

The Book Of



Transformed to PDF by: Joking Reaper

This book is a transformation to PDF of all tutorials and documentation available in the wiki page of GDevelop, and a few forums:<http://wiki.compilgames.net/doku.php>

As it was presented on the date: July 07, 2016.

This book has no guarantee of being complete, updated, or any other guarantee, and therefore it's responsibility of the reader to be up-to-date with the wiki of this program, its features, and any changes to the functionality, or modification of said page or the program.

You will notice that there are some topics in the table of contents that are missing in the book, because the wiki page has nothing about this topics at the time of making this book.

The book has two parts: first the tutorials and then the documentation, however it's recommended that you read this topics from the documentation first: Getting started, Mechanisms, Concepts, Overview of the interface, then the tutorials: How to make a platformer game?, step-by-step tutorial for beginners, and after this it will be up to you what do you complete first, if the rest of tutorials, or the documentation. This is just an instructive, and it's not meant to be read entirely unless the reader so desires

You will notice that there are many URLs all over the book, which will take you to different pages, most of them are already in the book, but many of them have extra content that can be downloaded to your computer, and it's also your responsibility to notice which ones are they

You are here:  (<http://wiki.compilgames.net/doku.php/start>)

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## Browse the wiki

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## Links

GDevelop Website  
(<http://www.compilgames.net>)

Forum  
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Help to translate GD  
(<https://crowdin.com/project/gdevelop>)



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# GDevelop Wiki

GDevelop is an open source, cross-platform game creator designed to be used by everyone - no programming skills is required to use the software. If you do not have GDevelop, download it now (<http://www.compilgames.net>)!

The wiki is here to find help about the software and tutorials on how to use it: you are welcome to contribute!

## Tutorials and videos

Learn how to use GDevelop with the **tutorials** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>).

## Full documentation

Read **GDevelop documentation** (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>) for a complete reference.

## Wiki in other languages

 (<http://wiki.compilgames.net/lib/exe/detail.php/fr.png?id=start>) ⇒ Wiki Français (<http://wiki.compilgames.net/doku.php/fr/start>)

Click on the flag on the top of any page to switch between languages.  
Your help is welcome to construct the wiki for these languages:

 (<http://wiki.compilgames.net/lib/exe/detail.php/zh.gif?id=start>) ⇒ Chinese wiki (<http://wiki.compilgames.net/doku.php/zh/start>)

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 (<http://wiki.compilgames.net/lib/exe/detail.php/es.png?id=start>) ⇒ Spanish wiki

(<http://wiki.compilgames.net/doku.php/es/start>)

Just create an account on the wiki and use the top menu to create or edit a page. You can also help to translate GDevelop and its website (<http://crowdin.com/project/gdevelop>).

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# GDevelop Tutorials

## For beginners:

- **How to make a platformer game? (Beginners)**  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtomakeaplatformergame>)
- Beginner tutorial (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/beginnertutorial2>)
- How to use Intel XDK to publish your HTML5 game to Android or iOS  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtouseintelxdk>)
- How to show ads with AdMob and Intel XDK (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoshowadswithadmobandintelxdk>)
- How to handle complex logic – The finite state machine (FSM)  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtofinitestatemachine>)

## All other tutorials:

- How to use variables? (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtousevariables>)
- How to distribute your game? (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtodistribute>)
- Move an object within screen limits and alert enemies  
(<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5043>)
- How to get your HTML5 game made with GD on Kongregate  
(<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5113>)
- How to make a multiplayer racing game? (Intermediate)  
([http://wiki.compilgames.net/doku.php/gdevelop/tutorials/multiplayer\\_racing\\_game](http://wiki.compilgames.net/doku.php/gdevelop/tutorials/multiplayer_racing_game))
- How to make a Memory Match Game (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/memorymatchgame>)
- How to play sounds on buttons (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoplaysoundsongbuttons>)
- How to add/play videos in your Game (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/playingvideos>)
- How to create a pause menu (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/createapausemenu>)

## Quick tips and explanations:

- Parallax scrolling (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/parallaxscolling>)
- Creating buttons for a menu (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/cre...>)

- /tutorials/creatingbuttons)  
● How to center a text (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5498&p=44849#p44849>)

**Advanced:**

- How to use Javascript events (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/usingjsevents>)
- Simulating dynamic arrays with structure notation (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/simulatingdynamicarrayswithstructurenotation>)
- Using an external function from a dll with C++ code events (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/usingdllwithcppcode>)
- Load a JSON file to a variable with the web platform (HTML5 games) (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/jsonfile>)
- Online High Scores System (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/onlinehighscores>)
- How to export your game to Android/iOS/Mac/Windows using Cocos2d (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoexportwithcocos2dx>)

**Community Examples:**

- Inventory system (<http://forum.compilgames.net/viewtopic.php?p=57457#p57457>)
- Character Selection (<http://forum.compilgames.net/viewtopic.php?p=57584#p57584>)
- Array, list ordering (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5448&start=10>)
- Splash screen (<http://forum.compilgames.net/viewtopic.php?f=19&t=8002>)
- Parallax Scrolling (<http://www.forum.compilgames.net/viewtopic.php?f=36&t=7634>)
- Type-on text effect (<http://forum.compilgames.net/viewtopic.php?f=19&t=6288&p=49082>)
- Primitive drawing (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5544>)
- Snake (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5580>)
- Rotate object toward mouse (<http://forum.compilgames.net/viewtopic.php?f=19&t=7987>)
- Change object angle using the arrow keys (<http://forum.compilgames.net/viewtopic.php?f=19&t=7987>)
- Shoot bullets (<http://forum.compilgames.net/viewtopic.php?f=19&t=7987>)
- Life system (<http://forum.compilgames.net/viewtopic.php?p=57537#p57537>)
- Flappy Bird (<http://forum.compilgames.net/viewtopic.php?p=57532#p57532>)
- Stop, Play and change Pitch of sound (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5457>)
- Auto Save which level is completed (<http://forum.compilgames.net/viewtopic.php?f=19&t=7654&p=56347>)
- Color blending (<http://forum.compilgames.net/viewtopic.php?f=19&t=6295>)
- Collision between Instances (<http://forum.compilgames.net>)

- /viewtopic.php?f=19&t=7993&start=10)
- Custom pointer (<http://forum.compilgames.net/viewtopic.php?f=19&t=7575&p=55824>)
  - Change origin point of a tiled sprite (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5425>)
  - Flipping/Changing frames by clicking (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5438>)
  - Gravity toward an object (<http://www.forum.compilgames.net/viewtopic.php?f=36&t=5623>)
  - Loops (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5260>)
  - Platformer, Double jump (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5570>)
  - Random color (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5269>)
  - Random object position (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5648>)
  - Screen scrolling (<http://www.forum.compilgames.net/viewtopic.php?f=20&t=5252&start=10>)
  - Object snap to grid (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5608&p=45535&hilit=grid#p45535>)
  - Sprite fonts (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5447>)
  - Text entry (<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5258>)
  - Javascript : PIXI Particles (<http://www.forum.compilgames.net/viewtopic.php?f=18&t=6935>)
  - Javascript : PIXI Filters (<http://www.forum.compilgames.net/viewtopic.php?f=18&t=6322>)
  - Javascript : Grayscale (<http://forum.compilgames.net/viewtopic.php?f=19&t=6295&start=10>)

**Other softwares and resources:**

- A list of useful softwares for game making (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/usefulsoftwares>)

**Contribute to GDevelop:**

- How to help to translate GDevelop ([http://wiki.compilgames.net/doku.php/gdevelop/articles/translate\\_gd](http://wiki.compilgames.net/doku.php/gdevelop/articles/translate_gd))

You can also browse the examples provided with GDevelop, try a template (Just create a new project and choose a template), or read the Getting Started Manual ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)).

## Videos

- Beginner's video tutorial (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/beginnertutorial>)
- How to display player score on screen (<https://www.youtube.com/watch?v=KjRV-Pu6Y38&feature=youtu.be>)
- Short video to start create a platformer game (<https://www.youtube.com>)

- /watch?v=5jdOR-NAiSA)
- Using GDevelop on Ubuntu (Russian videos) (<https://www.youtube.com/watch?v=JLacG5G6v6U&list=PLg1TFdNWC4y91ofz00uaxYaUcHzSXIB9T>)
  - Creating a basic brick game (Part1) (<https://www.youtube.com/watch?v=wyR0c-g7L6Q>) (Part2) ([https://www.youtube.com/watch?v=m3KY1u\\_2YsM](https://www.youtube.com/watch?v=m3KY1u_2YsM)) (Part3) (<https://www.youtube.com/watch?v=Okp4hRO-4fc>)
  - Creating a basic shooter (Part1) (<https://www.youtube.com/watch?v=0ZW57s2WT1o>) (Part2) ([https://www.youtube.com/watch?v=6Mn6ZG\\_Jb3U](https://www.youtube.com/watch?v=6Mn6ZG_Jb3U)) (Part3) (<https://www.youtube.com/watch?v=rnnHENcrTyY>)

## Add your tutorial

To add a tutorial, type <http://www.wiki.compilgames.net/doku.php/gdevelop/tutorials/NameOfYourTutorial> in the address bar of your browser.

Add it to the list below, by editing **this page** and by adding a line like:

\* [[gdevelop:tutorials:NameOfYourTutorial|NameOfYourTutorial]]

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » **GDevelop Documentation** (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>)

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# GDevelop Documentation

GDevelop allows you to simply and quickly create your own video games.  
Just fire up the editor and start creating, no programming knowledge required!

## Getting started with GDevelop

To start using GDevelop, read the Getting Started page  
([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)) and the Tutorials (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>).

You can also open the examples and templates provided with GDevelop or refer to this online help when needed.



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### Overview

- [Getting Started](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart) ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart))
- [Mechanisms](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_mechanisms) ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_mechanisms](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_mechanisms)) and concepts ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts))

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(See also Layers ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_layer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_layer)) and Scene variables ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global\\_variables](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global_variables)))
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- Function events ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_events](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_events)) (for native games)
- AES encryption ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_aes](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_aes)) (for native games)
- Common dialogs ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_dialog](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_dialog)) (for native games)
- Timed events ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_timed](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_timed)) (for native games)
- Network ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_network](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_network)) (*deprecated*, for native games)
  - Automatic Network Updater Automatism  
([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_network\\_anua](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_network_anua))

## Publishing games

- Compile your native game (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/distribution/compilation>)
- Export your native game to Android (experimental)  
([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/native\\_android\\_export](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/native_android_export))
- Export your HTML5 game (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtodistribute>)
- Export your HTML5 game to Android/iOS/Mac/Windows using Cocos2d  
(experimental) (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoexportwithcocos2dx>)

## Troubleshooting

- I found a bug (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/troubleshooting/bug>)
- Two objects are flickering/An object disappeared (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/troubleshooting/flickering>)

## About GDevelop

- About GDevelop (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/about>)
- License (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/license>)
- Contribute (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/takepart>)
- Updates (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/update>) and Revision history ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/history\\_of\\_changes](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/history_of_changes))

## Feedback

If you experience problems using this software, please let us know by posting on the dedicated Forum (<http://www.forum.compilgames.net/>) or send an email to CompilGames@gmail.com (<mailto:CompilGames@gmail.com>). Before you do that, please read this documentation carefully and search on the forum if the issue is not already reported.

Read our copyright disclaimer in the License (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/license>) section.

You are here: [Home](#) » gdevelop ([gdevelop](#)) » GDevelop Tutorials ([GDevelop Tutorials](#)) » **How to make a platformer game?** ([How to make a platformer game?](#))

gdevelop:tutorials:howtomakeaplatformergame

## Browse the wiki

Welcome page  
(<http://wiki.compilgames.net/doku.php/start>)

**Documentation**  
(<http://wiki.compilgames.net/doku.php/gdevelop/documentation>)

**Tutorials**  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>)

## Links

GDevelop Website  
(<http://www.compilgames.net>)

Forum  
(<http://www.forum.compilgames.net>)

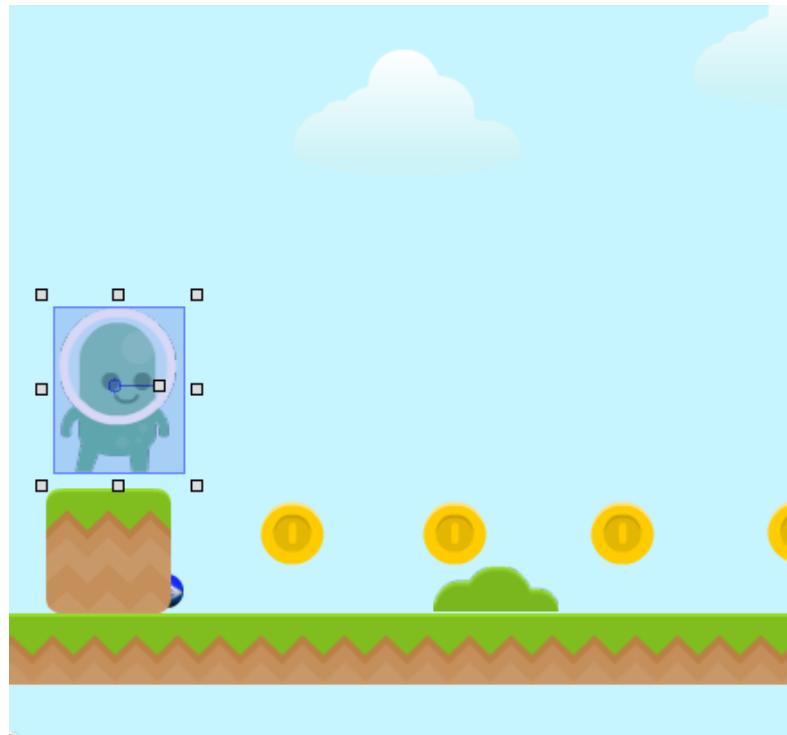
Help to translate GD  
(<https://crowdin.com/project/gdevelop>)

# How to make a platformer game?

This tutorial will help you to begin to use GDevelop:

You will create a very simple platformer game where the player can jump on platforms and collect coins.

You can also read the other tutorial available for beginners here  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/beginnertutorial2>) if you prefer creating a shooter game!



Note that you can read the **Getting Started page** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)) so as to get an overview of the software: It explains the main concepts and describes the interface of GDevelop.

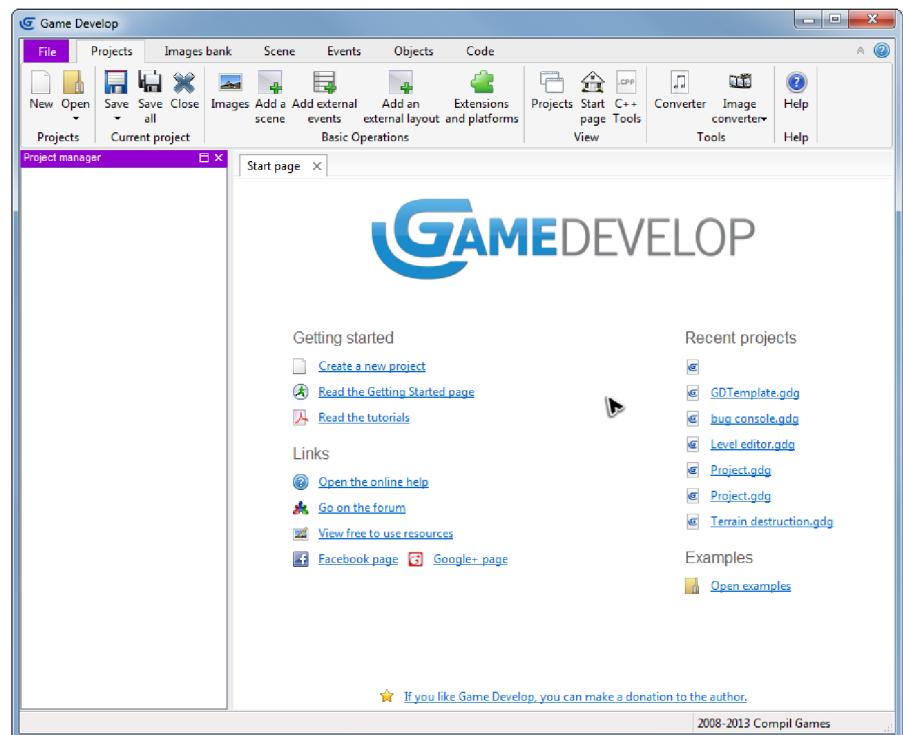
## Download GDevelop

If you do not have GDevelop, download it from the official website :

**<http://compilgames.net>** (<http://compilgames.net>).

Always download GD from this page to be sure to have the **latest version**.

Install or extract GDevelop and launch it. The start page is displayed:



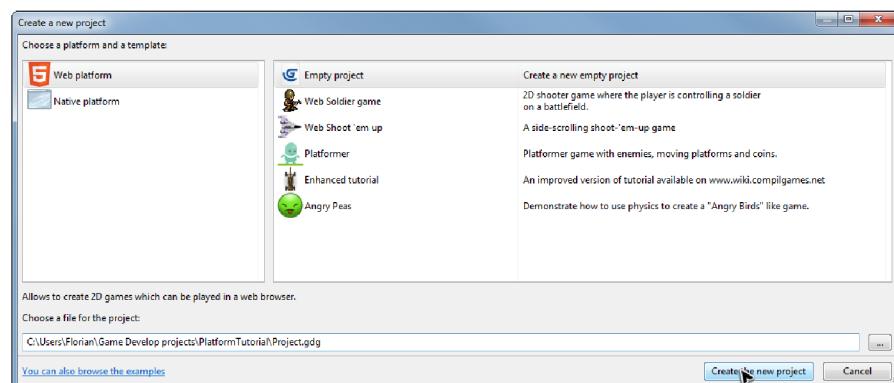
If you want, you can read this page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_overview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_overview)) to get a quick overview of the interface of GDevelop.

Note that the **visual theme** of GDevelop can be different: You can choose a theme by clicking on **File > Options**, then choosing **Appearance** and finally picking one of the available theme.

## Create a new game

Click on **New** in the ribbon to create a new project.

A window offers you to choose the platform on which your game will be based, as well as some templates. Choose the Web platform and then click on Empty project:



Choose also a directory and a filename for your game, and press Ok to create the project.

A first scene is automatically created and opened for you the first time you create a game.

# Get the images and resources needed for the tutorial

Before going further, we'll need some images for our game.  
You can download them here : <http://www.compilgames.net/dl/PlatformerTutorialResources.zip> (<http://www.compilgames.net/dl/PlatformerTutorialResources.zip>).

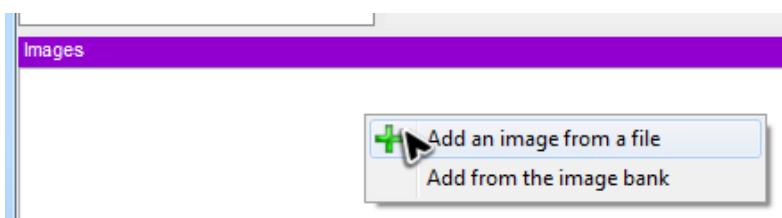
Once you have downloaded this file, extract its content in the folder where you created the project.

## Creating the player object

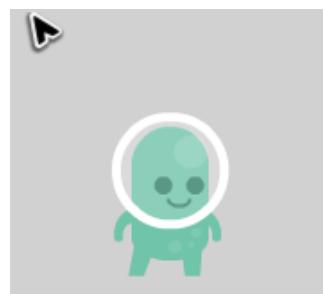
The player will be controlling a character that can jump and move on platforms.  
We're going to create this object.

Make a right click on the center of the gray scene in GDevelop and choose Add a new object . A window pops up so as to choose the type of the object to create:  
Choose to create a `Sprite` object and click on Ok.

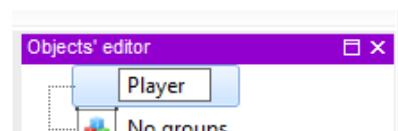
The editor of the object is opened. For now, the object has only one empty animation.  
The first thing to do is to add an image for this animation: Make a right click on the white area at the bottom of the window, and choose Add an image from a file :



Choose the image called `p1_stand` in the project folder, and click on Open : The image is added to the object. You can now close the editor, and see the object displayed on the scene:



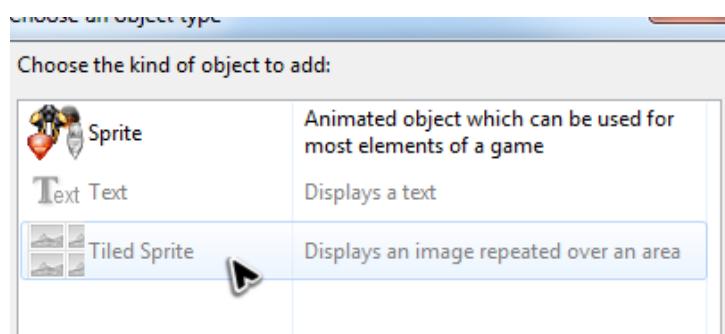
The object was called `NewObject` by default: To change this, select the object in the list in the right hand side of the window, and press F2 . Enter then `Player` as a new name and press Enter .



## Adding platforms

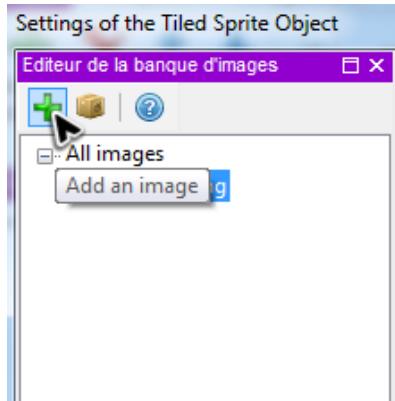
Let's now create an object that will be used for platforms:

Again, make a right click on the scene and choose **Add an object**. This time, choose the **Tiled sprite** object type:

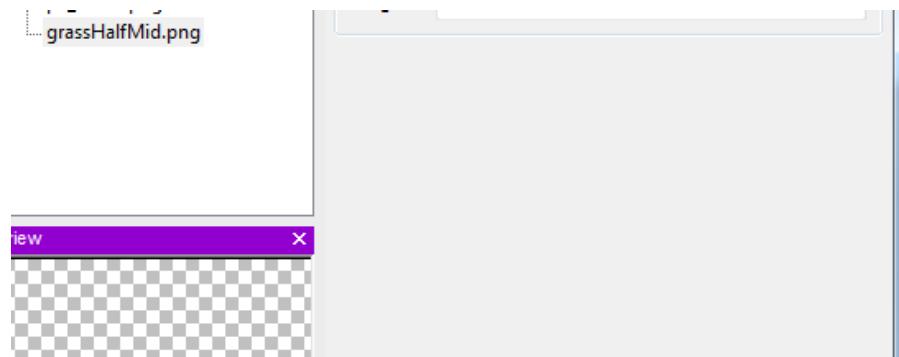


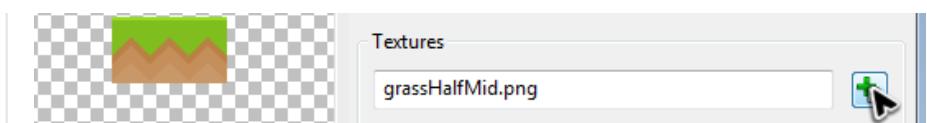
For now, it is grayed: When you click on Ok, GDevelop will ask you if you want to activate the extension containing this object for your project: Click on Yes.

The editor of the object is open: On the left, there is the resource manager showing all images used by the project. First, add an image to the list using the **+** button of the toolbar:



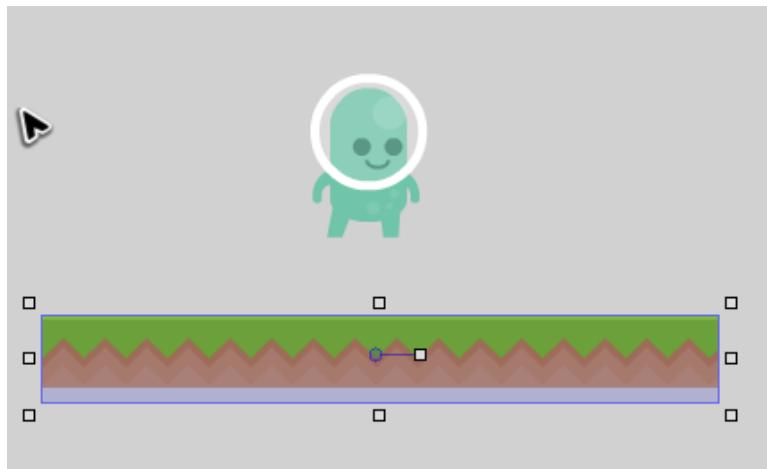
Choose the `grassHalfMid.png` image. The image is added to the list: Click on it in this list and then click on the button next to the text field at the bottom of the editor to automatically insert the image name:





You can now click on `OK` to close the editor.

The object is added on the scene but it is very tiny: Use the handles to resize so that it looks like a platform:



Be sure to put the platform under the player, so the player won't fall outside the screen when the game is launched.

Also, in the *object's editor*, rename the object so that it is called `Grass`.

## Add behaviors to objects

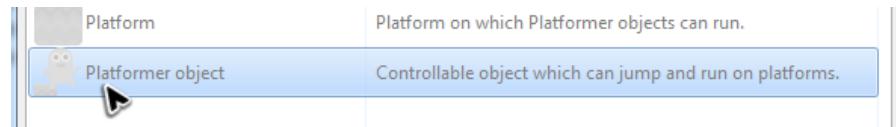
The movement of the player could be created using the events of GDevelop, but it would be a quite long and difficult task to recreate a good platformer engine. To avoid this, we're going to use behaviors, which allow to add predefined behaviors to objects.

Make a double click on the player object on the scene: This will show a grid containing properties of the object and, at the bottom, the behaviors applied to the object. Click on `Add a behavior`:

Properties	
Instance properties	
X	357
Y	168
Angle	0
Z Order	1
Layer	
Locked	<input type="checkbox"/>
Custom size?	
Width	0
Height	0
Animation	0
Variables (0)	<a href="#">Click to edit...</a>
General object properties	
Object name	Player
Edit	<a href="#">Click to edit...</a>
Automatisms (0)	



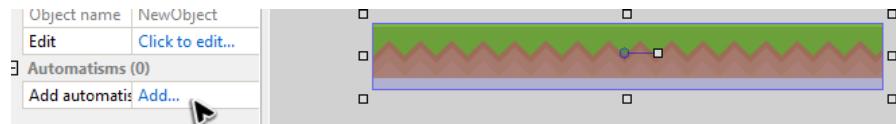
A list of available behaviors is displayed. For this object, choose the `Platformer object` behavior, and click on Ok:



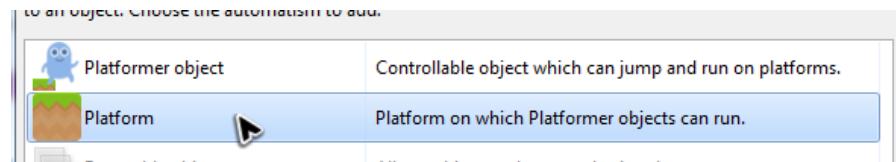
That's all: You can see in the property grid that the behavior is now displayed as well as some properties. You can change some properties like the jump speed: Set it for example to 800 so that the jump is more powerful.

We also need to mark objects being platforms as such, otherwise the player will fall even if it is colliding with objects that look like platforms.

Click on the platform object on the scene and in the property grid, choose again Add a behavior :



This time, choose the `Platform` behavior and click on Ok:



Note that behaviors are applied to all *instances* of the object put on the scene: If you insert another platform on the scene ( Just drag'n'drop the object from the list of objects to the scene. You can also press the `Ctrl` key, then drag the platform to clone it! ), the others platforms object will also have the behavior: No need to add it again.

## Start a preview

You can now test that the behavior are working:

In the Scene ribbon, choose `Preview`:



Your favorite browser will be opened and the game will be launched:

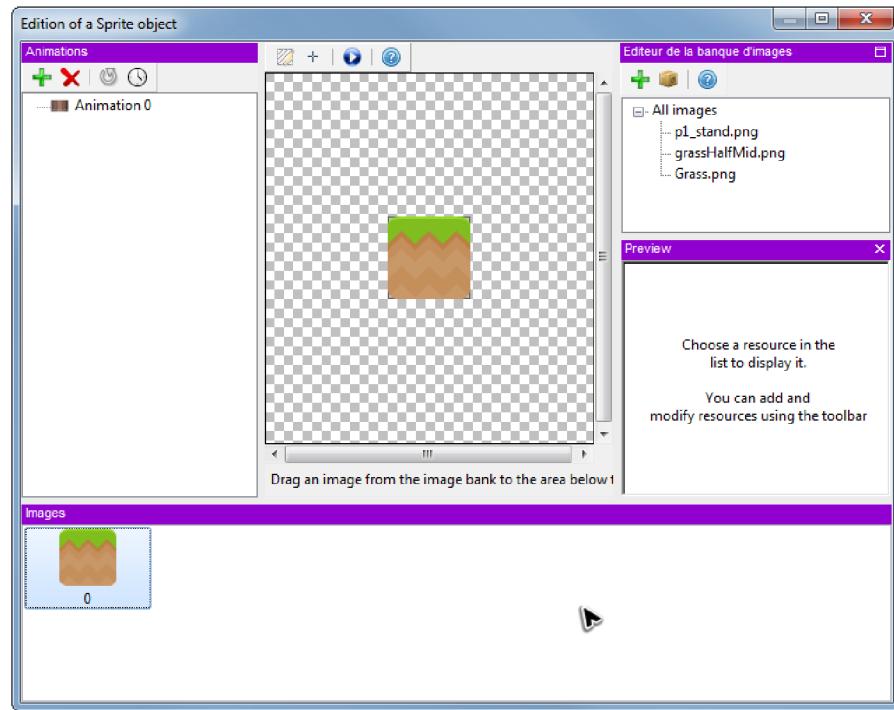
You can move the character with the arrows keys, and use *Shift* to jump! For now the object has no animations: We'll add it later.

If the object is not moving, be sure that you've added the proper behaviors. Be sure that you've added the `Platform` behavior to the `Grass` object, otherwise the player will fall outside the screen.

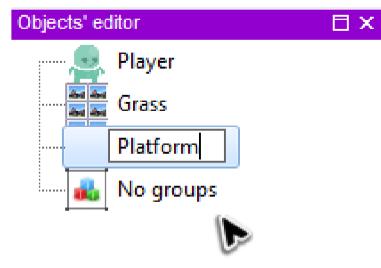
## Add differents platforms

We can use more than one type of objects as platforms: Add a new object by right clicking on the scene and choosing `Add an object`.

Choose a `Sprite` object, click on `OK`, and in the editor, add the image called `Grass.png`:



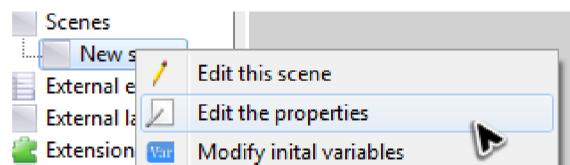
Close the editor, and rename the object so that it is called `Platform`:



Then, add to it the `Platform` behavior just like we did before ( Double click on the object on the scene, or select it in the list of objects. Then, choose `Add a behavior` and choose the `Platform` behavior. ) These objects are now considered as platforms: You can add more of them on the scene and launch a preview to try jumping from platforms to platforms.

Before going any further, you may want to change the background color of the scene:

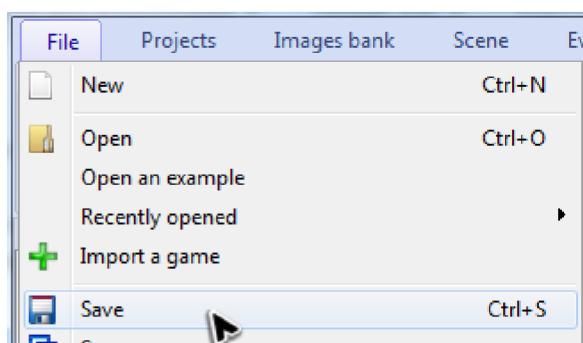
In the project manager, make a right click on the scene being edited ("New scene") and choose **Properties**.



You can then change the background color from the window that'll be shown. Note that we'll add background objects at the end of the tutorial.

## Stop ! Save time !

Before going further, remember to save frequently: In the ribbon, click on **File** and then on **Save**:

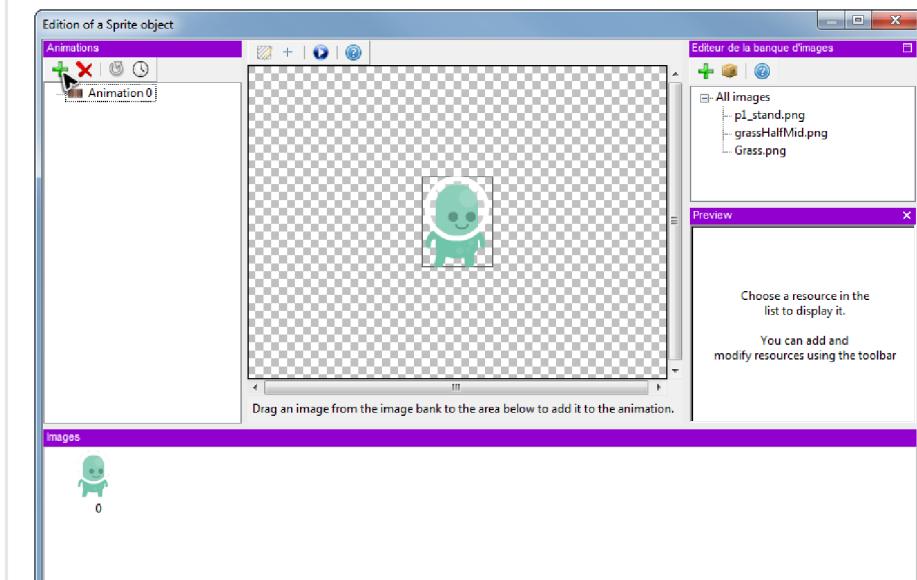


## Changing the animations of the player

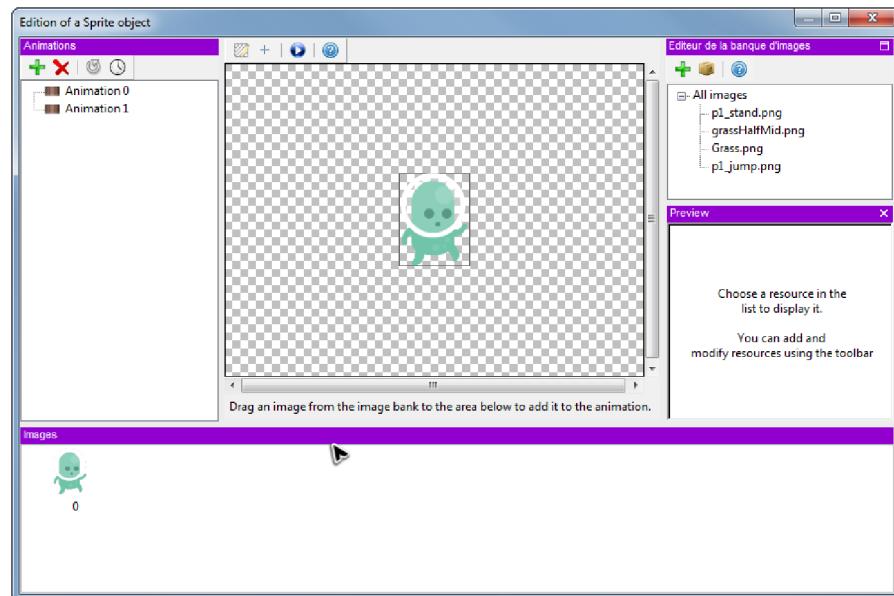
For now, the player is always displaying the same image: Using the events, we're going to change its animation according to what he is doing.

Before doing this, we must add the appropriate animations to the Player object: Make a double click on it in the objects list to show the editor.

In the top left part of the window, click on the **+** in the toolbar to add an animation:

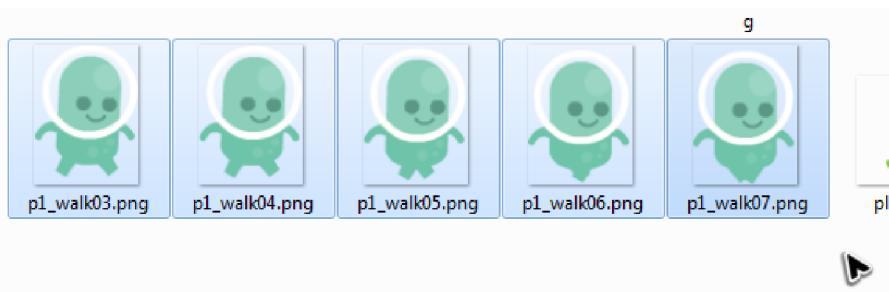


An animation called `Animation 1` is added to the list: Click on it to select it. It is empty: In the blank bottom part, make a right click and add the image called `p1_jumping.png`:



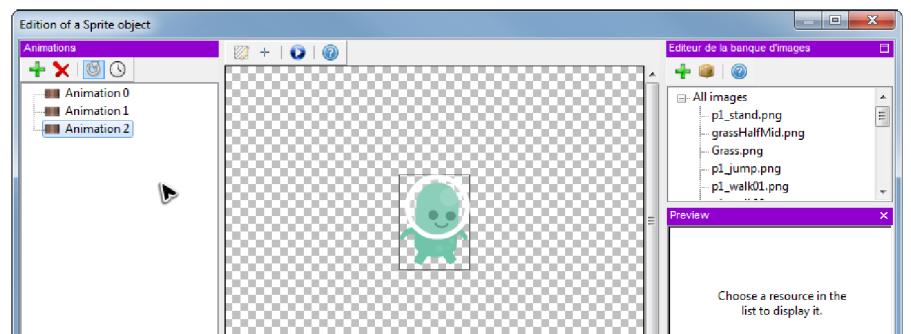
This animation will be used when the object will be in the air.

