



DISCOVERING THE GAMBAS PROJECT

Software Development Framework

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What is this new animal?

Gambas is a free development environment based on a *Basic* interpreter with object extensions, like *Visual Basic*™ (but it is **NOT** a clone!). It is very much inspired by Visual Basic and Java.

Why the name Gambas?

It seems that free projects are often named after animals, especially the programming language ones: Python, Camel, Bonobo, etc. And with this particular project the author wanted to have a recursive acronym with the word "Basic" in it. So, Gambas Almost Means BASIC!

What is Gambas?

Gambas is a programming language for Linux which attempts to mimic the ease of use of Visual Basic while improving on its functionality. Although Gambas is not source code compatible with Visual Basic, it is a BASIC Interpreter with object-oriented extensions. This makes Gambas a good choice for Linux users who want to use their VB knowledge on a GNU basis.

Gambas makes it very easy to build Linux GUI programs (the Gambas IDE is written in Gambas itself.) using the Qt toolkit. However, the Gambas runtime environment is needed to run executables. There is a Windows version of Gambas which barely runs under the Cygwin environment. Graphical applications do not work under the Windows version.

Developed in Paris since 1999 by Benoît Minisini, a 30 year old French. He started programming at 12, and it's now his job for 6 years. He started with the *Basic* language on a *CPC Amstrad 464*, and later on an *Atari 520 STE*. He is

always fond of writing languages, compilers, assemblers, and interpreters. wrote a Z80 assembler on *Amstrad* and an interpreted language that consumed all its memory.

Gambas is released under the GNU General Public Licence. Gambas is included in the SUSE Linux Professional Distribution 9.0.

The author said...

“The phenomenal quantity of bugs and inconsistencies that makes *Visual Basic* so delightful persuaded me to start this project ;-)

It seems that *Microsoft* is aware of the poor quality of its language, as *VB .Net* is not backward compatible with older versions of *Visual Basic*. I think they have thrown away the *Visual Basic* interpreter source code, and that *VB .Net* is just a *.Net* runtime compiler whose syntax looks like the *Visual Basic* one. Well, it's just my own opinion... ;-)

FEATURES

Gambas is, before all, a *Basic* language with object extensions. A program written with **Gambas** is a set of files. Each file describes a class, in terms of object programming. The class files are compiled, and then executed by an interpreter. From this point of view, it is very inspired by *Java*.

Gambas is made up of the following programs:

- A compiler.
- An interpreter.
- An archiver.
- A graphical user interface component.
- A development environment.

The development environment is written with **Gambas** itself, so the author can show the abilities of the language. And it is very useful for debugging!

What are the features that set **Gambas** from the other languages?

1. A **Gambas** project is stored under one directory. The archiver transforms the project directory structure in one sole executable file.
2. Compiling a project only requires the compilation of the modified classes. Every external reference of a class is solved dynamically at the execution time.

3. **Gambas** has a component architecture that allows to extend the language. Anyone can write components as shared libraries that dynamically add new native classes to the interpreter.
4. By default, the **Gambas** interpreter is a text-only program. The component architecture is used for writing the graphical user interface part of the language.
5. As the graphical user interface is implemented as a component, **Gambas** will be able to be independent of any toolkit! You will be able to write a program, and choose the toolkit later: *GTK+*, *Qt*, etc.
6. Gambas decided to start implementing the graphical user interface with the *Qt* toolkit, as it is easier. Later, Gambas will write a *GTK+* component that will have almost the same interface as the *Qt* component. *GTK+ 2.0* will have enough features to be as powerful as *Qt 3.0*
7. Any window or dialog box can be used like a control. You cannot do such a thing with *Visual Basic* without using *ActiveX*
8. **Gambas** projects are easily translatable, in any language. (You can easily translate your project to Filipino)

What can we do with Gambas?

With **Gambas**, you can quickly design your program GUI, access MySQL or PostgreSQL databases, pilot *KDE* applications with *DCOP*, translate your program into many languages, create network applications easily, web applications using CGI and so on...

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Is Gambas compatible with Visual Basic?

No, and it will never be! Fortunately, there are many similarities, but do not expect to take your old Visual Basic code and run it on Gambas without any changes. You may go to the troubleshooting page to find out some examples of the differences between the two languages.

Will Gambas be compatible with Java or .Net?

Never, Gambas aims to be simple but powerful language, not necessarily intended for professionals or nerds. The author did it for his own fun too! Because he likes writing compilers, interpreters, virtual machines... So he did not use the spec of Java nor .Net. Gambas IDE is even written in Gambas.

Is Gambas multiplatform?

In the future, the simple answer will be "yes!". As of now, there are reports of people compiling Gambas under BSD and Win32/Cygwin.

Can I develop proprietary software with Gambas?

Yes, you can. But if you use the QT GUI component, i.e. if your program is graphical, then you must purchase a QT license before starting its development. Otherwise, make your software free as in freedom :-)

Differences From Visual Basic

While Gambas is not intended to be a clone of Microsoft Visual Basic, it's still BASIC and there are many similarities between the two languages, and many one-to-one relationships between features.

