Introduction to REALBasic

by

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Introduction

I'm writing up this paper in the hopes that FoxForward attendees that chose not to attend my session(s) would still be able to take away some knowledge of REALbasic (RB). REALbasic really is worthy of a look as a potential development tools for Visual FoxPro developers. While I have this paper available, the presentation won't just be a read-through of the paper. We'll be focusing more on the RB IDE and some of the code samples.

I must also point out that this session also isn't trying to “Sell you” on REALBasic. I'm going to do my very best to show you the strengths and weaknesses of the product. I leave it up to you, as a professional developer, to determine whether you should add RB as a tool to your toolbox. It would also like it to be known that I planned on making this presentation before REAL Software became a sponsor of the FoxForward conference. Yes, I will point out the product weaknesses so that you will have a full understanding of the product.

I have developed a couple of small applications with RB and one medium sized application. This doesn't make me an expert at RB but I feel that I can accurately describe the product to you from a Visual FoxPro developer's perspective. The majority of my income is still from Visual FoxPro development and will continue for some time into the future. I'm just adding RB to my toolbox.

Describing REALbasic

Marc S. Choate defines RB as “a line-oriented, statically typed, object-oriented, and event-driven programming language with single inheritance.”

That's a lot, but he left out a couple killer features though. The “killerest” feature of RB is that it is cross-platform. You can compile applications (with the Professional version) to Windows, Mac, and Linux. It also is multi-threaded. Nice.

Another aspect that doesn't describe RB as a language but as a product is that ... RB is closed source, as opposed to open sourced. Is this a strength or a weakness? Both, I think. Does the revenue model of open sourced applications leave you nervous and perplexed? Perhaps a closed source solution might be for you. The price of RB is very reasonable and I feel that the payment is enough incentive to keep REAL Software on track and focused on RB as a product. I like the thought of that. Paying a company that is focused on development of a product so they keep improving that product for years to come. I can build a career on that business model.

RB also has a single IDE. You can start a project on a Mac and open that same project on Windows or Linux using RB for that same platform. You don't need a copy of RB for each of your target platforms however. RB has a way of remote debugging applications that are run on other platforms.

Cost

RB comes in Standard and Professional licenses. The Standard Edition is $99 (introductory price, may not last) and the Professional Edition is $500 and includes all upgrades for 6 months or approximately two upgrades. Upgrade plans from that point on are $50 for the Standard edition and $250 for the Professional edition but cover upgrades for a full year, or approximately four updates. To upgrade from the Standard Edition to Professional is $400. There are discounts for teachers and students available. You're limited to your database options in the Standard Edition, so the Professional version is for you. Discounts are available if you purchase RB for multiple platforms.

Rapid Releases

RB is on a rapid release model. Updates to RB are released four times a year, approximately every three months, providing a more agile business model providing updates quicker to developers and customers. Some people love this approach, others hate it.

Here is what REAL Software states are the benefits to developers:

(1) Enhanced competitiveness - Software companies that employ the Rapid Release Model can respond very quickly to changing market conditions, demonstrating greater market agility, the ability to be responsive to customer requirements. This makes companies on longer development cycles struggle to keep up.

(2) Reduced risk - Large, monolithic releases can be very risky because 18 months is an enormous period of time in the technology business. Market conditions today are nothing like they were two years ago. Release dates for large updates are often delayed because customer requirements change during the development cycle as new features must be added to an already complex development project. Releasing every 90 days minimizes risk by reducing the amount of time between planning a product and releasing it.

(3) More marketing opportunities - Before the Internet, marketing software required long-range planning around print advertising and magazine editorial calendars. Today, however, most software marketing takes place online, where software updates are covered on websites and in blogs where content is updated on a daily basis. In the Internet marketing game, each new release provides a fresh opportunity to grab a fleeting moment of coverage and online advertising can be focused on the benefits of each new release.

The rapid deployment approach requires some decisions on your part. Are you going to keep current with each release? Do you upgrade every other release? Or once a year? Or do you wait for the next release with a feature that you just can't live without?

The beauty is that it really is up to you and your business needs. The only downside that I see is the perceived need to “keep with the latest release”. That is only a perceived need however.