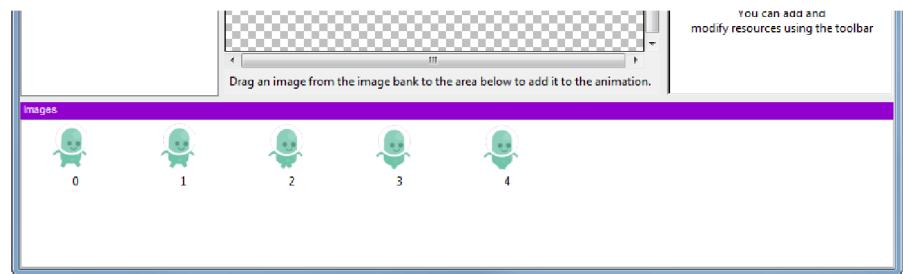
We also need an animation for when the object will be running on a platform: Add another animation like we did, and, when adding images, select the 5 images `p1_walk03.png`, `p1_walk04.png`, ... and `p1_walk07.png`.



These images will be displayed so as to create the animation. We need to tweak a bit some options: Make a right click on `Animation 2` in the list and check `Loop the animation`. Click then on `Time between frames` and enter `0.05` in the window so that the animation is faster than when using default options.

You should have this in the editor:

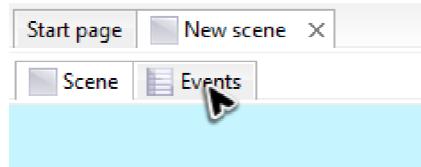




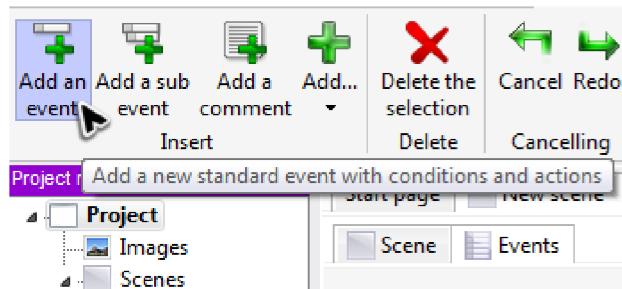
You can preview the animation by clicking on the small “play” button in the toolbar located in the top middle part of the editor.

Close the editor when all animations are ok.

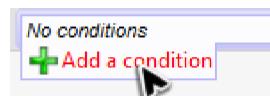
Now, we need to change the animation displayed by the object according to what the player do. Go to the events editor by clicking on **Events** next to the **Scene** tab:



Then in the ribbon, click on **Add an event** to create a new event:



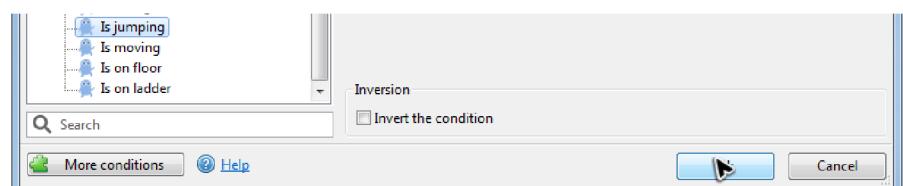
The event is created, with an empty list of condition ( on the left part ) and an empty list of actions ( on the right ). Put your cursor over the condition list and choose **Add a condition** in the context panel that appeared:



In the event, we're going to check if the player is jumping so as to change its animation.

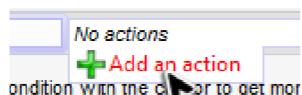
In the conditions list, choose **PlatformAutomatism > Is jumping**. Then, in the parameter, enter **Player** as object ( We want to check if the Player object is jumping ) and **PlatformerObject** as behavior:





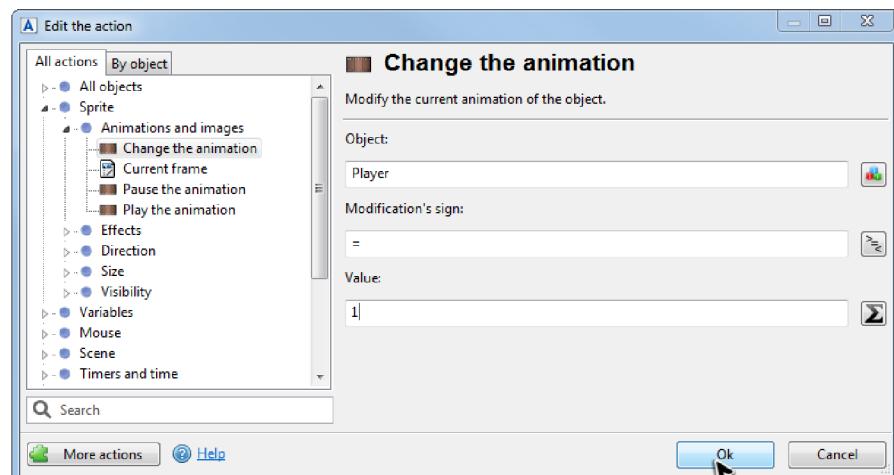
Click on Ok to validate the condition.

Now, add an action to the same event:



In the actions list, choose **Sprite > Animations and images > Change the animation**. Enter **Player** as object, then **=** in the second parameter and **1** in the last one.

Click on Ok to validate the action: Now, animation 1 will be launched when the player is jumping.



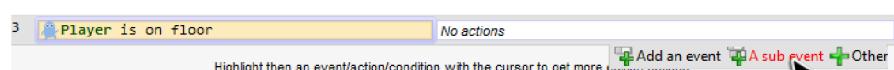
Create a similar event but with **Player is falling** as condition (You can also make a copy-paste of the event and then double click on the condition to change it):



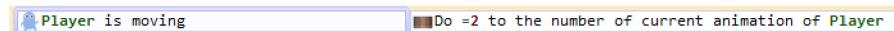
Then, we have to set the animation 0 when the player reach the floor, and also launch animation 2 when the player start moving.

This could be done using two events: The first one checks if the player is on the ground and if he is moving. In this case, animation 2 is set. The second one checks if the player is on the ground and if he is not moving. In this case, animation 0 is set. Here, we're going to use a nice feature called **Sub events**: As we're running twice the same condition (To check if the player is on the ground), we can insert this condition in an event, and then add sub events to this event: Sub events are only launched when the conditions of their "parent" are fulfilled.

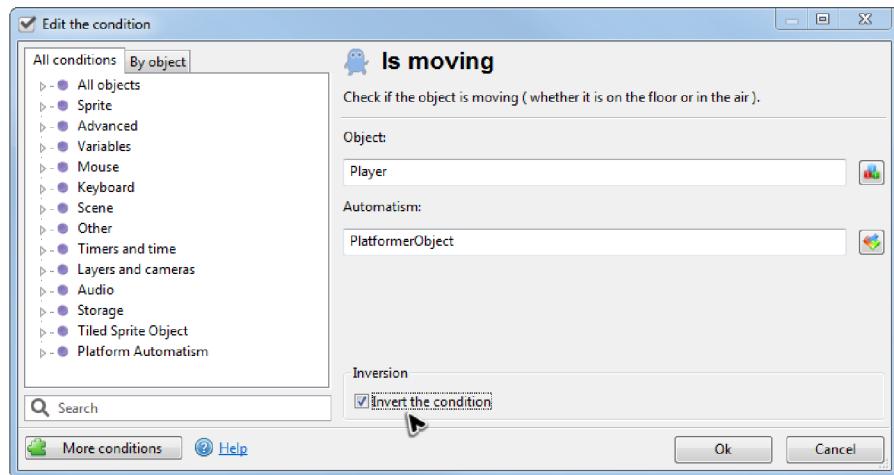
Add an event with **Player is on the floor** as condition. Then, put the cursor over the event and choose **Add a sub event**: A blank sub event is added.



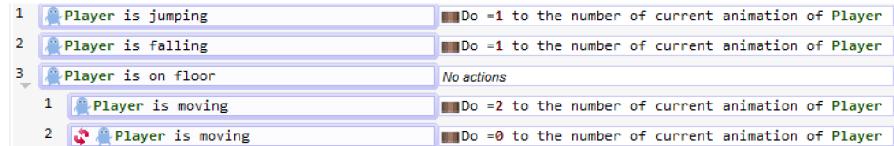
In this blank event, add the condition `Player is moving`. Then, add an action `Do =2 to the number of current animation of Player`



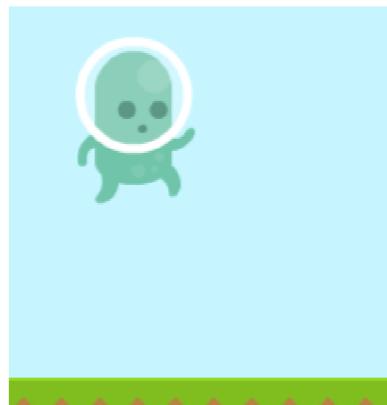
Then, create a second sub event. This time, invert the condition so that the condition is true when the player is *not* moving:



Also change the animation parameter so that animation 0 is set:



Now you can launch a preview and see animation being changed:

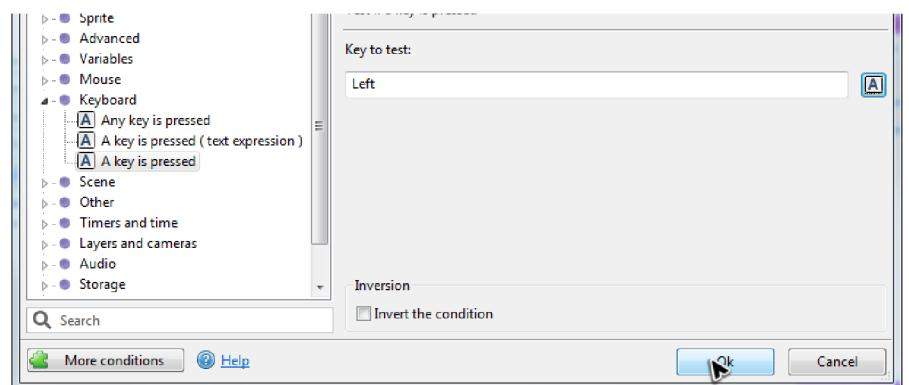


If something does not work, make sure your events looks exactly like the events shown above.

You can see that when the player go to the left, the sprite is not mirrored. Fortunately, there is an action that can be used to mirror sprites.

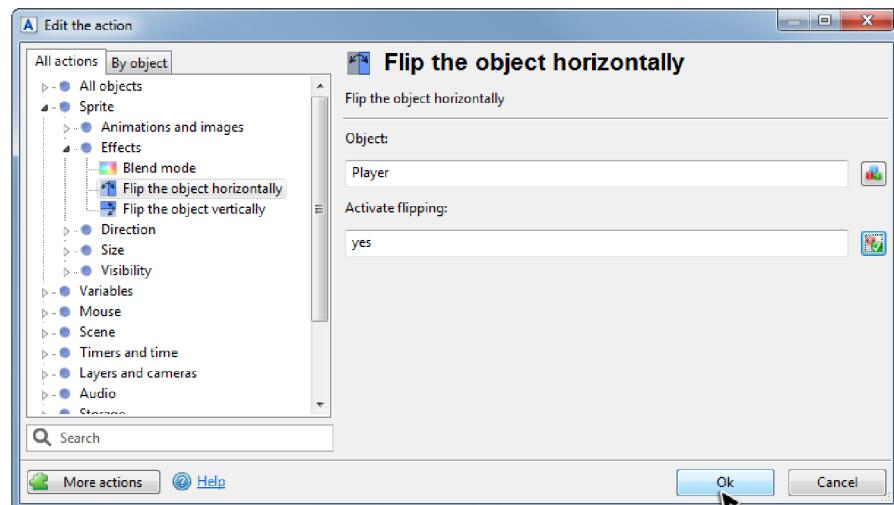
Go back to the events editor and add a new event: Add a condition checking if the `Left` key is pressed.





Note that instead of writing `Left`, you can click on the small button next to the parameter, and then simply press the left arrow of the keyboard. GDevelop will automatically fill the parameter.

In the event, add an action to flip the sprite:



Add then another similar event, checking if `Right` is pressed and reverting the Player object to its initial orientation:



## Center the camera on the player

There is more than one way to move the camera so it follows the player. For now, we're going to do it very simply using the action `Center the camera on an object`. Just add this action in an blank event without any condition:

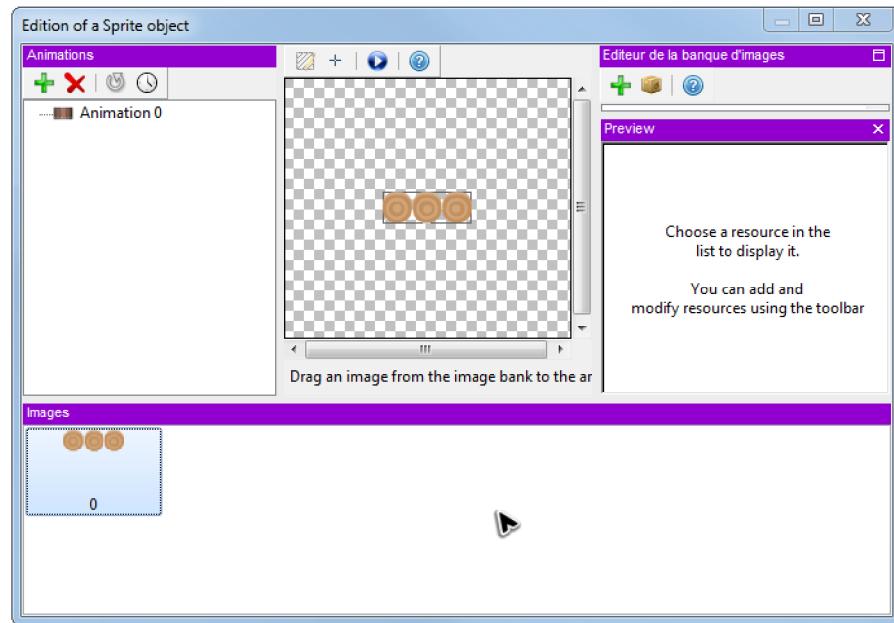


Note that you can read this thread (<http://www.forum.compilgames.net/viewtopic.php?f=20&t=5252>) of the official forum if you want information about how to limit the camera movement to the window size.

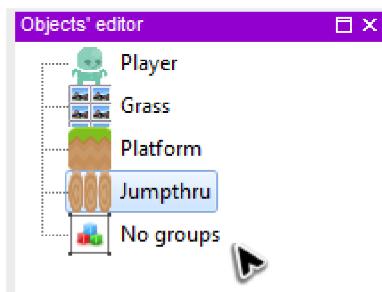
## Add a 'Jump through' platform

For now, all of the platforms are rock solid, but we can also create platform you can also jump through them:

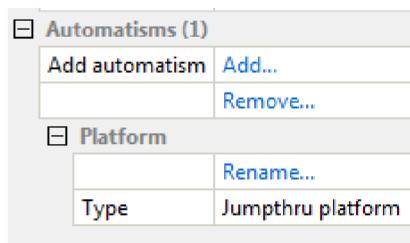
Create a new `Sprite` object and add to it image `bridge.png` :



You can name this object "Jumpthru" for example:



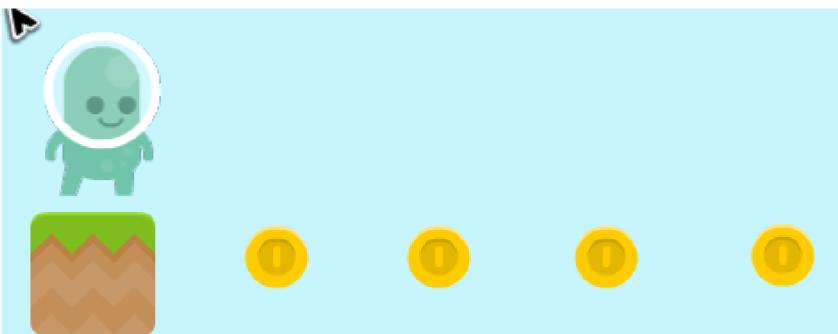
Then, add to it the "Platform" behavior as we did before for the other platform. When it's done, change the `Type` property displayed in the properties grid, and set it to "Jump thru platform":



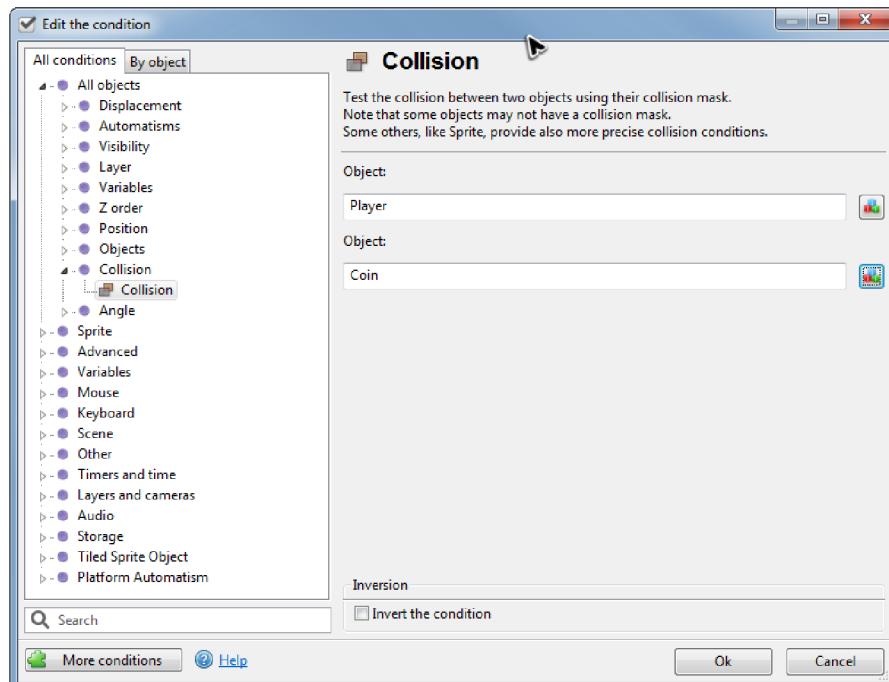
That's all! Now you can launch a preview: The player will be able to jump through these kind of platforms.

## Add coins and a score

Let's add some coins to collect in the level: Create a new object called `Coin` with `coinGold.png` as image. You can then put several coins in the level: You can either drag the object from the objects list to the scene, or press `Ctrl` and drag'n'drop an existing object to clone it!

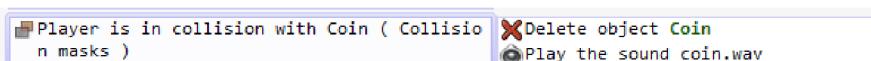


Now, let's destroy the coin object when the player touch them: Add a new event and add an event testing for the collision between coins and the Player object:



Then, add an action to delete the Coin object ( You can find it in All object > Objects > Delete an object ). Note that this action will only be triggered for the Coin that have been “picked” by the conditions, that is to say, only the Coin that are in collisions with the player here! This powerful mechanism allows you to launch actions only on objects that matches the criteria specified by the conditions.

We can also play a small sound when a coin is collected. Add another action to play the `coin.wav` sound:

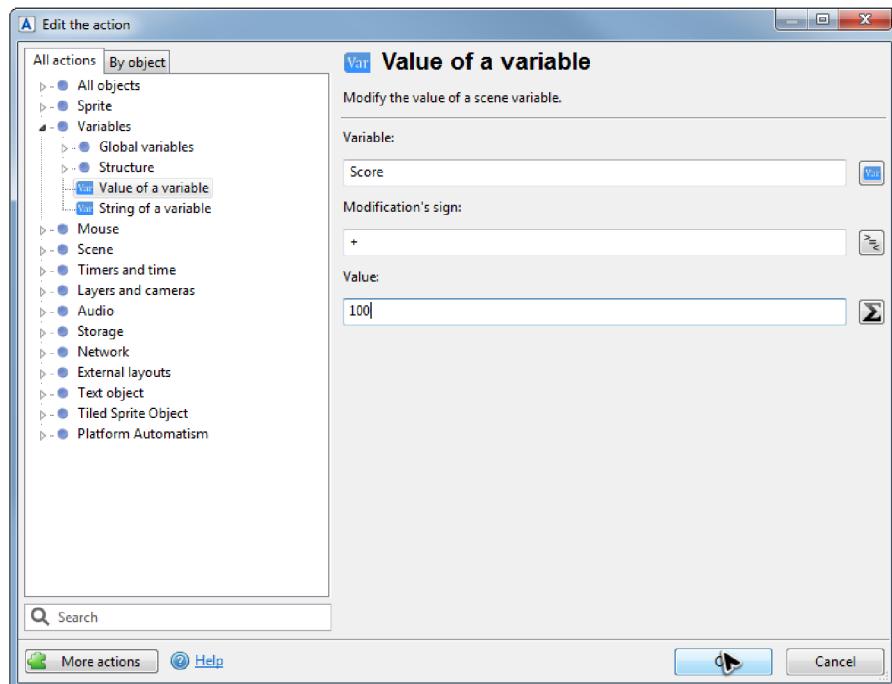


## Update and display a score

We're going to use a variable to update and remember the score of the player. Variable are useful to remember all kind of information. There are scene variables (The most used ones), global variables (variables that are shared between all scenes of the game) and objects variables (which are specific to each instance of an object). There are also very useful and we'll use one for creating an enemy later).

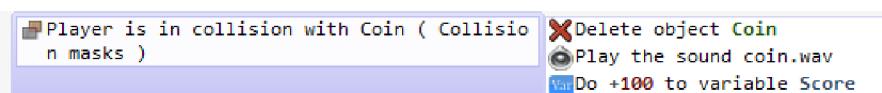
Add an action in the latest event we've made:

Choose action **Variables > Value of a variable**. This action will be used to add 100 to the Score variable, so fill the parameter as shown here:

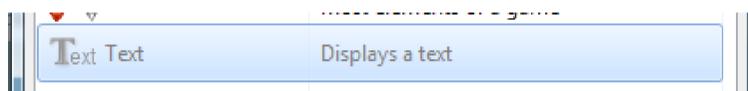


Note that you do not need to declare variables before using them: If you use a variable name that does not exist, GDevelop will create this variable for you. You can also declare and even set an initial value to any variable: To do this, click on the button next to the first parameter to open the list of all declared scene variables.

The event should now looks like this:

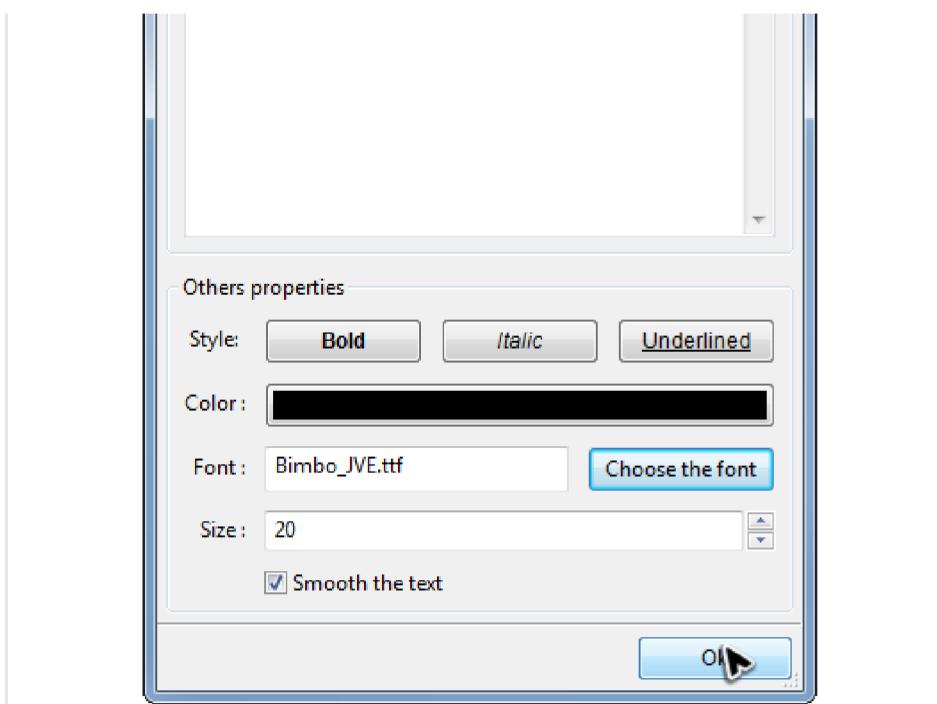


To display the variable, we need a text object displaying the score. On the scene, add a new object. This time, choose **Text** when asked for the type of the object:

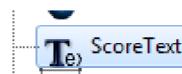


Edit the object and change its color so that the text is black and the font is large enough:





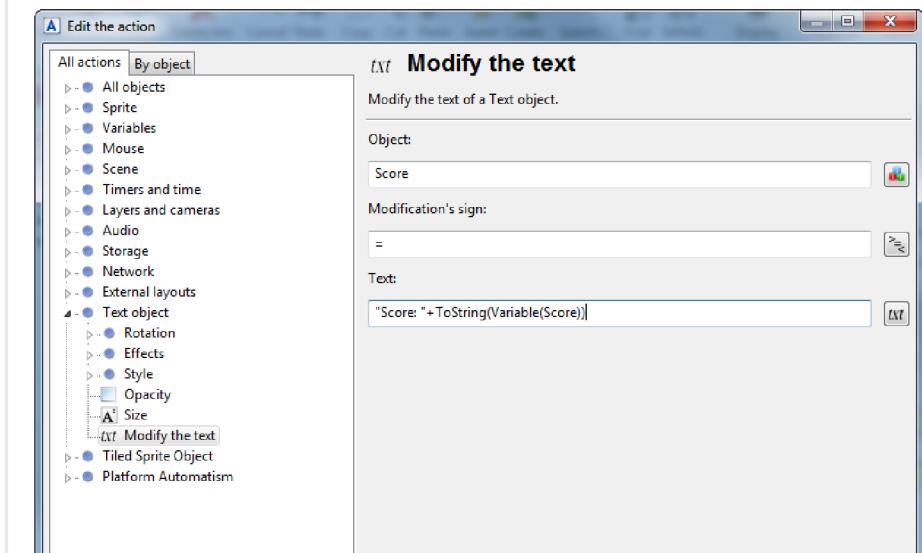
When it's done, name this object `ScoreText`:



Then in the events, add a new blank event. Add to it action `Modify the text`, inside “Text object” category. Enter the name of the object (`ScoreText`) in the first parameter, then `=` in the second parameter, and enter the text to be displayed in the last parameter: We want to display “Score:” followed by the value of the `Score` variable.

To do this, we can write the expression `Variable(Score)` to get the value of the variable. However, this is a number and we must convert it to a text using `ToString` function. Finally, the expression and the text must be concatenated using a `+`, like this:

```
"Score:"+ToString(Variable(Score))
```





There are a lot of functions available: Just click on the button next to the parameters to show an editor displaying everything that you could use.

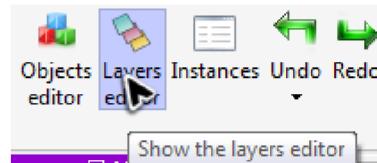
Here is how your event should look like:

No conditions `txt! Do = "Score: "+ToString(Variable(Score)) to the text of ScoreText`

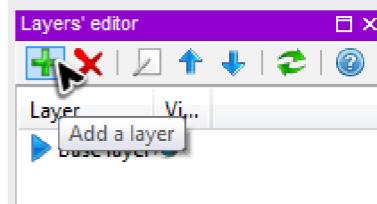
If you preview the game, you'll notice that the score is updated when you get a coin, and displayed in the text object. However, we want to make sure that the score is always visible.

To do this, go back to the scene editor. We're going to add a layer and put the text on this layer. You can consider layers as being transparent glasses where objects are displayed: By putting the object on a different layer, we'll ensure that it will be always displayed, as long as the camera of this layer is not moved.

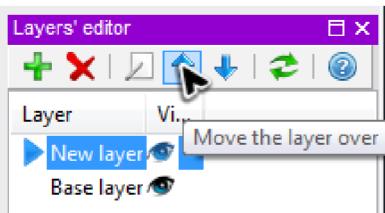
Click on 'Layers' editor in the ribbon to display this editor:



In the layer editor, add a new layer:

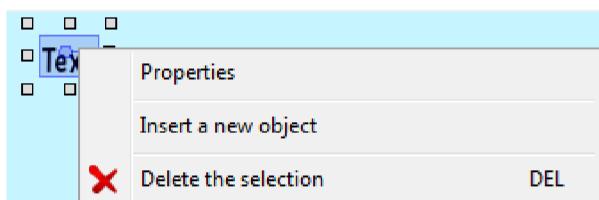


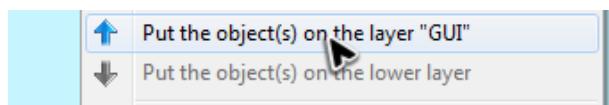
Then, select the new layer and move it over the Base Layer:



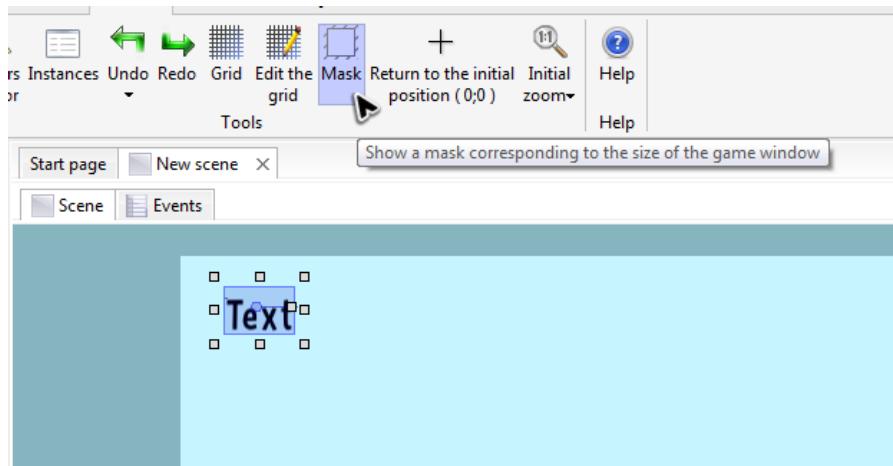
You can double click on the New Layer so as to rename it ( Name it GUI (Graphical User Interface), for example ).

Finally, make a right click on the text object on the scene, and move it to the GUI (Graphical User Interface) layer:





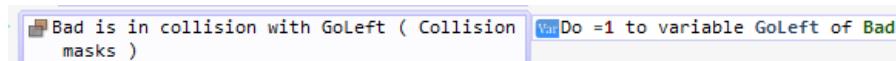
Now, the text will be always displayed. Just make sure that it is correctly positioned on the window. You can use the ribbon to center the camera on the scene origin ( Click on **Return to the initial position** button and then click on **Mask** to display a mask showing the size of the window:



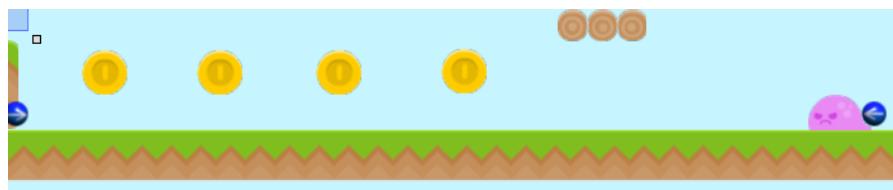
## Add an enemy

Let's end this tutorial by adding an enemy that will be moving on platforms. In the layers editor, **make sure that the base layer** is selected ( otherwise, the new objects could be added on the *GUI (Graphical User Interface)* layer, and won't be displayed at their right position ).

Then, add three these objects:



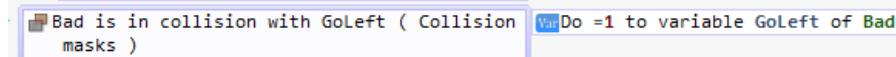
The first one called `Bad` is the object representing the enemy: It is composed of a animation looping between images `slimeWalk1.png` and `slimeWalk2.png`. The two other objects will be used as markers to make sure that the enemy won't move out of platforms. Put the enemy on a platform. Make sure that it is colliding with one of the marker:



## Creating the movement of the enemy

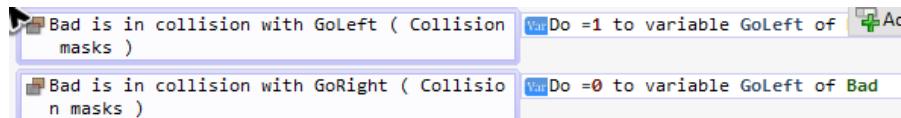
To move the enemy, we'll use the builtin actions allowing to move an object, and each enemy will remember the direction ( Left or Right ) of its movement using an object variable.

Add this event:



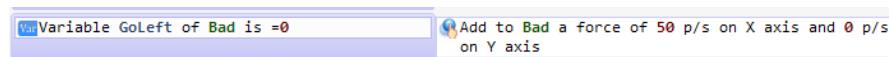
Unlike before, we're not changing here a scene variable but an object variable ( The action can be found in All Objects > Variables ). Whenever a Bad object will be colliding with a GoLeft object, its GoLeft variable will be set to 1. We'll add the event to move the enemy in a few moment.

For now, add another similar event to set the variable of the object to 0 if he is colliding with GoRight:

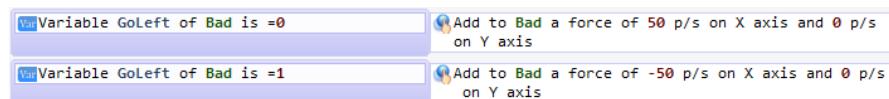


Now that the object is able to remember where he should go, we just have to compare the value of this variable and move the object:

Add an event checking if the variable of object Bad is equal to 0 . Then, add an action adding to Bad a force with coordinates being 50 pixels on X axis and 0 on Y axis: Forces are a built-in mechanism allowing to easily move objects on the scene ( The action is available in All Objects > Displacement > Add a force to an object ). Here, the force will move the object to the right at the speed of 50 pixels per seconds:



Add a similar event to move the object to the left when variable GoLeft of Bad is equal to 1:



If you launch the preview, you should see that the enemy is now moving between the markers. If it does not work, check that the object is colliding with one of the marker at the beginning of the scene ( otherwise, it won't move at all! ). Also check that the events are correct.

The markers are visible when we're playing. To hide them, just add this event:



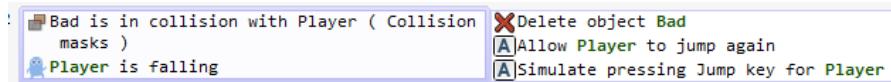
The condition is available inside Scene category, and is true only when the scene begins. The two actions, available in Objects > Visibility are useful to hide an object while making sure it is still on the scene.

## Destroying the enemy when jumping on it

To finish this tutorial, the player should be able to destroy the enemy by jumping on it.

This can be done by adding an event with two conditions: The first condition checks if the player is colliding with an enemy. The second condition checks if the player is falling.

If these conditions are true, the enemy object colliding with the player is destroyed and we can even make the player jumping again to give the impression he is bouncing on the enemy:

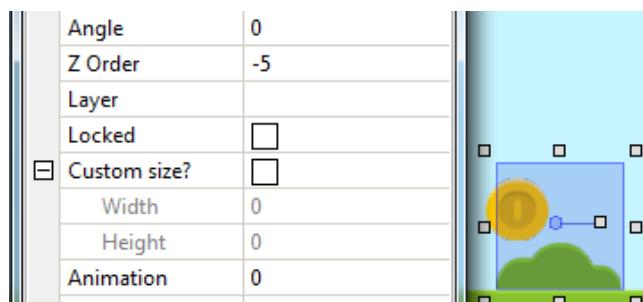


We have already used the conditions and the first action. In last two actions are available inside the *Platform behavior* category.

## Adding background objects

Adding some objects in the background is really easy: Just add some sprites with the images you wish and put them on the scene.

To make sure that the objects are displayed behind the player, select them in the scene editor and put a negative value as a Z Order: Any object with a greater Z Order value will be displayed in front of them.



Also make sure that these objects are on the Base layer ( The layer property should be empty ).

## Enhance the game

That's all for this tutorial! You can download the game here (<http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/platformertutorial.zip>) if necessary, if you want to compare with your version or if something does not work.  
A enhanced version of the game is also available as a template when you create a new game. You can try it online: <http://www.compilgames.net/games/WebPlatformer> (<http://www.compilgames.net/games/WebPlatformer>)

## Let's discover GDevelop by yourself

You can browse the others **tutorials** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>) or read the **Getting started page** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)).

There is also lots of examples bundled with GDevelop and templates available when you create a new game.

If you have any problem, you can send a message on the official forum

(<http://www.forum.compilgames.net>).

If you have any remarks about the tutorial, do not hesitate to also send a message on the forum, or even fix the tutorial by yourself: you just have to create an account on the wiki 😊

You are here: [Home](#) » gdevelop ([gdevelop](#)) » Step by step tutorial for GDevelop ([Step by step tutorial for GDevelop](#))

[gdevelop:tutorials:beginnertutorial2](#)

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(<http://www.compilgames.net>)

Forum  
(<http://www.forum.compilgames>)

Help to translate GD  
(<https://crowdin.com/project/gdevelop>)

# Step by step tutorial for GDevelop

This tutorial will help you to begin to use GDevelop:

You will create a very simple game where enemy are going toward the player, who will be able to shot them so as to make them explode.

You can also read the other tutorial available for beginners here (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtomakeaplatformergame>) if you prefer creating a platformer game!



Note that you can read the **Getting Started page** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)) so as to get an overview of the software: It explains the main concepts and describe the interface of

GDevelop.

