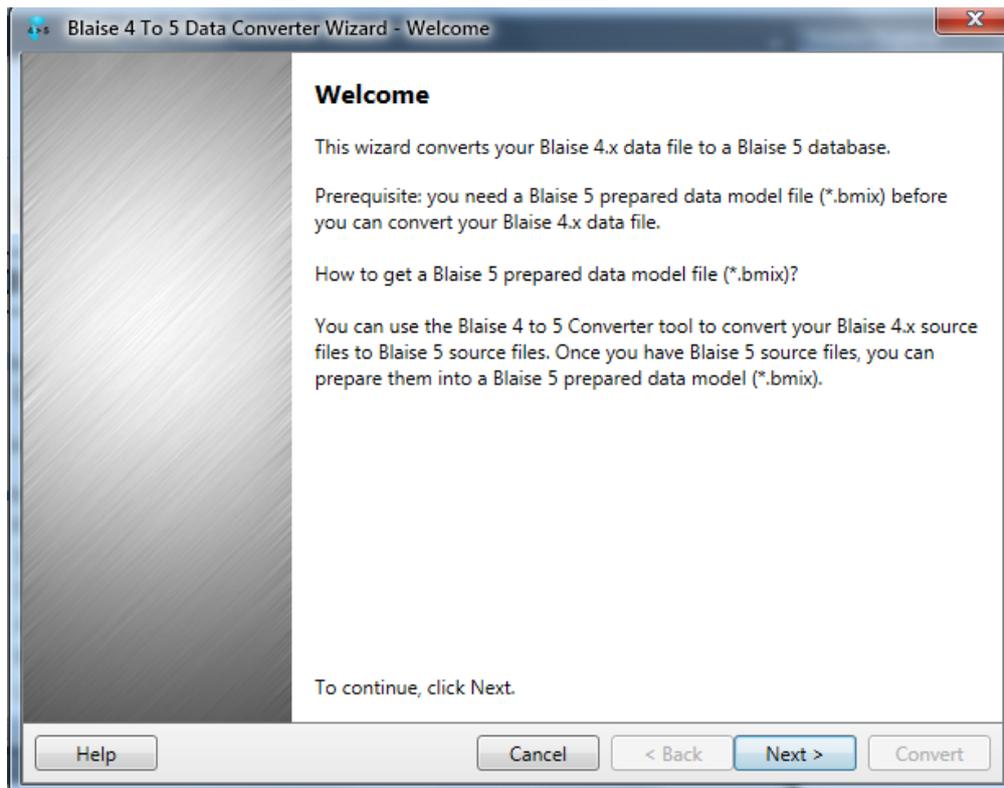


Figure 6. Converting Data

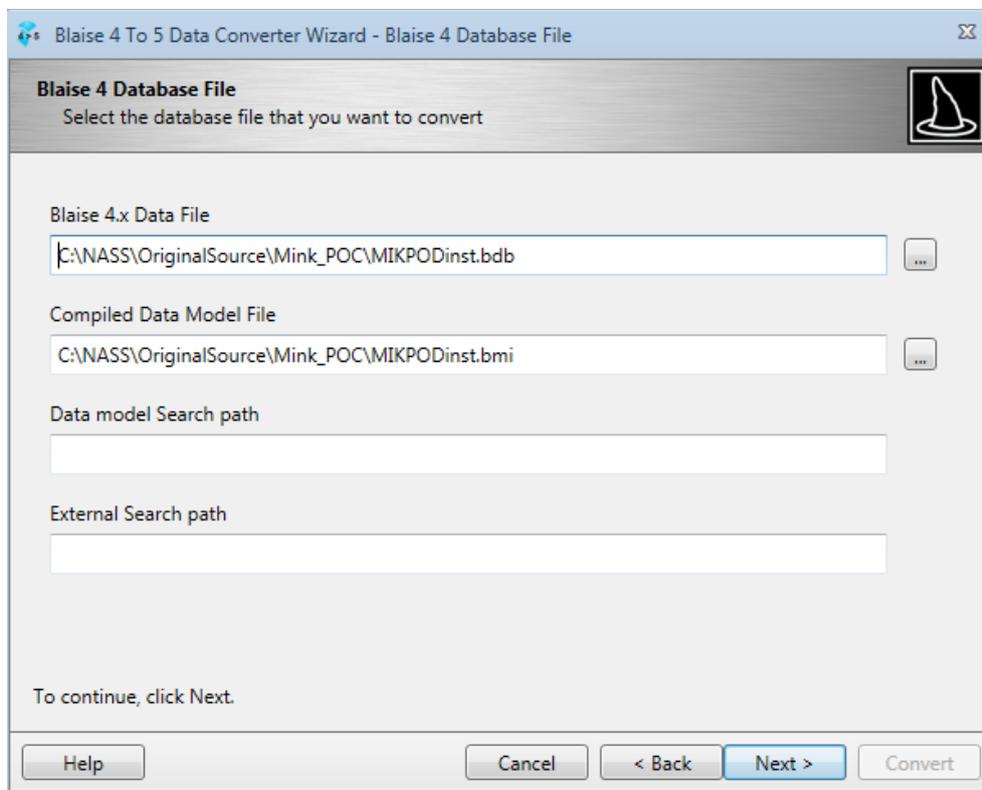