What Solutions Can Be Developed Using REALbasic?

Yes, RB can develop graphical applications on Windows, Mac and Linux. It is very easy to build these applications, rich with controls and drag-and-drop that we are very familiar with, including some controls that we've had to purchase separately in Visual FoxPro.

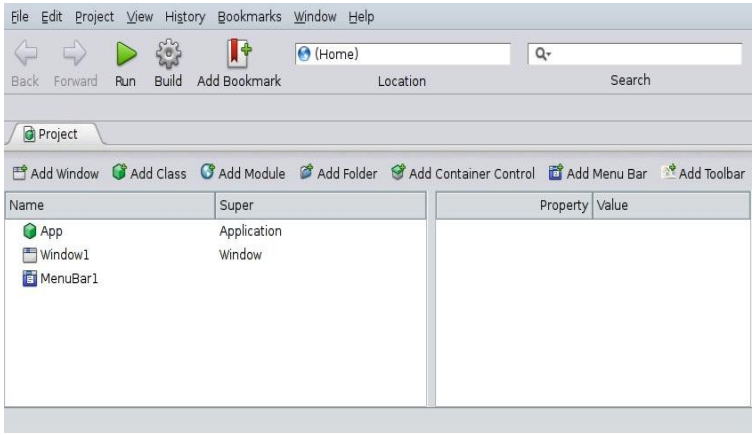
In addition to graphical applications, console applications are also possible. To create an application with no user interface, just choose “File / New Project ... “ and you have a choice of project types appear.

How about web applications? Yup. Not only are web applications possible, but partly because of the power of the multi-threaded capabilities of RB, you could even create a full web server. There's one “gotcha” in regards to web applications and RB however. I'll get to that later in the paper.

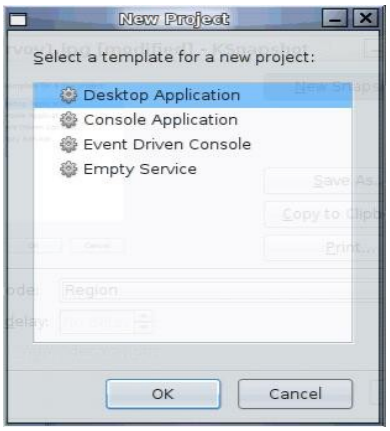
Computer games? These too. With the RB SpriteSurface control it provides you the capability to produce animated effects using sprites, handling the drawing operations and determining when collisions occur. Yes, there are developers that just develop games in RB. No, you wouldn't want to write Doom in RB but many game types are feasible in RB.

Quick REALbasic IDE Walkthrough

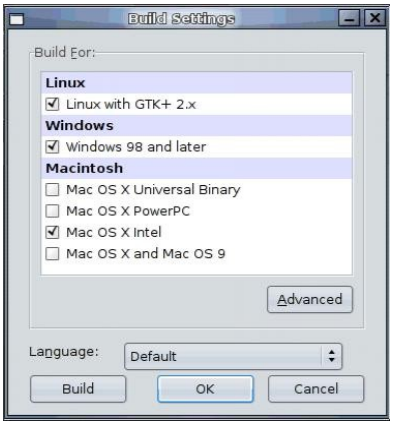
When you start up RB, you get a blank project. The controls are listed on the left, property pane on the right. If you have multiple items open, they appear as tabs. In the picture you can see we just have the default “Project” tab open. Take a look at those “Back” and “Forward” buttons at the top. Don't you wish we had those in VFP!