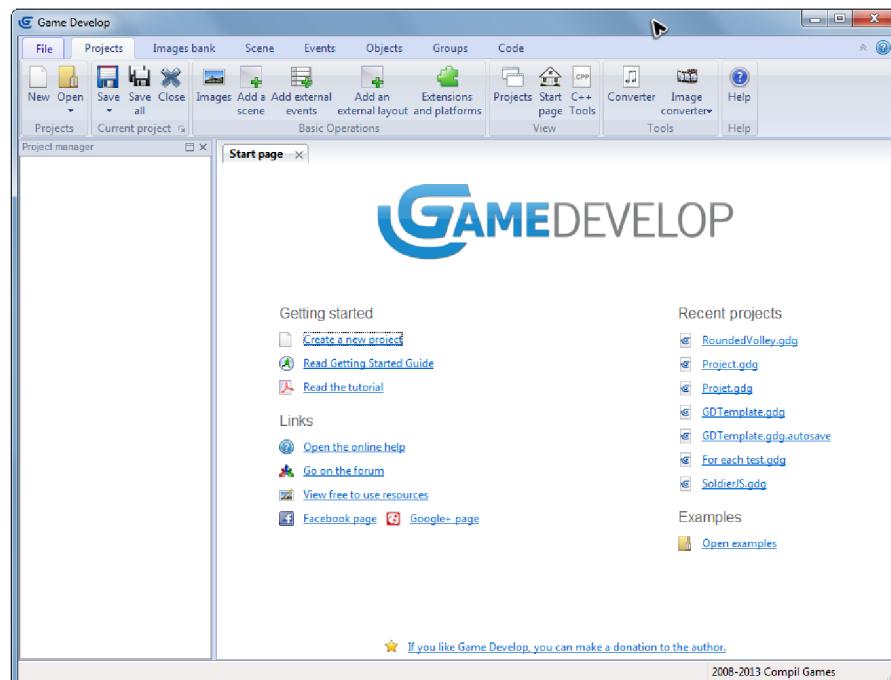
## Download GDevelop

If you do not have GDevelop, download it from the official website :

<http://compilgames.net> (<http://compilgames.net>).

Always download GD from this page to be sure to have the **latest version**.

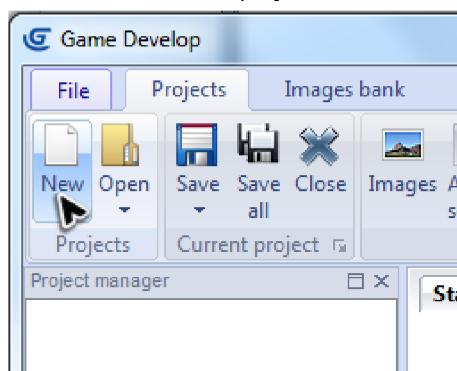
Install or extract GDevelop and launch it. The start page is displayed:



If you want, you can read this page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_overview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_overview)) to get a quick overview of the interface of GDevelop.

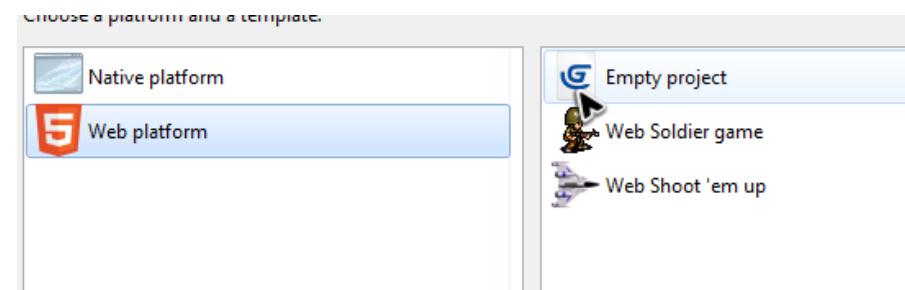
## Create a new game

Click on **New** in the ribbon to create a new project:



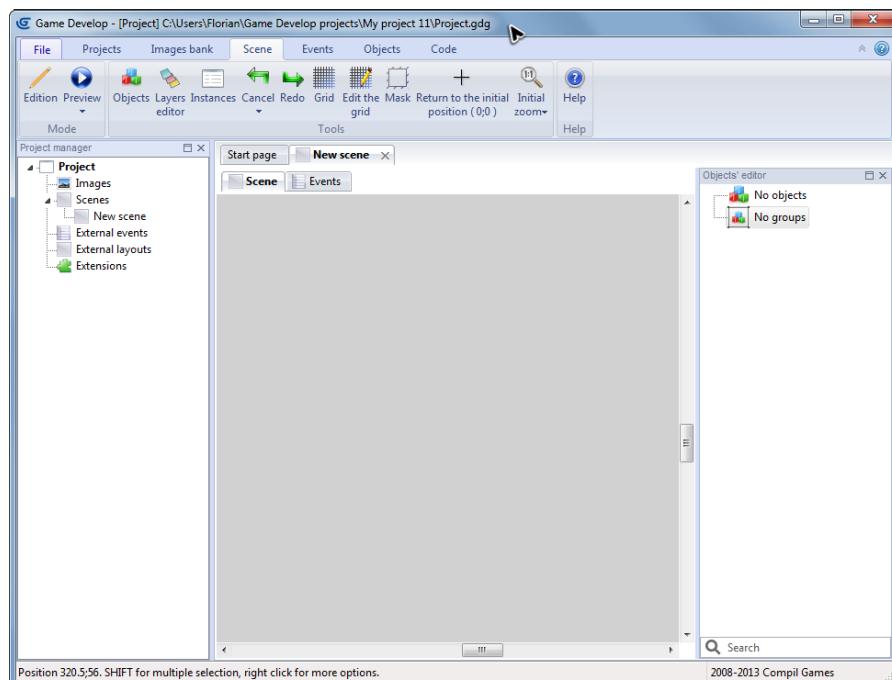
A window offers you to choose the platform on which your game will be based, as well as some templates. Choose the Web platform and then click on Empty project:

*Choose a platform and a template.*



Choose also a directory and a filename for your game, and press Ok to create the project.

A first scene is automatically created and opened for you the first time you create a game:



## Get the images and resources needed for the tutorial

Before going further, we'll need some images for our game.

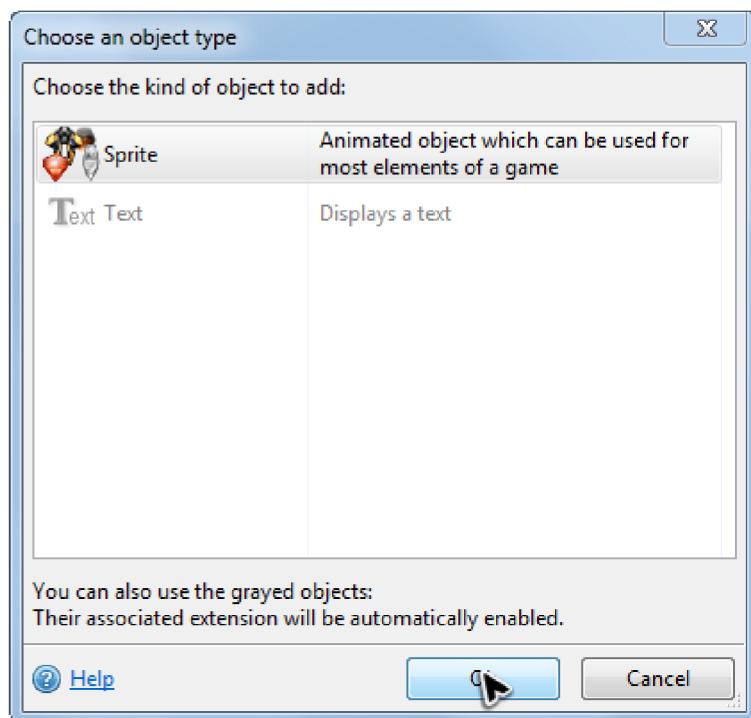
You can download them here : <http://www.compilgames.net/dl/BEGINNERTUTORIAL2/Images.zip> (<http://www.compilgames.net/dl/BEGINNERTUTORIAL2/Images.zip>).

Once you have downloaded this file, extract its content in the folder where you created the project.

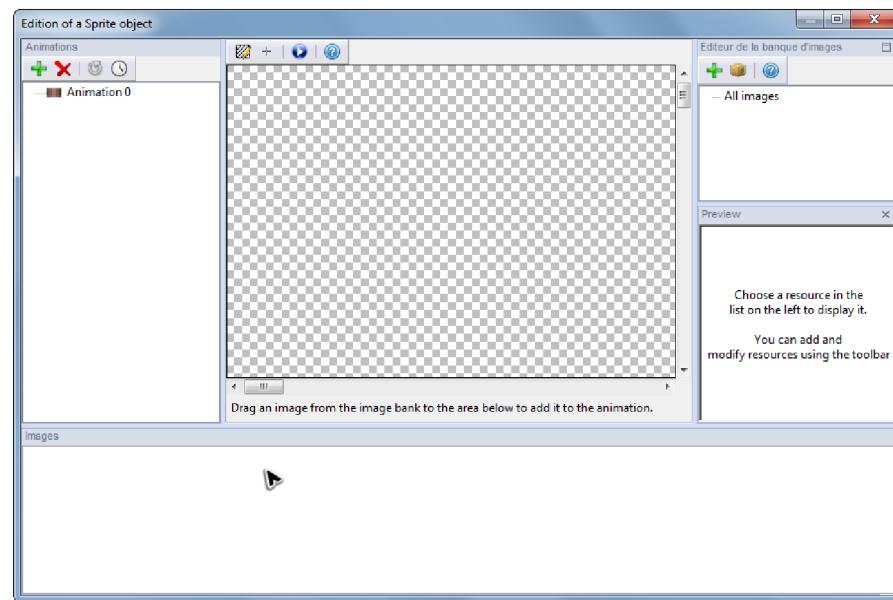
## Create the player turret

The player will be controlling a turret to shoot on the enemies.

Make a right click on the center of gray scene in GDevelop and choose Add a new object. A window popups so as to choose the type of the object to create:



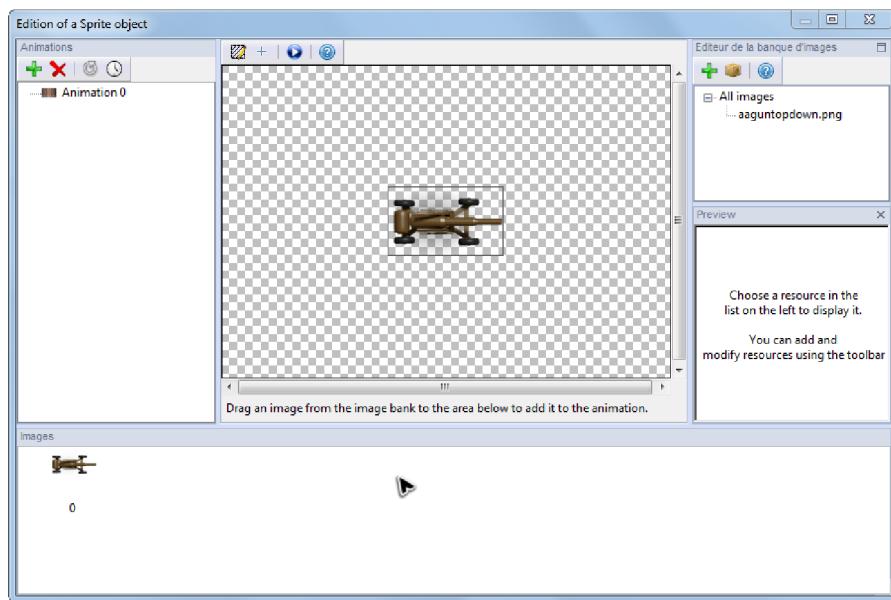
Choose the `Sprite` object and click on Ok. The editor of the object is then automatically opened:



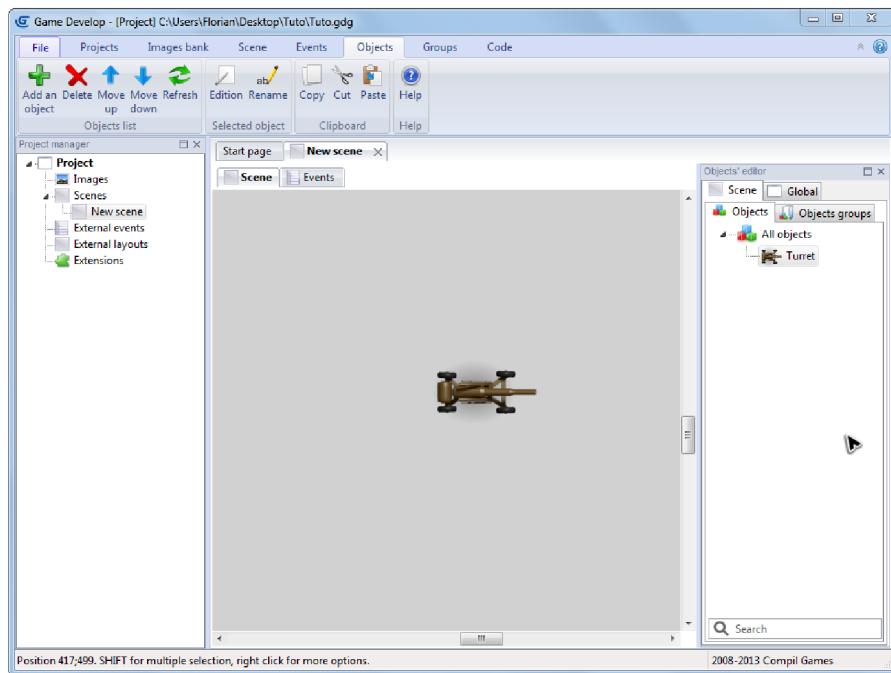
The first thing to do is to add the turret image: Make a right click on the white area at the bottom of the window, and choose `Add an image from a file`:



Choose the turret image in the project folder, and click on **Open** : The image is added to the object.



You can then close the Sprite editor so as to go back to the scene editor. The object is displayed at the point where you made the right click:



You can move the object by keeping the left button of the mouse pressed on it.

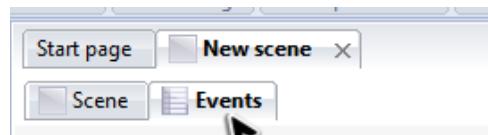
By default, an object is called **NewObject** by GDevelop. To change this, select the object in the list in the right hand side of the window, and press **F2**. Enter then **Turret** as a new name and press **Enter**.

## First events

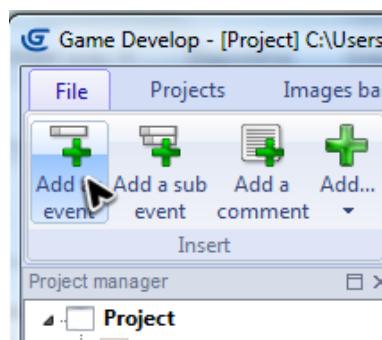
We are going to create the events used to animate the whole game.

First, the turret must be turned toward the player mouse.

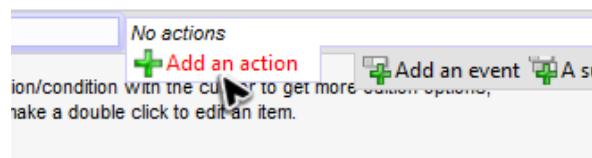
Go to the events editor by clicking on the events tab:



Then in the ribbon, click on Add an event to create a new event:

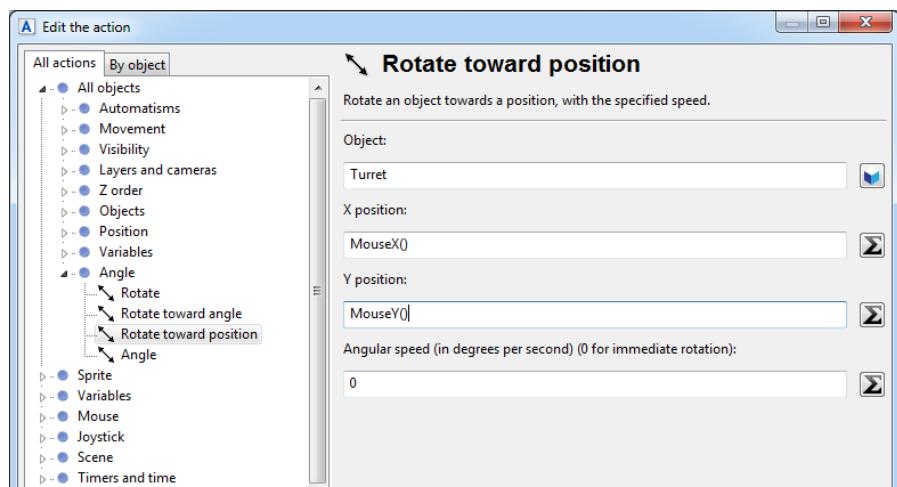


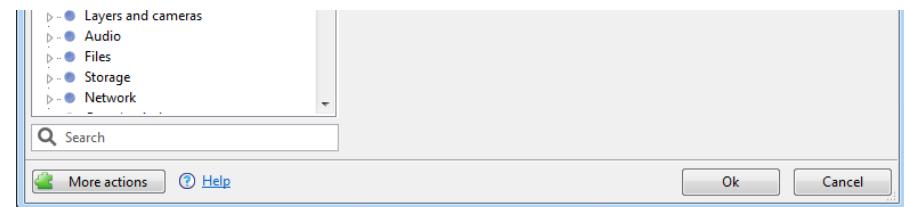
The event is created, with an empty list of condition (on the left part) and an empty list of actions (on the right). Put your cursor over the action list and choose Add an action in the context panel that appeared:



The first action will turn the turret toward the mouse: In the window, choose the action All objects > Angle > Rotate toward position.

When selected, the right part of the window show the name of the action as well as the parameters. Fill the first parameter by entering Turret (You can also click on the button next to the parameter to get a list of the available objects). For the next parameters, enter MouseX() and MouseY() so that the object turns toward the mouse position. When the game will be launched, these two expressions will be replaced by the position of the mouse.





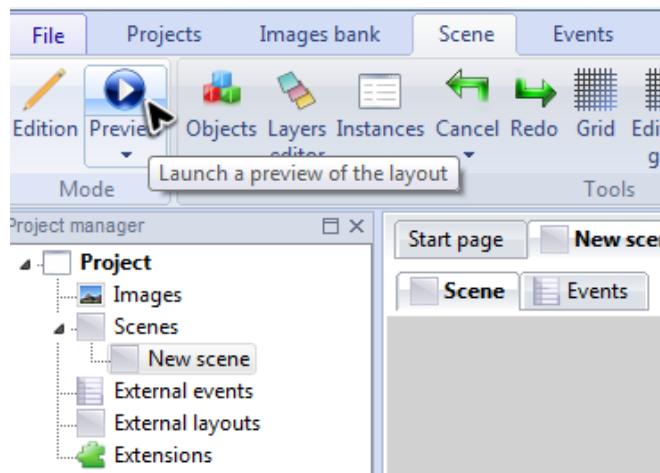
`MouseX()` and `MouseY()` are only two of the several functions available when an expression is requested by a parameter.

Click on the button next to a parameter waiting for an expression to open the *Expression editor* which will display lists with all the available functions.

Click on `OK`. The action is added to the event.

As there is not any condition, the action will be repeated each time the screen is refreshed (About 60 times per seconds). The turret will thus be always oriented toward the mouse.

You can launch a preview of the game: Just go back to the scene editor (Click on the **Scene** tab next to the **Events** tab) and then, in the ribbon, click on **Preview**.



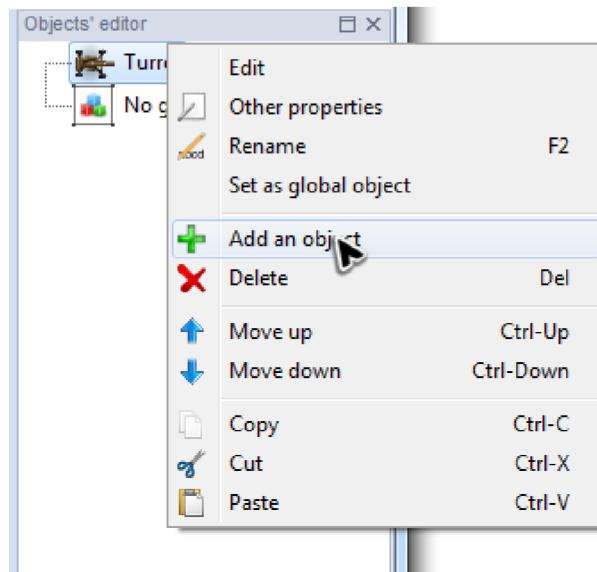
GDevelop will launch your default browser and open your game:



## Shooting bullets with the turret

The player must be able to shoot some bullets on the enemies.

First, we need a `Bullet` object: In the objects list on the right, make a right click on an object and choose `Add an object`. Choose a `Sprite` object as before and name the object `Bullet` (Right click on the object > `Rename`).



Then, make a double click on the object to edit it. Add an image to the object: Right click on the white area on the bottom, choose `Add an image from a file` and choose the bullet image in the project folder.

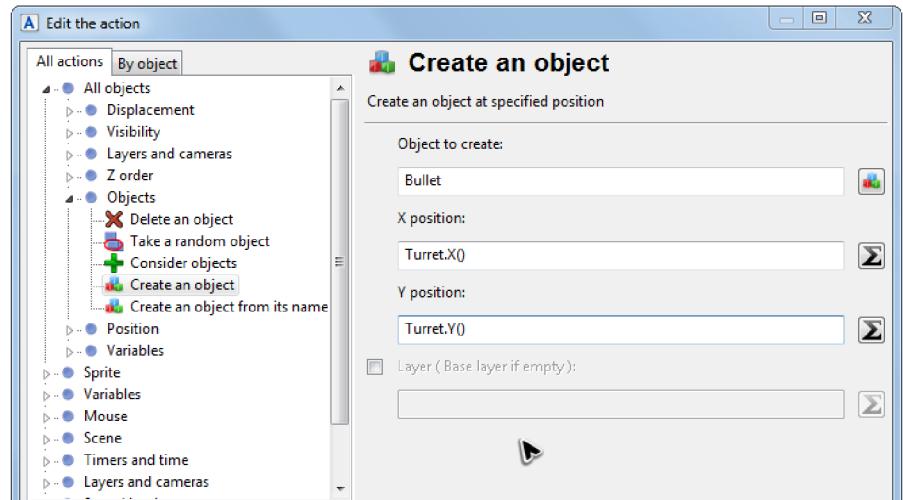
Close the window. You will notice that the object does not appear on the scene as we added it thanks to the list.

Go to the `events` tab, and add a new event (When you're in the events tab, choose `Add an event` in the ribbon) and then a new action.

The first action will be a `Create a new object` action, which is available in the `All objects > Objects` category.

The first parameter must be `Bullet`, as we want to create a bullet object.

The other parameters are the position of the turret: Enter `Turret.X()` and `Turret.Y()` in the 2nd and 3rd parameters.

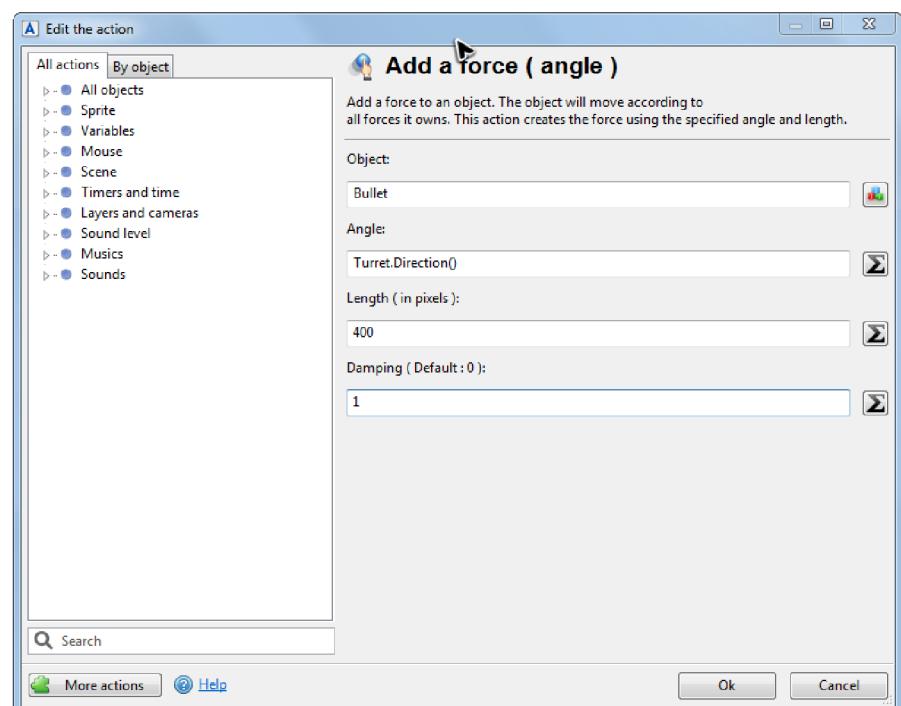




Click on **Ok** to finalize the action.

Then add another action after this first action ( Do not create another event! ). This time, choose the action called **All objects > Displacement > Add a force ( Angle )**.

GDevelop provide a built-in forces system allowing to easily move the objects. This action will be used to move the bullet toward the mouse when fired. As the first parameter, enter **Bullet** so that GDevelop will move the bullet just created in the last action. Enter then **Turret.Direction()** in the 2nd parameter to use the turret direction. For the 3rd parameter, enter **400** so that the bullet will move with a speed of 400 pixels per seconds. Finally, enter **1** in the last parameter so that the bullet will keep moving after the moment it was created.



Our two actions must be launched only when the player is firing ( i.e: Pressing the left button of the mouse ).

To do that, add a condition to the event ( Put the cursor over the empty condition list of the events we're creating, and choose **Add a condition** ):



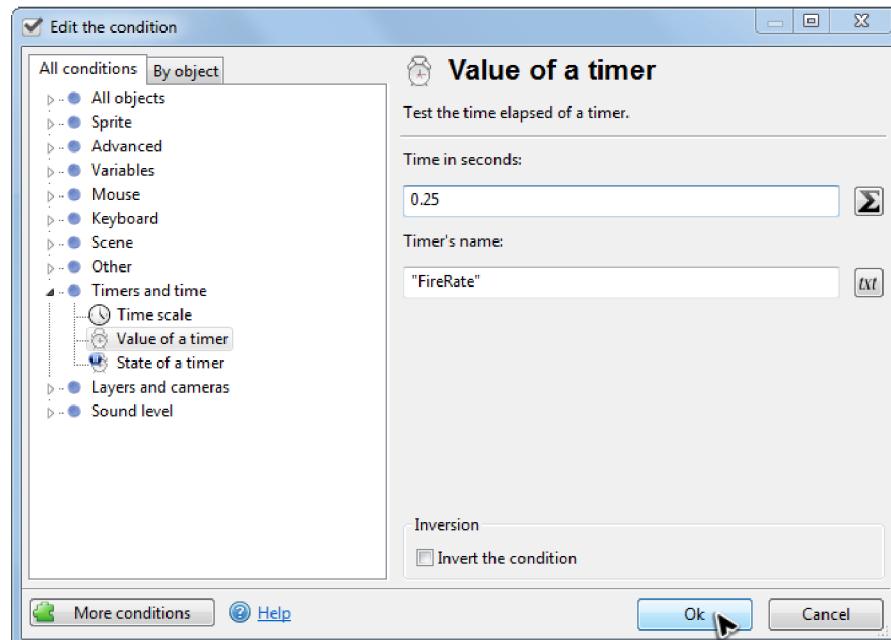
Choose the condition **Mouse > A button is pressed**. Write **Left** in the parameter ( or click on the button on the right of the parameter to display an helper ) and close the window by clicking on **Ok**.

The condition is now added to the event.

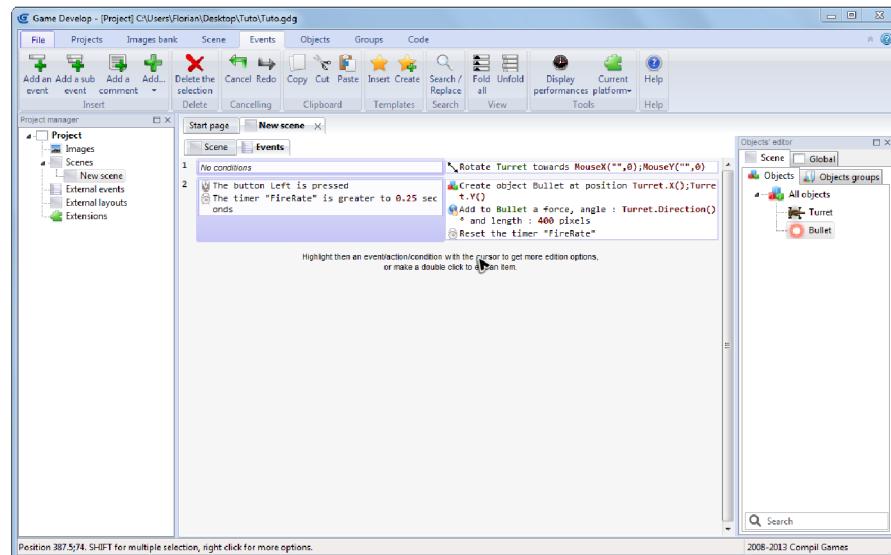
If you preview the game now, you'll see that we have two problems: The bullet are

fired too fast, and appear at the object's origin, which is not very realistic.

To address the first issue, we're going to use a timer: Add a condition to the last event we've created. Choose the condition **Timers > Timer's value** and enter **0.25** in the first parameter, and **"FireRate"** in the second parameter, which is the name of the timer we're going to use (*Do not forget the quotes around the timer's name!*).

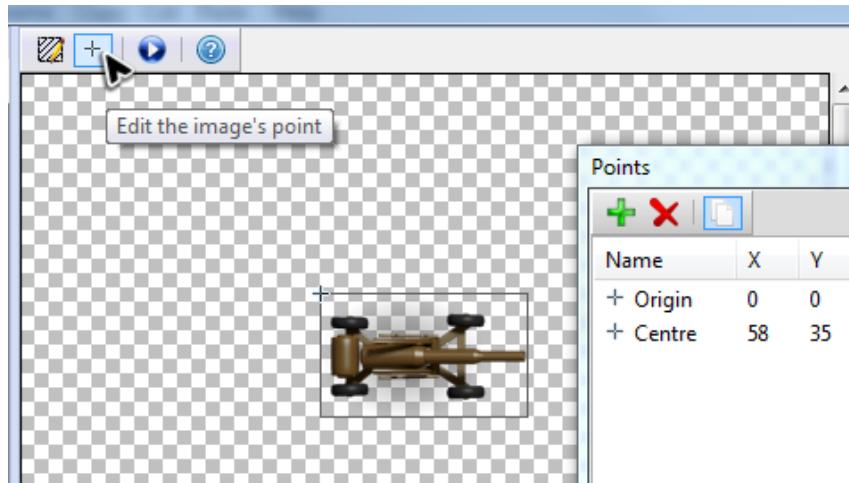


Then, add an action **Timer > Reset a timer** in the same event, with **"FireRate"** as parameter (again, beware of the quotes!). This pair of condition and action will ensure that the actions used to fire the bullet are repeated when at least 0.25 seconds is elapsed since the last bullet creation :

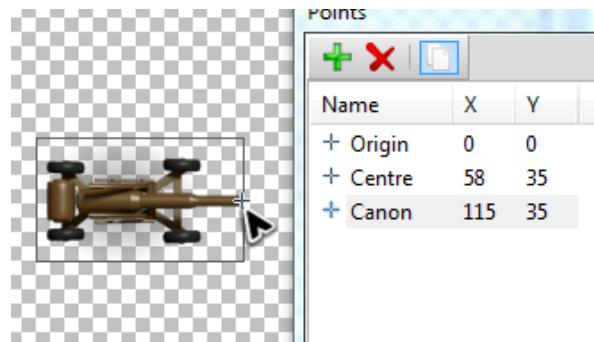


We must now ensure that the bullets are fired from the canon of the turret. Make a double click on the **Turret** object in the objects list to edit the object. Then, in the toolbar in the top part of the window, click on the second tool to open a window containing the list of the points available for the object: By default, there is only the

origin and the center of the object.

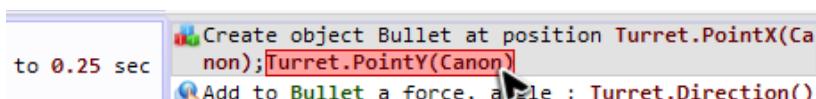


Add a point by clicking on the + in the toolbar of the Points window. Name the new point `Canon`. When it is created and renamed, make sure it is selected in the list (Simply make a click on it) and then click on the image to change its position:



You can now close the window. We must now tell to GDevelop to create the bullets at the position of the point:

In the events editor, put the cursor on the `Turret.X()` parameter and make a click: A text field will be shown. Use it to replace the parameter by `Turret.PointX(Canon)` and click anywhere to close the text field. Modify also the `Turret.Y()` parameter to replace it by `Turret.PointY(Canon)`:



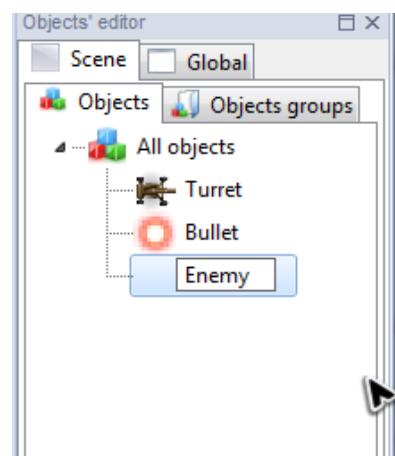
You can now preview the game ( Go to the scene editor by clicking on the Scene tab, and click on Preview in the ribbon ).





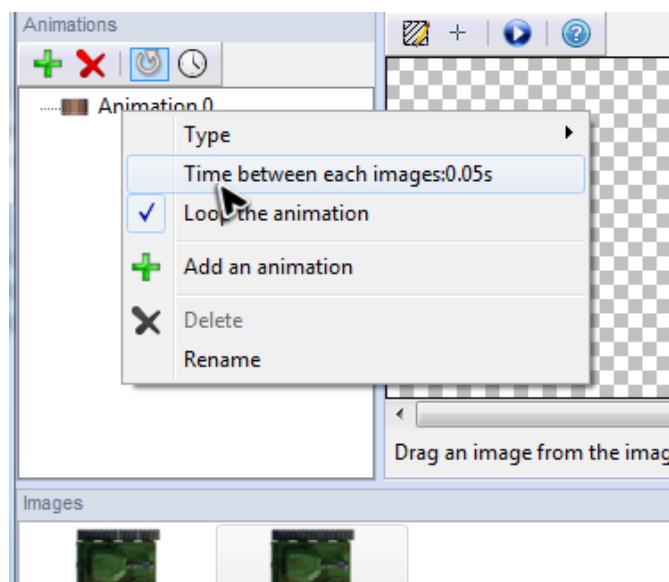
## Creating enemies attacking the turret

First, we must create the objects used for the enemies: Add an object to the object list (Right click on an existing object > Add an object . Choose a Sprite object as before.). Name it Enemy .



Edit the object ( Double click on it in the list ) and add to it two images:

tank2fr1.png and tank2fr2.png . Then, make a right click on Animation 0 in the list of animations on the left part of the window, and change the time between the images: Set it to 0.05 for example. Check also Loop the animation to ensure that the animation is repeated:

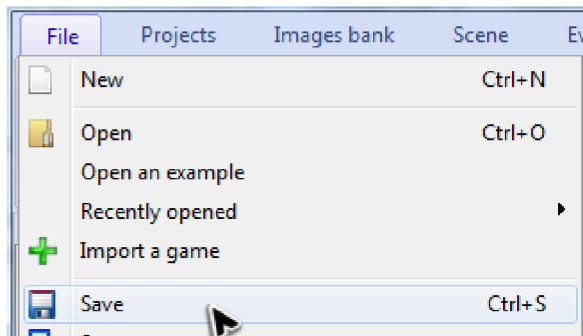




Close the editor when you're done.

## Stop! Save time!

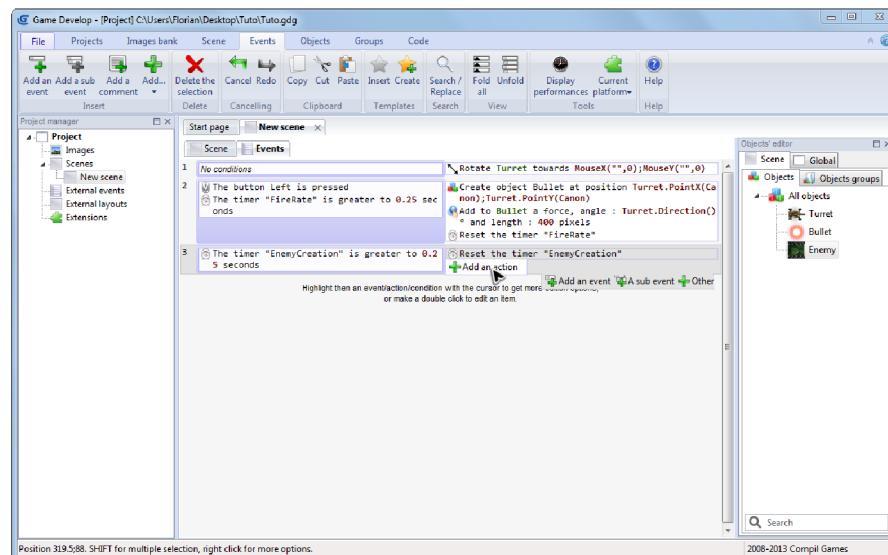
Before going further, remember to save frequently: In the ribbon, click on **File** and then on **Save**:



## Ok, go back to the game

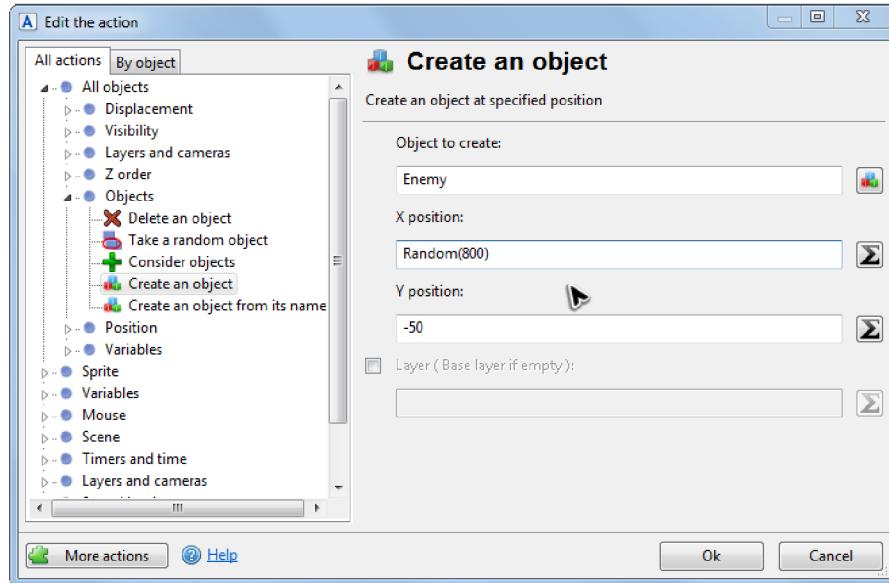
Let's go back to the game. We want to create enemies going toward the turret: Go to the event editor and add a new event.