There are probably more similarities than differences, but you can't simply copy your VB projects over and expect them to compile under Gambas.

Screen measurements in VB are done in "twips", units of 1/1440 of an inch; in Gambas they're done in actual pixels.

Form controls in Gambas programs are private by default. You can change this by going into the Project Properties dialog and checking the Make form controls public checkbox.

Visual Basic Has It, Gambas Doesn't

You can't edit code in Break mode in Gambas; you need to end program execution first.

There is no such thing as a project-wide global variable in Gambas. As a workaround, consider making a class called Global and declaring your global variables as static public variables in that class, and then referring to them as Global.variablename in your project. It's still poor programming practice but at least they'll be identified as global variables whenever you use them ;)

Unless you include Option Explicit in a VB module, you don't need to declare variables prior to using them. Gambas behaves as if Option Explicit were always turned on, which makes for much better code at the expense of a bit more work.

There's no direct Gambas equivalent to the Index property of VB form

controls. You can easily create arrays of controls, but you have to do it in code. There's currently no way to do it graphically. Thus, when you copy a control and paste it back on the form it came from, rather than prompting you to create a control array it automatically renames the copied control to an appropriate name.

You can't currently create transparent labels in Gambas; the background is always opaque.

The MouseMove event only occurs when a mouse button is depressed in Gambas. The exception is the DrawingArea control, which has a Tracking property that allows getting mouse move events even if no mouse button is pressed.

In VB you could put two strings together with the symbol + . Because the + sign is only used for mathematical addition in Gambas, you should use & instead, when you want to add one string to another.

The colon : does not work to separate your code. You must take a new line instead.

The print command in VB 3.0 did not make a Linefeed. If you used it to print out some text with printer.print, then text got lost. The Print Command in Gambas puts everything in one line. There is nothing lost.

Non-ASCII characters which can be legal for use in identifiers in VB code, are not acceptable in Gambas.

Thankfully, in Gambas you cannot use GOTO to trap errors! Instead, use CATCH, FINALLY or TRY.

ENUM cannot be used to enumerate integer constants. Instead you have to define each ENUM element as a constant.

Example

```
CONST ADDITION AS Integer = 1
CONST SUBTRACTION AS Integer = 2
```

Gambas Has It, Visual Basic Doesn't

Unlike VB, you're not required to compile in GUI support if you want to write a Gambas command-line application. Just unselect the gb.qt component in Project Properties and make sure you define a SUB Main().

Gambas has the concept of control groups, which allow you to handle events from any number of different controls with one handler subroutine. This reduces

redundant code and can be used to do many of the things VB's control indexes can do, and some things that VB can't.

Whereas VB makes it impossible to run a program synchronously and receive its output without learning how to do API calls (Shell merely launches the program in the background), Gambas allows you to do so using SHELL and EXEC, control the processes you start using the Process class, and even read from and write to them, allowing you to easily add functionality with helper applications. This makes it incredibly easy to write Gambas front-ends for almost any command-line procedure.

To make an odd-shaped window you just set the ME.Picture and ME.Mask property of the current window to a picture that has transparent areas. VB requires API calls and a bit more work.

You can create controls and menu dynamically, just by instantiating them with the NEW instruction.

You can read data in binary files and automatically manage the endianness of its format, by using the ByteOrder property of the Stream class.

Gambas uses UTF-8 charset internally, and so projects are fully and easily internationalizable.

Gambas is Free Software whose development environment is written in itself, allowing you to customize it to a large degree using just your BASIC skillset.

Same Functionality, Different Terminology

End Sub/End Function: see END.

Exit Sub/Exit Function: see RETURN. Also, rather than setting a variable with the same name as the function and then exiting the function, you can simply include the desired return value as a parameter to RETURN.

End (end program): see QUIT.

Arrays use brackets instead braces. So use DIM x[9] AS Float instead DIM x(9) AS Float

Arrays do not have the extra element for indexing as 1..n, index must always be 0..(n-1)

On Error Goto: see TRY, CATCH and FINALLY.

Msgbox: see Message. Normally you'd want Message.Info.

DoEvents: see WAIT. WAIT also replaces the frequently used Windows API "sleep" function.

VScrollBar, HScrollBar: Gambas' ScrollBar replaces both of these. It automatically figures out whether you want a vertical or horizontal scrollbar based on the control's dimensions: make it wide, and you get a horizontal scrollbar; make it tall, and get a vertical one.

Open and Save dialogs: You can use either the Qt or enhanced KDE dialogs in place of the Windows common dialog. Some of the properties are named differently and filters are specified with a String array, like this: ["Filter 1 (*.foo)" , "Filter 2 (*.bar)"]

Keyboard and Mouse event handlers does not take parameters. They use instead static public members of the Mouse and Key classes. For example:

Mouse.X and Mouse.Y for the mouse coordinates.

Mouse.Left to know if the left button is pressed.

Key.Code to get the code of a key.

Key.Shift to know if the SHIFT key is pressed.

...and so on.

In Gambas, the Timer() routine returns the number of elapsed seconds since the program start. In VB, it returns the number of elapsed seconds since midnight.

