

So you want to code in Fenix?

A Beginner's Tutorial by EvilDragon with a lot of help by Josebita

1. What is this?

It's a **tutorial** if you want to **begin to code in Fenix**. Fenix is a programming language specially designed to easily **code 2D games**. An interpreter exists for various platforms (e.g. DC, PC, GP32). This tutorial is mainly aimed at GP32 users, but can also be used to learn Fenix if you want to code for a different platform.

While writing this Tutorial, I am myself trying to learn Fenix – so basically it's a WIP Tutorial which will grow while I learn :)

Chapter 0 – Getting to know Fenix

Before you learn how to code, you need to get a **general overview about Fenix**. We'll also setup a **Development Environment** on your computer.

As you **don't learn anything about coding in this chapter**, I gave it the number 0.

1. What is Fenix?

As said, **Fenix is a programming language** that makes it easy to code 2D / 2.5D games. It has powerful multimedia commands. **Be warned: While it's not as hard as C / C++, it's also no Click'n'Play environment!** It's good if you have a basic knowledge about coding, but not necessary to learn Fenix (though it makes it a lot easier :))

Fenix is the codename for a GNU project to create a free compiler for a language derived from the one created by Hammer Technologies for the Game Development Suite "DIV Games Studio".

The original project has suffered from major breakdowns and is actually frozen and giving way to a wide range of successors with different specs and no portability.

Find out more about Fenix here:

<http://fenix.divsite.net/index.php?opcion=1&lang=en>

Don't download it there if you want to code for your GP32, as the Compiler isn't compatible.

2. Setting up the Development Environment

First, you need to get Fenix.

http://www.meniego.net/files/fenix_all.zip is the link to the GP32-compatible windows version.

Extract the package contents wherever you want your Fenix installation to reside :)

Now we'll take a closer look at the important files included in the archive:

FXC.EXE: Fenix Compiler (Compiles your sourcecode to the executable program)

FXI.EXE: Runtime for Windows (execute .DCB executables)

MAP.EXE: Converts .PNG or .GIF to .MAP, and .MAP to .PNG. (more about this later)

FPG.EXE: Compress your .MAPs to .FPG, uncompress your .FPG and create new .FPG. (more about this later)

All the **EXE are command line tools** – running by doubleclicking doesn't get you very far, since they need some parameters.

Basically, this is **all you need** to code in Fenix.

You could **write your sourcecode with a simple text editor**, include the **graphics using FPG.EXE and MAP.EXE**, **compile it using FXC.EXE** and **run it using FXI.EXE**.

But that's **pretty uncomfortable**. Therefore, people developed an **IDE (=integrated development environment)**. That's basically a **source code editor with lots of nice functions** (code checking, compile and run, and so on.) The best one you could get is **Flamebird2** – as it has the **best functionality** and is also in **English** :)

Download that one from here: <http://fbtwo.sf.net>

Now, extract it wherever you like your IDE to be. I recommend creating a directory somewhere on your harddrive named FENIX in which you put the FENIX directory and the Flamebird2 directory. You can also put it anywhere you'll never find it again. But this makes coding a lot harder ;)

Now, there are also **tool for editing those FPGs and FNT files**. You can get them both here: <http://cdiv.sourceforge.net/html/down/down.htm>
Install them. Again, I recommend placing them somewhere in your Fenix directory.

Well – **congratulations**. Now you have all you need to start. That was easy, eh?

BUT if you want to run your files also on your GP32, you need the Fenix Executable (<http://www.gp32x.de/cgi-bin/cfiles.cgi?0,0,0,0,14,516>) and the Fenix Runtime (<http://www.gp32x.de/cgi-bin/cfiles.cgi?0,0,0,0,31,174>)

3. File types you should know

Now, before we test our new Fenix Development Environment, I'm gonna tell you a bit more about files types you should know if you want to work with Fenix.

*.prg	That's the plain-text source code of your program.
*.dcb	Your compiled program. Can be run using fxi.exe or the GP32 Fenix Exec.
*.fpg	A package with all the graphics your program uses. (Use FPG-Edit).
*.fnt	The Font File for Fenix. With FNT-Edit, you can convert TTF to FNT.
*.map	The graphic format Fenix uses. MAP.EXE converts PNGs and GIFs to MAP.
*.fbp	FlameBird Project Files.

Ready to test your dev setup? Okay :)

4. Testing the Development Setup

Now is the time to **start FlameBird2**. So just do it :)

At first start, FlameBird2 asks what files it should associate. **Select .prg, .map and .fpg.**

It's no use selecting the „Open DCB Files with Fenix Interpreter“ yet – as we first need to tell him where we have our Fenix directory. So just click on OK.

NOW we're gonna tell him where the Fenix Directory is. Go into the „**Edit**“ Menu and select „**Preferences**“.

In the „**Compilation**“ Tab, tell him the path to the Fenix Directory.

In the „**File Association**“ Tab, tell him top Open DCB File with Fenix Interpreter.

Click **OK**.

If you get an error now, the path to the Fenix Directory is not correctly set, so check that.