The creation of an enemy must happen each 1 seconds for example: Add a condition **Timer > Value of a timer**. Enter 1 in the first parameter and "EnemyCreation" for the name of the timer. Add then in the same event an action to reset the timer (**Action Timer > Reset a timer** with "EnemyCreation" as parameter):

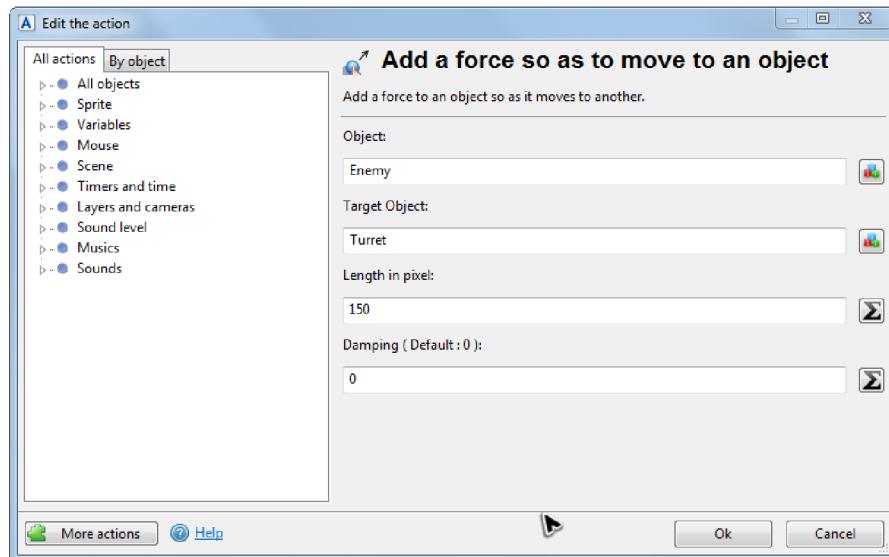


We can then add another action to create an **Enemy** object: Add an action **All objects > Objects > Create an object**. Enter **Enemy** in the first parameter. For the second parameter, the X position of the new object to be created, enter **Random(800)**: This will return a random number between 0 and 800, so that the

created enemy will have a different position when they are created. For the Y position, enter -50 . This will create the enemy outside the screen, so that the player won't have the feeling that an enemy tank just appeared from nowhere.

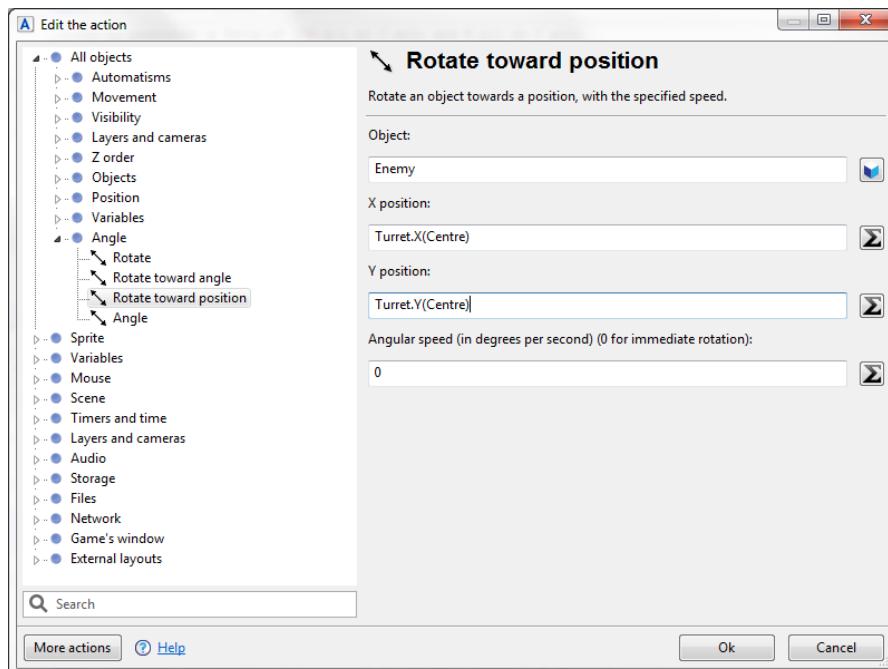


For now, the enemies are created but are not moving. Add another event without any condition. Add then an action: We want the enemy to move toward the player. Choose the action All objects > Displacement > Move an object toward another . For the first parameter, enter Enemy , and Turret for the second parameter. Enter a length of 150 for the force, and a damping of 0, as the force will be continuously applied.



Thanks to the last event, enemy will be moving. One last thing is to make sure that enemies are oriented toward the turret: Add a second action called All objects > Angle > Rotate toward position . Enter Enemy as first parameter. Then, we want the Enemy to turn toward the position of the Turret , so set Turret.X() and Turret.Y() respectively in the next two parameters. These two expressions returns the X and Y position of the Turret . We can improve this action by setting

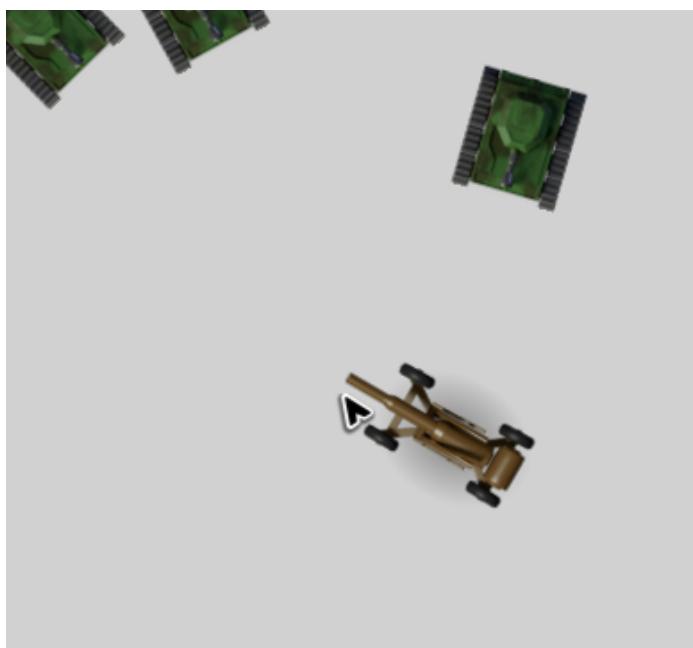
`Turret.X(Centre)` and `Turret.Y(Centre)` instead so as to turn the Enemy towards the centre position of the Turret .



Here is what you should have:

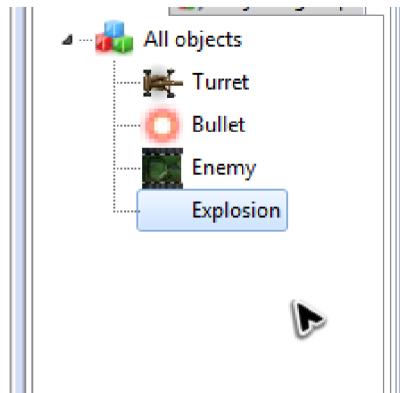
3	No conditions	Create object Enemy at position Random(800);-50
4	No conditions	Move Enemy to Turret with a force of 150 pixels Rotate Enemy towards Turret.X(Centre);Turret.Y(Centre) at speed 0deg/second

If you launch a preview, you will see that enemies are created and are moving. If it doesn't work, double check your events: Check that the timer's name is correct and is the same in the condition and in the action. Also check that the last parameter of the action used to move the enemies is 0.



# Adding explosions

It's time to add explosions 😊 Let's first create the explosion object: Add a new Sprite object called **Explosion**:



Edit it, and add to it all the images called **Explosion\_ something**. When you add the image, just select them all:



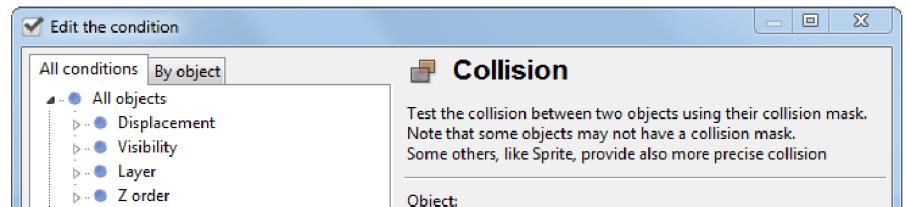
When the images are added, change the time between the images ( Right click on Animation 0 to display the options of the animation ).

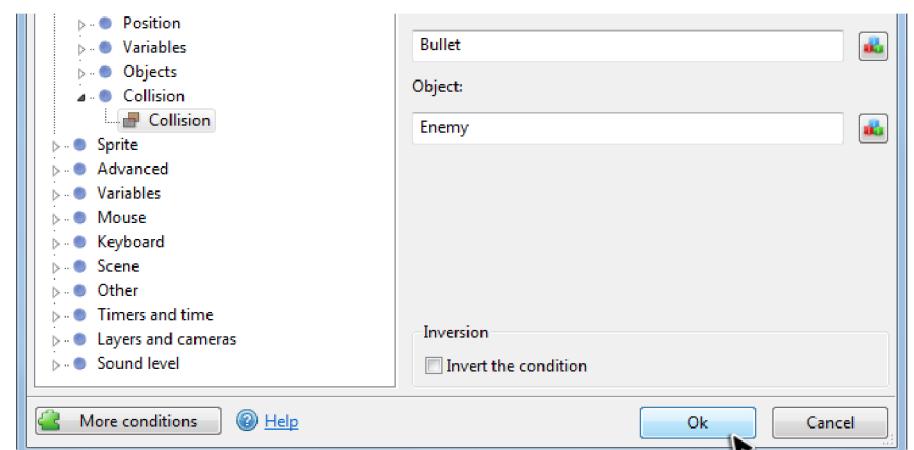


Set a time of 0.01 for the explosion. You can preview the explosion by clicking on the Preview button in the toolbar at the top of the editor.

The explosion object is now ready. Close the editor and go back to the events editor. We want enemies to explode when a bullet is hitting them. Add a new event.

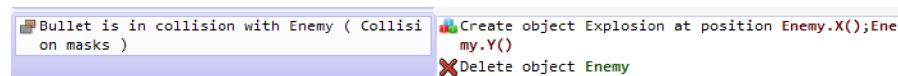
Add then a condition: Choose the condition **All objects > Collision > Collision**. Enter **Bullet** and **Enemy** in the parameters.



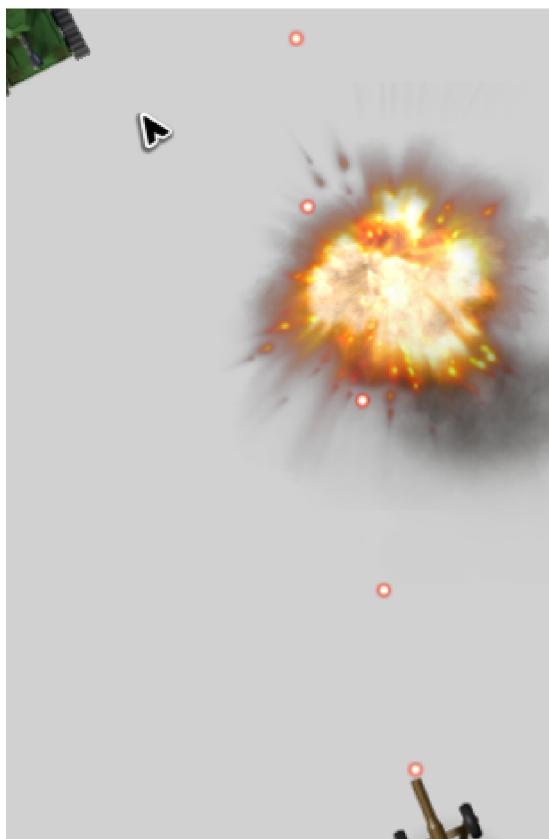


When the condition is done, add an action to create an object `Explosion`. For the position, enter `Enemy.X()` and `Enemy.Y()` to create the explosion at the tank position.

Add another action called `All objects > Objects > Delete an object`. As parameter, enter `Enemy` so that the tank will be destroyed.

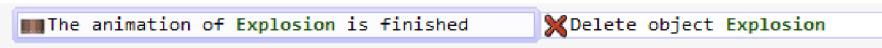


You can now preview the game:



You may have noticed that explosions objects are not destroyed when their animation is over! This can be a problem as they stay on the scene, making the game

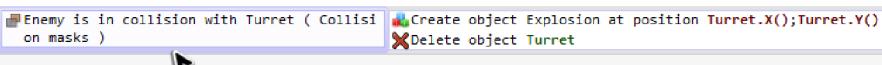
less efficient. We must always clean our garbage: Add a new event. Add a condition **Sprite > Animation > Animation is over**. Enter **Explosion** as parameter: The condition will be true when an explosion's animation will be over. Add an action to the event to then destroy the **Explosion** object:



## Adding more explosions and a Game Over

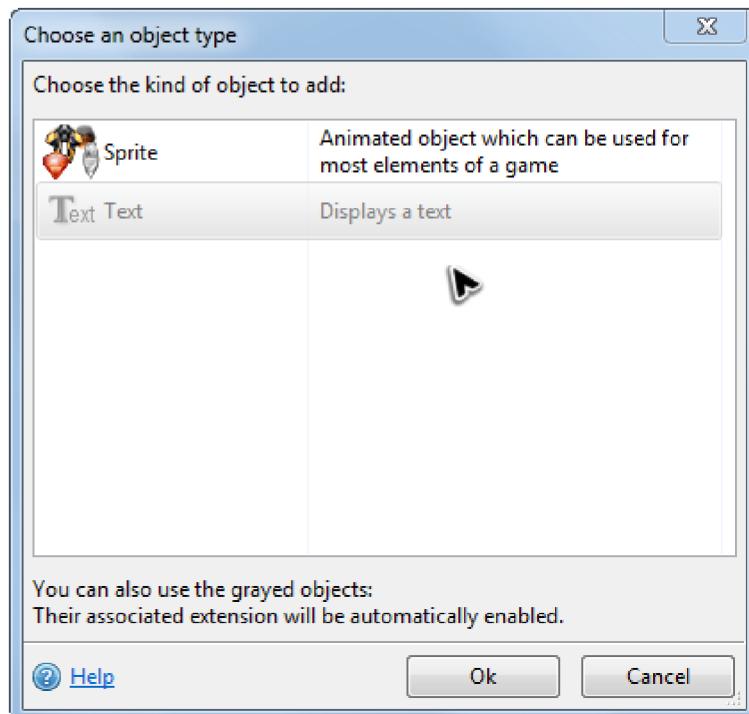
Until now, the player could not die. We want the player's turret to be destroyed when an enemy tank is hitting it.

First, add a new event, and do as we did for the event used to destroy the enemies: Add a condition testing for a collision between a tank and the turret. Then create an explosion at the turret position. Finally, add an action to destroy the turret:



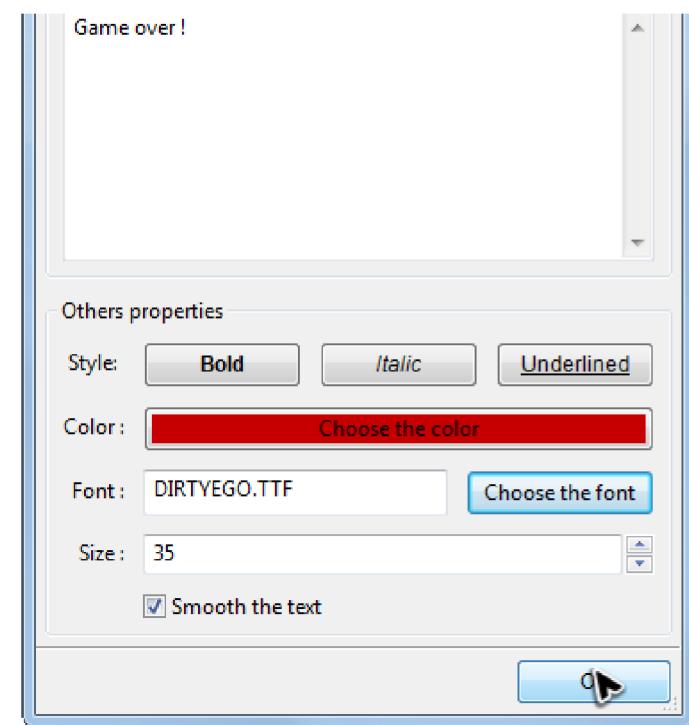
It would be interesting to display a “Game Over” text when the turret is destroyed:

Add an object to the object list. This time, choose a **Text** object. Name it **GameOver**.



Edit it ( Double click on it in the objects list ) and modify the text. Also click on **Choose the font** and select the font that was in the resource archive that you extracted in the project folder. Finally, you can increase a bit the size of the text:

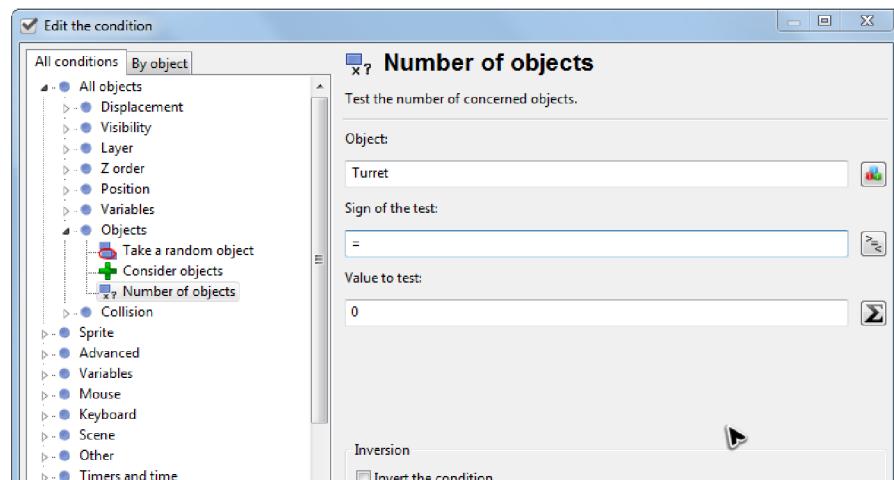


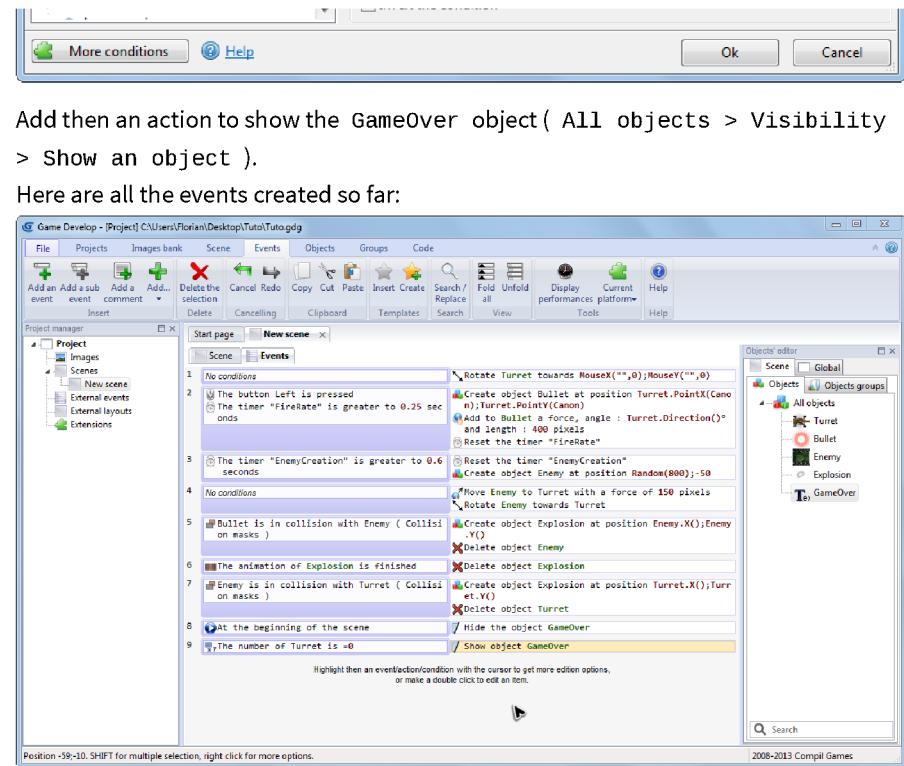


When you're done, click on Ok to close the editor of the object. Go to the scene editor and put the text on the scene: Just drag it from the objects list to the scene ( Put the cursor over the object in the list, make a left click and keep pressing the left button of the mouse, then move the cursor to the scene and release the button to put the object ).

For now, the object is always displayed. Go to the events editor and add a new event. Add a condition Scene > At the beginning of the scene and an action All objects > Visibility > Hide an object ,with GameOver as parameter. Thus, the text will be hidden when the game will be launched.

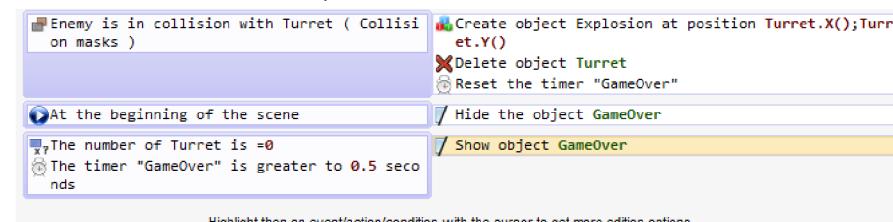
To display the text when the turret is destroyed, add another event. Add a condition All objects > Objects > Number of objects . Enter Turret as the first parameter, then = in the second parameter and 0 for the third: The condition will be fulfilled when the number of turret of the scene will reach 0, that is to say when the player will be destroyed.





It would be also interesting to add a small delay before showing the GameOver text:  
Add an action to reset the timer called "GameOver" in the event where the turret is destroyed.

Then add a condition to the last event to compare if the "GameOver" timer has reached 0.5 seconds for example:

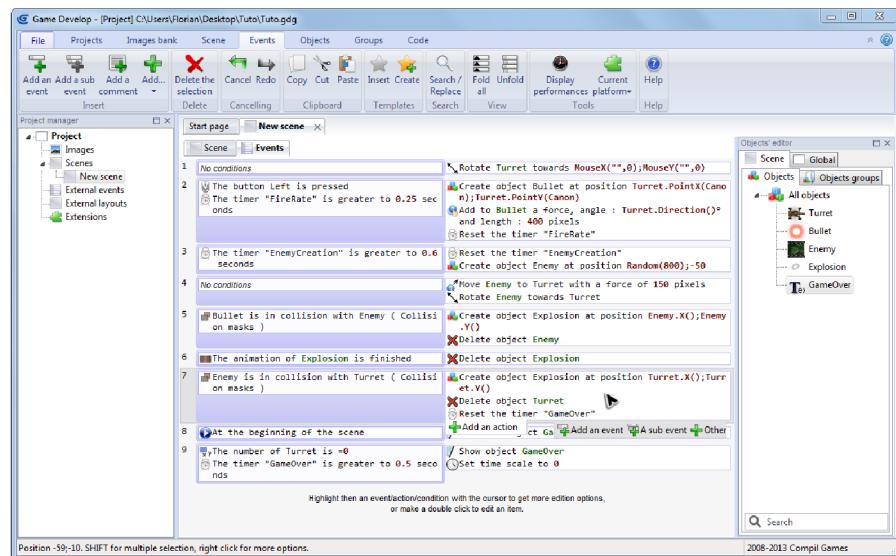


Finally, an interesting effect is to stop the game when the Game Over is displayed.  
Add one more action to the last event: Choose the Timers and time > Time scale action and enter 0 as parameter to pause the game.

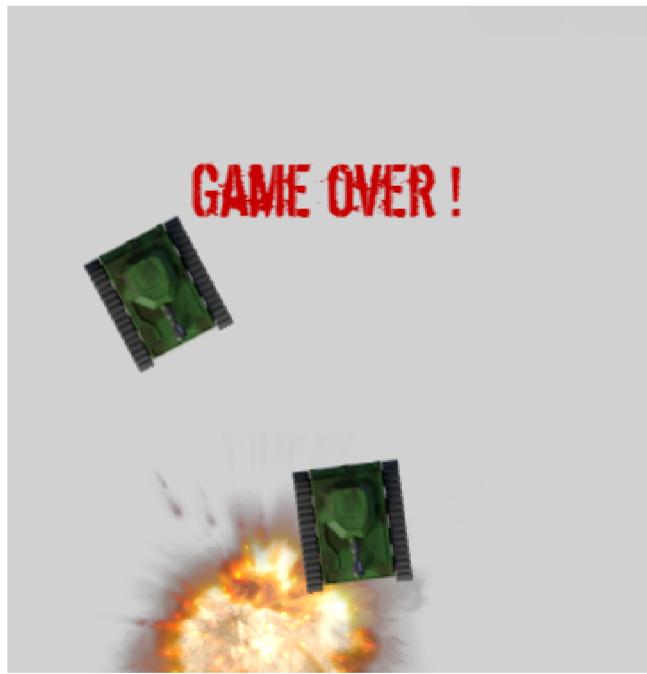




Here are all the events:



You can preview the game and see that the text is displayed and the game is stopped when the turret is destroyed:



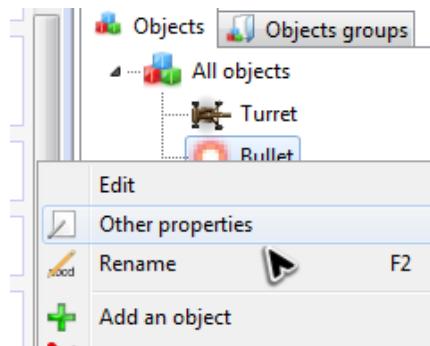
## Deleting the bullets going out of the screen

Remember that we always must destroy our garbage so as to prevent the game to be

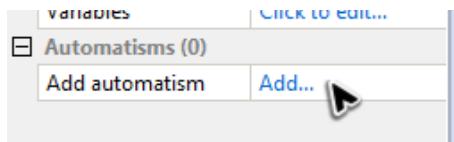
flooded with tons of objects doing nothing except slowing down the whole thing. That's why we take care of deleting the explosions when the animations is over. But what about the bullets? When they go outside of the screen, they still exists and the computer must update them each time the screen is refreshed: This can become a performance bottleneck.

We could add an event to destroy the bullets when they are too far from the turret, that is quite easy. But we can also use a behavior: A behavior is used to add a specific behavior to an object. Here, we are going to use a behavior that will automatically destroy the object when it goes outside the screen.

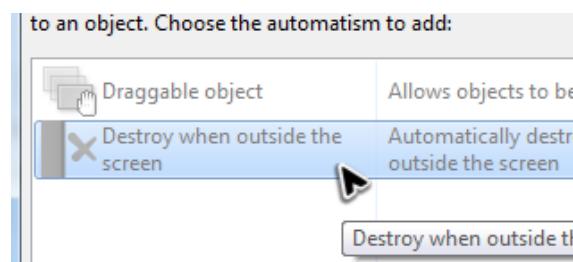
Make a right click on the object in the object list and choose Other properties :



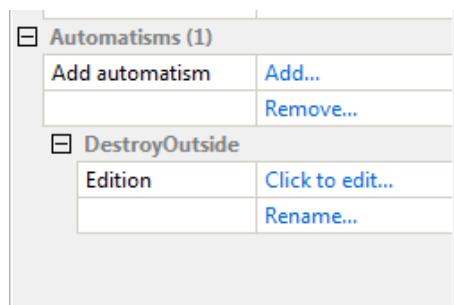
A grid with properties is shown. At the bottom of the grid, you can see the behaviors of the objects: There is nothing for now. Click on Add:



A list of the available behaviors is displayed: Choose the Destroy when outside screen behavior:



That's all: You can now see that the behavior is added to the object:



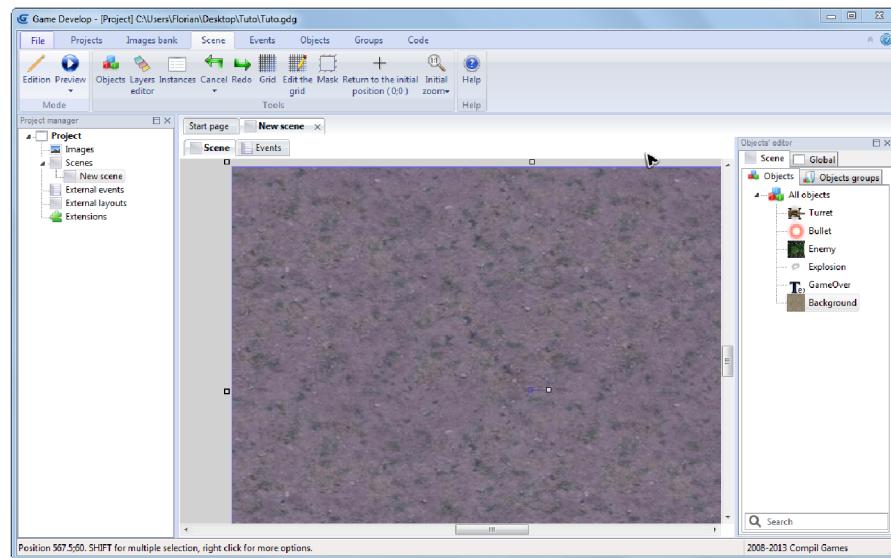
And when a bullet object will be outside the screen, it will be destroyed.

## Adding a background

One last thing to make the game good looking is to add a background.

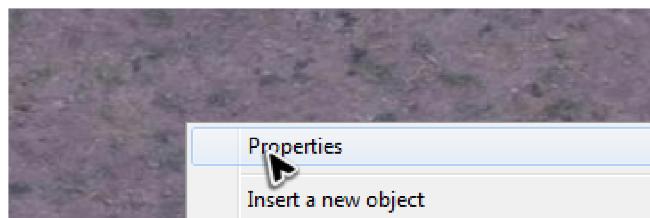
Add a `Sprite` object called background. Edit it and add to it the background image.

Then, drag it from the objects list to the scene:



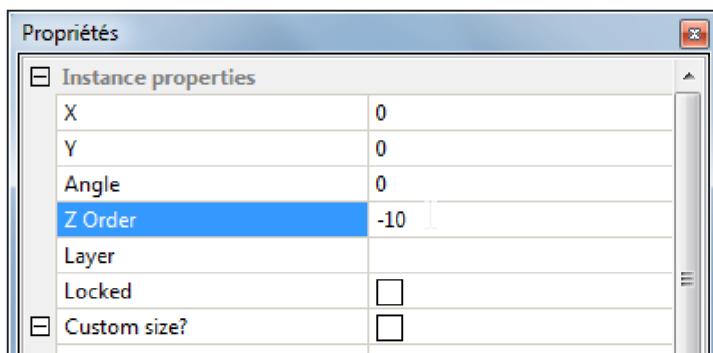
The background is displayed above the other objects 😞 To change this, double click on it to display its properties. You can also make a right click on it and choose

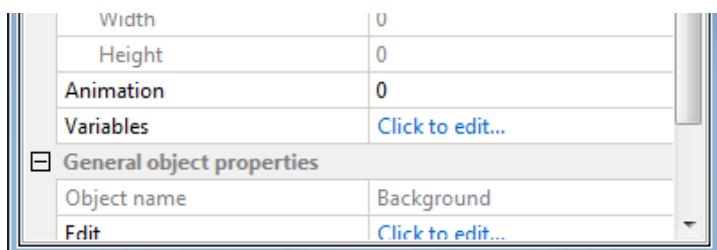
Properties :



Simply change its Z order: Enter a negative number to ensure that the other objects ( which have a positive Z order ) will be displayed after the background. ( Objects with a greater Z order are displayed below the other objects. By default, the Z order of an object is simply 0 ).

Also change the position of the object to set its X and Y coordinates to 0:





You can now test your game with a nice background:



## Enhance the game

That's all for this tutorial! You can download the game here (<http://www.compilgames.net/dl/BeginnerTutorialProject.zip>) if necessary, if you want to compare with your version or if something does not work. An enhanced version of the game is also in this archive. You can try it online: <http://www.compilgames.net/games/EnhancedTutorial> (<http://www.compilgames.net/games/EnhancedTutorial>)

## Let's discover GDevelop by yourself

You can browse the others **tutorials** (<http://wiki.compilgames.net/doku.php>)

**/gdevelop/tutorials)** or read the **Getting started page** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)).

There is also lots of examples bundled with GDevelop and templates available when you create a new game.

If you have any problem, you can send a message on the official forum (<http://www.forum.compilgames.net>).

If you have any remarks about the tutorial, do not hesitate to also send a message on the forum, or even fix the tutorial by yourself: You just have to create an account on the wiki 😊

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# Use Intel XDK to export to Android or iOS

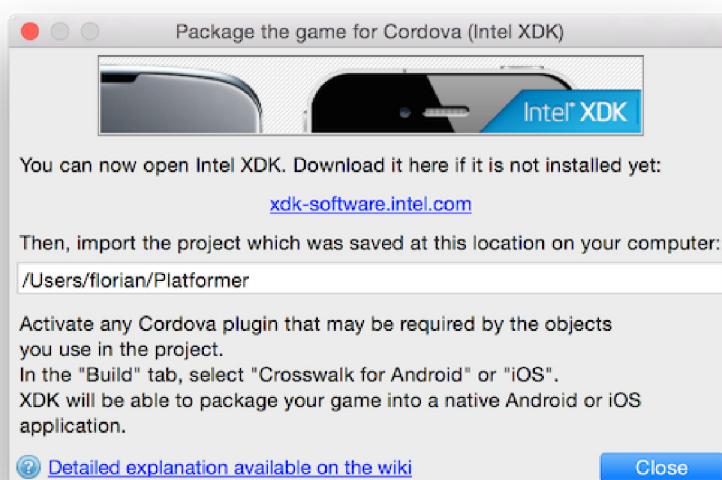
**Intel XDK** is a software is a HTML5 development platform that come with a service allowing to build Android or iOS application from a HTML5 application. Using GDevelop, an option is available, when you export a game created with the HTML5 platform, to export your game in a project that can be opened with Intel XDK and then compiled for Android or iOS.

## Export the game

First, open your game in GDevelop and choose *File > Export to the web* in the ribbon. Choose then **Export to iOS or Android with Cordova (Intel XDK)** and click on *Export*.

It's important to export with this option. Otherwise, your game won't run when tested with Intel XDK or when packaged for Android or iOS.

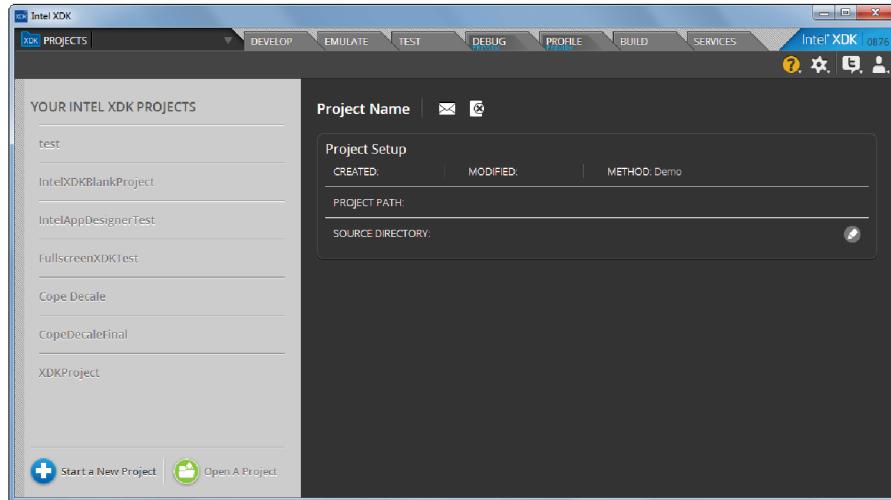
When exportation is finished, a window tells you where the game is available:



## Open it with Intel XDK

Download and install Intel XDK if you do not have it. It's free and available on

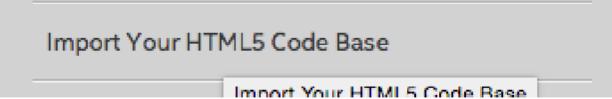
<http://xdk-software.intel.com/> (<http://xdk-software.intel.com/>). After the installation, launch it. You need to create an account at the first start and then the homepage is displayed:



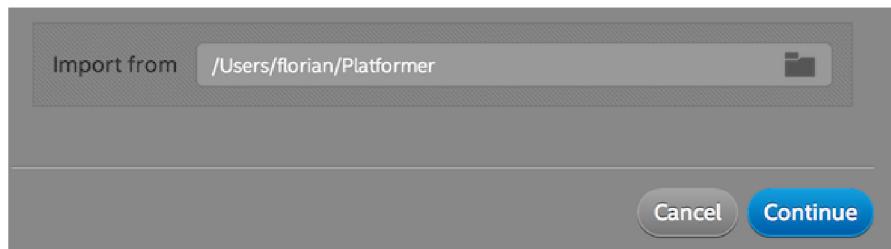
On the Intel XDK homepage, choose *Start a new project*:



And then select *Import Your HTML5 Code Base*:



Select the folder where GDevelop exported your game (it's shown in the window opened when the export is done). This is the folder containing a file named *config.xml* and a directory called *www*.