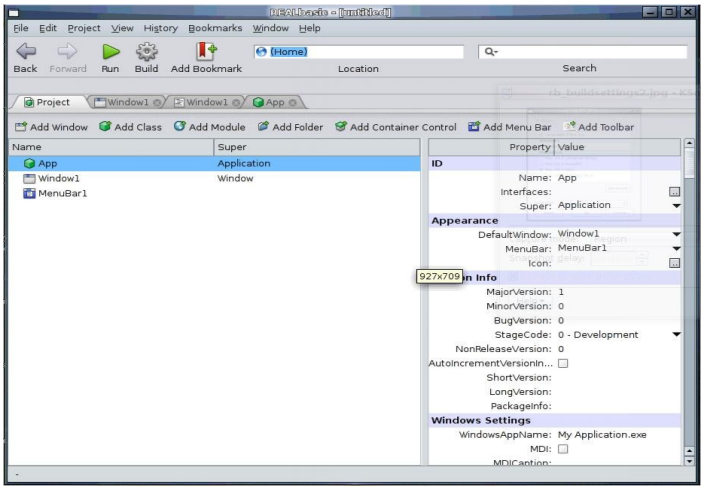
Here's where you select what type of project that you would like to work on, if you're not wanting the default desktop application. You get here by choosing “File / New Project”.



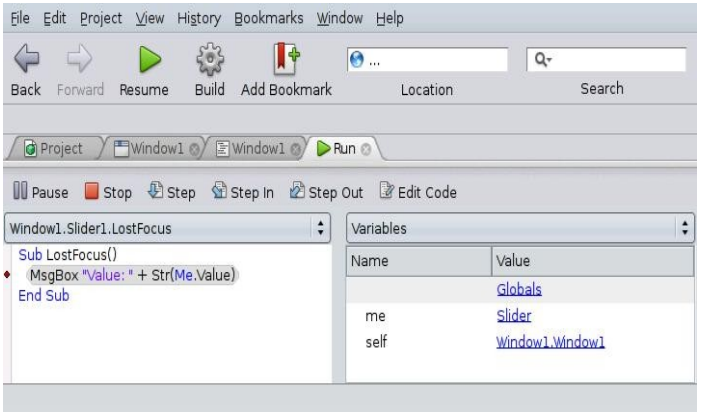
I've touched that RB can create cross-platform applications, here is the form where you select the target platforms to compile to. When you press the “Build” button, it compiles (Yes, truly compiles, not interpreted or semi interpreted) the application to the target platforms that you have selected. This feature is only available in the Professional version of RB.



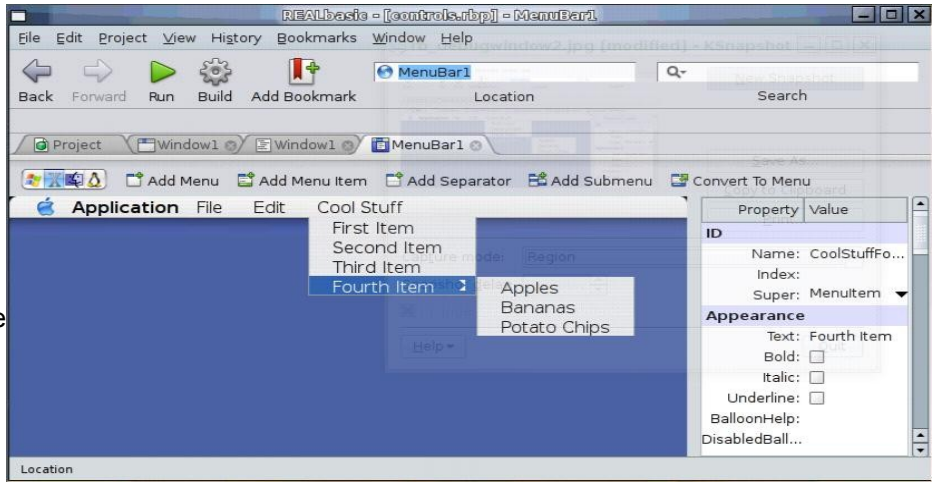
The development environment when designing windows, opens a graphical drag and drop tab, as well as a tab showing the properties, events and methods containing the code behind the window.



Debugging your program is covered by clicking the area just to the left of the code that you would like to stop on.



When creating your application menus, you can switch modes to see their look in their target platform. Here, we're seeing what the menu would look like in the Mac OS-X. We can switch platforms and see what it would look like in that platform by clicking the platform buttons. You can see it right below the "Project" tab, and to the left of the "Add Menu" option.