Figure 7. Converting Data

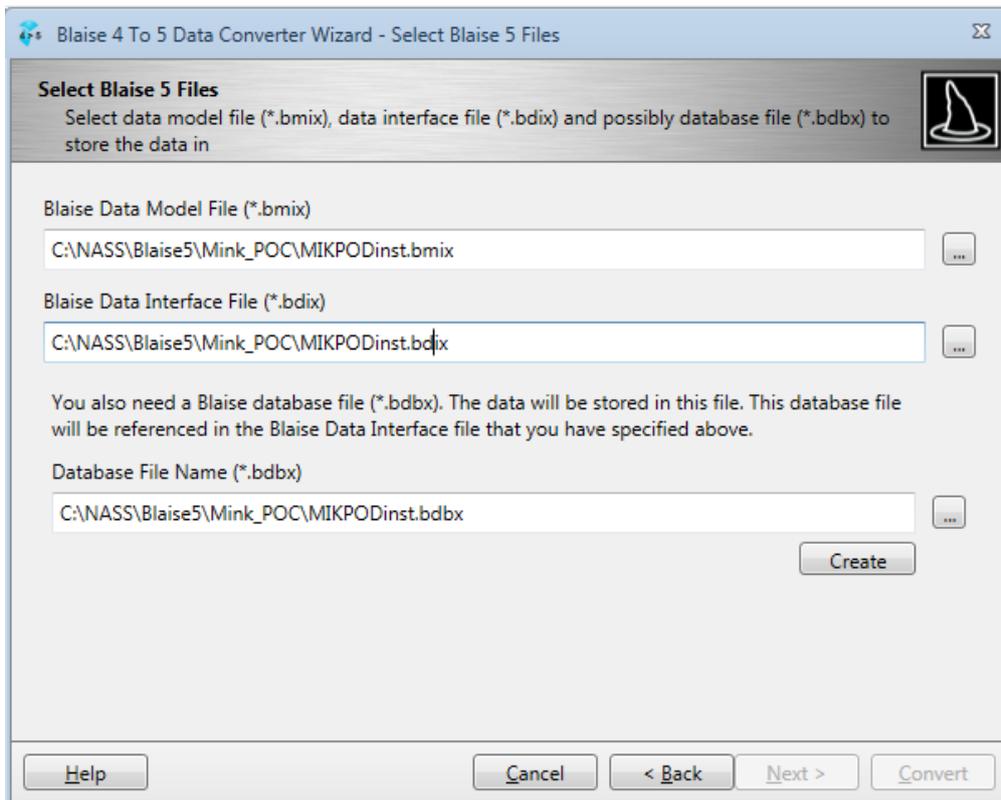