Click on *Continue*. A window will ask you for a name (so enter your game name) and another window will ask for a few details: you can click on Continue without changing anything.

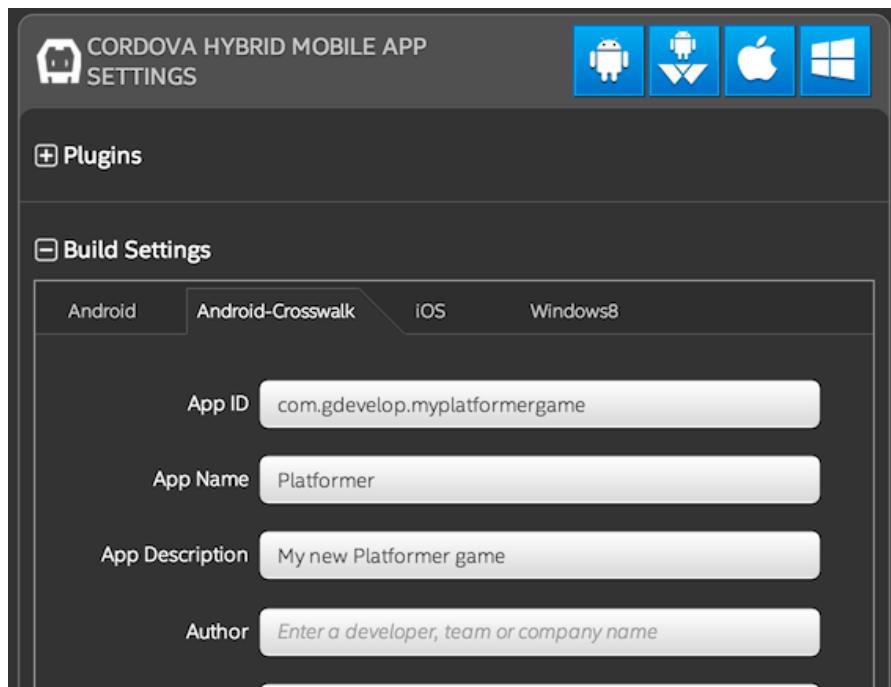
Your project is now created in Intel XDK! By default, Intel XDK open the *Develop* tab containing the code of your game. Instead, click on *Projects* (in the top-left) to show all your Intel XDK projects and to edit the settings of the project. The *build* tab can then be used to export your game.

You don't have to repeat this step later: just **export again your game** in the same directory using GDevelop and open your project in Intel XDK: all your settings will be

preserved!

## Edit project settings in Intel XDK

Now that you have your project created in Intel XDK, you can edit some settings, in particular the *App Version*, the *App Name* and the *orientation* (landscape or portrait). To do it, click on *Projects* (in the top-left), then choose your project and on the right open *Build Settings*:



Remember to also set the app id to something like `com.yourname.yourgamenname` (app id are written in a reverse URL (Uniform Resource Locator) style).

For Android, change settings in **Android-Crosswalk**.

For iOS, you need to be enrolled in the Apple Developer Program (<https://developer.apple.com/programs/>). Then, you can register your app from the developer center and get a provisioning profile. This provisioning file need to be put in the exported game folder (next to `config.xml`) and added in the iOS settings in Intel XDK.

It's also a good idea to have custom icons for your game, but you can skip this step if you just want to do some tests.

Finally, if needed you can activate third-party plugins: this is usual not needed, except if you want to display ads using the *AdMob Object*: see this tutorial about adding ads to your game (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoshowadswithadmobandintelxdk>).

## Package your game

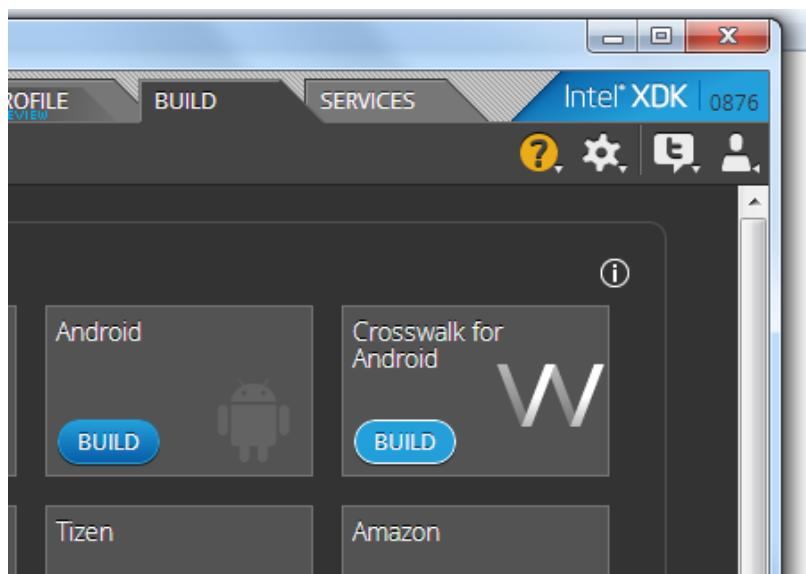
Go in the *Build* tab to generate your game:





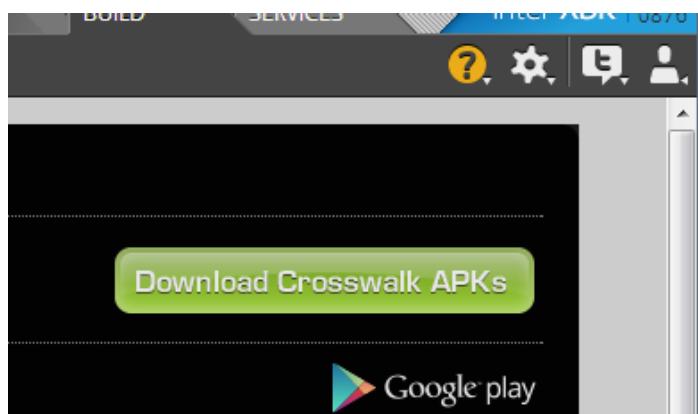
## Android

For Android, choose **Crosswalk for Android**.



Click on *Build* and your project is uploaded to the Intel XDK servers.

Click on the big *Build App Now* button. Your game is being built on Intel XDK servers. When it's done, you'll receive an email and a confirmation window will show you links to the APK that you can send to your devices or submit to Google Play Store.



For most Android devices, you have to use the **arm** APK. The **x86** APK is only for some devices like tablets that use an Intel processor.

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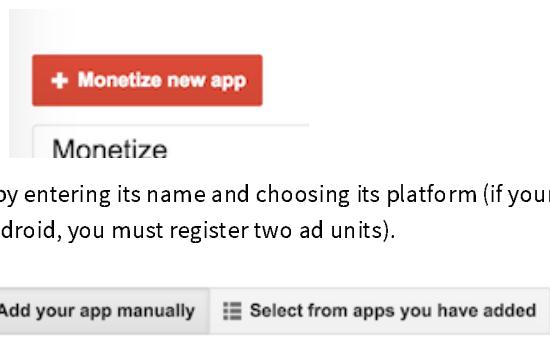
Help to translate GD  
(<https://crowdin.com/project/gdevelop>)

# How to show ads with AdMob and Intel XDK

## Create an AdMob account and an ad unit

To get started, go on AdMob website (<https://www.google.com/admob/>) and create an account. Once it's done, you can create a new ad unit.

Click on Monetize a new app :



Then add your application by entering its name and choosing its platform (if your game is for both iOS and Android, you must register two ad units).

A screenshot of the 'Add app' form. It has fields for 'App name' (containing 'My GDevelop game') and 'Platform' (set to 'Android'). At the bottom are 'Add app' and 'Cancel' buttons.

You can then choose if you want to create the ad unit to display a banner or an interstitial screen. To begin, we're going to display a banner.

At the end, note the ad unit identifier:

>Select ad format and name ad unit

Ad unit name: **Test**

Ad unit ID: **ca-app-pub-6818879494703727/8175576846**

## Add the AdMob object to your game

Insert a new object on the scene and choose the AdMob object:



Make sure that the object is put somewhere on the scene and double click on it to display its properties. Enter the ad unit identifiers:

Your object is now ready to display the banner!

## About interstitial screens

An interstitial screen is an ad that covers the whole screen and have a button to close it. It is usually presented at the end of a level.

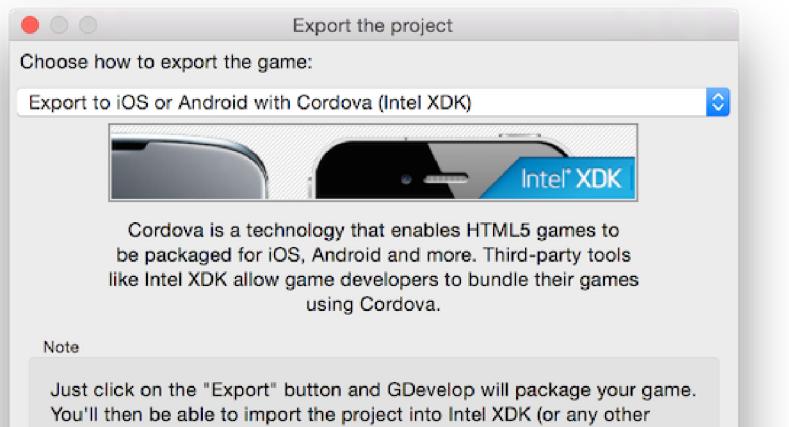
If you want to display an interstitial screen, you have to fill the interstitial ID fields (either for iOS or Android, or both) and use the action to show the interstitial screen. For example, you can add this action when you detect that the player just ended the level, or at the beginning of a scene displaying the game ending score.

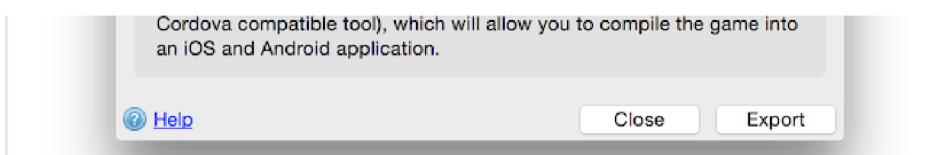
## About test mode

By default, the AdMob object is in testing mode: it can be used to display fake AdMob ads and be sure that everything works. When exporting your game to publish it, be sure to uncheck `Testing mode`.

## Export the game

To enable AdMob ads, you must export your game with Intel XDK<sup>1)</sup>. In GDevelop, export your project and choose `Export to iOS or Android with Cordova (Intel XDK)`.





When export is done, import your project in Intel XDK.

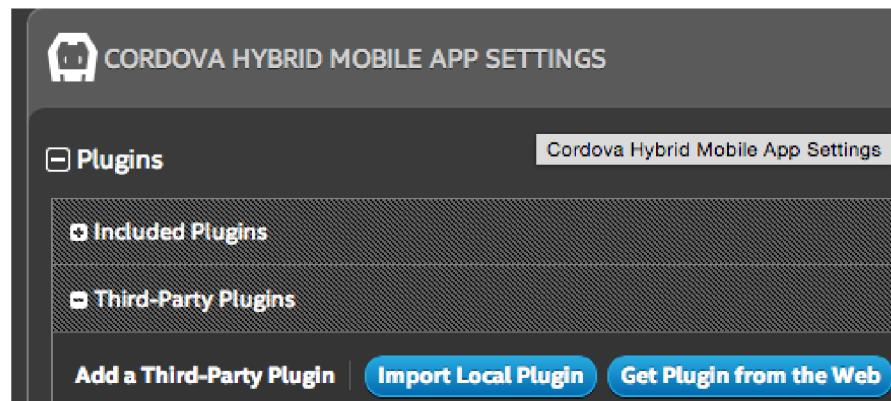
Don't know how it works? Go read the Intel XDK tutorial (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtouseintelxdk>)!

In a nutshell, you have to open Intel XDK, click on Start A New Project, then Import Your HTML5 Code Base, choose the folder where your game was exported and click on Continue.

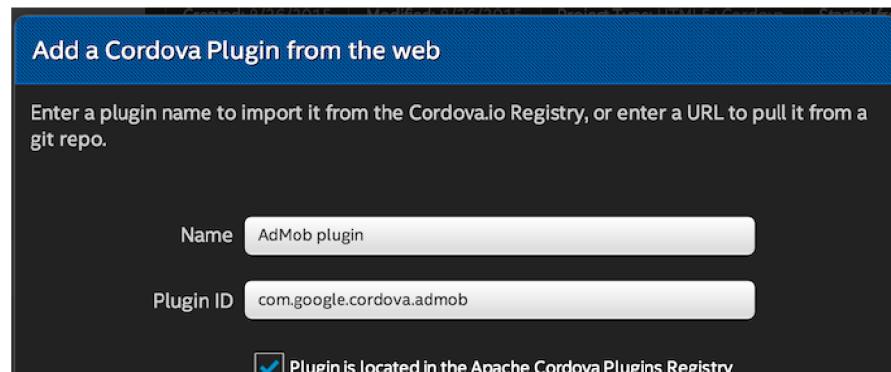
## Activate the AdMob plugin

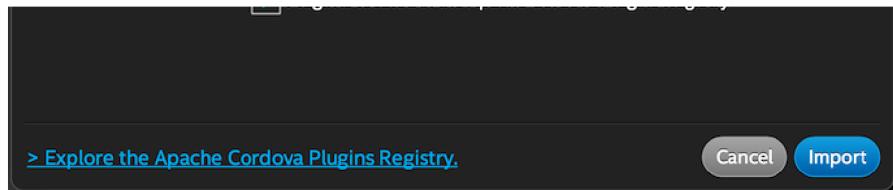
When your game project is opened in Intel XDK, you have to enable a *third party plugin* that will allow to display the ads.

- Click on Projects (in the top left), and choose your project in the list,
- in Cordova Hybrid Mobile App Settings, open the Third-Party Plugins tab and choose Get Plugin From the Web :



- Enter AdMob plugin as the name of the plugin (it does not really matter), then com.google.cordova.admob for the Plugin ID. Finally, check *Plugin is located in the Apache Cordova Plugins Registry* and click on Import when you're done.

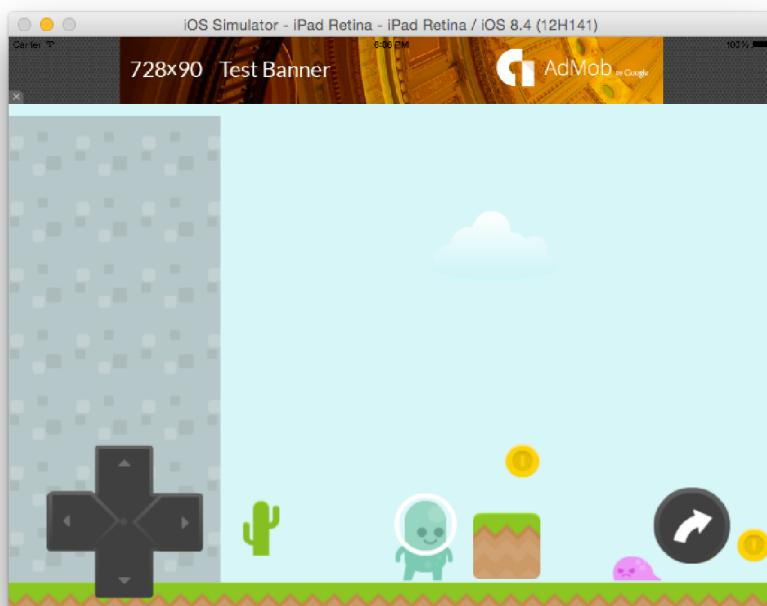




## You're ready to build the game packages!

You can now build your game using the Intel XDK as usual: basically, in the *Build* tab, choose Crosswalk for Android or iOS.

When you'll launch your game, the banner will be displayed:



If nothing is shown, please be sure that:

- You have activated the plugin as described.
- You have put the AdMob object somewhere on the scene.
- You have entered the right Banner or Interstitial ID for the right platform.
- Activate Testing Mode (that's done by default) the first time you try to integrate ads.

<sup>1)</sup> or any Cordova compatible platform for advanced users

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » GDevelop Tutorials (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>) » **How to handle complex logic – The finite state machine (FSM)** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtofinitestatemachine>)

[gdevelop:tutorials:howtofinitestatemachine](#)

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# How to handle complex logic – The finite state machine (FSM)

You probably followed some of the beginner tutorials and decided to create your own project based on the game mechanics you have learned. But as soon as you added more complex actions you quickly got lost in a jungle of nested conditions that lead to bugs which were hard to find. In the end you probably quit the project.

Most tutorials you find on the internet (independent from the game engine) just try to show you a way to achieve the goal of that specific tutorial with least distraction possible. Unfortunately this usually results in code that doesn't care about extensibility.

This tutorial will show you how to structure your project in a way that encapsulates the logic of your player (enemies or other dynamic objects).

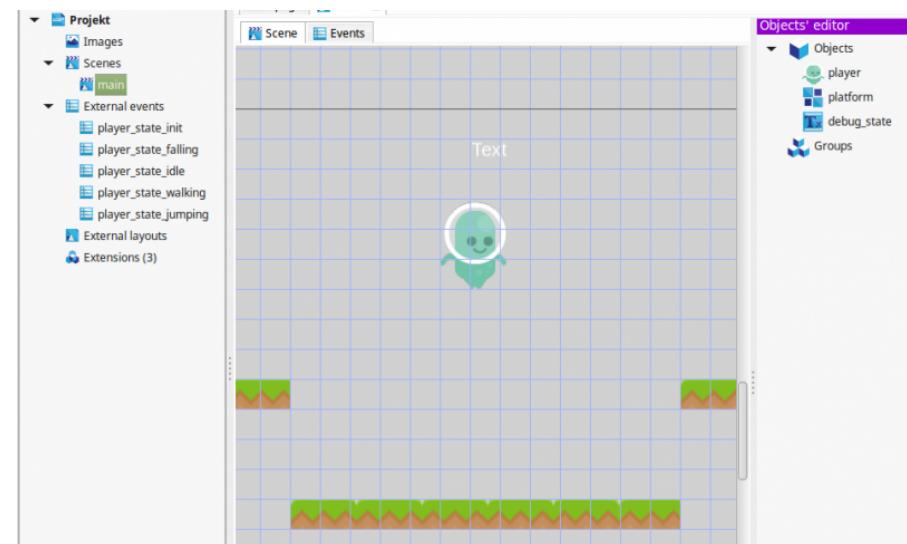
## What is a state machine?

As already indicated a state machine divides an objects logic into a fixed set of manually defined states that operate independently from each other. Each State only contains the logic that is applicable to it. For example when the player is in “falling state” you neither have to check the buttons for left and right movement nor the jump button because there is no ground under your feet. To switch from one state to another you have to check if a specific condition is met. So lets pretend we were in “falling” state. While in the air we won’t be able to perform any actions. We are just passively pulled downwards by gravity. In order to transit into another state certain conditions have to be met. In case of our falling state we would have to check if the player is in collision with the ground. If so we change the state from “falling” to “idle”. In “idle” state we check if a movement button is pressed which in turn would lead us to the “walking” state in which you keep on walking until some other event happens. You get the picture?

## Getting started

So lets get started by downloading the assets from the “How to make a platformer game?” tutorial [<http://compilgames.net/wiki/doku.php/gdevelop/tutorials/howtomakeaplayergame>] (<http://compilgames.net/wiki/doku.php/gdevelop/tutorials/howtomakeaplayergame>). Create a player as a “platformer object” and some platforms (“platform” behavior) to walk and jump on as described in the above mentioned tutorial.

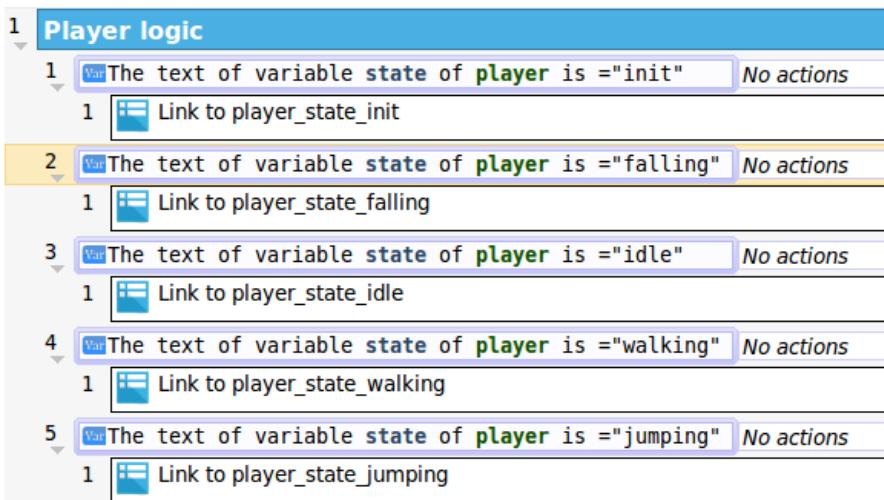
Project manager Start page main



([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/screenshot\\_scenes.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/screenshot_scenes.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

Open the properties of the player object and create a variable called “state” with the string value “init” and a string variable called “direction” with the value “right”.

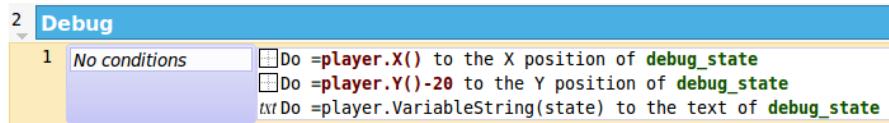
Switch to the event editor (“main” scene) and create these external events “player\_state\_init”, “player\_state\_falling”, “player\_state\_idle”, “player\_state\_walking”, “player\_state\_jumping”. In the events of your main scene create a new event group from the drop down menu on the right hand side. Name it “Player logic”. Now add a condition to check if the value of the player variable “state” is “init”. Add a sub event to the condition and link in the external event sheet “player\_state\_init” via the “add”/“other” button. Do the same for all the other player states.



([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/main\\_events\\_state-linking.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/main_events_state-linking.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

## Debugging information

In order to determine in which state the player currently is we will add a text object and call it “debug\_state”. Add it to the main scene and create the following logic at the end of main scenes logic list in order to display the current player state right above its head for debugging purposes. So whenever something doesn't function the way we want we will always know in which state we have to look for the error.



([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/main\\_events\\_debug.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/main_events_debug.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

## Our first state “init”

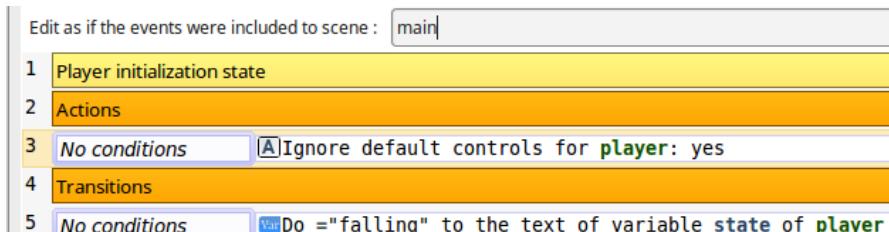
Open the external state “player\_state\_init”. This state is used for initializing our player object when the game starts. In the field “edit as if events were included to scene” choose the “main” scene.

Since we already set the condition about when to execute the code of the init state in the main scene events sheet we can leave out the condition here and just add actions.

First of all we need to disable the default controls of the platformer behavior because these would get in the way when using a state machine.

Next we set the value of the player variable “state” to “falling”. So in the next iteration of the game loop the events from the “falling” state will be executed. We choose the falling state here because the player was placed in the air and will eventually fall to the ground where we can transit into the idle state.

You could also use this state to (re)set the players hit points, ammo or other things. If you decide to restart the level you can always transit back into the “init” state to reset the player attributes.

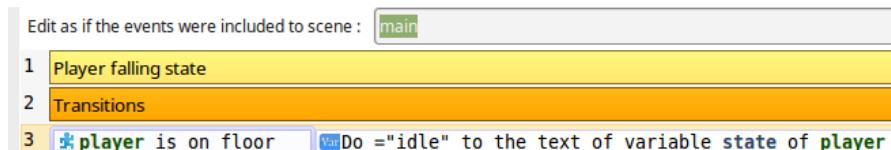


([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/init\\_state\\_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop%3Atutorials%3Ahowtofinitestatemachine/init_state_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

## The “falling” state

Falling is the most universal state of all. Whenever you are unsure which state to transit into “falling” state is usually a good choice because it will eventually lead into a sensible other state as soon as the player collides with an object. While falling the player won't be able to perform any active actions. He will only be passively affected by the forces that were applied to him before he entered the falling state. For example

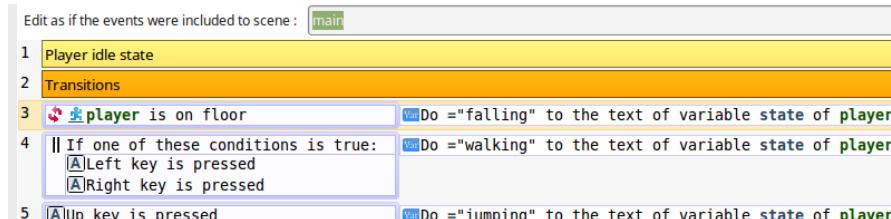
if you enter the falling state after performing a jump you will still passively move in the direction you were jumping but you can't adjust the direction anymore. (see the exercises section at the bottom of this tutorial to change this behavior). So all we are doing in this state is to check if the player collides with the floor. If so we transit the player into the “idle” state.



([http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/finitestatemachine/falling\\_state\\_events.png?id=gdevelop%3Atutorials%3Ahowtosequencemachine](http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/finitestatemachine/falling_state_events.png?id=gdevelop%3Atutorials%3Ahowtosequencemachine))

## The “idle” state

The idle state gets triggered whenever the person in front of the computer doesn't do anything. In other words no keys are pressed and the player object is just standing still. Like in the “falling” state there aren't any active actions to be performed. We just check for conditions that make us leave the “idle” state. So first of all we check if the player is on the floor. If not we transit into the falling state. Next we check if the player pressed the left or right arrow keys. If so we transit into the walking state. Last but not least the up arrow key is checked and if pressed we switch the player to the jumping state. Sounds logical doesn't it?

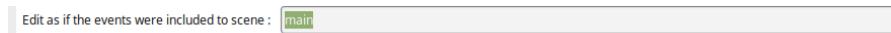


([http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/finitestatemachine/idle\\_state\\_events.png?id=gdevelop%3Atutorials%3Ahowtosequencemachine](http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/finitestatemachine/idle_state_events.png?id=gdevelop%3Atutorials%3Ahowtosequencemachine))

## The “walking” state

In the walking state we finally get to integrate some active actions for our player to perform. Since we use just one state for walking to the left and for walking to the right we first have to determine the direction the player has to move. So we check again which key was pressed and set the direction variable of the player accordingly once when entering the walking state. After that we will make the player move in that direction as long as it is in the walking state.

Now that the player is able to walk we'll again get to the conditions that make him leave the current state. So what could happen while we are walking? The most obvious thing would be that the walking key is released. In that case we will transit into the “idle” state. If we walk over the edge of the current platform we transit into the “falling” state. And if the jump key is pressed we switch into the jumping state.

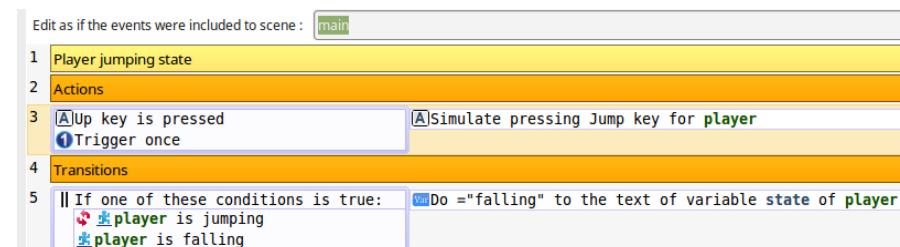




([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop/tutorials/finitestatemachine/walking\\_state\\_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop/tutorials/finitestatemachine/walking_state_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

## The “jumping” state

As you may have guessed, the first thing we will do is triggering the jump action once we enter the state. The force will be applied passively so we don't have to worry about it anymore once we performed the jump. As always the last thing we need to do is find conditions that make us transit into another state. In this case we will check if the player is either not jumping or falling. If this is the case the player gets transferred into the “falling” state.



([http://wiki.compilgames.net/lib/exe/detail.php?gdevelop/tutorials/finitestatemachine/jumping\\_state\\_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine](http://wiki.compilgames.net/lib/exe/detail.php?gdevelop/tutorials/finitestatemachine/jumping_state_events.png?id=gdevelop%3Atutorials%3Ahowtofinitestatemachine))

And that's about it.

## Conclusion

We have now split up the player logic into five different states which only handle the logic that is applicable to them and nothing more. If you want your player to gain additional abilities like flying, diving, dieing or getting smashed against a wall just create a new state and handle the logic there.

You can download the whole project here. [fsmTutorial.zip](#)  
<http://wiki.compilgames.net/lib/exe/fetch.php?gdevelop/tutorials/finitestatemachine/fsmTutorial.zip>

## Exercises

- As you may have already noticed the player is currently acting a little different

while in the air than with the default controls activated. This is because we currently have no active input in the “falling” state. So your task is to enable the player to move while he is in the falling state. Check if the movement keys are pressed and apply half of the usual movement force to the player.

2) While in “idle” state the player is just standing there doing nothing. Create an “eye blinking” animation and apply this every couple of seconds while in idle state to create more realism.

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gdevelop:tutorials:howtousevariables

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# How to use variables ?

Variables are extremely useful in a game: They can be used to remember lots of information, like the life of the player, the state of an object, the amount of ammo available...

In this tutorial, we are going to show how to use variables in different contexts.

You can download the small project used for the tutorial here:

**<http://www.compilgames.net/dl/VariablesTutorial.zip>**

**<http://www.compilgames.net/dl/VariablesTutorial.zip>**

and you can also try it online (<http://www.compilgames.net/games/VariablesTutorial>).

And of course, do not hesitate to experiment with the project and the events! 😊

## Quick reminder about variables in GDevelop

Variables allow you to store data, for example a number or a text. We might compare them to drawers or boxes where we can file notes. Any data can be stored, as long as it is in text or number format: number of lives remaining, high-score, bullets left, killed enemies, etc... You are probably going to use numbers often.

Variables are attached to a scene (We call them **Scene** variables) or to the game (**Global** variables). The values of global variables are not changed when switching to a new scene, whereas scene variables are reset.

Every object of a scene can also have its own set of variables: In this case, the variables are called **Object** variables.

## Using variables

### Store the state of an object

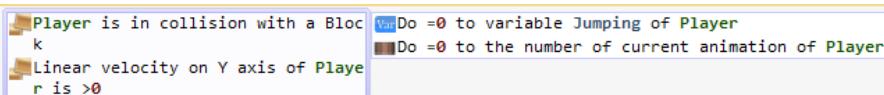
Variables can be used to store the state of an object: In the example, the **Player** object contains a variable called **Jumping**.

When the variable is set to 0, we consider that the object is not jumping and when it is set to 1, we consider that the object is in the air. Here, the variable is used to avoid adding more than one impulsion to the player when **Space** is pressed:

[A]Space key is pressed  
Val Variable Jumping of Player is =0  
Var Do =1 to variable Jumping of Player  
Apply to Player impulse 0;-2

The conditions are testing if `Space` is pressed *and* if the variable is set to 0. If the conditions are fulfilled, the actions are triggered: The object is moved, and the `Jumping` variable is set to 1. Thus, the actions won't be able to be triggered more than once.

We then need to set back the `Jumping` variable to 0 when the object has landed on the ground:



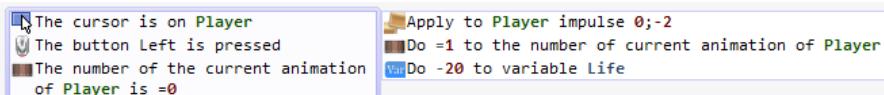
And that's all. Using this variable, we can now easily know if the object is in the air or on the ground, and prevent unwanted repetitions of actions.

## Store an amount

Variables are also often used to store the life/ammo or any other amount related to the player or to objects.

In our example, the life is stored inside a scene variable called `Life`. By default, the variable is set to 100 ( In the project manager, make a right click on the scene and choose 'Initial variables' to show the initial values set. )

When the player click on the character, the character is sent in the air and a hurt animation is set. We also want to decrease the life by 20:



Here we've just used an action to decrease the variable, so whenever the player is clicked, the life will be decreased.

Note that the conditions ensures that the actions won't be repeated more than one time in a row ( Otherwise, it would decrease the life several times per second, and we do not want this! )

## Progressively increase a variable

Sometimes, we want to increase a variable more slowly. It can be done easily using the `TimeDelta` function, which returns the time, in seconds, to compute the latest frame displayed. Here, we just increase the life of the player at the rate of 5 points per seconds:



You could also decrease a variable in the same manner: Just replace the `+` by a `-`.

## Limit the values of a variable

The life should be always between 0 and 100 in our small game: To ensure that a variable is between two values, uses two events like this:



Note that these kind of events must be done at the end of the event sheet, or at least put after every events modifying the variable, otherwise these events could change again the value of the variable and make it go out of the range.

## Displaying a variable on the screen

Showing the value of a variable to the player is easy: Put a `Text` object somewhere on the scene.

Then, just add an event setting the text of the object:

```
No conditions | If Do = "Life: "+ToString(round(Variable(Life))) to the text of Life
```

The value is get using the `Variable(Life)` part. Then, we convert it to a text using `ToString`, and finally, we concatenate it with a small text ( Always remember to use quotes when you want to display a text ). We've also added a call to the `round` function so that the variable is displayed as a whole number without decimal places: `"Life: "+ToString(round(Variable(Life)))`.

You can also display the variable of an object like this:

`ToString(Player.Variable(Ammo))`,

or, if your variable contains a text, use `VariableString` to get its content: `"Your name is "+VariableString( playerName )`.

The last part of the tutorial is devoted to *structures*, an advanced type of variable. If you're a beginner, you probably do not need to read this part for now: Experiment first all the techniques shown above, and then come back if you want more information about structure 😊

## Advanced use of variables: Structures

GDevelop supports an advanced feature for variables called `Structures`. Variables in GDevelop can contains either a number, a text or be a **structure**. In this case, it has no value, but it contains instead other variables, called the **child variables**.

Of course, these child variables can contains numbers, texts or also be structures variables themselves.

If you want to use a variable as a structure, you just have to avoid changing its value or text ( As structures variables do not have any value ). Then, to modify the value of a child variable, just enter as variable name: the **name** of the variable followed by a **period** and finally **the name of the child** variable. For example:

`PlayersStats.NumberOfDeaths .`

As normal variables, if the child does not exists, it will be created.

There is also a condition testing for the existence of a child, and even an action to remove a child from a structure variable.

## Dynamic access to the children

Children of a structure can also be accessed using a text expression, using this syntax: `Variable[expression]`.

For example, we can imagine that you're storing the stats of the player for each level,

called Level1, Level2, Level3... If you want to show to the player the stats for a specific level, you may store the number of the level in a variable called `CurrentLevel`.

Then, you can access to the stats using this syntax:

```
PlayersStats["Level"+ToString(Variable(CurrentLevel))].
```

## Other advanced uses

Structures are useful to store structured data. You can also use them when you need an array: Just name the children 0, 1, 2 ...

Actions and expressions are also available to convert a structure from/to a JSON (<http://en.wikipedia.org/wiki/JSON>) string, a notation currently used on the web to exchange data.

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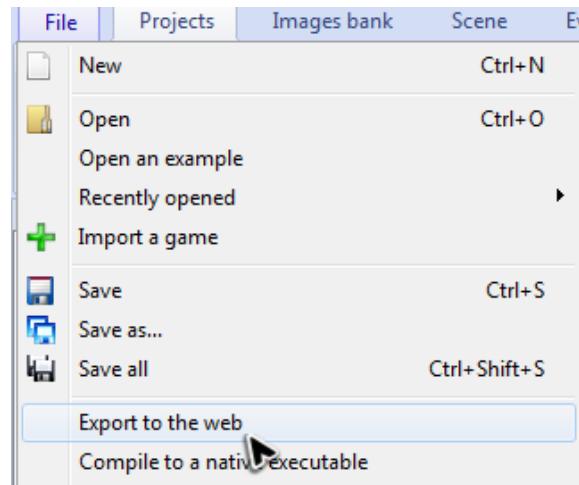
# How to distribute your game?

When developing your game, you can preview it using the Preview button of the ribbon. When you want to distribute your games, you have to go through the export process.

