NASS Conversion to Blaise 4 Windows with a Visual Basic Interface

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2000 International Blaise Users' Conference – Kinsale, Ireland

Introduction

In the Fall of 1999, NASS began the extensive conversion of all its Blaise Applications from Blaise III to Blaise 4 Windows. This major conversion had two primary areas of focus: Blaise 4 Windows ManiPlus interfaces and a Visual Baisic interface.

The Blaise 4 Windows ManiPlus interfaces were developed to provide a more interactive, user-friendly system. They also allowed the NASS CASIC System to have more control over the forms being processed. The whole survey management process was redesigned as it moved into a Windows environment The capabilities of ManiPlus aided in the development of a more efficient system.

The Visual Basic interface replaced all the DOS batch files that were used with Blaise III to run the survey processes. The Visual Basic interface also replaced a Sabre Menuing system. Using one Windows software to drive survey processes was the most desirable alternative to other options, like using WinBatch. Visual Basic gave us the flexibility of DOS batch files to move files, copy files, and perform all the functions on files and folders. In additions, Visual Basic provided a built-in menuing system, with button objects and sub-forms. As processes were developed, Visual Basic was used to view and run Manipula generated reports, ManiPlus interfaces, and provide users with other information previously not available with DOS batch files. Because of the ease of learning Visual Basic and the availability of training, it was the Windows software of choice over other more powerful, but more difficult, software. In NASS, job rotation can be frequent, so a software that is reliable and easy to learn was a top priority.

System Changes

The ability to control access to the dataset with ManiPlus, while allowing both CATI and interactive editing to run simultaneously on the same dataset, opened up possibilities for NASS to redesign the system flow of data. Since NASS is changing platforms from DOS to Windows, and from Blaise III to Blaise 4 Windows, it was a good time to examine the current system and improve it. NASS previously collected CATI data in the "CATI" dataset, and physically moved the completed forms to an "EDIT" dataset for the interactive editing process. NASS suspects that the frequent deleting of forms from the "CATI" dataset occasionally led to corruption of the "CATI" dataset. Usually, rebuilding that dataset recovered the forms.

In the new NASS CASIC system design, all the forms remain in one dataset. All records are initialized into the dataset, and the Blaise call scheduler is used to deliver the forms. If a form is to be removed from the call scheduler, a Non-CATI transaction can be created. A ManiPlus setup will read this ASCII file of transactions, set a switch within the dataset, and remove the identified forms from the call scheduler.

If an interviewer needs to retrieve a specific form, a ManiPlus setup is run which prompts the interviewer for the key fields. It gets the form and checks a field in the dataset that identifies the process for which the form is available. If the form is available for CATI, the Data Entry Program (DEP) is executed and the form is delivered. If the form has already progressed into the edit process, a message box is displayed to the interviewer, and the form will not be delivered.

One of the interruptions to the CATI and editing processes is the reading in of paper data. This data has been keyed using a heads-down data entry software. Manipula is used to read this file of code data and write the data to the Blaise dataset. With proper planning, this data may be read in during interviewer break times or during a shift change.

The interactive edit is another ManiPlus interface that again controls the delivery of forms, but this time to the statisticians doing the editing. Forms are typically edited in batches. When a paper batch is read into the dataset, a batch number is assigned. For forms collected in CATI, the Julian date when the forms were collected becomes the batch number for those forms. The statistician may then retrieve forms by batch or by date collected. A special option on the dialog box allows the statistician to choose a date, which is then converted to a Julian date, and then used to display that group of forms in a table. The dialog box also allows the retrieval of a specific form with the same type of process checking done for the retrieval of a CATI form. Other options on the dialog box include all completed forms and adding a form.

This one dataset concept allows the CATI completed forms to become available for interactive editing immediately. The interruption to the CATI interviewers while moving the forms from one dataset to another no longer exists.

System Changes Effecting Interviewers

In Blaise 4 Windows, most of the changes were cosmetic. The Windows look was different, but most of the functionality was retained. Most interviewers adapted easily to Blaise 4 Windows.

One notable exception was the procedures for making appointments. Many interviewers who weren't skilled in computers, experienced difficulty using the mouse and clicking to set appointment parameters. The parameters with drop-down boxes and up/down scroll buttons were especially difficult for some interviewers. Extra time was required for interviewers to practice their mouse skills.

Visual Basic was used to provide a simple way for interviewers to begin data collection. Buttons were added to conduct and get live and practice interviews.

In NASS, the interviewers' supervisors are usually given the responsibility to create the day batches and make sure practice interviews can be done. Supervisors also sometimes run Manipula reports to check on the status or progress of data collection. To facilitate this, a *Supervisors Only* button was provided that allows supervisors to run special processes.

The *Supervisors Only* button allows the supervisors to run CATI Management, create day batches, run CATI Specs, run Manipula reports, Browse History, and refresh practice datasets. Since these functions are only the responsibility of supervisors and not the interviewers, these options were password protected.

