Moving your existing REALbasic Projects to REALbasic 5

REALbasic 5 is a significant upgrade to the REALbasic development environment that includes an all-new compiler. Every effort has been made to minimize the effects of these changes on existing projects.

In some cases, however, you will need to modify your existing REALbasic project for use with REALbasic 5. This document highlights these modifications.

Displaying multiple compiler errors at once

The new compiler has a preference to display multiple compile errors at once. This option is a check box in the "Build Process" pane of the REALbasic preferences. When the compiler has displayed an error, double-clicking on an item in the list will display the original item declaration or source code.

Reserved words

A number of additional reserved words have been added to the REALbasic language. Any variable names, properties names, parameter names, class names or control names that are a reserved word must be changed in order for your application to successfully compile. Event and In are the most common words that were legal names in 4.5 and need to be changed for version 5.

The reserved words in REALbasic 5 are:

And	Dim	Function	Me	Raise	To
Array	Do	GoTo	Mod	Redim	TRUE
As	Double	Handles	Module	Rem	Try
Boolean	DownTo	If	Namespace	Return	Until
ByRef	Each	Implements	New	Select	Wend
ByVal	Else	In	Next	Self	While
Call	ElseIf	Inherits	Nil	Shared	#bad
Case	End	Inline68k	Not	Single	#else
Catch	Event	Integer	Object	Static	#endif
Class	Exception	Interface	Of	Step	#if
Color	Exit	Is	Or	String	#pragma
Const	FALSE	IsA	Private	Sub	
DebugPrint	Finally	Lib	Protected	Super	
Declare	For	Loop	Public	Then	

Application Subclass (App project item)

All applications must now contain an Application subclass. If your existing project does not contain such a class one will be created for you. By default the subclass will be named "App" but you may rename this class if you wish.

Menubars

REALbasic now supports multiple menubars that maybe set on a per window basis. The App class can also have a menubar associated with it. The menubar property may be set in the IDE using the properties window.

When reading in 4.5 projects REALbasic will automatically use your existing menubar and set these properties appropriately. If your application does not display a menubar when you expect one, make sure that the menubar property is set appropriately in the IDE.

A small number of people were using Declares to modify the Menu Bar. It is possible that such declares will need modification to work in version 5. It may also be necessary to call these declares from a timer with a short period to allow time for REALbasic to create the menus.

Compiler strictness and errors
The new compiler will now give compile-time errors in a number of situations that the 4.5 compiler would not. Most of these changes are intended to resolve ambiguities. Common problems to look for include:

- Variables cannot be declared (Dim i as integer) more than once in the same method.
- There can't be more than one Property with the same name.
- Control names cannot be the same as a window or class name.
- Class Method Names cannot be the same as New Event names.
- Constant declarations (Const Pi = 3.14159) cannot be inside If statements.
- The return types of interface method implementations must exactly match their declared return types.
- MenuItem names cannot be a reserved word.

Graphics rendering changes (Mac OS X only)
On Mac OS X the graphics class now uses Quartz rendering by default. This allows drawing to work properly on composite windows and in new OS X specific features such as Drawers and Toolbars. This new rendering also has a smoother anti-aliased appearance.

In some cases the differences in this new renderer may have unacceptable side effects in your app. If you have such problems there are two options to try.

```
Graphics.UseOldRenderer = True //Most likely to behave as 4.5 did
Window1.Composite = True //this can also be set in the IDE
```

HandleAppleEvent
As mentioned in the section about reserved words, Event is no longer valid as a parameter name. HandleAppleEvent now uses TheEvent for this parameter. Any code in this event that uses Event must now be changed to use TheEvent.

Runtime Debugging Tools
DebugDumpObjects, RB3D.debugCube and portions of the Runtime object do not work correctly at the moment. A forthcoming update to REALbasic 5 should restore the functionality of these tools.

String encoding changes
In the past REALbasic guessed what encoding string should use. It did this guessing both while editing code and at runtime and the results would vary depending on the OS and language the user was using. Starting with REALbasic 5 all string literals now use Unicode (UTF-8) to avoid these problems. UTF-8 is a super set of ASCII so 4.5 projects that contain only ASCII strings will not need any conversion done.

It is important to remember that ASCII only encompasses chr(0) through chr(127). "High ASCII" characters vary from one platform to another and will need to be converted. Projects that use non-ASCII characters will have these strings converted automatically to UTF-8 while the project loads. Source lines that have been converted will be commented to indicate that this has taken place. In most cases no further changes to code will need to be made. If the code treated these strings as bytes then it may need to be modified to account for the change.

In REALbasic 4.5 the results of Chr(x) where x>127 could vary depending on which OS the application was running. It is now possible to guarantee the encoding that will be used with code like this:

```
Encodings.MacRoman.Chr(138)
```

Most string functions in REALbasic are encoding-savvy and properly support unicode, especially in UTF-8 format. One notable exception is InStr, which does not yet ignore case of non-ASCII characters in UTF-8 strings as it should. Also, the Uppercase and Lowercase functions work on Unicode strings only when running under Carbon. We hope to correct the remaining limitations of Unicode string handling in future versions of REALbasic; meanwhile, if this is a problem, you can convert your string to some other encoding (e.g. MacRoman).

REALbasic 5 includes new string functions intended to make string encodings easier to manage. Use the Encoding function to get the current encoding of a string. Call ConvertEncoding to convert a string to a different encoding. If you have a string of unknown encoding -- say, loaded from a file or received from a socket --then you can let RB know what encoding it is with DefineEncoding. Finally, look at the new Encodings object, which contains an easy way to refer to any encoding -- for example, Encodings.MacRoman.

Window Constructors

For those using custom window subclasses with constructors it is now necessary to call Super.Window from the subclass constructor.

Plugins

Most REALbasic plug-ins will work as they did in previous version of REALbasic. Some plugins, however, will not work in REALbasic 5 without modification. The Monkeybread Software plugin (MBS) is a commonly used plugin that has already been updated to work with REALbasic 5. If you find that some plugins do not seem to work please check with the plugin author to see if there's an update.