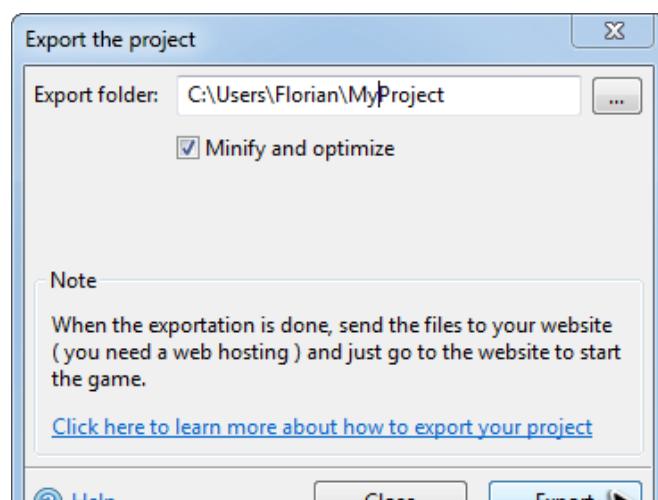
## Exporting a HTML5 game

If you are creating a game using the Web Platform, this section applies for you:

In File menu, choose Export to the web :



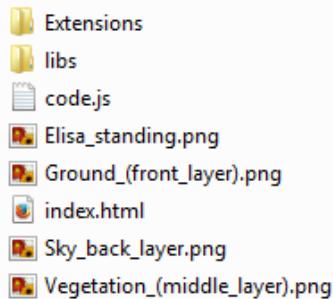
Then, choose a directory where export the game. You can also choose if the game will be minified.





Click on `Export` to launch the export process. When it's over, you will be asked if you want to open the export directory.

In this directory, all the files needed by your game are present:



You can't play to the game from here, you have first to send all the files to a web hosting and then go with a browser to the location where you uploaded the game.

## Exporting a native game

Exporting a native game is similar to HTML5 games:

- \* In `File` menu , choose `Compile to a native executable` .
- \* In the dialog, choose an export directory and then click on `Compile` . You can read here (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/distribution/compilation>) a description of all the options available.
- \* When the compilation is finished, all the files needed by your game are present in the chosen directory.

You can launch the game by double clicking on the executable ( `GameWin.exe` by default on Windows, `GameLinux` by default on Linux ). If you want to share your game, you can compress the whole directory in a zip file, and then send it on the web using a web hosting or a service like DropBox.

If you use external text files (`.txt` or `.xml`) for value storage/reading, files will not be compiled in an unique file nor moved in the folder, you'll have to copy/paste it and respect the relative path you've choosen in the project.

Forums for **GDevelop**, the open source game development software, and **GDevApp**, the online and easy-to-use game creation webapp.

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### SMALL TUTORIAL - COVERING VARIOUS TOPICS.

**#41978** (. /VIEWTOPIC.PHP?P=41978#P41978)

By Mats (. /memberlist.php?mode=viewprofile&u=399) - Mon 31 Mar 2014, 13:51

Hi guys,

Here is a tutorial showing how you can alert all enemies to the player's presence. It also shows how an object can be moved within screen limits and shows how to reset scenes.

#### Attachments

- [moving\\_in\\_limits.zip](#) (. /download/file.php?id=1676)
- How to move an object in screen limits.
- (8.56 KiB) Downloaded 777 times

•••

Check out my Game Develop tutorials on Youtube: [\(https://www.youtube.com/watch?v=0ZW57s2WT1o\)](https://www.youtube.com/watch?v=0ZW57s2WT1o)

07  
Jul

PROBLEM WITH UNIT MOVEMENT (RTS)  
(./VIEWTOPIC.PHP?F=19&T=8057)

- By Caleb\_0718

Nevermind, solved it!

[READ MORE](#) (. /viewtopic.php?p=57723#p57723)

07  
Jul

CREATE CUSTOM CURSOR (./VIEWTOPIC.PHP?F=45&T=8047)

- By joso23

Hum i don't know if the properties  
windowScene.Wi[...]

[READ MORE](#) (. /viewtopic.php?p=57722#p57722)

07  
Jul

ADD PAUSE IN SUB EVENT (./VIEWTOPIC.PHP?F=45&T=8058)

- By joso23

I am creating memory game where different sound

07  
Jul

UNIQUE ID PLEASE HELP (./VIEWTOPIC.PHP?F=19&T=8055)

- By Kink

You are working on a network game on native

is[...]

platfo[...]

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## **TUTORIAL: HOW TO GET YOUR HTML5 GAME MADE WITH GD ON KONG! (./VIEWTOPIC.PHP?F=19&T=5113)**

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**TUTORIAL: HOW TO GET YOUR HTML5 GAME MADE WITH GD ON KONG!  
#42338 (./VIEWTOPIC.PHP?P=42338#P42338)**

By Darkhog (. ./memberlist.php?mode=viewprofile&u=343) - ⏰ Sun 20 Apr 2014, 01:32

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This tutorial will explain how to get your game on site like Kongregate. This doesn't cover any advanced subject like using Kong leaderboards/API in your game as I don't know this myself.

First of all, log in into your Kong Account. This is easiest step 😊.

Next go to Upload game.

The screenshot shows a user profile on Kongregate. At the top, it displays the user's name "MyCrossSoft" with a dropdown arrow, their level "11", 143 points to level up, and various user statistics: 0 posts, 9 likes, 0 friends, and a message icon. Below this, there are links for "FULL PROFILE (edit)", "ACCOUNT SETTINGS", "MY MESSAGES", "10 KREDS", and "SIGN OUT". Further down, there are links for "FOR DEVELOPERS", "DEVELOPER CENTER", and "MY GAMES". A large, blue-bordered button labeled "UPLOAD A GAME" is prominently displayed at the bottom right of the profile area.

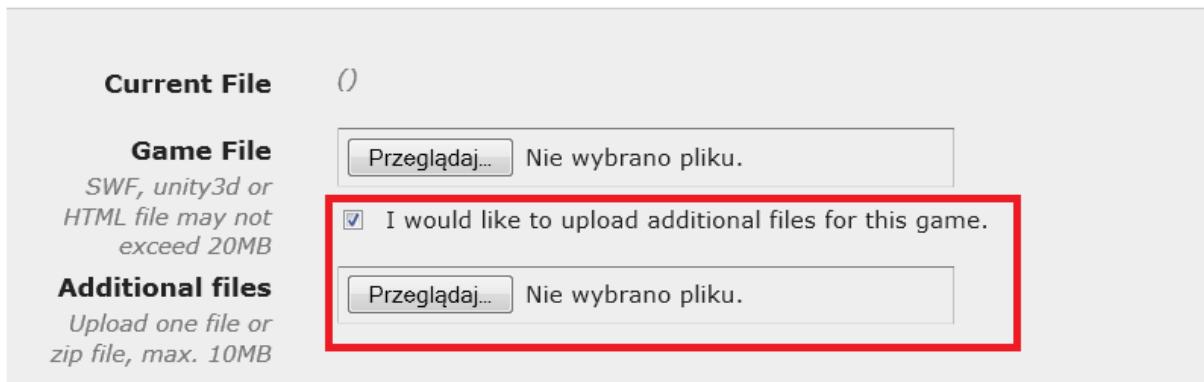


Fill in game details such as game's name, description and instructions. Unless someone helped you with game, you can leave contributors list empty as well. It is safe to leave API callback URL not filled too.

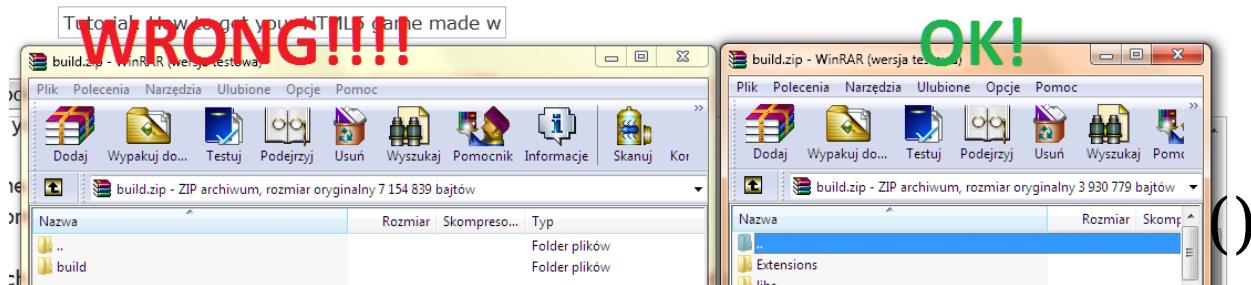
Now the tricky part (I assume you already build your game for web from GD. If not - do it now!).

You upload your index.html file as game file. Enter width and height of game's area as well (you can get it from within GD).

Next check "I would like to upload additional files for my game"



It's bit a tricky part. First you need to put your game's data into ZIP file. Data need to be in root of ZIP and cannot contain index.html file (we uploaded it separately, remember?)





Now we need game icon. It needs to be 250x200px at least. **Icon is required to publish your game..** If you don't plan upload game to other services such as your own site or gdshare, you can check "This game is exclusive to Kongregate" for a bit of more ad revenue.

Next step is to check all checkboxes under license agreement. Now you can upload your game! After verifying game plays OK, you can hit publish to make game go live! Awesome, isn't it?

•••

There are no impossible things. There is only lack of skills.

---

C++ and C are like a sea. You can easily get lost in it.

Mst wrds cn b stll rd vn f y rmv ll vwls.

( )

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# Tutorial on making a multiplayer racing game

This tutorial assumes that you know how to use game develop well and is not new to it. For beginner tutorials, go to [http://www.wiki.compilgames.net/doku.php/gdevelop/tutorials](#) ([http://www.wiki.compilgames.net/doku.php/gdevelop/tutorials](#)) to see more tutorials. The final product should look like this:

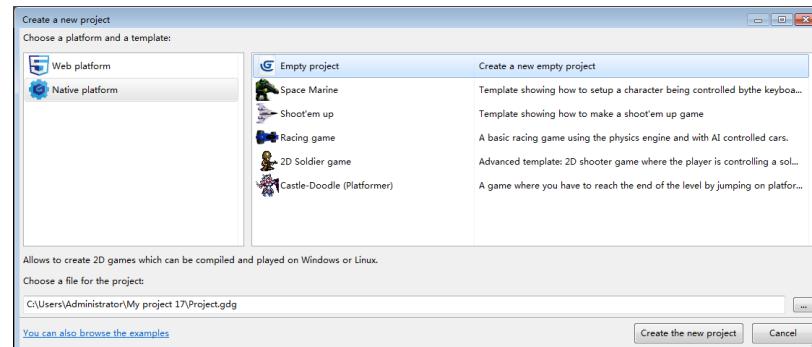
## Preparation

First make sure you have already downloaded GDevelop. If not, please download the latest version from here [http://compilgames.net](#) ([http://compilgames.net](#)).

Make sure that you always have the newest version because the older versions might have bugs.

## Creating the project

Create a new project. For this tutorial, we will be using the native platform because it has the network extension and the web platform doesn't. Click on empty project and choose the path you want to save your project at.

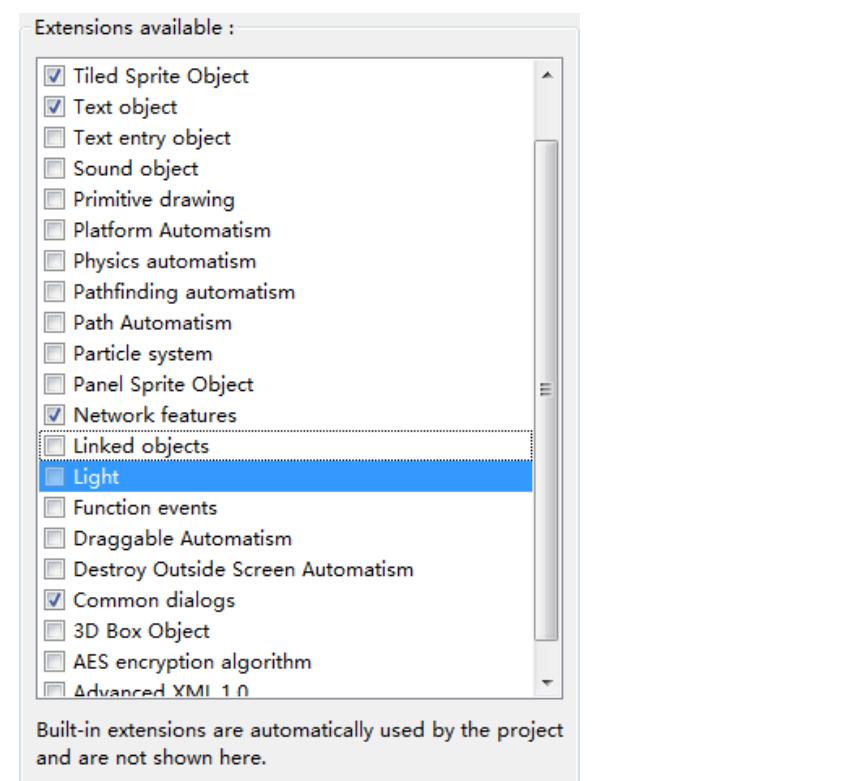


([http://wiki.compilgames.net/lib/exe/fetch.php?tok=cce83d&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage:](#)

## Extensions

We will need 4 extensions:

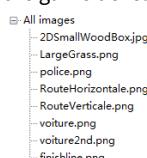
- Network Features (for the multiplayer)
- Common Dialogs (for typing in the ip, ect)
- Text Object (for the “Ready... Set... Go!” text)
- Tiled Sprites (for the road and the background)



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=636822&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage2.png>)

## Graphics

We need images to make the game. The graphics I used are already bundled with GDevelop, so you should have them. You don't need to use them though if you draw your own graphics. The graphics I used are voiture2nd.png, voiture.png, police.png, LargeGrass.png, finishline.png, RouteHorizontale.png, RouteVerticale.png, and 2dSmallWoodBox.jpg. The images should all be in the examples folder that is inside the game develop folder.



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=c9e70f&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage3.png>)

## Adding Tracks and Background

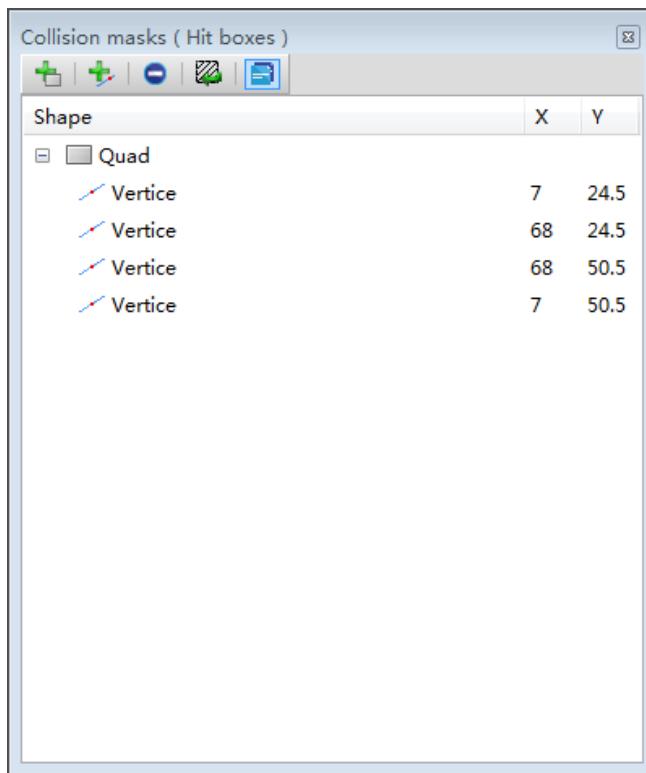
All done so quickly? Well, then move on to the next step. Create a new tiled sprite

named Background. Use LargeGrass.png for the graphic. You don't really need to do anything with it, as we will add in the background last because we do not know how large the track will be. Now, create two other tiled sprites and name them RoadHorizontal and RoadVertical. Use RouteHorizontale.png and RouteVerticale.png accordingly for the sprites. We won't be making the track yet. Also, I'm sorry, but GDevelop did not provide curved roads, so you have to put horizontal and vertical roads beside each other to make a "curve".

## Cars and Steering

Make your keyboard into a steering wheel! Ok, maybe you have to program it first. Some of you might be wondering why I haven't included the 4 direction extension. That is because I want it so that you turn with the left and right keys. Ok, enough talk, lets get started. First, add two new sprites. Call them Car and Car2. Use voiture.png and voiture2nd.png for the car graphics. Now drag the 2 object into the scene. Open the sprite edition window and click edit collision mask. (by the way my screen might be different from yours because I have already edited the collision mask. I actually finished the project before I wrote this tutorial)

Alright, now lets edit the collision mask. Delete the old collision mask. There will pop out another one. Delete it too. Now click the button on the up left corner of the screen. A dialog will pop out. Enter 61 for the first and 26 for the second. Do the same for car2. We are making a new collision mask because pixel perfect collision doesn't work with sprite against tiled sprites, and the original collision mask is too big for the cars.



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=5a09b3&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage4.png>)

Now, lets start working on the events. Go to the event page and create a 4 new events:  
If up key is pressed, add to car a force, angle: Car.Angle() degrees and length: 300 pixels

*This moves the car forward when pressing up key and also enables steering.*

If down key is pressed, add to car a force, angle: Car.Angle()+180 degrees and length:

100 pixels

*This moves the car backward when pressing down key and is affected by the direction of the car.*

If left key is pressed, do -200\*TimeDelta() to the angle of car

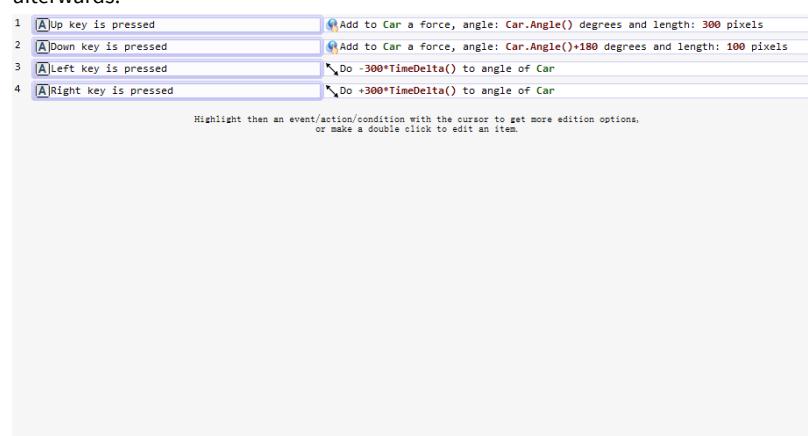
*This allows you to steer to the left by pressing the left key. Time delta allows events to run always the same speed so even if your fps is like 10, your results would be around the same as a guy who has 60 fps. Read more about TimeDelta() here*

*[http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts) ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts)).*

If right key is pressed, do +200\*TimeDelta() to the angle of car

*The same concept as steering left, only opposite.*

I am fully aware that I did not mention adding the events for car2. We will add that afterwards.



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=f74052&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage5.png>)

## Polizia!

Police, drop your guns! Okay, I'm just joking. We are going to add police cars to the equation. Add 2 new sprites and both use police.png as graphic. Change their collision masks to 61, 26.



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=024151&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage6.png>)

/fetch.php?tok=024151&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage6.png)

Make them be a little behind the racing cars. Their AI will be simple:

Always, add to police a force, angle: Police.Angle() degrees and length: 250 pixels, add to police2 a force, angle: Police2.Angle() degrees and length: 250 pixels, rotate police towards Car.PointX(Centre);Car.PointY(Centre) at speed 0deg/second, rotate police2 towards Car2.PointX(Centre);Car2.PointY(Centre) at speed 0deg/second

*This moves police toward car and police2 toward car2*

## Winning and Losing

Create a new scene variable called win. Add these 3 event:

Car is in collision with Police ( Collision masks ), do =2 to variable win

Car2 is in collision with Police2 ( Collision masks ), do =1 to variable win.

Variable win != 0, trigger once, display message ““And the winner is... Player ”+VariableString(win)+”!”, go to scene your\_scene\_name\_here

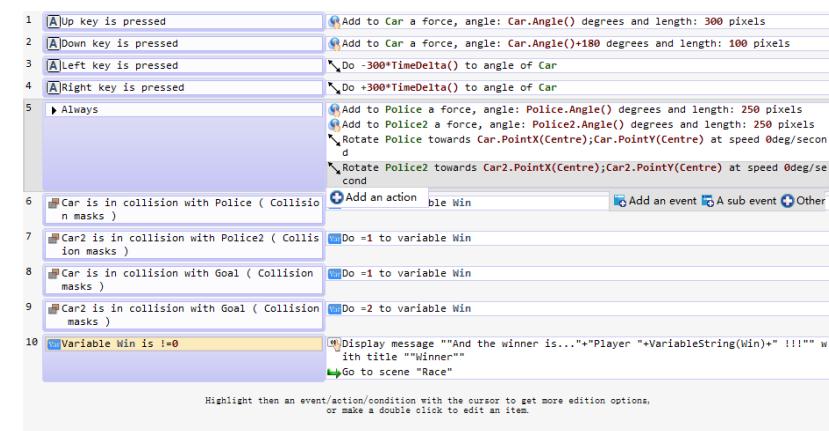
*I know it has 2 double quotes on the outside, it always is like that. Only add one double quote though.*

Now add a new sprite and name it goal. Use finishline.png for the image. Now do:

Car is in collision with goal ( Collision masks ), do =1 to variable win

Car2 is in collision with goal ( Collision masks ), do =2 to variable win.

Quick explanation: If win=1, car wins. If win=2 car2 wins.



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=9cb994&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage7.png>)

## Multiplayer

Add these events:

At the beginning of scene:

- Display “Starting message” with title “title”
  - Open a text input dialog, and save the result in variable IP (for this just ask the player the IP of the player they are connecting to)
  - Open a Yes/No message box, and save result in variable Player (for this ask the player if they are player one or player two)
  - Initialize data reception
  - Add VariableString(IP) to recipients
- This allows you to receive data from an IP through a port (default is 50001).*

Now you need to add in the events that send and receives the information. But before that, you need to add the controls for car2. Add 2 new events:

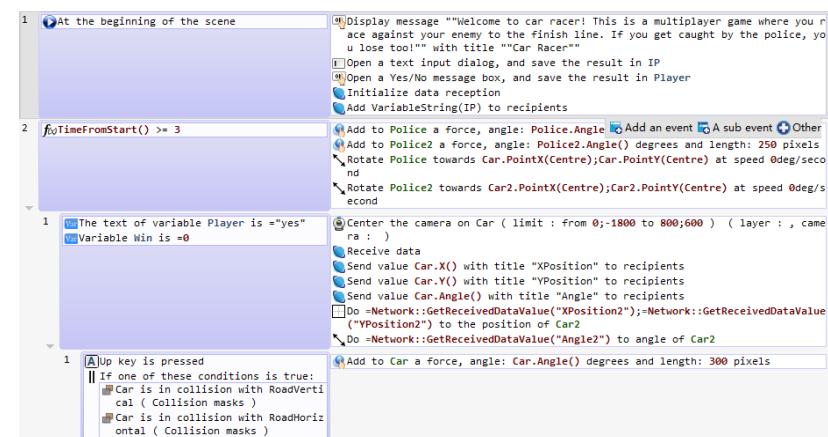
The text of variable player is “yes” and variable win =0

The text of variable player is “no” and variable win =0

Now put the first car’s control as sub events of the first new event. Duplicate the first car’s controls and do the same for the second event, except rename the controls for car2. Now in the yes event, add these:

- Receive data
- Send value Car.X() with title “XPosition” to recipients *This sends the car’s X position to the other player*
- Send value Car.Y() with title “YPosition” to recipients *This sends the car’s Y position to the other player*
- Send value Car.Angle() with title “Angle” to recipients *This sends the car’s angle to the other player*
- Do  
=Network::GetReceivedDataValue("XPosition2");=Network::GetReceivedDataValue("YPosition2")  
to the position of car2 *This receives the other car’s X and Y position*
- Do =Network::GetReceivedDataValue("Angle2") to the angle of car2 *This receives the other car’s angle*

To read more about networking, go here [http://www.wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_network](http://www.wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_network)  
[\(http://www.wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_network\)](http://www.wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_network)



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## The Track Science

The game would be very pointless if there was no difficulty to the game. We are going to add the our cars so that if they are off the track, they would go slower (because there is grass :D). Add a condition to both going forward and going backward events (for both cars). Add the condition OR (in the advanced section). Now add 2 other conditions inside the OR condition. It should be car/car2 is in collision with RoadVertical ( Collision masks ) or car/car2 is in collision with RoadHorizontal ( Collision masks ). Now duplicate the going forward and going backward event (for both cars) and reverse the collision so that the event happens when the car is not touching a road but player is still pressing up or down keys. Change the speed for up key to be 100 pixels and speed for down key to be 25 pixels. That way if the player's car is not on the track they will be slower and the police will catch up to them. That makes the game more difficult and more skill based.

## Starting Message

Create a new text object. Write the text "Ready" inside it. Name it start. Create a new layer and move it to the top. Name it HUD. Add 3 events (I used compare expressions condition for the first three conditions):

- TimeFromStart()>=1, trigger once, Do =“Ready...” to the text of start
- TimeFromStart()>=2, trigger once, Do =“Set...” to the text of start
- TimeFromStart()>=3, trigger once, Do =“GO!!!” to the text of start
- TimeFromStart()>=4, trigger once, Delete object start

Now we have to add it so that the racing cars and police cars can't move until the text says "GO!!!". Simply create a new event with TimeFromStart()>=3 and put all of car and police movement to its sub event.

## The Tracks

Now add the background, the cars, the police, the tracks, and the goal to the game! Nothing more needed to be mentioned.

## Camera

We need the camera to follow the player in case the track is bigger than the screen. Add an action to both car and car2. They should be placed where the networking

events are so that the camera will follow car/car2 all the time. Use a Center the camera on object within limits. Center the camera on car/car2. To know more about centering camera on objects within limits, read: <http://www.forum.compilgames.net/viewtopic.php?f=20&t=5252> (<http://www.forum.compilgames.net/viewtopic.php?f=20&t=5252>)

## Boundary

Almost done! We need to stop the car from going out of the playfield by creating a new sprite called obstacle with 2dSmallWoodBox.jpg. We add the event:

Car/car2 is in collision with obstacle (pixel perfect), move away car/car2 of obstacle (only car2 will move).

*This moves the car away from the obstacle when the car touches the obstacle.*

Now add the obstacles around the playfield so that the player cannot get out of the playfield.

## Bug Fix

There is a little problem when playing the game. When you finish playing, you have to restart. When you try to close the game while the dialog is out, the game will freeze. A fix to it is add to the event when win!=0 first delete go to scene and add :

Open a Yes/No message box and, and save the result in Continue

Now add 2 new event :

The text of variable Continue is =“yes”, go to scene “your\_scene”

The text of variable Continue is =“no”, quit the game

*The action quit the game is at scene actions.*

## Congratulations

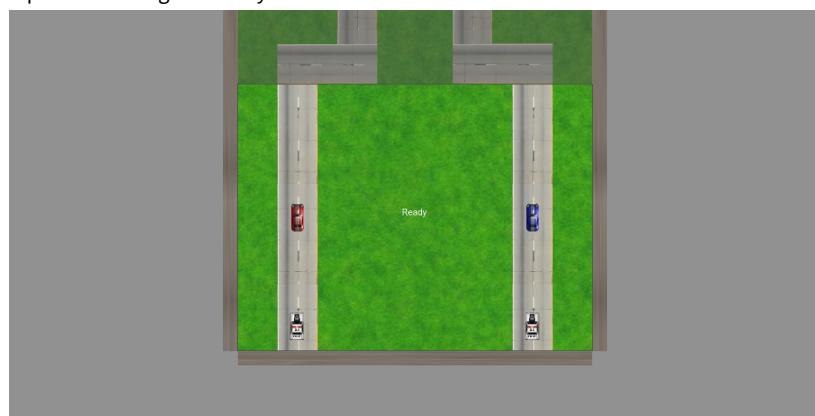
Good job! You finished this extremely boring tutorial without quitting! Give yourself a pat on the back. Compile the game to wherever you want and have fun!

## Extra

In order to play this game, you and your friend must both port forward (<http://www.portforward.com>) to port 50001 and use each other's external IP to connect to each other. You can find your external ip by going to <http://www.whatismyip.com> (<http://www.whatismyip.com>). Have fun playing this game with your friends!

Also here (<http://www.uploadhosting.co/uploads/123.110.190.113/NetworkTutorial.rar>) is a link to my version of the game.

A picture of the game in my scene editor:



(<http://wiki.compilgames.net/lib/exe/fetch.php?tok=c4c8d5&media=http%3A%2F%2Fwww.wiki.compilgames.net%2Flib%2Fexe%2Ffetch.php%2Fgdevelop%2Ftutorials%2Fimage9.png>)

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# Creating a Memory Match Game in GDevelop

by komencanto

This tutorial is based on the original tutorial “Creating a Memory Match Game in Construct 2” by kittiewan:

<https://www.scirra.com/tutorials/280/creating-a-memory-match-game/page-1>  
(<https://www.scirra.com/tutorials/280/creating-a-memory-match-game/page-1>)

For this tutorial you'll need *GDevelop*, ver. 3.5.74.0 or higher.

We also will use the card graphics, created by *kittiewan* in this tutorial, which you can download from the linked page (look for *Memory Match Tutorial bundle*, the folder *Cards Graphics*). Or if you want to use your own images you'll need 13 of them: 12 for ~~face~~ side of the card and 1 for the back of a card.

You can try the original game here: <http://www.scirra.com/arcade/addicting-example-games/956/memory-match-tutorial> (<http://www.scirra.com/arcade/addicting-example-games/956/memory-match-tutorial>)

The goal of the game is to find matching pairs of cards in the least number of turns possible.

The tutorial consists of 5 parts which will guide you step by step in creating this game.

You can leave your feedback about this tutorial on GD forum:  
<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5471>  
(<http://www.forum.compilgames.net/viewtopic.php?f=19&t=5471>)

## PART 1: ADDING A CARD OBJECT TO THE SCENE

(Setting up the game window, inserting a sprite object, adding animations, making the card respond to a mouse click.)

### A. Adjusting a window size and a background color.

Launch GDevelop.

Create a new project (the *New* button at the top or *Create a new project* in the main window on the *Start page*), select *Empty project, Native platform* (you can always change to the *Web platform*, but the debugger is available only on the Native platform). Under *Choose a file for the project*, rename the folder *My project* to *MemoryMatch* and the name of the project from *Project.gdg* to *MemoryMatch\_1.gdg* (we will save each part of the project as a separate file). At the end click on the button *Create the new project*.

Now let's choose the size of the game window and the color of its background.

Right-click on the *Project* in the *Project Manager* and select *Edit the properties of the game*. Set the Window Width to 640 and the Window Height to 480. Close the window *Project Properties*.

Next, right-click on the *New scene* in the *Project Manager* and select *Edit the properties*. Change the background color of the Scene to the one that will contrast with the white cards - green, for example, and click *OK*. Also let's rename our Scene from *New scene* to *Game*. Right click on the name *New scene* and select *Rename*. Type in the new name.

## B. Inserting a sprite object, adding animations to it

Now let's add an object Card to the Scene.

- Right-click on the Scene (green field with a frame in the main window) and select *Insert a new object*. Select *Sprite*, and then click *OK*.
- In the sprite editor, right-click in the *Images* window and select *Add an image from a file*. From the folder containing the card graphics, select the file *CardBack.png* and click *Open*. Then close the sprite editor.

The image of the card will appear on the Scene.

Let's move it inside the frame on our Scene, which shows its visible part when the game is running.

Now we'll rename our card object from *New Object* to the *card*. To do this in the *Objects' Editor*, right click on the object *New Object*, select *Rename* and rename it to *card*.

(Note:

- GDevelop is case sensitive. The 'card' and 'Card' will be names for two different objects.)
- If the window *Object Editor* is closed, open it by selecting *Scene-Objects Editor* in the top menu.)

Now add another animation to our card, which will contain its face images.

To do this, double-click in the *Objects editor* on the object *card* to open *Edition of a Sprite object* window. In it on the left you'll see *Animation* window with *Animation 0* in it which has only one frame - the back of the card.

Now we'll add another animation for our card with all face images which it can have.

To do this in the `Animation` window click on the plus sign (*Add animation*).

`Animation 1` will be added. Then right click in the bottom `Images` window and select *Add an image from a file*. Select all the files with images of the card faces (click on the first image, then `Shift +click` on the last and click `Open`). You'll see then 12 images - frames 0-11 of the `Animation 1` of our card.

Now we need to repeat the same action and insert another 12 frames to our animation and place same pictures side by side. It will help us in the future identify cards matches.

To place the same pictures next to each other, click on the frame 12 (leaf) and press “j” to move it to the left until it will be placed next to the frame 0 (the same image of a leaf). And repeat that for each of the remaining frames. As a result, you shall see 12 pairs of frames with the same pictures. Now you can close the window `Edition` of a `Sprite` object .

## C. Reacting to the mouse click

So, we have prepared our card, now let's make it react to a mouse click by changing its animation from `Animation 0` (back of a card) to `Animation 1` (face of the card).

To do this, go to the *Event editor* (tab `Events` next to the tab `Scene`), and create our first event.

So, in the event editor, in the top panel click *Add an Event*.

Move your mouse cursor to the part of it which says *No condition* and select *Add a condition*.

A window opens with a list of possible conditions, grouped into categories on the left and with the description of them on the right.

Choose:

`Sprite - Mouse - The cursor is on an object` .

In the right side of the window choose object `card` by clicking on a button with picture of cube on it and selecting `card` from the list. Then click `OK` .

Now we'll add a sub-event.

To do this, select our first event by clicking on the number `1` , and add a sub-event by button *Add a sub-event* on the top or a tab *A sub-event* under our event ).

Add a condition:

`Mouse - Mouse button` .

Click on the button with picture of a mouse on it and choose *Left button*. Click `OK`.

Now we need to add *Trigger once* condition to not constantly execute our event while the mouse button is pressed.

To do this, add a condition:

`Advanced - Trigger once while true`

So, if the mouse cursor is on the card and left mouse button was pressed, then ... We need to add an action that changes the animation of the card, when these conditions are met.

Move your mouse to the part of our sub-event with words *No Action* and select *Add an action*.

Choose:

Sprite - Animations and images - Change the animation

Object: card

Modification's sign: =

Value: 1

and click **OK**

Now, if we'll run our game (*Scene-Preview*) after clicking on the card it will show all its face images from the first to the last.

Let's fix it. (To exit the *Preview* mode click on the *Edition* button.)

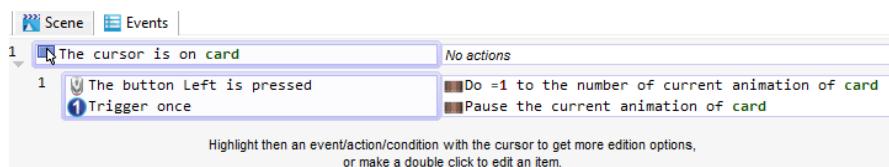
We need the card to show only one face image of it - not all of them. To do this, we need to stop the animation.

Go to the events editor and add another action to our sub-event: Action:

Sprite - Animations and images - Pause the animation

Object: card .

Our events shall look like this:

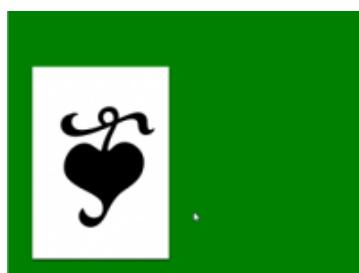


([http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/part1\\_events.png?id=gdevelop%3Atutorials%3Amemorymatchgame](http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/part1_events.png?id=gdevelop%3Atutorials%3Amemorymatchgame))

Now let's run our project.

Go to the Scene and click on the *Preview* button up in the ribbon.

If we click on our card it changes its image from card back to its first face picture (leaf).



([http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/part1\\_01.png?id=gdevelop%3Atutorials%3Amemorymatchgame](http://wiki.compilgames.net/lib/exe/detail.php/gdevelop/tutorials/part1_01.png?id=gdevelop%3Atutorials%3Amemorymatchgame))

To exit preview mode, press *Edition* button in the ribbon on the top.

In the next part we'll lay out the cards, and make each card show its own face image.

Part 2 ([http://wiki.compilgames.net/doku.php/gdevelop/tutorials/memorymatchgame/part2\\_choice](http://wiki.compilgames.net/doku.php/gdevelop/tutorials/memorymatchgame/part2_choice))

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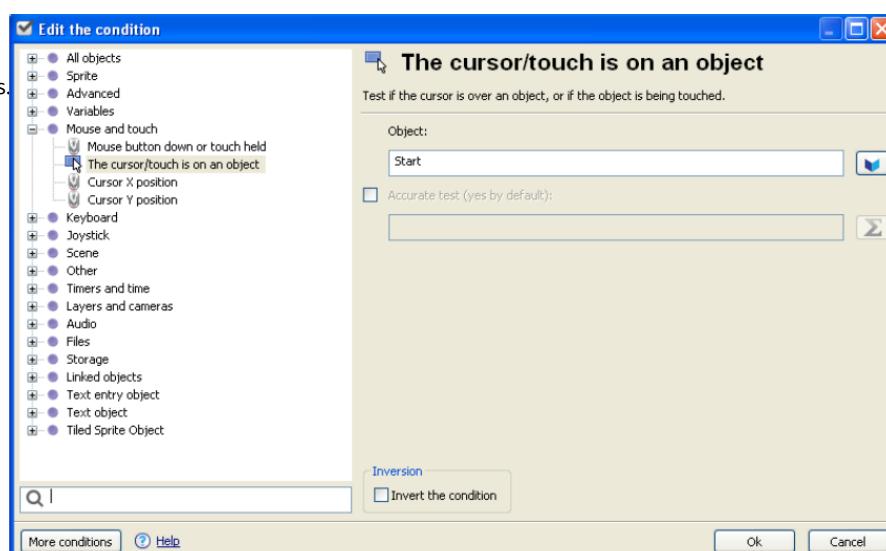
# How to play sounds on buttons?

This is a tutorial on how to play sounds on buttons.

You should first know how to make/create a button (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/creatingbuttons>) before doing this tutorial.