Figure 8. Converting Data

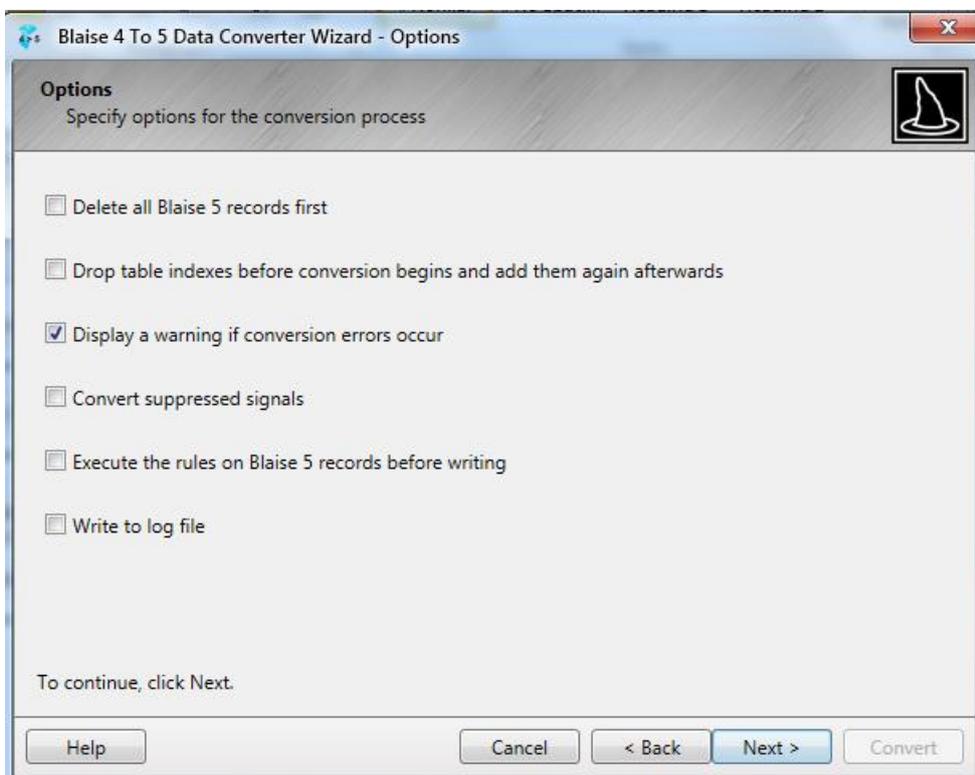
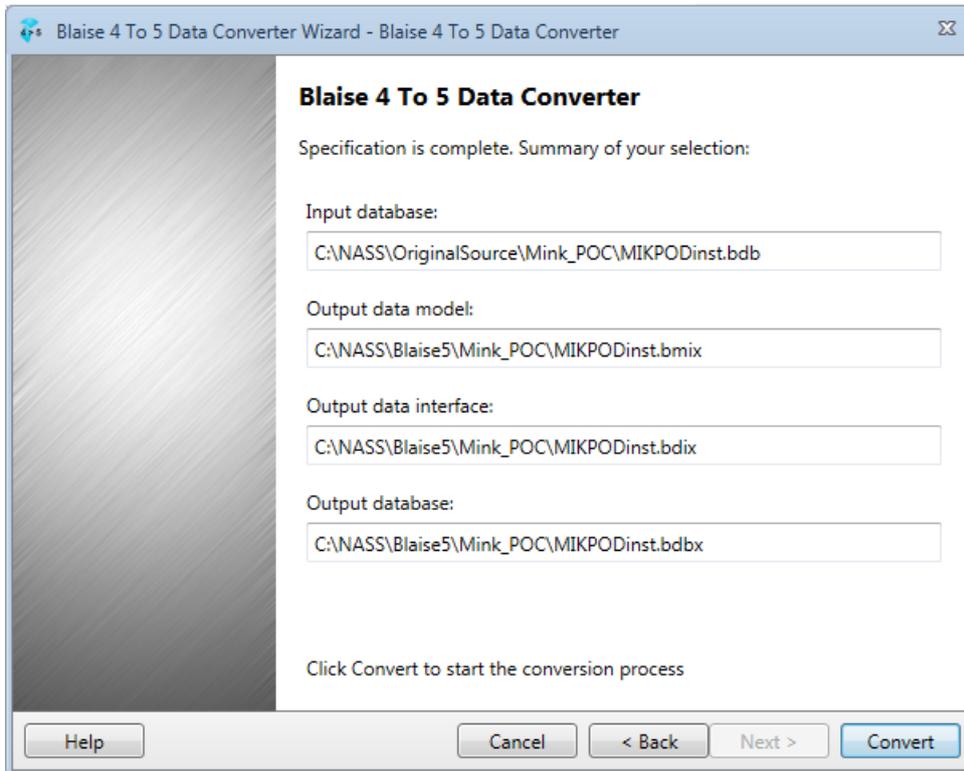