System Changes Effecting Survey Management Processes

The most significant changes to NASS's Blaise 4 Windows Applications were with the survey processes. In NASS, the data is analyzed in Blaise before it is processed further for more detailed analysis and summary. Statisticians analyze this data immediately after data collection so inconsistencies can be quickly corrected. Most of this analysis is done by Interactive Editing by the statisticians.

A Visual Basic interface was also built to provide editors with all survey processes in a simple, user-friendly format. First, the specific survey is selected using a List View in Visual Basic, which is the control used by Windows Explorer.

After the survey is selected, the window with the CASIC interface is loaded. This interface gives editors the ability to Initialize, or set up, a survey. It provides information about the name and period of the survey. Processes available to the supervisors are available. Additional processes like interactive editing, deleting a form, and integral check are also available.

Having these processes available in a simple interface where they can be accessed at the touch of a button is a great improvement over the previous menus, where some processes were 5 levels deep. As more respondent databases become integrated, the Visual Basic interface should be able to provide editors with access to historic and detailed information from other NASS databases.

Technical Challenges

In order to convert from Blaise III to Blaise 4 Windows, several major technical challenges had to be conquered.

In Blaise 4 Windows, the primary challenge was the use one dataset for both data collection and the interactive edit. In Blaise III, there were two separate datasets because of the database conflicts between editors and interviewers. Having separate databases made the two processes faster, but forms had to be moved from the data collection dataset to the editing dataset, which sometimes caused dataset corruption when the move process failed. With a one dataset system, forms are no longer moved from one dataset to another, but this system would have to track the process status of a form. New ManiPlus interfaces were developed to maintain the control needed by the new system.

The primary challenge in Visual Basic was first to learn Visual Basic and then duplicate and improve the Sabre menus and DOS batch files it was replacing. Since Visual Basic training was readily available and the language itself was intuitive, learning Visual Basic wasn't a very big challenge.

Technical Challenges: Visual Basic

One of the biggest challenges using Visual Basic was determining how to present the interface. Previously NASS was limited to a menuing system, but with Visual Basic, menus, buttons, toolbars, list views and other controls were now available. These had to be presented in a simple way so interviewers and editors would know what to do by intuition alone. Since many of the

processes were one-step, buttons were the most common control. The interface was presented in a way that best follows the processing flow of each survey.

By designing the interface this way, all surveys would be able to “plug into” the standard interface. Some minor survey specific changes were made, but almost all the processes were standardized throughout all surveys. That is no small accomplishment, considering Blaise 4 Windows will be used on over 100 surveys in NASS for the year 2000. All users are automatically familiar with a new survey. All the buttons, processes, and reports function very similarly for all surveys. This was accomplished by command line parameters that launch the Visual Basic executables.

The commands that were used in DOS batch files had to be duplicated in Visual Basic. Commands or functions were necessary to check if a file exists, a folder exists, copy, delete, rename, write lines to a text file, execute an executable and wait for it to finish, and determine the drive and path of files, and viewing files. While over time NASS developers were able to find acceptable Visual Basic code to perform these tasks, it took some initial time to learn them. However, now that developers have learned Visual Basic, tasks much more advanced than DOS batch commands can be performed.

Surprisingly, probably the most difficult part of implementing the Visual Basic interface was distribution and setup on other workstations. NASS has over 45 servers located in individual states with about 30 workstations on each server. All applications had to be distributed and setups run on each workstation.

While the Visual Basic Package and Deployment Wizard was used to create a setup to distribute the application, some additions had to be made for the setup to work correctly. Several DLL’s had to be distributed and registered on individual workstations, and two Microsoft executables had to be run to update components. The procedures of correcting the setup were not easy to understand. The setup would indicate it failed when the application was run, but an error message appeared. Several separate errors had to be corrected in the setup. The errors were corrected by contacting Microsoft Technical Support and user groups. Now these errors will be solved easier because the Visual Basic knowledge base in NASS is growing. Although corrected problems were difficult, once the setup was corrected, it ran consistently and correctly on all workstations in NASS.

Technical Challenges: Blaise 4 Windows

Maintaining a high level of performance in both CATI and interactive editing is the most challenging part of the CASIC system. Some of the ManiPlus setups seem like they are having an impact on the CATI interviewers’ performance while running against the same dataset. Further testing will be necessary before we will be completely comfortable with the entire process. There are a couple of backup procedures that we may use, but they will require loosening some control of the system. We hope to solve the performance issues between CATI and the ManiPlus setups before going into full production, so that the system may have the control that it was designed to have.

Another technical challenge continues to be the video resolution on the screen that affects how the form pane and info pane are viewed. Some show fields were not visible on a lower resolution screen when the instrument was prepared with a modelib that was acceptable with a higher resolution. Work is in progress to find the best solution to this problem.

Conclusion

The conversion to Blaise 4 Windows with the Visual Basic interfaces has been very exciting. The enhancements to Blaise 4 Windows have been an asset to the design of the new NASS CASIC system. The Visual Basic software has given the system a much more powerful and user-friendly interface.