If you know how to make buttons, follow the following steps in order for your buttons to play sounds.

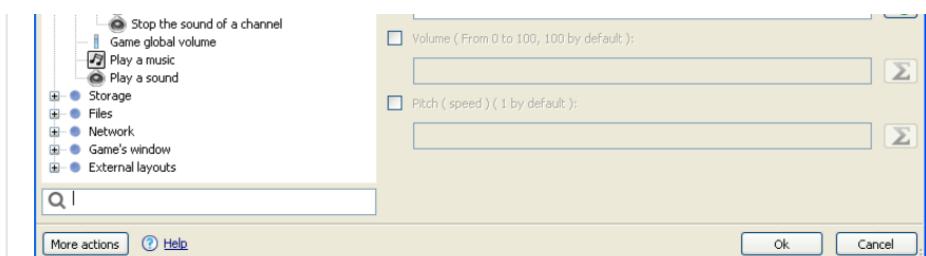
1. Create an event with a condition that the *cursor/touch is on an object* where the object being referred is the button.
2. Add the condition “if(and)” below the cursor/touch and trigger once on the if condition.



([http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen\\_shot\\_2015-07-08\\_at\\_1.09.42\\_pm.png](http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen_shot_2015-07-08_at_1.09.42_pm.png))

3. Add action next to that condition which plays a particular sound.





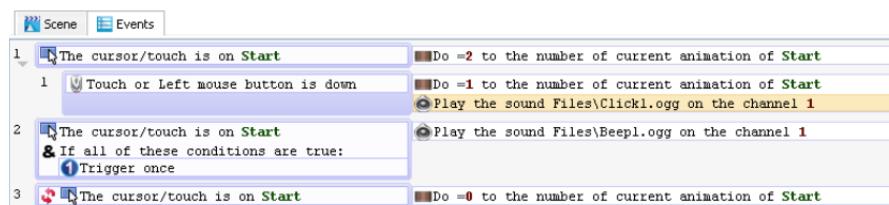
([http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen\\_shot\\_2015-07-08\\_at\\_1.04.00\\_pm.png](http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen_shot_2015-07-08_at_1.04.00_pm.png))

Take note: The sounds must be an .ogg or .wav file and the repeat is not active.

4. Create a new event with cursor/touch on an object condition to the button with the animation of the button as the action of the event.

5. Create a sub-event that contains the touch of Left Button of Mouse condition, and the animation action of the button and the action that contains the sound being played when the button is being clicked.

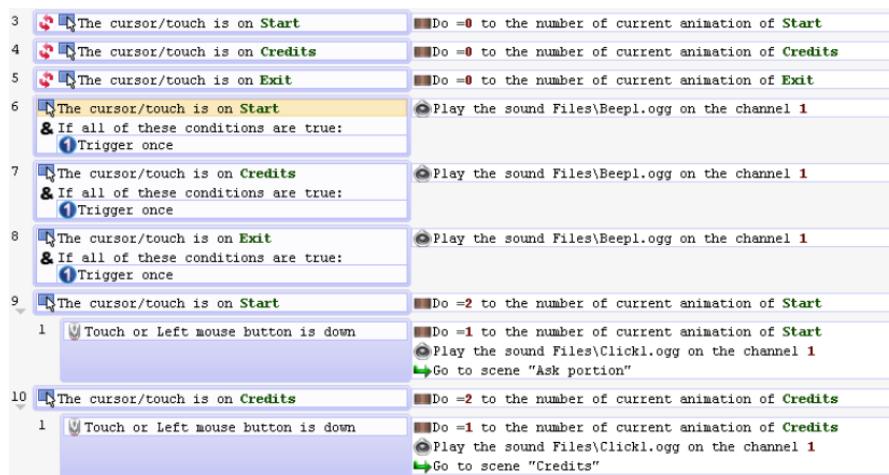
In a nutshell, the entire process of event must be organized like this in order to achieve desired effects.

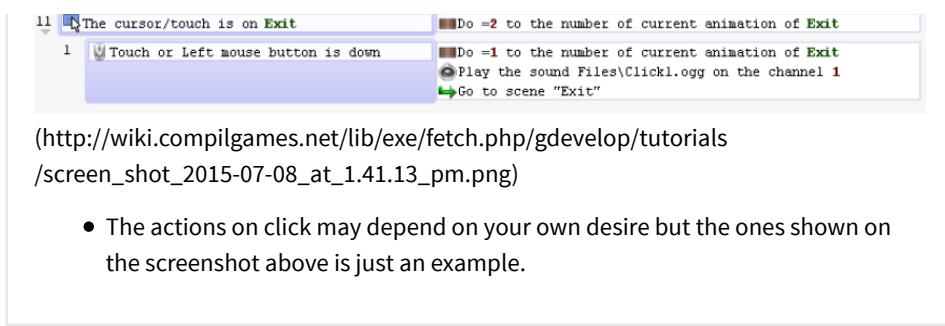


([http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen\\_shot\\_2015-07-08\\_at\\_1.04.38\\_pm.png](http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen_shot_2015-07-08_at_1.04.38_pm.png))

#### Reminders:

- The Number 1 and Number 3 in the screenshot above can be interchanged in their position but it's best if you leave things that way.
- Group the events with the same condition/actions like the ones shown on the screenshot below.





([http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen\\_shot\\_2015-07-08\\_at\\_1.41.13\\_pm.png](http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/screen_shot_2015-07-08_at_1.41.13_pm.png))

- The actions on click may depend on your own desire but the ones shown on the screenshot above is just an example.

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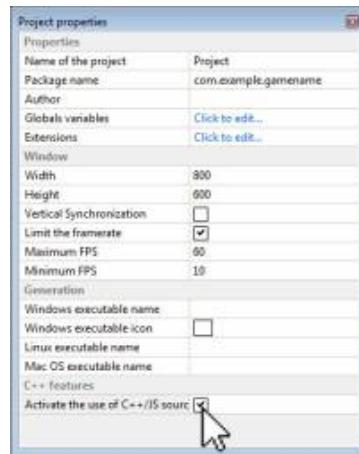
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This tutorial will show you how to play videos in your game using java script. This method was made by my brother Zeal Mayfield. It works on Chrome I haven't tested it in other browsers.

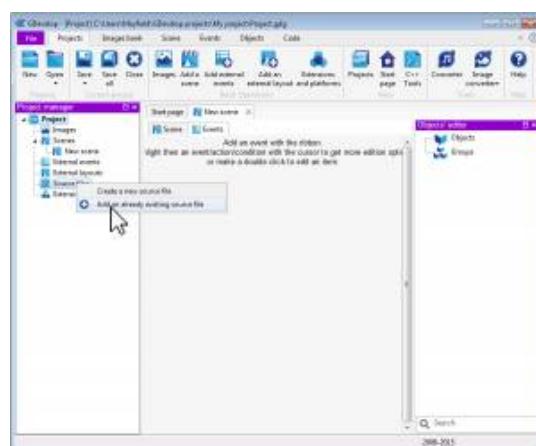
First start by enabling JavaScript in your game. Right click on your project icon and select "Edit the property of the game"



Next you will need to download the java script code file below to your computer.

<https://drive.google.com/file/d/0B0ytvwZTF0r1UVhCbHBCUVI2QlE/view?usp=sharing>

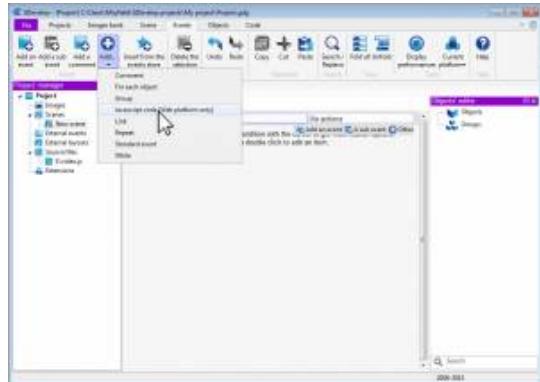
In GDevelop add this file as a source code by right clicking on the source file and selecting "Add an already existing source file".



It will open a browser locate the file you just downloaded and select it and press "Open". Don't quote me on this but this file allows for the use of JQuery which is a Java Script Library so we can easily write simple code to display a video later.

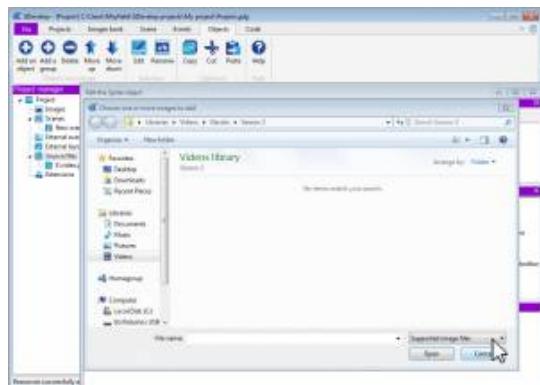
OK to create the Java Script to play the video Click “Events” then on the bar above “Add” then “JavaScript Code(Web platform only)” and type:  
`window.video.play("<Filename.ext>", "controls");`

If you don't remove the comma and “controls” the video will just auto play. There is more options you can add with controls being displayed, auto start and different things maybe someone can add those to this wiki later.



A JavaScript box will appear now you can create a condition, you can see I chose on click. Create a SubEvent on that event and drag the JavaScript Code box underneath it.

**UNTESTED:** Before you can preview it and test it out you will need to add the video file to the preview folder, you can do this by clicking the image icon and then selecting add image \*the add image button will not work unless you have the image tab open\*. When adding the image be sure to select to display all files as seen in the picture.



This will not work in the preview because the video file is not placed in the preview folder. I export the Web Platform game and then just put the videos I'm using inside the main folder.

If you want you can export to a folder that has local server running out of it to test it quickly. I use <http://www.freeutils.net/source/jlhttp/> (<http://www.freeutils.net/source/jlhttp/>) it works great for video playback, and even video scanning.

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# Make a pause menu with two scenes

We will see how to pause scene using basic event and action. This tutorial is really basic, the best is to download and test by yourself the attached file.

Explanations: you'll need at least 2 scenes in your project to be able to pause a scene, load another one (to access a menu with options for example). We're using:

- Conditions from the “scene” folder
- Actions from the “scene” folder
- Conditions from the “keyboard” folder

Basically, pushing the “b” key in the example files (after you compiled/exported it to the web) will switch from scene #1 to scene #2. While the scene #2 is displayed, the scene 1 isn't destructed but all actions/avents are frozen (paused!) in it.

The example file is both in english and french: pause\_scenes\_switch.zip  
([http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/pause\\_scenes\\_switch.zip](http://wiki.compilgames.net/lib/exe/fetch.php/gdevelop/tutorials/pause_scenes_switch.zip))

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# Parallax scrolling

Parallax scrolling is technique often used to display backgrounds to create an illusion of depth : An image displaying a background element which is near the camera will scroll faster than a background element which is far from the camera.

Here is an example : <http://forum.compilgames.net/download/file.php?id=1353>  
(<http://forum.compilgames.net/download/file.php?id=1353>)

With GDevelop, you just have to create some layers used for the backgrounds, and put the different backgrounds on it.

Then, instead of centering the camera of these layers on the object to follow ( let's call it *MyObjectToFollow* ), just put the X position of the camera of these layers to *MyObjectToFollow.X() \* 0.25* for example ( and the same thing for Y if needed ). The *0.25* factor used here tells that the background will follow *MyObjectToFollow* 4 times slower than usual (  $1/0.25 = 4$  ). You can use others factors for the others backgrounds ( See the examples ).

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » Creating buttons for a menu (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/creatingbuttons>)

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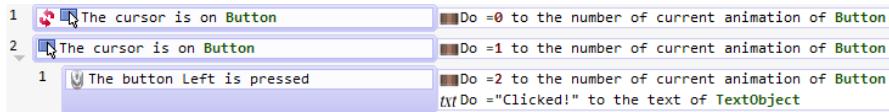
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# Creating buttons for a menu

Creating a button is very simple: Just add a Sprite object with 3 animations:

- In animation 0, put an image of the button.
- In the second animation, put an image of the hovered button.
- Finally, in the third animation, put an image of the pressed button.

Then, using the events, just check if the cursor is on the button and if the mouse left button is being clicked, and change the animation accordingly:



There is a more advanced example called “Buttons.gdg” bundled with GD: In particular, you can use **groups** to generalize these events to all your buttons.

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## TEXT ALIGNMENT TROUBLE (. /VIEWTOPIC.PHP?F=19&T=5498)

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### TEXT ALIGNMENT TROUBLE #44841 (. /VIEWTOPIC.PHP?P=44841#P44841)



By Paturata (. /memberlist.php?mode=viewprofile&u=1595) - Sat 23 Aug 2014, 13:01

Hello,

I have just now started using Game Develop so I'm sorry if this question is stupid, but yeah, I figured I'd try asking.

I have a text and I want the text to appear in a manner of "typing itself out" - characters appear one by one. It works fine, but what I want to do is make them appear from the center of the screen, so that the string is centered when it's completely "written". Considering there is no option for text alignment, how could I manage to do what I need?

Hopefully it's understandable enough.  
Thanks a lot!



### RE: TEXT ALIGNMENT TROUBLE

### #44847 (. /VIEWTOPIC.PHP?P=44847#P44847)

By Lizard-13 (. /memberlist.php?mode=viewprofile&u=592) - Sat 23 Aug 2014, 14:57

Check this out:

[Text\\_align.gdg](#) (. /download/file.php?id=1892)

(13.02 KiB) Downloaded 121 times

Anyway, you just have to add this action in the event you "refresh" the text to show a new letter:

CODE: SELECT ALL

```
Do = "Position_to_be_centered" - Text_Object.Width() / 2 to the X position of the Text object
```

"Position\_to\_be\_centered" is the X position where you want the text to be centered (e.g. the centre of the scene)

•••

I should be studying now :/

**RE: TEXT ALIGNMENT TROUBLE****#44849** ([./VIEWTOPIC.PHP?P=44849#P44849](#))

By Paturata (./memberlist.php?mode=viewprofile&amp;u=1595) - Sat 23 Aug 2014, 18:04

Thanks a lot, works flawlessly. 😊

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Jul**PROBLEM WITH UNIT MOVEMENT (RTS)**  
([./VIEWTOPIC.PHP?F=19&T=8057](#))

- By Caleb\_0718

Nevermind, solved it!

[READ MORE](#) ([./viewtopic.php?p=57723#p57723](#))**07**  
Jul**CREATE CUSTOM CURSOR** ([./VIEWTOPIC.PHP?F=45&T=8047](#))

- By joso23

Hum i don't know if the properties  
windowScene.Wi[...][READ MORE](#) ([./viewtopic.php?p=57722#p57722](#))**07**  
Jul**ADD PAUSE IN SUB EVENT** ([./VIEWTOPIC.PHP?F=45&T=8058](#))

- By joso23

I am creating memory game where different sound  
is[...][READ MORE](#) ([./viewtopic.php?p=57721#p57721](#))**07**  
Jul**UNIQUE ID PLEASE HELP** ([./VIEWTOPIC.PHP?F=19&T=8055](#))

- By Kink

You are working on a network game on native  
platfo[...][READ MORE](#) ([./viewtopic.php?p=57719#p57719](#))[VIEW MORE TOPICS](#)

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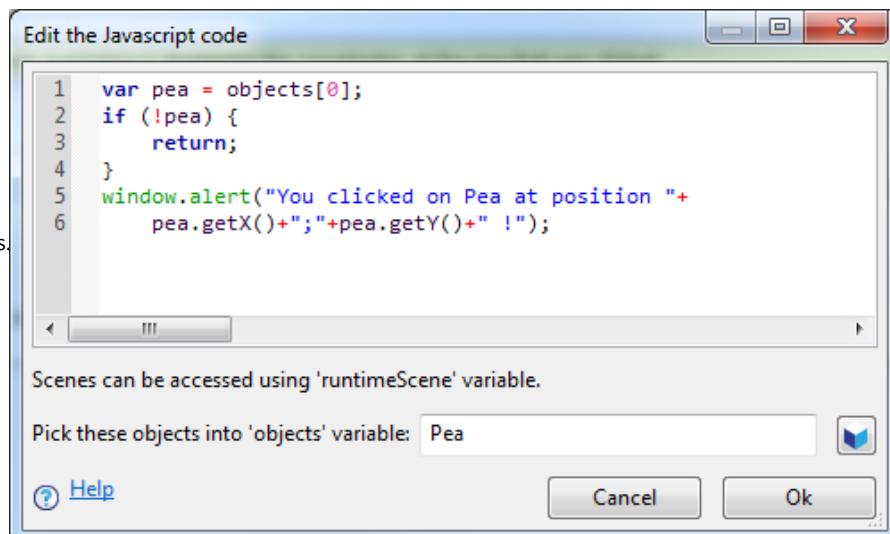
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# How to use Javascript events

Using Javascript events, you can insert an arbitrary code of Javascript into your games created with the Web platform.

This can be useful if you want to use some external libraries or a very specific code. With external source files, you can also integrate entire Javascript source files into your game: it's nice to progressively learn Javascript programming or create a game with a programmer.



## Add a Javascript event

Simply add the event into a game: the event is called `Javascript code`.

When added, double click on it to edit the code that will be executed. Note that in the code, you have access to a variable named `runtimeScene` representing the scene being played. If you choose some objects in the field below the code, then an `objects` variable will be available. It's an array containing the selected objects.

Check the GDJS documentation (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/index.html>) for more informations about these types:

- RuntimeScene (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.RuntimeScene.html>)
- RuntimeObject (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.RuntimeObject.html>)

To check that the event is working, you can start by calling a simple method on the `runtimeScene`, like the one to change background color:

```
runtimeScene.setBackgroundColor(0,0,255); //Set the background
```

or change objects position:

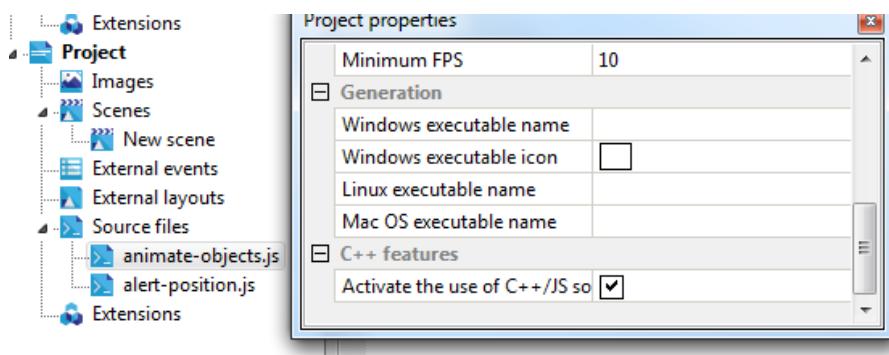
```
for(var i = 0;i<objects.length;++i) {
    objects[i].setX(50); //Set the X position of all picked obj
}
```

## Use external source files

Using external Javascript source files (.js files) is very easy: just include it into the folder of the game (or a subfolder).

Then, activate the use of external source files in your game property (right click on the game name in the Project Manager, than choose properties, and finally check `Activate the use of C++/JS source files`).

Now there is a new item in the structure of your project called `Sources`. Make a right click on it to choose to create a new source file or to import an existing one.



You can edit the files using GD integrated editor or you preferred text editor (take a look at Sublime Text (<http://www.sublimetext.com/>)). When your game will be exported or when you launch a preview, the source files will be integrated to the game.

Source files are included like any other javascript file: if you want to access to functions defined inside, you have to store them into a global object or make these functions globals (just declare it with any prefix, like this: `function myFunction() { ... }`). Then you can call them from your events using a Javascript event.

## Tips about writing Javascript code

If you don't know how to code in Javascript, there are lots of nice tutorials available.

Here are some tips about Javascript events and external source files:

- Always use the debugging tools available in your browser to check if you made

errors in your code: any error will block the game from running. Developers tools are most of the time available by pressing F12 in your browser.

- If you use lots of Javascript in your game, you'll better use external sources files and a dedicated text editor (like Sublime Text).
- Read the documentation (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/index.html>) to know how to use the objects and functions provided by GDevelop.

## Code examples

### **Read and change the value of a variable:**

```
var myVar = runtimeScene.getVariables().get("MyVar");
var myVar2 = runtimeScene.getVariables().get("MyVar2");

var currentValue = myVar.getAsNumber();
myVar.setNumber(currentValue+1);

myVar2.setString("Hello, world");
```

See the documentation of `gdjs.Variable` (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.Variable.html>) and `gdjs.VariablesContainer` (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.VariablesContainer.html>).

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# Simulating dynamic arrays with structure notation

In GDevelop you can use structure notation applied to an action to declare the child of a structure:

```
Do = 1 To Variable myStruct["myChildVar"]
```

**NOTE:** any argument passed between square brackets must be a string.

**TIP:** use the `VariableString()` function (instead of the `Variable()` function) to get the value of a variable expressed as a string.

You can also declare it dynamically:

```
Do = 1 To Variable myStruct[VariableString(myVar)]
```

And use almost the same syntax to dynamically access its value:

```
Do = Variable(myStruct[VariableString(myVar)]) To Variable myVar
```

**NOTE:** the syntax used in the “name field” (the field that holds the name of the variable) must be wrapped by the `Variable()` function when used in the “value field” (the field that holds the value of the variable).

## EXAMPLE:

- for the “name field”, when declared: `myStruct[VariableString(myVar)]`
- for the “value field”, getting access to its value:  
`Variable(myStruct[VariableString(myVar)])`

So, you can simulate dynamic arrays (declared during an iteration for example):

```
Do = 1 To Variable myStruct[VariableString(myCounterVar)].myChi
```

And dynamically access its value:

```
Do = Variable(myStruct[VariableString(myCounterVar)].myChildVar)
```

Or access the value of a specific element of the array (in this example, 5):

```
Do = Variable(myStruct["5"].myChildVar) To Variable myVar
```

You can even use double square brackets to simulate a 2D array:

```
Do = 1 To Variable myStruct[VariableString(counter1)][VariableS
```

And dynamically access to its value with almost the same syntax (wrapped by the Variable() function):

```
Do = Variable(myStruct[VariableString(counter1)][VariableString
```

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# Using an external function from a dll with C++ code events

Using C++ code events, you can load a DLL (or a shared library on Ubuntu) and call a function exported by this DLL.

Beware! This kind of feature is obviously compatible only with native games!  
You should try to avoid using DLL or external shared library as much as possible to ensure that your game will remain compatible with newer version of GDevelop.

## Activate external C++ sources for your game

First, make sure that external C++ sources are activated for your game: In the project manager, edit the properties of your game and check the corresponding option.

## Add .cpp and .h files

Add two files a cpp source file and a header source file to your game. You can name them Functions.cpp and Functions.h for example.

As usual when working with C++, the .cpp file will contains the implementation of functions (that will be called from the events), and the .h file will only contains the declaration of these functions.

## Creating the functions

In the header file, enter this code:

```
class RuntimeScene; //This is a forward declaration: It avoids
void MyFunction(RuntimeScene & scene); //The prototype of the f
```

Then, in the .cpp file, enter this code:

```
#include <GDCpp/RuntimeScene.h>

void MyFunction(RuntimeScene & scene)
{
    //For now, we're just changing a variable to check if the f
    scene.GetVariables().Get("Result") = "It works!";
}
```

## Calling the function from the events

In a scene of your game, add a C++ code event.

Edit it, add “`Functions.h`” (with the quotes) in the list of includes files. Check `Functions.cpp` in the list of dependencies (but *not* `Functions.h`) and, finally, replace the code of the function by:

```
if (scene.IsFirstLoop())
    MyFunction(scene);
```

The C++ code event must not be placed as a sub event, due to a bug in GD. It should be fixed in the next version.

For now, be sure that the C++ event you've added is not a sub event of another event.

## Testing the code

You can launch the scene and check in the debugger that the variable has been modified.

If the scene does not compile properly, open the `C++ tools` (Ribbon General > C++ tools) and check the error.

If there is an **undefined error**, be sure that you *saved the changes* in `Functions.cpp` and `Functions.h`. Then, **double click** on the C++ code event, and simply **click on Ok** to trigger a recompilation of the files.

## Calling an external library

Dynamic libraries can be loaded using C++ functions specific to Windows or Linux, but GDevelop offers ready to use functions that are hiding the platform specific code.

For testing, you can download this DLL: [http://www.gamemaker.fr/pages/download/DLL/shaman\\_hash\\_dll.zip](http://www.gamemaker.fr/pages/download/DLL/shaman_hash_dll.zip) ([http://www.gamemaker.fr/pages/download/DLL/shaman\\_hash\\_dll.zip](http://www.gamemaker.fr/pages/download/DLL/shaman_hash_dll.zip)) (It's a dll offering hashing functions, which was used with Game Maker).

The DLL must be put **next to the game project** (or the game executable when the game is compiled).

Replace the code inside `Functions.cpp` by this new code:

```

#include <GDCpp/RuntimeScene.h>
#define WINDOWS //As I'm testing it on Windows. Replace it by L
#include <GDCpp/DynamicLibrariesTools.h>
#include <stdint.h>

//Here, we want to get a pointer to a function returning an int
//and taking a uint8_t, uint8_t and a double as parameters
//(Adapt this according to what function you want to call).
typedef int (*FuncType)(uint8_t* buf, uint8_t *cstr, double has

void MyFunction(RuntimeScene & scene)
{
    //Open the library
    Handle lib = gd::OpenLibrary("shaman.dll");
    if(!lib) {
        scene.GetVariables().Get("Result") = gd::DynamicLibrary;
        return;
    }

    //Get a function from this library
    FuncType func = (FuncType)gd::GetSymbol(lib, "ShaCryptString");
    if (!func) {
        scene.GetVariables().Get("Result") = gd::DynamicLibrary;
        return;
    }

    //Call the function
    uint8_t output[512] = {0};
    func(output, (uint8_t*)"Hello", 0);

    scene.GetVariables().Get("Result") = (const char*)output;

    //Close the library
    gd::CloseLibrary(lib);
}

```

Here are some explanations:

- The functions provided by GDevelop to open the external libraries are in `GDCpp/DynamicLibrariesTools.h`. You need to define `WINDOWS` or `LINUX` before including this header.
- Here, the example is using `shaman.dll`, which provide a function called `ShaCryptString`. Read the documentation of the DLL, or the source code of the DLL to see all the functions available and their parameters.
- Each function in a C++ code has a signature: It represents the parameters of the functions and its return type. Here, the function we want to call has specific parameters: We declare it after the includes.
- Then, in the function called by GDevelop, we open the library, get the function to call (`ShaCryptString`) and we call it.

Here, we create an empty array of integer (`uint8_t output[512] = {0};`) and we call the function of the library, passing it the array and a string to hash (`Hello`).0

specifies we want to use the *SHA1* hashing function. Refer to the documentation or the source code of the DLL for more information.

## Other example

```
#include <GDCpp/RuntimeScene.h>
#define WINDOWS //As I'm testing it on Windows. Replace it by L
#include <GDCpp/DynamicLibrariesTools.h>
#include <stdint.h>

//Here, we want to call a function returning an integer and taking
//a double and C-string as parameter
typedef int (*FuncType)(double parameter1, const char * parameter2);

void MyFunction(RuntimeScene & scene)
{
    //Open the library
    Handle lib = gd::OpenLibrary("my_library.dll");
    if(!lib) {
        scene.GetVariables().Get("Result") = gd::DynamicLibraryError();
        return;
    }

    //Get a function from this library
    FuncType func = (FuncType)gd::GetSymbol(lib, "AFunctionInTheLibrary");
    if (!func) {
        scene.GetVariables().Get("Result") = gd::DynamicLibraryError();
        return;
    }

    //Call the function with arbitrary parameters
    scene.GetVariables().Get("Result") = func(5, "Test");

    //Close the library
    gd::CloseLibrary(lib);
}
```

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# Load a JSON file to a variable

You can load the content of a local JSON file into a variable.

For native games, you can only load a JSON file **from a website**. See the note at the end of this page.

First, you need a json file that you'll put next to the `index.html` file when your game is exported. For example:

```
{  
    "title": "My great news",  
    "content": "Hello everybody"  
}
```

In your game, add an action called “Send a HTTP request to a website”.

- For the host, enter an empty string: “” (as we're using a local file put in the game folder). Do not forget the quotes!
- For the path, enter the name of the JSON file: “news.json” (Do not forget the quotes again!)
- For the body of the request, enter “” again.
- For the last parameter, enter the name of the variable that will be filled with the JSON file. For example, `RawNews`.

Add a Text object, and set the text of this object to the value of the `RawNews` variable. Put the object on the scene. Export your game, put the `news.json` file next to the `index.html`, **send the game to a website** and open it with a browser. You'll see the variable filled with the JSON.

This **won't work** if you're not sending your game to a website.

Ok, great, we can now display the content of the JSON file! How to read the value of the title and content.

Add an action after the first one. Choose action `Convert JSON to variable`.

- For the first parameter (“JSON string”), the action expect the content of the json, so enter `VariableString(RawNews)`. (As the `RawNews` variable contains the JSON)
- Then enter the name of the variable that will contain the value of the JSON. For example, `News`.

That's all! Now you can access to the title like this `VariableString(News.title)` (and the content in the same way: `VariableString(News.content)`).

For example, you can add a text object and this action:

```
Do =VariableString(News.content) to the text of object MyTextObj
```

Again, export the game, put it on a website, put the json file next to the `index.html`.

The object called `MyTextObject` will now display *Hello everybody!* You can update the json file and relaunch the game, and the text will be updated! This is great to make a news system.

Here we are loading a local JSON file. It works only for HTML5 games.

For native games, you have to enter the website name in the “host” parameter. For example, if your JSON file is hosted at `http://www.example.com/test/news.json` (`http://www.example.com/test/news.json`), enter “`http://www.example.com` (`http://www.example.com`)” for the name of the host, and “`test/news.json`” for the name of the page. It will work for native games **and** HTML5 games (For HTML5 games, just be sure to host your game on the same domain, `www.example.com` (`http://www.example.com`) here).

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# Online High Scores

Adapted from mtarzaim tutorial(the credits go for him, please).

## Pre-requisites:

- A website with a PHP server + MySQL server
- Full Access to the MySQL server, to create tables and then update it
- Gdevelop
- The variables (global variables usually) to send to your website

**Variables used in my game:** Note: all these variables are Global Variables inside Gdevelop

- Name
- TimeLeft
- Deaths
- Fire
- Energy
- Oxygen
- Score

## Part 1- Setting Up The Database

Create a new database “GDProject”. In my case, I have a hosting service with cpanel, so, it is easier. First, create the Database; than the two users. Take a look at the image below(cpanel):



Using the “root” account is too dangerous, since the password will be hardcoded in a

php page. Go in the “Privileges/Rights” tab in **PHPMyAdmin**.

Create a **new user “readonly”** with a password, whose rights will only be SELECT, for the database “GDProject”. It will be used for **SELECT queries** (read data in the database). Create a **new user “update”** with a password, whose rights will be INSERT, for the database “GDProject”.

It will be used for modifying data in tables of the database.

Like this, even if your php pages are hacked, they will only get low-level access to your database, unable to destroy the core of your system.

**Using PHPMyadmin** With PhpMyAdmin is easy to create a table and the fields. Create inside the table “player” with the following settings :

- **column 1** : ID, parameter BIGINT unsigned, AUTO\_INCREMENT, PRIMARY . The index of your table. It's an unique identifier, automatically increased with each INSERT
- **column 2** : name, parameter TINYTEXT . Where the name of your player is saved
- **column 3** : date, parameter TIMESTAMP, default value CURRENT\_TIMESTAMP . Where the date of the INSERT is saved. Assigned automatically with the current date and time.
- **column 4** : score, parameter BIGINT, default value 0 . Where the score of your player is saved

Note: In my case, I did not use Timestamp or date! I have more columns as the column 2 example.

Note: Insert a few dummy rows, to be sure everything works, and to have some inputs to display later.

PhpMyAdmin:

#	Nome	Tipo	Colação	Atributos	Nulo	Padrão	Extra	Ação
1	Id	bigrnt(20)	UNDEFINED	Não	Nenhum wrap (padrão: none)	AUTO_INCREMENT	Mais	
2	name	tinytext	utf8_unicode_ci	Não	Nenhum wrap (padrão: none)		Mais	
3	timetoend	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	
4	deaths	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	
5	fire	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	
6	energy	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	
7	oxygen	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	
8	score	bigrnt(20)		Não	Nenhum wrap (padrão: none)		Mais	

## Part 2- External Event For Data Sending

In **GDevelop**, create an action “**Send request to a web page**”.

**The parameters are:**

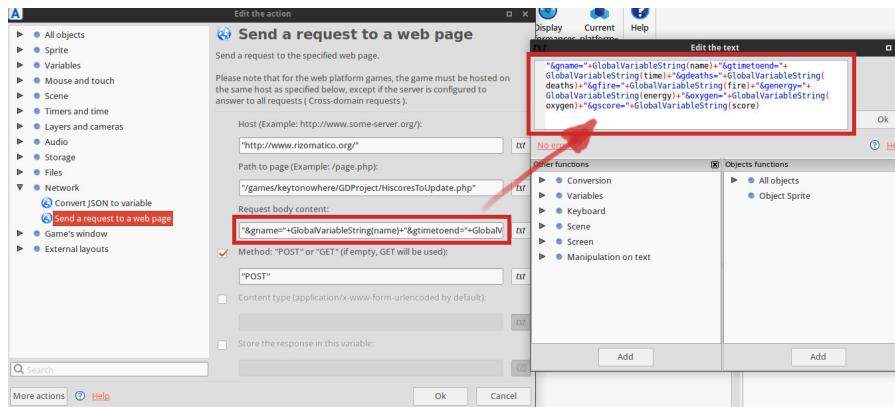
**Parameter 1 :** Host “<http://www.mywebsite.com/> (<http://www.mywebsite.com/>)”

**Parameter 2 :** Path to page “/GDProject/hiscoresToUpdate.php”

**Parameter 3 :** Request body content “&gname=”+GlobalVariableString(name)+“&gtimetoend=”+GlobalVariableString(time)+“&gdeaths=”+GlobalVariableString(deaths)+“&gfire=”+GlobalVariableString(fire)+“&genergy=”+GlobalVariableString(energy)+“&

```
goxygen=" +GlobalVariableString(oxygen) + "&gscore=" +GlobalVariableString(score)
```

#### Take a look:



## Part 3- PHP Pages

You will need **two php pages**, stored on your website, preferably in the same own directory. You might also add a third empty page, index.htm, to prevent hackers from reading this directory's tree. **ex : http://www.mywebsite.com/GDProject**  
**(http://www.mywebsite.com/GDProject)**

- index.htm
- HiscoresToUpdate.php
- Hiscores.php

Why two php pages ? Couldn't one just be enough? Because we will need to trick a little the user.

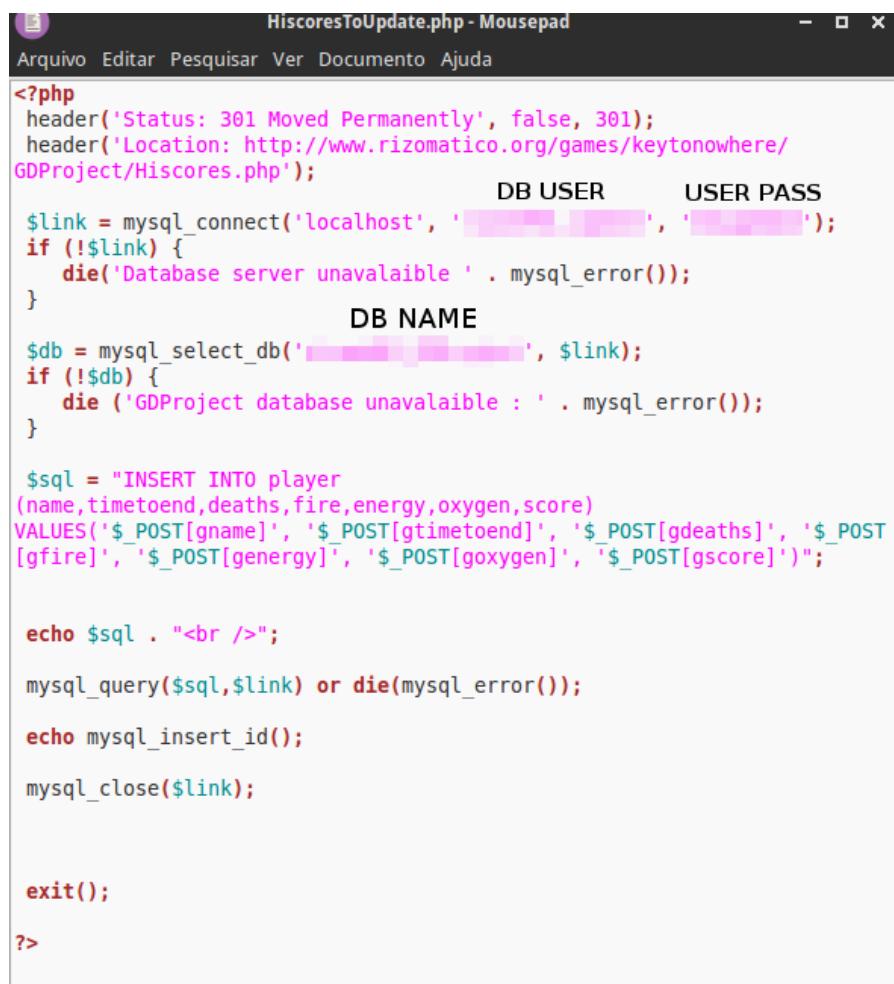
The first page will update the database with the variables sent by GD. But we must prevent the user to access this page manually (and modify the variables in the address bar, so he could get a higher score or mess with the database). So immediately after he accesses it, he will be redirect to the second page, designed for display only. It will be harder for him to mess with the variables. It's still possible with sniffer tools. But why wasting time using those for a little amateur game?..

Connect to your website and create a directory “**GDProject**”, via **FTP (File Transfer Protocol)**.