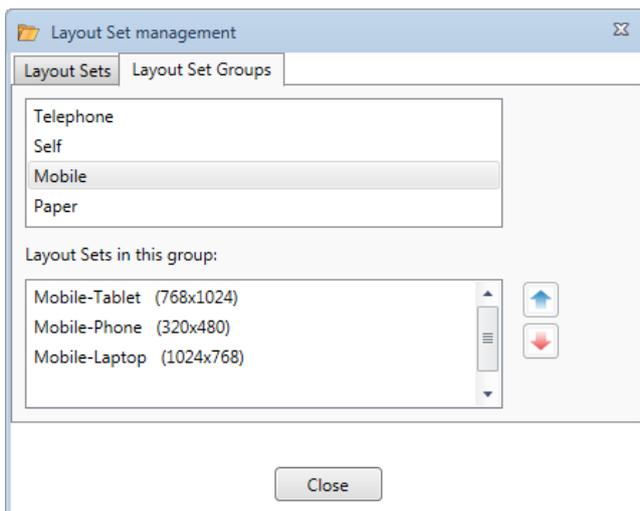
Figure 9. Converting Data



6. Adding Modes

The pilot required demonstrating a Blaise 5 multi-mode capability for the CAWI, CATI and CAPI modes. This was done in the coding by adding Modes and Attribute statements; using the Layout Set Management feature; and making changes to the Resource Database.

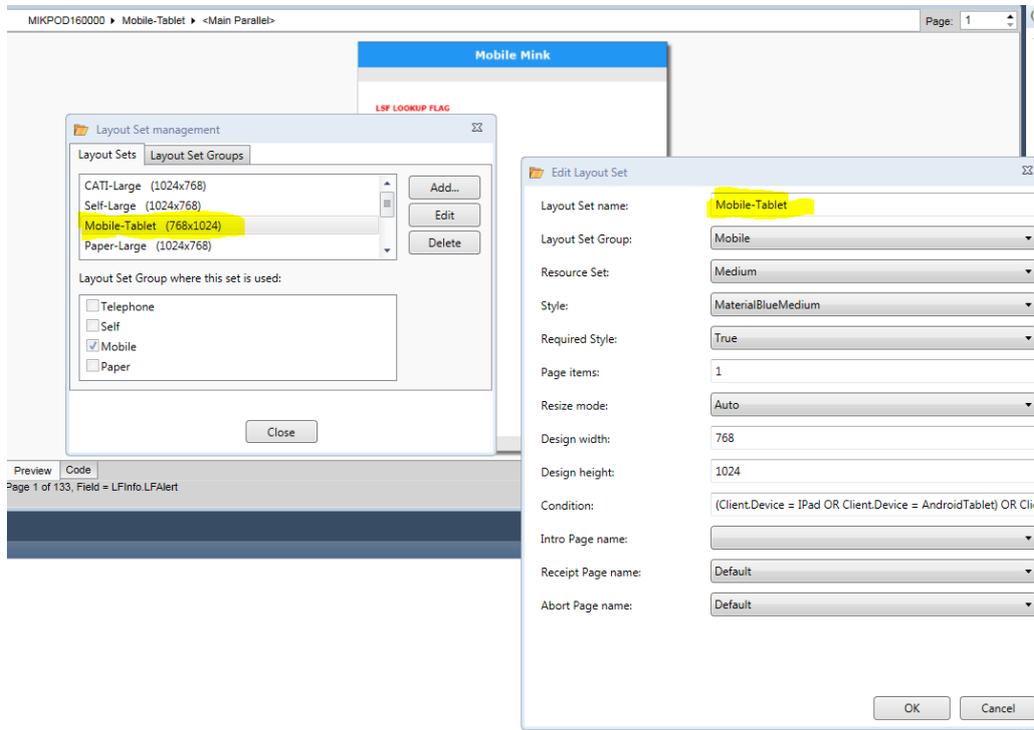
Figure 10. Example listing of Layout Set Groups created based on the Modes statement.



The list of Layout Sets for Mobile is created under the Layout Sets tab (see next screen snapshot.)

Each Layout Set has a set of properties. These properties reflect what is available in the Resource Database.

Figure 11. Layout Sets and Properties



The presentation of the on a device for a given mode is tied to layout set being used. In particular, each Layout set ties to a Resource Set found in the Resource Database. Below are some changes made to Resource Set(s) based on the listed mode.