The Developers of Gambas

Developer	Country	Working or have worked on...	Main characteristic :-)
Benoît Minisini	France	All, or almost...	Loves witty remarks, and hates spelling mistakes (in French).
Fabien Bodard	France	IDE file/project/picture selector and mascot redesign.	Cognac producer, and loves spelling mistakes ;-)
Nigel Gerrard	United Kingdom	The MySQL database driver, the QT extended component, the SQLite database driver.	Writes a working piece of software without asking any question.
Paul Gardner-Stephen	Australia	Porting Gambas on <i>Solaris</i>	Wants a CVS repository.
Daniel Campos	Spain	The networking component. <input type="checkbox"/> The compression component. <input type="checkbox"/> The XML component. <input type="checkbox"/> The GTK+ component!	Does not like spaces in source code.

		<ul style="list-style-type: none"> <input type="checkbox"/> The VideoForLinux component. <input type="checkbox"/> The PDF component. 	
Carlos F. A. Paniago	Brazil	Porting Gambas on FreeBSD .	Uses FreeBSD.
Rob Kudla	United States	Gambas Wiki webmaster and Mandriva RPM packages maintainer. The Perl Compatible Regular Expression component.	Prefers using Perl for generating Gambas documentation instead of Gambas!
Ronald Onstenk	Netherlands	The find list in the Development Environnement.	Tries to make Gambas IDE look like Visual Basic, but I resist :-)
Brandon Bergren	?	Porting Gambas on CygWin .	Succeeds in not becoming mad by trying to understand the way Windows DLLs work.
Laurent Carlier	France	<ul style="list-style-type: none"> <input type="checkbox"/> The SDL component. <input type="checkbox"/> The OpenGL component. 	Found how to translate QT dialogs!
José L. Redrejo Rodríguez	Spain	Let Gambas compile on all Debian architectures.	Suffers from the monolithic organization of the Gambas package.
Andrea Bortolan	Italy	The ODBC database driver.	Use a very permissive compiler...
Carlo Sorda	Italy	<ul style="list-style-type: none"> <input type="checkbox"/> The LDAP component. <input type="checkbox"/> The Corba component. 	
Daniel Vostanikian	Belgium	The Firebird database driver.	

Prospective

In the very far future (do you hear the *Star Trek* theme ?), many improvements are planned . Some are needed, the others depends on the author's time and his many occupations!

Task	Detail
DBUS component	Allow a Gambas program to use external DBUS objects.
Reporting component	Allow a gambas project to export some of its classes or objects as DBUS objects. New controls and containers that print themselves as a report.
Web component	Allow the user to design a report directly in the IDE. New controls and containers that generate HTML Web pages, with maybe some JavaScript.
64-bits version	Make the Gambas program acts as a CGI or FastCGI script that can be used by a Web server like Apache Make the Gambas interpreter and the components

Database component enhancements	work on 64-bits CPU.
Development Environment enhancements	New data controls, like a bound TreeView for example. A better debugger.
	Merging the database manager in the IDE.
Graph component	Support for report forms, Web forms...
POP3 component	Making graphs in Gambas.
Object persistence system	Retrieve mails from a POP3 server. Make Gambas objects transparently persistent: you can get rid of a database management system.

Question answered by the author

I had a chance to interview the author Mr. Benoit Minisini and these are the questions which he answered.

Q: What is the vision/mission of Gambas project?

A: I just want to have a programming language as powerful as possible without sacrificing easyness nor coherency.

Q: How would Gambas help in the future of computing?

A: I don't know. I just know that I learned programming with BASIC, and made some powerful applications with it. It was in the time when computers were sold with a programming language and a programming manual. So I hope that Gambas will play the same role on Linux in the future.

Q: A lot says that the future of computing is in the web, how would Gambas be part of it?

A: At the moment the Gambas IDE allows you to easily draw your GUI with the mouse. I want to do the same thing with Web interfaces in the future, so that Gambas allows you to develop Web applications easily too.

Q: If we switch from VB to Gambas, What are the good benefits we can get?

A: I think you should answer that yourself :-)
Any programming language is a tool, and so it is a matter of finding the right tool for what you need.

Q: Will gambas would be Open Source forever?

A: Gambas is not only "Open Source", it is free software.

Each release of Gambas is a different software, so if I decide to make a close version of Gambas, it won't change anything on the free versions that will keep being free.

Anyway, I want Gambas to be free forever.

After receiving his reply, I conclude that Gambas is really a powerful tool made by a smart author and available free for all mankind.

Acknowledgement

I would like to acknowledge the presence of all the people who are here for this presentation, the MYND Team and our boss Ma'am Myrna Padilla, DABAWEGNU Members and fellow officials, Guests and Mr. Benoît Minisini and team which is the creator of Gambas Project, Charles for preparing my machine with Xgl and Gambas. My family and friends. Thank you very much for your time. I hope you have learned so much from this presentation and may this helps you in your IT career.

Erwin Diansay

DABAWEGNU
Board of Trustee

*parts of this document are taken from Gambas official website.