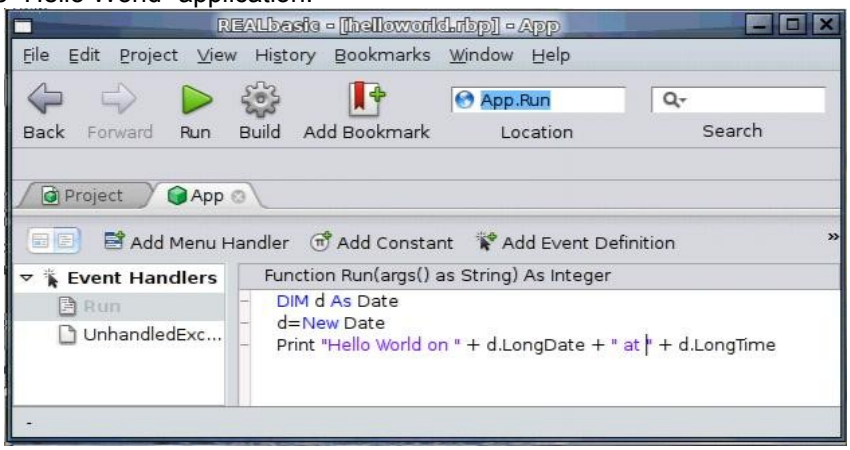
Comparing Visual FoxPro and REALbasic

Lets compare some of the features of VFP with RB

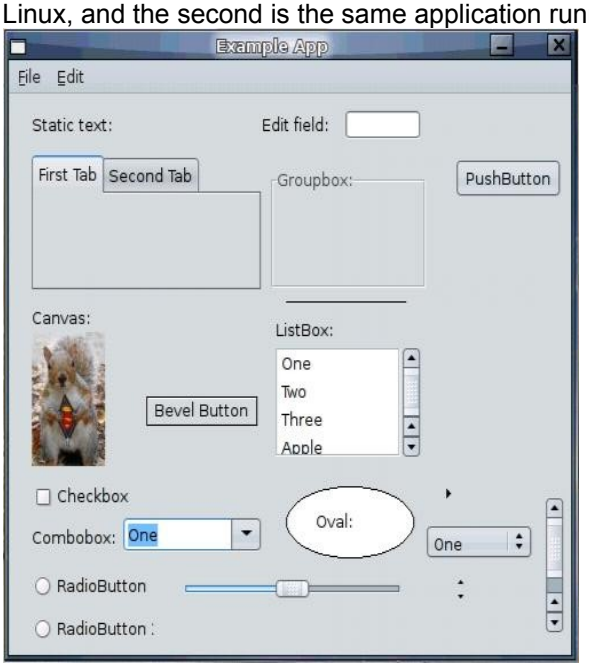
Feature	*Visual FoxPro*	*REALbasic(Pro)*
Windows Editor	Drag and drop	Drag and drop
Code Editor	Methods, events and properties accessible from the property sheet	Methods, events and properties open in a related tab
Object-oriented	Yes	Yes
Graphic support	Some, GDI+	Some, Sprites, Quicktime
Build-in Database	Yes, DBF, DBC	Yes, but single user version of SQLite
Database connectivity	Yes, via ODBC and OLE DB/ADO	Yes, via ODBC and plug-ins
Internet Development Features	Limited but can be extended with 3rd party products	HTTP, UDP, SMTP, and POP3 native
Integrated Help	Yes	Yes, but not that sophisticated
Royalty-free Deployment	Yes	Yes
Target Platforms	Windows	Mac, Windows, and Linux
Extensibility	Classes, DLLs, FLLs	Plug-ins
Application Types	Desktop, console	Desktop, console, web
Integrated report writer	Yes	No, available via 3rd party products such as On-Target Reports
Error handling	Yes, ON ERROR, TRY...CATCH...ENDTRY, Object error method	Yes, exception class, TRY...CATCH...END
Integrated debugging	Yes	Yes, not as sophisticated as VFP
Auto-formats code	No (tabs or spaces, anyone?)	Yes (auto-indents for you)
Build	Semi interpreted	Compiled
External requirements	VFP DLLs, GDIplus.dll	Common libraries on Linux distributions, otherwise none.
Unicode	No	Yes
Case Sensitive Programming	No	No