CAWI

- Copied the Default Row Header template and named it Default1.
- Changed the groupDescription cell's TextSource from "Text or Name" to "Name". This changed the layout from displaying the field's descriptive text instead of the name of the field.
- Copied the FieldRows Table template and named it FieldRows1.
- Deleted the groupText cell and added the fieldText cell. This changed the layout so it displayed the question text for the different columns on the table.
- Phone and Tablet
 - Copied the Data Value template AnswerList and named it AnswerList1.
 - To the AnswerListArea cell, added to the default template collection a Category button and a Special Answer button.
 - Copied the Data Value template SpecialAnswerGrid and named it SpecialAnswerGrid1.
 - To the SpecialAnswerArea cell, added to the default template collection a Special Answer button.
 - Copied the Data Value template SpecialAnswerGridAbreast and named it SpecialAnswerGridAbreast1.
 - To the SpecialAnswerArea cell, added to the default template collection a Special Answer button.

CATI

- Copied the Default Table template and named it MinkTable.
- Added Field Question Text as the first row.

6.1 Code Modifications for Layouts

In Blaise 5 you can group fields together so they can be displayed cohesively by applying a template in the Layout Set (such as Other Specify, address, or tables).

Changes Westat made:

- Enumerated field and “Other Specify” field – Declaration and logic for both fields were moved to a Group statement.
- Tables - Since tables were already declared as a separate blocks there was no need to make any changes in the code.
- Address - Declaration and logic for City, State and Zip fields were moved to a Group statement.

6.1.1 Layouts

- Default templates are applied during the code compilation process. However, in order to improve the look of the instrument, the default templates can be modified or different templates can be applied. For example, table questions in Blaise 5 by default are displayed as individual questions. Blaise 5 has various templates that can be used for displaying a table.
- Different templates were applied for the Other Specify, address, and table fields.
- Fields were made “critical” on the tables so that the display fields would resolve when moving from row to row.
- Pagination changes were made.

6.2 Modifications to Project’s Resource Database

Changes Westat made to templates:

- Copied the Field Pane template QuestionTextOnly and named it “LabelTextOnly”.
- Changed the font to “W”.
- Changed the Field Text Property TextSource to “Value”.
- Added an Applicability Condition: POSITION(‘Label’, FieldDefinition.LocalName)>0
- Moved LabelTextOnly above the Vertical template in the stack.
- This ensured that this layout was automatically assigned to Auxfields containing the word ‘label’ and they would appear green.
- Copied the Table template Abreast and named it CityStateZip.
- Removed “groupText” from its cell.

7. Summary of Results

The conversion exercise met the goal of successfully converting Blaise 4 CATI instrumentation into Blaise 5. The Blaise 5 instrument executes in CATI, CAWI and CAPI modes. The conversion tools are easy to use and this exercise laid the groundwork for increasing NASS’ understanding of how existing Blaise 4 code can be converted to Blaise 5, and how additional data collection modes can be added at the same time.

Figure 12. Web Mink

The screenshot shows a web browser window with the URL `localhost/MIKPODInst/BiPagHan.aspx?id=b958a48d-5817-4a25-a7a3-eb42cad116c4&sp=LocalDevelopment&js=true&sh=705&sw=1366&LayoutSetGroup=Self&L`. The page has a green header with the text "Web Mink". Below the header, there is a light green box with the text "Please update any field that is incorrect." and "The street address/route number of this operation is: 1234 SOMEWHERE LANE". There is a text input field containing "1234 SOMEWHERE LANE" and two radio buttons: "Rather not answer" and "Don't know". Below this, there is another text input field and two radio buttons: "Rather not answer" and "Don't know". At the bottom, there are two green buttons: "Back" and "Next".

Figure 13. Web Mink

The screenshot shows a web browser window with the same URL as Figure 12. The page has a green header with the text "Web Mink". Below the header, there is a light green box with the text "MAKE UPDATES HERE" and "Please update any field that is incorrect." and "The operation name for this operation is: SUNNY ACRES". There is a text input field containing "Sunny Bunny Acres" and two radio buttons: "Rather not answer" and "Don't know". Below this, there is another text input field and two radio buttons: "Rather not answer" and "Don't know". At the bottom, there are two green buttons: "Back" and "Next".

8. What the Future Holds

NASS and Westat continue to communicate on Blaise conversion topics, such as how to best implement Blaise 5 in NASS' very unique network structure, further consideration and advice on how to run CAWI and CAPI modes in Blaise, and others. NASS has created an in-house Blaise 5 team to head up the conversion effort. Actual implementation dates have yet to be determined.