Now take a look at the FlameBird2 interface. Most stuff is pretty straightforward.

At the top there are some icons (Open, Save, Copy, Paste, Compile, etc.)

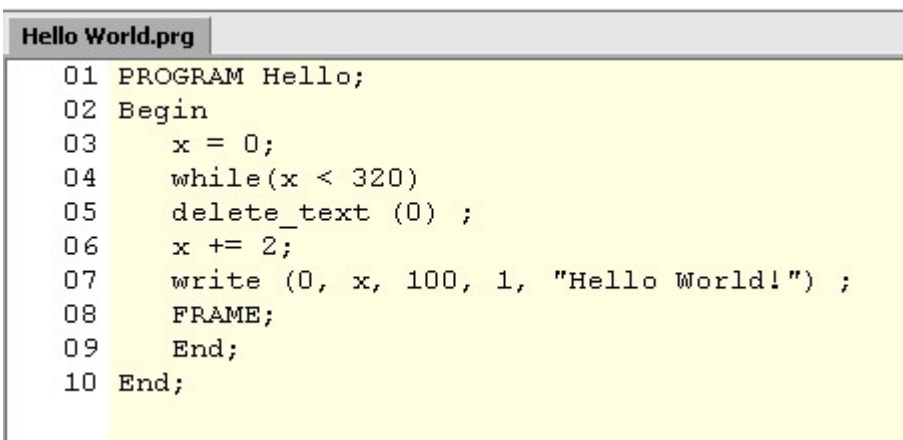
The middle space is where your sourcecode will be. At the left side you manage all the files your program needs. At the right side you'll see all your variables and processes you have in your program.

At the bottom there are some compile and error logs.

You'll surely get used to it once you code a bit.

Now, we wanted to do a test, right? So, open up a new source code!

Select „File – NEW – Source Code“. Click on „Save“ and place the file anywhere you like.



```
01 PROGRAM Hello;
02 Begin
03     x = 0;
04     while(x < 320)
05         delete_text (0) ;
06     x += 2;
07     write (0, x, 100, 1, "Hello World!");
08     FRAME;
09     End;
10 End;
```

Enter the following code in the middle window:

Now click on **COMPILE AND RUN** and watch.

Wooah! Did you just see that? We didn't just show a simple „Hello World“ Text on the screen – we even **scrolled that from one side to the other!** With such few lines of code! Shows already a bit how powerful Fenix is, right?

It didn't work for you? Check your code for spelling errors and make sure the needed Fenix files are in the correct directory.

Now, you want this to show on your GP32? No problem!

Remember we clicked „**Compile and Run**“? This means, your program should already be compiled. But where could it be...? **Check the directory where you saved your Source Code** – you may be lucky and find the compiled file (*.dcb, remember?) there. :)

Well – a **GP32** can't run a ***.dcb-file**, right? Well, Windows also can't.

For windows, you can run it with the **FXI.EXE**. **FlameBird2** does that when you click on **RUN**.

For the **GP32**, there exists a similar file: **FXI.FXE**. You downloaded that (it's the Fenix Executable).

To tell the **GP32** which **dcb-file** it should run, there's a simple trick: **Rename the FXI.FXE to the same name** :)

Assume you called your program „**world.dcb**“, you rename the FXI.FXE to **WORLD.FXE**. Simple, isn't it?

As it would **mess up your gpmm-directory**, if you kept all your dcb-files (and also the fpg and fnt files) in there, **only the FXE stays in the gpmm directory**. All other files (in this case, only the *.dcb-file) go into a **subdirectory** which also **has the same name**.

You also need the **runtime in the GPSYS-Directory**. Extract the package with the runtime you downloaded above and place the correct one (for BLU+ or normal GP) named **fenix.rte in the gpsys-directory**.

An example:

```
gpsys\fenix.rte
gpmm\world.fxe
gpmm\world\world.dcb
```

Now **put your SMC in your GP32** and fire up **world.fxe**

The Fenix Runtime will load, **loading and running the world.dcb**

Then you'll see **Hello World!** scrolling from left to right. After that, your GP32 resets.

Nice, eh? If you get an error message, that the compiled DCB is not compatible, you downloaded the wrong Fenix version. Look above for the correct one.

If you get any other error messages, check if the files are named correctly and in the correct directories.

Thus, the first part of the tutorial ends.

Next time, we'll look how **Fenix Programs basically work** and talk a bit about the **different types of variables**.

See you!

Until then, check the documentation and boards of these sites:

<http://www.flamingbird.com/>

(there's an Online WIP English Command and Language Reference there)

<http://fenix.divsite.net/index.php?opcion=1&lang=en>

(there's also an Online WIP English Documentation there. Can also be downloaded)

<http://www.freepgs.com/roelf/fenix/english/spanish/>

(it's an automatically generated Translation of the Spanish reference. It's a bit messy and has some real strange words in it – but it's better understandable for most of you than the original Spanish docs :))

Suggestions and Requests go to EvilDragon@gp32x.com

See ya next time!