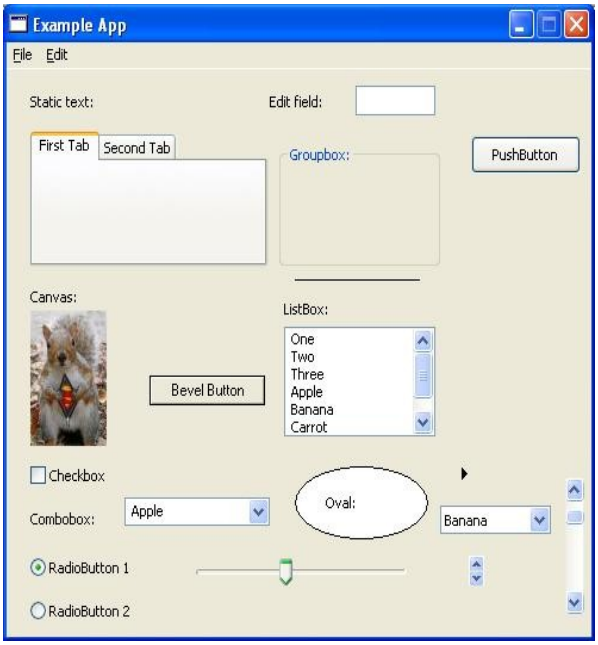
Example Programs

Here's the venerable “Hello World” application:



Here's a “controls” example application that displays many of the standard graphical controls. The first picture is from Linux, and the second is the same application running in Windows.





REALbasic Resources

"Is RB for real?" One guage to the health of a technology is the resources revolving around it. Books, magazines, forums, conferences, web sites, etc. all are an indicator of the health of a technology. So lets take a look at these resources:

PLUG INS : To extend RB in order to add controls or functionality to RB, you do so by adding plug ins. The question is, are there plug ins, to plug in? Many. Einhugur (http://www.einhugur.com) provides very "technical" plugins such as DataGrids, Encryption, picture effects and more. Monkeybread Software (http://www.monkeybreadsoftware.de) provides a huge number of plugins. Too many to list here. On-Target Reports (http://www.ontargetreports.com) provides a graphical report designer for RB.

BOOKS : There are several. "Beginning REALbasic, From Novice to Professional" by Jerry Lee Ford, Jr., "REALbasic, Cross-Platform Application Development" by Mark S. Choate, "REALbasic: The Definitive Guide" by Matt Neuburg, and others. Not too shabby for a relatively new language in the day and time of the Internet.

MAGAZINES : Only one, I'm afraid. The REALbasic Developer. There is another interesting web site called RBLibrary.com. It sells articles, on specific subjects. If you are interested in a subject, you buy the article for < $10. The writer gets some money, and the web site gets some money. This is a great idea and would be great for the Fox community as well.

FORUMS: There are several REALbasic forums but the main one is run by REAL Software itself. http://forums.realsoftware.com/ Several REAL Software developers hang out there and will answer questions. REAL Software also runs a mailing list which is very active.

CONFERENCES: One currently and that is REAL World, held in Austin, TX. The 2008 conference dates have already been announced.

WEB SITES: Plenty. I've already mentioned a few web sites above. There are plenty more. Of course with REAL Software so focused on their product, there may not be as many independent web sites as there otherwise might be.

The down side

So, we've talked about RB and how to get started and how it compares to VFP, and what other resources are available. It's time to lay it on the line and expose where I perceive the RB weaknesses are.

1. No built in report writer? We're spoiled with a built in report writer. Sure, the report writer was neglected for years and years and ... years until VFP9 came. But it got us through, for the most part. If there was something that you needed from in a report that VFP didn't provide, you could always purchase another report engine. Same here. I wish they had one built in, but as long as there is a plug in available, I guess I can get by.
2. Data grid anyone? RB has a list control but it isn't anywhere as powerful as the VFP grid. (And I hate the VFP grid!) Again, for just a couple of bucks, there are other grids available. It'd be nice to have one built in, more powerful than the list control however.
3. Web applications require dedicated hosting to be deployed. Does this sound familiar? Because RB uses some of the latest libraries, it isn't possible to host a RB application on a generic $7/month Linux hosting plan. I haven't been successful getting a RB web application running on generic Windows hosting either. On the plus side, on my own development environment, it's fairly trivial.

