Kilauea Erupts With Magic

By Michael Martinez

BASIS International is committed to the proposition that Business Basic can be enlarged and given new features. To achieve this goal the company has set up several development groups, one of which is the Tool Team. We were given the charge of developing strategies and tools, in conjunction with other teams, that will expedite the migration of existing applications into the worlds of graphical and SQL programming. The first project the Tool Team has taken on is the BASIS Visual PRO/5™ Program Wizard, which generates complete programs that are relevant to customers' data, as described in the BASIS Data Dictionary. This article describes the Program Wizard and three new Visual PRO/5 features that are highlighted in the Wizard: print preview, resource files in ASCII format, and a new message box function.

Meet The Wizard of Kilauea

One of the most exciting new tools is the Visual PRO/5 Program Wizard. The Program Wizard browses multiple data dictionaries, allowing you to generate two types of report programs and a basic file maintenance program. The report programs offer the same user interface, but one model makes use of the SQL verbs introduced in Visual PRO/5 and the other model makes use of the SELECT statement, which has been available, though underutilized, since the release of BBxPROGRESSION/4®.

Alpha version of a Kilauea screen

The Program Wizard provides a list of data sources that you can select. From there, the Program Wizard presents the tables in the data source. You must then select a table. After selecting a table you choose which columns (fields) in the table are to be offered to end users through the generated program's interface. The generated code will contain references to all of the columns in the table, so if a generated program is customized and then additional fields must be added to the user interface, you don't need to regenerate the program, thus losing all previous customizations.

After you select the columns for the user interface, the Program Wizard prompts for the type of program to be generated. If the file maintenance option is selected, the Program Wizard insures that the user interface includes all the columns necessary to specify a primary key. If a report using the SQL verbs is chosen, the Program Wizard insures that at least one dependent index exists for the table, or you cannot go forward, as SQL requires normalized data definitions.

The Program Wizard permits you to select and view a background image for the generated program's interface. Then you tell the

Program Wizard what the program should be named and where the generated files are to be located. Once this information is entered, the Program Wizard can be told to create the program immediately. The generation process takes just a few seconds.

The Program Wizard generates an ASCII source file for the program, which is then tokenized so the program itself may be tested immediately. A PREVIEW option in the Program Wizard interface allows you to create and then test the generated program immediately. A FINISH option permits you to merely generate the desired program without testing.
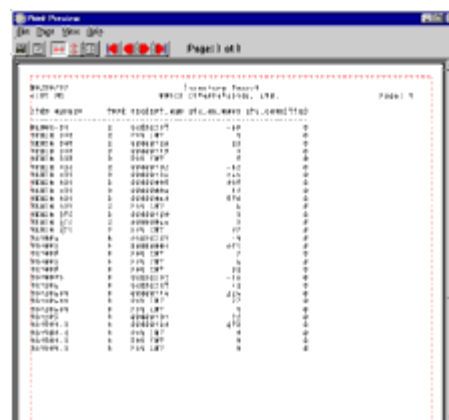
Each of the three program types is given a fully event-oriented, graphical look and feel in Visual PRO/5. The interfaces are generated in ASCII Resource Files, which are then compiled into .brf files that can be edited by the new BASIS Resource Editor. The generated programs will also use .ini files, a standard MS-Windows resource that many applications use to store configuration information and to remember user-selected options.

The generated report programs use a flexible interface that enables the user to select a sorting sequence (if more than one independent index is available for use), which columns are to be included on the report, and to configure some standard options such as company name, report name, formats for date and time, and whether to total any numeric columns selected for the report.

By equipping you with a column selection interface, the Program Wizard makes it possible to hide sensitive data from users who need reports from, for example, Payroll or General Ledger files. By giving the user a column selection interface, the Program Wizard makes it easy for the user to customize the report. The generated interface provides an easy-to-follow example of how such customization may be provided in more sophisticated programs.

Magically Transform Report Output

Both of the report program models used by the Program Wizard use the new print preview feature. When BASIS introduced Visual PRO/5 to the Business Basic community, we promised to make the migration of character-based programs into graphical environments as easy as possible, with a minimum of code changes. Until now our emphasis has been on building graphical interfaces quickly and easily without replacing large sections of code.

Alpha version of a Kilauea screen

But fully graphical report programs usually offer a preview mode that enables a user to decide whether to print the report.

In order to avoid requiring that programs be rewritten or enlarged to provide a preview feature, we built a report preview interface right into the language. After all, we reasoned, our customers have

already designed the reports to look the way they want them to. We just need to make it easy for end-users to preview the reports.

So print preview was designed to be a quick way to convert the output of every program in an application to a graphical format. There are two methods to invoke the feature:

1. The OPEN statement used to access the Visual PRO/5 SYSPRINT device may use a MODE= option.
2. The SYSPRINT alias line in your `config.bbx` file may take a MODE= option as well.

Method 1 makes it easy to test and evaluate programs using the Print Preview feature. With minor changes, a program can be customized to offer the Print Preview feature as a user-selectable option. Method 2 makes it possible to convert all report programs to produce graphical output without requiring that one line of code be changed. Many Business Basic reports are designed using one program to handle a selection screen and a second program to produce a report based on that selection. These types of reports may be quickly converted to graphical environments, and they can also share code overlays with their character-based counterparts because only the selection screen overlays need to be rewritten for differing environments.

The Print Preview feature creates a new process. The output to the printer channel is then spooled to this new process, which provides the user with a graphical interface that includes PRINT and CANCEL menu options. Taking the CANCEL option terminates the Print Preview process and sends a signal back to the report program that enables it to determine when it should stop producing output. The program can always close the channel and open it again, starting over.

Conjure Up Graphical Interfaces

When BASIS was contacted by a large customer with numerous character-based screens they wished to convert to graphical format, we realized it would be an invaluable service to many of our customers if we could provide them with a tool that quickly generates resource files. The customer in question said they could document their character-based screen displays, but they needed to know how to document them for the BASIS Resource Editor. We thought we could solve several problems at once by defining a universal format for all screen resources. TAOS forms would also benefit from this format in later character-to-graphical conversion projects.

Programmers who have worked with other graphical development tools may be familiar with ASCII resource files. We considered using the Microsoft resource format, but decided that we were offering too many custom features. We realized we would serve customers better if we just created a simple format that met their needs. The format we created is expandable and will be published so that anyone can create ASCII resource files or incorporate the BASIS resources into other development tools.

The BASIS Visual PRO/5 Program Wizard also needed the ability to specify graphical resources. Since we were going to define the ASCII format and create a resource compiler for it, the Tool Team decided to generate these ASCII resource files and to make use of the compiler as a means of teaching our customers how to use the new tools. The BASIS Resource Editor will also work with the ASCII Resource Files.

Use An Enchanting New Function

BASIS introduced the 'ASK' and 'GETS' mnemonics in BBxPROGRESSION/4 for Windows. The 'ASK' dialog was revised slightly in Visual PRO/5 1.01 to provide a leaner, more attractive interface, but it was evident that something closer to the Windows standard was in order. *Kilauea* introduces the MSGBOX() function, which provides a clean interface to the standard Windows environment messaging dialog. The Visual PRO/5 Program Wizard and the programs it generates use the MSGBOX() function for error handling.

This function lets you define standard dialogs that are more flexible than those created by 'ASK' and that take less code. The MSGBOX() function thus represents an additional tool in the arsenal of the graphical Business Basic programmer.