We asked earlier, “Is RB for real?” Perhaps we should also ask who is using RB? RB has opened a European office and is making huge inroads into the EU development market. In fact, RB is being taught to 60K students in 600 High Schools in the country of Poland alone. The schools were looking for a replacement to take the place of teaching VB6. Pretty telling.

Here's a list of some of the US Fortune 500 companies and US Government agencies that use RB:
Abbott Laboratories; Affiliated Computer Svcs.; Agilent Technologies; American Electric Power; American Family Ins. Grp.; Anthem; Apple; AT&T; Automatic Data Proc.; Avaya; Avnet; Baker Hughes; Bank of America Corp.; Bank of New York Co.; Baxter International; Boeing; Boise Cascade; Burlington No. Santa Fe; Caterpillar; Charter Communications; ChevronTexaco; Chubb; Cigna; Cisco Systems; CIT Group; Citigroup; Comcast; ConAgra Foods; Consolidated Edison; Cox Communications; Deere; Dell; Delphi; Dover; Dow Chemical; DTE Energy; DuPont; Eastman Kodak; Eaton; Electronic Data Systems; EMC; Entergy; Exxon Mobil; FedEx; First Data; Fluor; Ford Motor; Gannett; Gap; Gateway; General Electric; Gillette; Golden West Financial; Goodrich; Group 1 Automotive; H&R Block; Halliburton; Hartford Financial Services; Home Depot; Honeywell Intl.; Humana; Ikon Office Solutions; Ingram Micro; Intel; Intl. Business Machines; ITT Industries; Johnson Controls; KeySpan; Kroger; L-3 Communications; Lear; Lexmark International; Lucent Technologies; McGraw-Hill; Medtronic; Mellon Financial Corp.; Merck; Merrill Lynch; MetLife; Microsoft; Monsanto; Motorola; Murphy Oil; NCR; Nike; Nordstrom; Norfolk Southern; NTL; Oracle; Paccar; Pfizer; PG&E Corp.; PNC Financial Svcs. Group; Qualcomm; Raytheon; Rohm & Haas; Sanmina-SCI; SBC Communications; SCANA; Science Applications Intl.; Sealed Air; Sherwin-Williams; Smurfit-Stone Container; Southwest Airlines; Sprint; SPX; St. Paul Cos.; State Farm Insurance Cos; Target; Textron; Timken; Tribune; Unisys; United Parcel Service; Unocal; Verizon Communications; W.W. Grainger; Walt Disney; Wells Fargo; Whirlpool; Williams; Wyeth; Xcel Energy; Xerox

Air Force Research Laboratory; Argonne National Laboratory; Department of National Resources; Federal Bureau of Invesigation; Idaho National Laboratory; International Broadcasting Bureau; Lawrence Berkeley Labs; Lawrence Livermore National Laboratory; Los Alamos National Laboratory; U.S. Deparment of the Interior; National Cancer Institute; National Institute of Health; National Institute of Standards and Technology; National Renewable Energy Laboratory; National Weather Service; Navy Research Laboratory; National Oceanic and Atmospheric Administration; Oak Ridge National Laboratory; Pacific Northwest National Laboratory; Sandia National Laboratories; Social Security Administration; U.S. Air Force; U.S. Army; U.S. Department of Agriculture; U.S. Department of Commerce; U.S. Department of Education; U.S. Department of Energy; U.S. Food and Drug Administration; U.S. Geological Survey; U.S. House Of Representatives; U.S. Information Agency; U.S. Navy

Summary and Conclusion

Is REALbasic something you should invest your time and resources to learn? The answer to that big question is up to you. I do believe that the Mac and Linux platforms are growing in popularity. Small growth, but growth nevertheless. If you are going to add a new language to your toolbox, why not choose one that runs on 99% of the computers and desktops, not just 90%. REALbasic (and Dabo too!) are worth closer looks.