Note: In my case, had to create a .htaccess file with some instructions to make it work.  
Take a look:

```
.htaccess 2 - Mousepad
Arquivo Editar Pesquisar Ver Documento Ajuda
Header add Access-Control-Allow-Origin "*"
Header add Access-Control-Allow-Methods: "GET,POST,OPTIONS,DELETE,PUT"
```

Add **two new files : A) “HiscoresToUpdate.php”**, the PHP page to **update the database** . Don't forget to **replace “db user”**, **“user pass”**, and **“db name”** to yours.



The screenshot shows a window titled "HiscoresToUpdate.php - Mousepad". The menu bar includes "Arquivo", "Editar", "Pesquisar", "Ver", "Documento", and "Ajuda". The main content area contains the following PHP code:

```
<?php
header('Status: 301 Moved Permanently', false, 301);
header('Location: http://www.rizomatico.org/games/keytonowhere/
GDProject/Hiscores.php');
DB USER      USER PASS
$link = mysql_connect('localhost', '██████████', '████████');
if (!$link) {
    die('Database server unavailable ' . mysql_error());
}
DB NAME
$db = mysql_select_db('████████', $link);
if (!$db) {
    die ('GDProject database unavailable : ' . mysql_error());
}

$sql = "INSERT INTO player
(name,timetoend,deaths,fire,energy,oxygen,score)
VALUES('$_POST[gnome]', '$_POST[gtimeoend]', '$_POST[gdeaths]', '$_POST
[gfire]', '$_POST[genergy]', '$_POST[goxygen]', '$_POST[gscore]')";

echo $sql . "<br />";
mysql_query($sql,$link) or die(mysql_error());
echo mysql_insert_id();
mysql_close($link);

exit();
?>
```

**B) “Hiscores.php”**, php page to display to everyone. Building a basic HTML (HyperText Markup Language) table displaying the 100 highest scores, with name and date.

Note: In my case, I did create a styled page with the use of Bootstrap( teached by my friend **Bruno Cochito**. Thanks!).

```
<html>
<head>
<link rel="stylesheet" type="text/css" href="estilos.css">
</head>

<?php
                DB USER      USER PASS
$link = mysql_connect('localhost', '██████████', '████████');
if (!$link) {
    die('Database server unavailable ' . mysql_error());
}
                DB NAME
$db = mysql_select_db('████████', $link);
if (!$db) {
    die ('GDProject database unavailable : ' . mysql_error());
}

$sql = "select name, timetoend, deaths, fire, energy, oxygen, score
from player order by score DESC LIMIT 100";

$rs = mysql_query($sql,$link);

if (!$rs) {
    $message = 'Invalid query: ' . mysql_error() . "\n";
    $message .= 'Whole query: ' . $query;
    die($message);
}

$i = 0;
while ($row = mysql_fetch_assoc($rs))
{
    $i++;
    echo "<table class='CSSTableGenerator'>
        <tbody>
            <tr>
                <td><br>
                </td>
                <td>Name</td>
                <td>Time left</td>
                <td>Deaths</td>
                <td>Fire</td>
                <td>Energy</td>
                <td>Oxygen</td>
                <td>Total Score</td>
            </tr>
            <tr>
                <td>".$i."</td>
                <td>".$row['name']."'</td>
                <td>".$row['timetoend']."'</td>
                <td>".$row['deaths']."'</td>
                <td>".$row['fire']."'</td>
                <td>".$row['energy']."'</td>
                <td>".$row['oxygen']."'</td>
                <td>".$row['score']."'</td>
            </tr><br>
        </tbody>
    </table>";
}

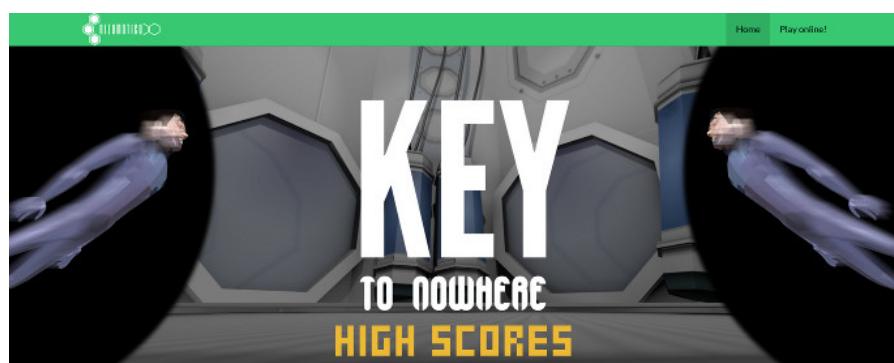
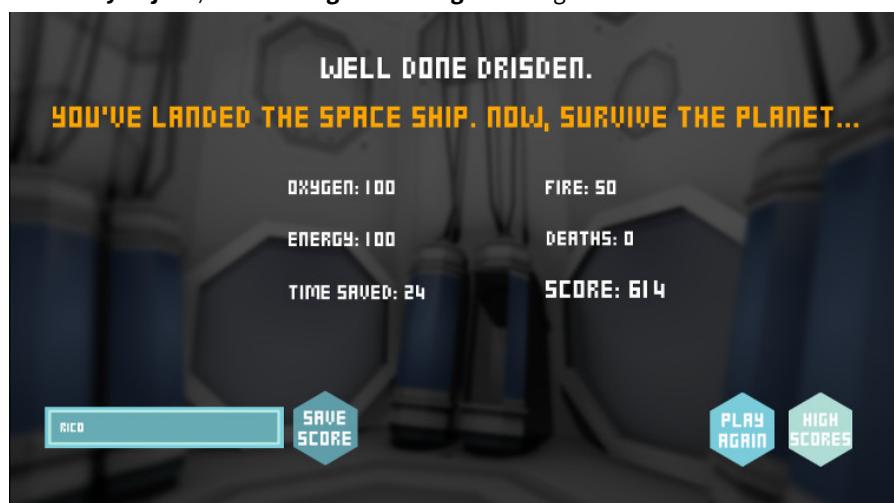
mysql_free_result($rs);
mysql_close($link);

?>
```

## Part 3- Build a Test Scene(simple way)

Just create a simple scene with a **push button** that triggers the action to “**send a request to a web page**”. Remember to create the **Global Variables** with some values inside it. Press button, than check the “**Hiscores.php**” page to view results.

Well, below you can see the **Final Game Screen**, with the option to **save score**: (with **text entry object**). And the **High score Page** working.



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# How to export your game with Cocos2d-x

**Cocos2d-x** is a game engine that can be used by GDevelop to render HTML5 games. By default, the underlying rendering engine used by GDevelop when previewing or exporting HTML5 games is **Pixi.js**.

Cocos2d-x provides an engine that enables games to be both exported to the web (using HTML5 and WebGL) and to native platforms, including iOS, Android, Windows, Mac OS (Operating System) X and Linux. In both cases, GDevelop game engine is the same, but the rendering is done with Cocos2d-x, using either WebGL on the web or native OpenGL on the other platforms.

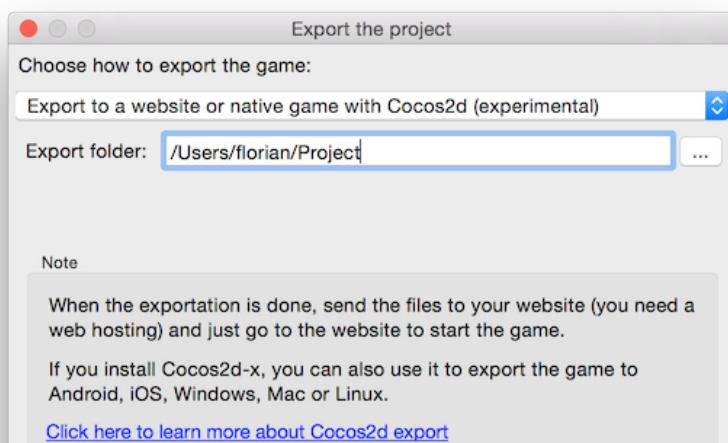
Export with Cocos2d-x is still *experimental*. Also, native export to iOS, Android, Windows, Mac OS (Operating System) X and Linux involves installation of some *additional tools*.

If you want to read about the normal export, read [How to distribute your game](#) (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtodistribute>).

## Export your game

To export with Cocos2d-x, make sure that your game is using the HTML5 platform. In the **File** menu, choose **Export to the web**.

Choose **Export to a website or native game with Cocos2d-x (experimental)**, and select a folder where the game will be exported (be sure to choose an empty folder as the content will be erased!). Finally, click on **Export**.





Your game is now available in the folder you've chosen.

## Publish your game on a website

Similar to the default export to a website, you can now upload all the files in the folder of the exported game to a website. Then, open the page with a browser to play to the game.

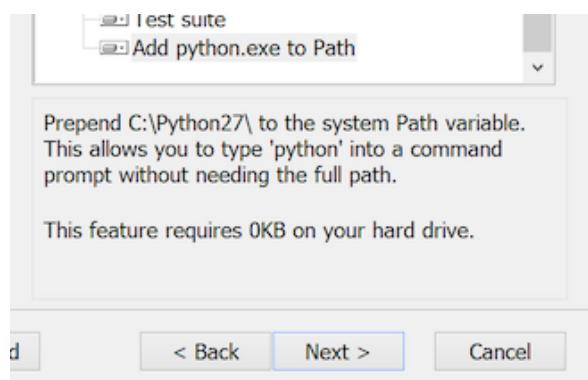
You can't play directly to the game by opening index.html. You need to upload it to a web server.

## Advanced: export your game to native platforms

Export to a native platform involves the compilation of your game into a native executable that can be launched on the platform. First, you need Cocos2d-x tools to be installed:

- Download Cocos2d-x 3.10 using [this link \(http://www.cocos2d-x.org/filedown/cocos2d-x-3.10.zip\)](http://www.cocos2d-x.org/filedown/cocos2d-x-3.10.zip).
- Extract the content of the zip file somewhere on your computer.
- Install Python on your computer. Python is a programming language used by Cocos2d-x command-line tools. On Mac OS (Operating System) X and Linux, it is installed by default. On Windows, you must download the Python installer (<https://www.python.org/ftp/python/2.7.11/python-2.7.11.msi>) and run it to install Python.

On Windows, when installing Python, make sure to check Add Python.exe to the system PATH :



- Check that Python is working : open a command line/terminal, type `python` and press Enter. If python is launched, you're ready to continue.

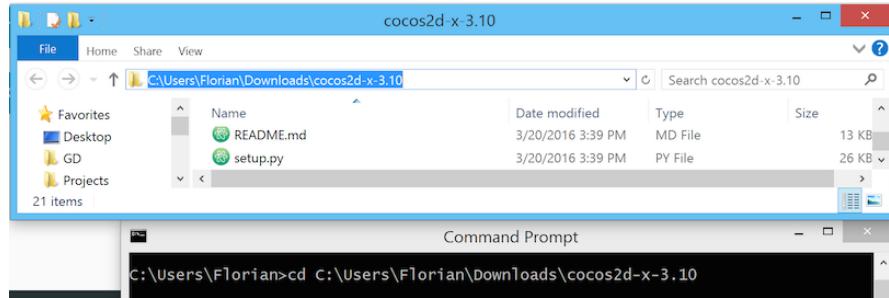
To open a command line (also called Command Prompt) on **Windows**, type cmd in the start menu.

On **OS (Operating System) X or Linux**, open the *Terminal* app.

- Open a new command line and go to the directory where Cocos2d-x was extracted. To do this, type cd followed by the path of the folder of Cocos2d-x. Put quote at the beginning and the end of the path if it contains spaces.

For example:

```
cd C:/Users/Florian/Downloads/Cocos2d-x-3.10 on Windows,  
cd /Users/florian/Downloads/cocos2d-x-3.10 on OS (Operating System) X.
```



- Install Cocos2d-x by typing python setup.py in the command line (or C:\Python27\Python.exe setup.py on Windows). When asked for path of some tools, just press Enter.
- Check that Cocos2d-x is properly installed: reopen **a new command line** and type cocos in the command line. You should see some text explaining the available cocos commands.

Congratulations, Cocos2d-x is now installed on your computer! Now you need to create a game skeleton with Cocos and export your game with GDevelop to be able to compile it.

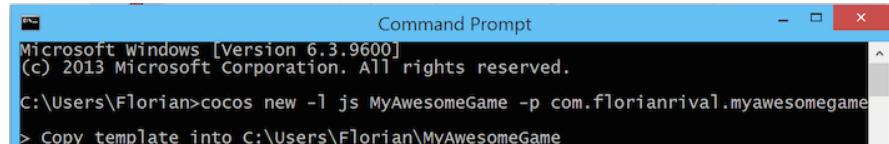
## For all platforms: create the Cocos game skeleton and export from GDevelop

The first time you want to export your game to a native platform, you must use the cocos program we've installed in the previous section:

- Open a command line.
- Type cocos new -l js MyGame -p com.yourname.mygame and press Enter. Replace MyGame by the name of your game. com.yourname.mygame is a package name used to identify your game on the stores.

Wait a bit: Cocos will now create a new folder with the name of your game. It will contain everything needed to compile the game.

- With the command line, go in the folder created by Cocos2d-x: cd MyGame (replace MyGame by the name of your game).



```
> Copying directory from cocos root directory...
> Copying files from template directory...
> Copying cocos2d-x files...
> Rename project name from 'HelloJavascript' to 'MyAwesomeGame'
> Replace the project name from 'HelloJavascript' to 'MyAwesomeGame'
> Replace the project package name from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
> Replace the Mac bundle id from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
> Replace the iOS bundle id from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
C:\Users\Florian>cd MyAwesomeGame
C:\Users\Florian\MyAwesomeGame>
```

- Now, using GDevelop, choose to export your game with Cocos2d-x (see the first section if you need help). Choose the folder created by Cocos2d-x as the export folder in GDevelop. Finally press Export.

You're ready! You now have a full game exported with GDevelop and ready to be compiled with `cocos` : see the sections below to know how to export for a specific platform.

Later, if you change your game and want to rebuild the native games, just export the game in the same folder using GDevelop, and relaunch the `cocos` commands explained in the sections below.

## Android export

 This section is a draft and not yet complete. You can help by completing it with more information!

- Download and install the **Android SDK**.
- Download and install the **Android NDK**.
- Relaunch `python setup.py` (or `C:\Python27\Python.exe setup.py`), using the command line, in the folder of Cocos2d-x.
- Create a keystore inside the game folder:

The following command requires `keytool` which is installed as part of the Java Development Kit (JDK). It will create a keystore in the current folder, just remember to change '`Your_personal_file_title`' and then press enter. You will be asked a few questions and then be prompted to create the keystore, just type yes and press enter.

```
keytool -genkey -v -keystore Your_personal_file_title.keystore
-alias alias_name -keyalg RSA -keysize 2048 -validity 10000
```

- In the game folder, open the file `frameworks/runtime-src/proj.android/jni/Application.mk` and add `APP_PLATFORM := android-9` at the end.
- With the command line, in the folder of your game, launch `cocos compile -p android -m release`.
- The first time you compile this project you will be asked to enter the path to the keystore at the end of the compilation. Enter the full path, including the filename i.e `F:\GDevelop\cocos2d-x-3.10\MyAwesomeGame\mystore.keystore` and press enter. You will then be asked for the `alias_name` and password you entered when creating the keystore.

Wait for the compilation to be done: this can be quite long the first time you launch it. When it's done, an APK file should be available in the folder `publish/android`.

## Mac OS X export

- You need to have XCode (<https://developer.apple.com/xcode/>) installed on your Mac. You can install it from the App Store.
- With the command line, in the folder of your game, launch `cocos compile -p mac -m release`.

Wait for the compilation to be done: this can be quite long the first time you launch it.  
When it's done, the app is available in `publish/mac`.

## iOS export

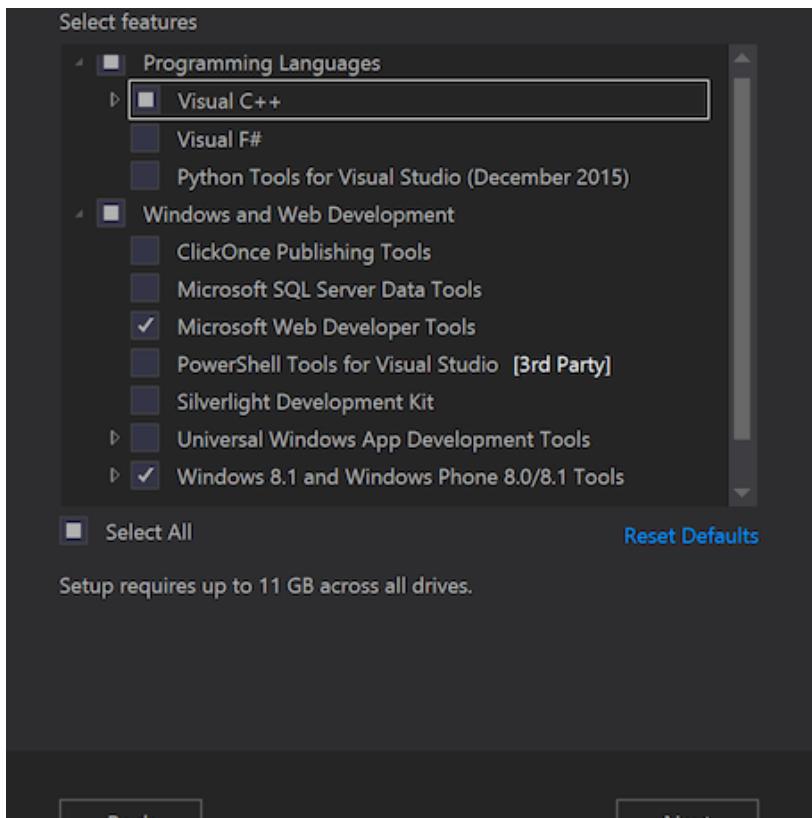
- You need to have XCode (<https://developer.apple.com/xcode/>) installed on your Mac. You can install it from the App Store.
-  Open the XCode project
-  In XCode, click on Play.

Wait for the compilation to be done: this can be quite long the first time you launch it.

## Windows export

 This section is a draft and not yet complete. You can help by completing it with more information!

- Install **Visual Studio Community 2015** (<https://www.visualstudio.com/>).  
This is the compiler of Microsoft and is required to compile your game to a Windows executable. Choose *Advanced* installation, and check `Windows 8.1` and `Windows Phone 8.0/8.1 Tools`:



[Back](#)[Next](#)

- With the command line, in the folder of your game, launch `cocos compile -p metro -m release`

If the result of the command is `Can't find correct Visual Studio's path in the registry.`, then you have not Visual Studio properly installed. Check that you've installed it, close and relaunch the command line after the installation.

Wait for the compilation to be done: this can be quite long the first time you launch it.

-  **Fix Me!** Export your game for the Store.

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » GDevelop Tutorials (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>) » **Animation/Graphics** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/usefulsoftwares>)

gdevelop:tutorials:usefulsoftwares

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(<https://crowdin.com/project/gdevelop>)

Many open sources softwares may help you when creating a game with GDevelop : graphics softwares (pixel art or not), 2D/3D animations, audio creation and mixes.

The purpose of this page is to create a knowledge base, to be complete by anyone, where softwares are organized by themes:

# Animation/Graphics

## Animation

### Spriter :

- Website : <http://www.brashmonkey.com/> (<http://www.brashmonkey.com/>)
- Description : Spriter from BrashMonkey.com creates optimized and flexible modular 2D and bone-based sprite animations for making games.
- Licence : Free and commercial for pro version.

### DragonBones :

- Website : <https://dragonbones.github.io/> (<https://dragonbones.github.io/>)
- Description : The Open Source 2D skeleton animation solution not just for Flash.
- Licence : Free.

### Pencil2D :

- Website : <http://www.pencil2d.org/> (<http://www.pencil2d.org/>)
- Description : 'Pencil2D', an open-source animation software in development.
- Licence : Free.

# Graphics

- Gimp : <http://www.gimp.org/> (<http://www.gimp.org/>)
- Inkscape : <https://inkscape.org> (<https://inkscape.org>)
- Paint.NET : <http://www.getpaint.net/index.html> (<http://www.getpaint.net/index.html>)
- MyPaint : <http://mypaint.intilinux.com/> (<http://mypaint.intilinux.com/>)
- Krita : <https://krita.org/> (<https://krita.org/>)
- Pixothello : <http://teknopants.com/pixothello/> (<http://teknopants.com/pixothello/>)
- Pixelaria : <http://sourceforge.net/projects/pixelaria/> (<http://sourceforge.net/projects/pixelaria/>)
- GraphisGale : <http://www.humanbalance.net/gale/us/> (<http://www.humanbalance.net/gale/us/>)
- Grafx2.0 : <https://code.google.com/p/grafx2/wiki/Downloads?tm=2>

- (<https://code.google.com/p/grafx2/wiki/Downloads?tm=2>)
- Spritecutter : <http://spritecutter.sourceforge.net/>  
(<http://spritecutter.sourceforge.net/>)
  - Piskel : <http://www.piskelapp.com/> (<http://www.piskelapp.com/>)
  - 3D2Sprite : <http://3d2sprite.blogspot.com> (<http://3d2sprite.blogspot.com>)

## Animation & Graphics

### Synfig :

- Website : <http://www.synfig.org/cms/> (<http://www.synfig.org/cms/>)
- Licence : Free.

### Blender :

- Website : <https://www.blender.org/> (<https://www.blender.org/>)
- Description : open source 3D graphics and animation software.
- Licence : Free.

### Anim8or :

- Website : <http://www.anim8or.com/> (<http://www.anim8or.com/>)
- Licence : Free.

## Conception

### Xmind

- Website : <https://www.xmind.net/> (<https://www.xmind.net/>)
- Description : The Most Popular Mind Mapping Tool, millions of people use XMind to clarify thinking, manage complex information, run brainstorming and get work organized.
- Licence : Free, commercial for pro version.

### Tile Studio

- Website : <http://tilestudio.sourceforge.net/> (<http://tilestudio.sourceforge.net/>)
- Description : Tile Studio is a complete development utility for graphics of tile-based games. The application contains a bitmap editor for creating tiles and sprites and a map editor for designing level maps.
- Licence : Free.

## Audio

### Audacity

- Website : <http://sourceforge.net/projects/audacity/> (<http://sourceforge.net/projects/audacity/>)
- Description : Audacity® is free, open source, cross-platform software for recording and editing sounds.
- Licence : Free.

## bfxr

- bfxr : <http://www.bfxr.net/> (<http://www.bfxr.net/>)
- Description : Bfxr is an elaboration of the glorious Sfxr, the program of choice for many people looking to make sound effects for computer games.
- Licence : Free

## VST Hosts

- Description : Various VST Host are open source. VST hosts are designed to use VST and VSTi (Virtual instruments) in the aim of creating music. In videogames, it means creating your own OST.
- Websites (list of links) :
  1. <http://bedroomproducersblog.com/2011/05/16/bpb-freeware-studio-best-free-vst-host-applications/> (<http://bedroomproducersblog.com/2011/05/16/bpb-freeware-studio-best-free-vst-host-applications/>)

## Video

- IceCream Screen Recorder : <http://icecreamapps.com/fr/Screen-Recorder/upgrade.html> (<http://icecreamapps.com/fr/Screen-Recorder/upgrade.html>)

## Others

- Overlap2D : <http://overlap2d.com/> (<http://overlap2d.com/>)

You are here: [Home](#) » [gdevelop](#) » [articles](#) » **How to translate GDevelop** ([http://wiki.compilgames.net/doku.php/gdevelop/articles/translate\\_gd](#))

[gdevelop:articles:translate\\_gd](#)

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(<http://www.forum.compilgames.net>)

Help to translate GD  
(<https://crowdin.com/project/gdevelop>)

# How to translate GDevelop

GDevelop can be translated into any language.

Translation is done using Crowdin:

1. To begin, go on the GDevelop Crowdin project (<https://crowdin.com/project/gdevelop>).
2. Choose the language for which you want to translate GD. If your language is not listed, just send a mail to the project owner (<https://crowdin.com/mail/compose/4ian>) and it will be added to the list!
3. After choosing the language, click on `All GDevelop texts to be translated`.
4. Now, you can contribute to the translation! Choose a string on the left, translate it on the center and click on `Commit translation`.

Please do not hesitate to send a message (<https://crowdin.com/mail/compose/4ian>) to notify that you started a translation or when you think a translation is advanced enough to be integrated to the software!

And you'll be integrated into the GDevelop contributors list. 😊

## Try a translation in GD

Each time a new version of GD is released, translations are downloaded from Crowdin and integrated to the software. If you want to see your translation in the software without having to wait for the next version, follow these steps:

- Go to the GDevelop Crowdin project (<https://crowdin.com/project/gdevelop>) and click on the big `Download` button.
- Extract the ZIP file in your GDevelop folder.
- Go in the GDevelop folder, then in `locale` and execute `TranslationsUpdate.bat` (on Windows) or `TranslationsUpdate.sh` (on Linux).
- Launch GDevelop. If needed, go to the options, choose your language, restart GDevelop and take a look at the beautiful interface translated in your language. Yay!

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[gdevelop:documentation:manual:edit\\_getstart](#)

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# Getting started

Using GDevelop is easy!

You just have to read some pages if you've never created games before so as to be sure that you understand the basic concepts used in GDevelop :

1. You should start out by **reading the Mechanisms** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_mechanisms](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_mechanisms)) and **Concepts** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts)) sections for some basics and background.
2. Then you should read the **overview of the interface** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_overview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_overview)) to see the main editors of GDevelop.
3. You can finally go through the introductory **tutorials** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>) and open examples in GDevelop – there are a lot of examples!

In particular, take a look at **How to make a platformer game?** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtomakeaplatformergame>) or this **step-by-step tutorial for beginners** (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/beginnertutorial2>).

## Let's create a game!

You can refer to this wiki for help or go through the introductory tutorials (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials>). If you are stuck, post a message on the Forum (<http://www.forum.compilgames.net/>).

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » GDevelop Documentation (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>) » manual (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/start>) » **Mechanisms** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_mechanisms](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_mechanisms))

gdevelop:documentation:manual:pres\_mechanisms

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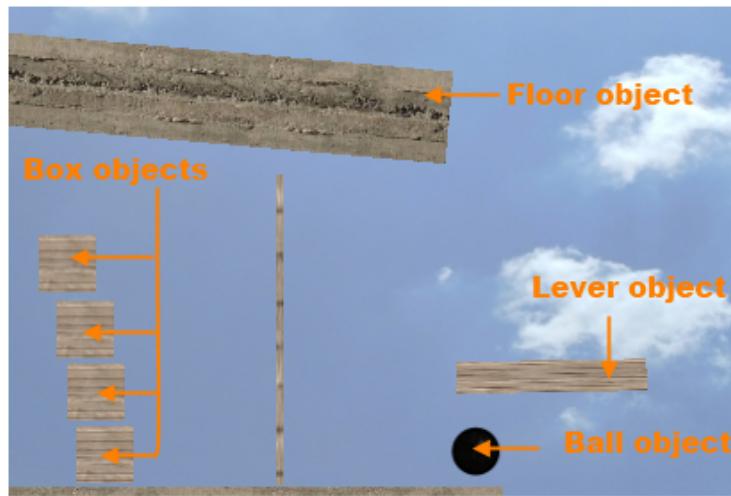
Forum  
(<http://www.forum.compilgames.net>)

Help to translate GD  
(<https://crowdin.com/project/gdevelop>)

# Mechanisms

A game created with GDevelop is composed of several elements:

- **Images**, which can be displayed within objects;
- **Objects**, your game's building blocks. Almost everything displayed on screen is an object: missiles, heroes, backgrounds, text, you name it. Different types of objects are available: **Sprite** objects display animations, and each animation consists of one or more images. Different animations can be set up depending on the status of an object (standing up, running, destroyed, ...) or the direction the object is moving;
- **Events** give life to the game. Whenever some set conditions are met within an event, actions will be triggered: for example, an object will move, appear, or change its direction;
- **Behaviors** allow to automatically modify the objects behavior. For example, the **Physics** behavior makes objects behave realistically, as if they were subject to the laws of physics;
- **Scenes** are the different screens making up a game. Each scene contains objects and events and can represent a menu, a level, or an options screen. You can navigate across scenes by using events.



([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres\\_object.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_mechanisms](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres_object.png?id=gdevelop%3Adocumentation%3Amanual%3Apres_mechanisms))

## Platforms

Since GDevelop 3, you can choose the platform on which the game will be used. There

are two officials platforms: The **Web** platform and the **Native** platform.

- The **HTML5** platform is fairly new and can be used to create games which will be available for the web browsers (*HTML5 games*).
- The **Native** platform allows to create compiled games which can be played on Windows or Linux. This platform is older and support a lots of features which are not (yet!) available on the web platform. Natives games can also be played at a higher speed most of the time.

If you want to develop a game for both platforms, it's possible! Create your game with one platform and then activate the other in the extension window (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/extensions>). Remember to use features that are available on both platforms - and regularly test your game.

## How does GDevelop work internally?

Internally, GDevelop translates the events of scenes into **machine code** (for native games) or to **Javascript** (for HTML5 games), using the same technologies as commercial video games and professional software.

Extensions and features of GDevelop are written by programmers, using the C++ and/or Javascript programming languages.

This offers several advantages: For example, and unlike some other video game creation tools, nobody is able to create a decompiler which could be used to steal your project.

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([manual start](#)) » **Concepts** ([gdevelop documentation/manual/pres\\_concepts](#))

[gdevelop:documentation:manual:pres\\_concepts](#)

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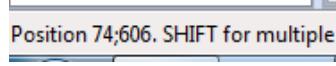
# Concepts

The basic concepts of GDevelop are simple. Read the following information to get started with the program.

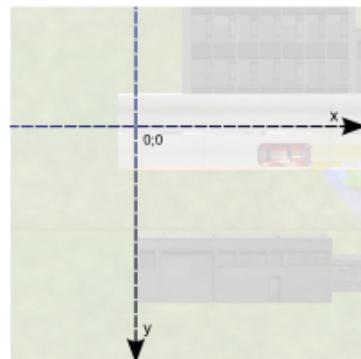
## Coordinate system

Objects on the scene have an X and a Y coordinate, corresponding to the horizontal position (X-axis) and the vertical (Y-axis) position on the *Cartesian plane*.

The mouse coordinates are shown in the Scene Editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_edit](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_edit)) status bar:

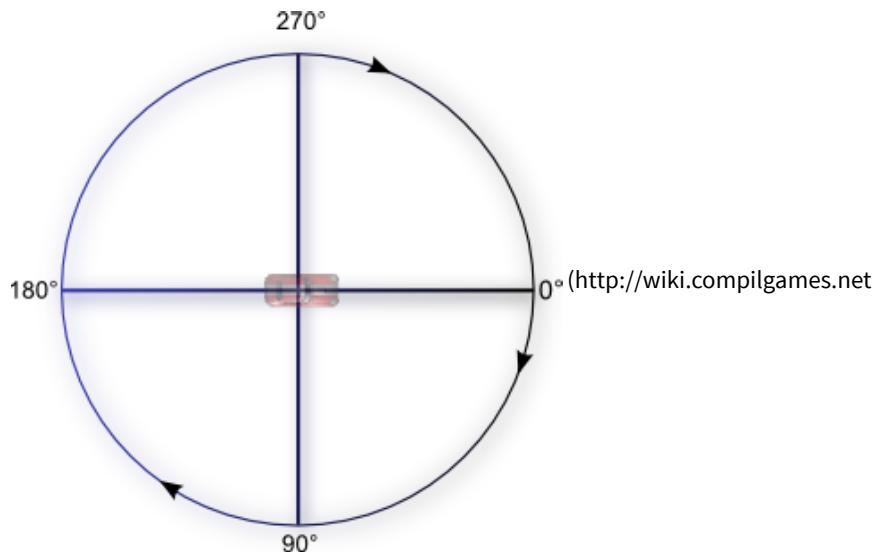
  
[Position 74;606. SHIFT for multiple](#) (<http://wiki.compilgames.net/lib/exe/detail.php>  
[/wiki/pres\\_position.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_concepts](#))

As shown below, the X-coordinate decreases as you scroll to the left and increases as you scroll to the right, while the Y-coordinate decreases as you scroll upwards and increases as you scroll downwards.



(<http://wiki.compilgames.net/lib/exe/detail.php>  
[/wiki/pres\\_coord1.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_concepts](#))

In order to move or rotate objects, you will need to specify the desired angle in degrees. See below how GDevelop understands the angle rotation:



/lib/exe/detail.php

(<http://wiki.compilgames.net/lib/exe/detail.php?id=gd...>)

If you use trigonometric functions like the **sine** or the **cosine**, note that you will have to express angles in **radians**. ( 1 radian =  $180/\pi$  degrees and 1 degree =  $\pi/180$  radians,  $\pi$  being the number which is approximately equal to 3.14159 )

## Object selection by events

Most conditions and actions refer to objects, the former to test and the latter to modify them. An action without a condition will refer to all objects. If you use an object for the first time in an event, GDevelop will test or modify **all objects** with this name in the scene. If you use the object in the same event again, GDevelop will test or modify only the objects which have been picked by the previous conditions.

This process is a mere application of logic. This event will delete **all** objects called "Square":

No conditions  Delete object **Square**

(<http://wiki.compilgames.net/lib/exe/detail.php?id=gd...>)

(<http://wiki.compilgames.net/lib/exe/detail.php?id=gd...>)

This event will instead delete **only** the "Square" objects with X position inferior to 100 pixels:

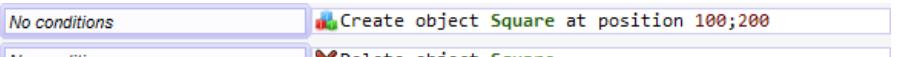
The X position of **Square** is <100  Delete object **Square**

(<http://wiki.compilgames.net/lib/exe/detail.php?id=gd...>)

(<http://wiki.compilgames.net/lib/exe/detail.php?id=gd...>)

## Events: the order is important

The event order is important: events at the top are executed first. So the following event pairs are not equivalent:



([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres\\_event4.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_concepts](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres_event4.png?id=gdevelop%3Adocumentation%3Amanual%3Apres_concepts))

No conditions Create object Square at position 100;200

No conditions Delete object Square

No conditions Create object Square at position 100;200

No conditions Delete object Square

The first pair creates a “Square” object in position 200;100 and then deletes it. **No**

“Square” is displayed on screen.

The second pair deletes all “Square” objects from the scene, and then creates one

“Square” in position 200;100, so the square remains **visible**.

## Moving objects using built-in forces

Moving objects can be achieved thanks to **forces**, which are used to “pull” objects.

You can specify the Cartesian coordinates of a force (i.e. X and Y, in pixels), its polar coordinates (the force vector angle and length), and the **force dispersion**, a coefficient between 0 and 1. Each second, the force length will be multiplied by the dispersion: a value of 1 means that force will continue forever, a value of 0 will make it stop immediately. All intermediate values will cause the force to gradually stop.

### Example

Say you want to move an object towards the bottom:



([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres\\_vector.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_concepts](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres_vector.png?id=gdevelop%3Adocumentation%3Amanual%3Apres_concepts))

You can add a force using X/Y coordinates, specifying 0 for the X coordinate and, say, 150 pixels for the Y coordinate. You can also use polar coordinates and add a force with an angle of 90° and a length of 150 pixels.

### Others means of moving objects

Some extensions like the Physics or Pathfinding behaviors may move the objects using their own system. In this case, it is better not to use the builtin forces system and instead rely only on actions provided by the extensions used.

## Variables

Variables allow you to store **data**, for example a number or a text. We might compare them to drawers or boxes where we can file notes. Any data can be stored, as long as it is in *text* or *number* format: number of lives remaining, high-score, bullets left, killed enemies, etc... You are probably going to use numbers often.

A number

42

or

A text

"Poisoned"



(<http://wiki.compilgames.net>

/lib/exe/detail.php

/wiki/pres\_variable.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\_concepts)

Actions and conditions test or change a variable *value*.

## Variable scope

The scope of a variable determines where a variable can be accessed. In GDevelop, three variable scopes are available:

**Global** variables are accessible from all the game scenes; for instance, they can be used to store the player's score across different levels;

**Scene** variables are only accessible from a scene. They can be used for data that only concern one scene and not the entire game, like the time remaining before an explosion;

**Object** variables only concern one object. For example, a hero can have a "Health" or "Ammo" variable.

## Time elapsed since last frame (TimeDelta)

The game evaluates events and repaints the screen several times per second: we say that the game is *refreshed*. How often this happens depends on your computer resources: a slow computer can render 25 frames per second, a fast one 140.

GDevelop can usually make sure that this value is the same on all computers, however the speed of some operations can change from computer to computer, for example mathematical operations and the rendering of movements.

To make the speed of changes constant, use the TimeDelta() expression, which returns the time in seconds since the last frame. For example, do not do the following:

No conditions

Do +20 to variable Life

(<http://wiki.compilgames.net/lib/exe/detail.php>

/wiki/pres\_event5.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\_concepts)

But do this instead:



([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres\\_event6.png?id=gdevelop%3Adocumentation%3Amanual%3Apres\\_concepts](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres_event6.png?id=gdevelop%3Adocumentation%3Amanual%3Apres_concepts))

The first event is adding 20 to the variable every time the game is refreshed ( i.e. as much as possible ). It's **not correct** to use a such event as the speed of the increase of the variable will not be the same from computer to computer: We cannot predict the value of the variable after 10 seconds for example.

The second event is **correct and reliable** : The number 300 is multiplied by TimeDelta(). Thus, the variable will be increased at the same time on all computers. As TimeDelta() returns a time in second, it allows you to quantify exactly the amount: In our case, the variable will grow at 300 unit/seconds. Thus, we can predicate that the life will increase by 3000 units in 10 seconds.

Remember to use TimeDelta when you want to continually add some amount to a value.

When you're moving an object using forces, there is no need to use TimeDelta() as GDevelop automatically uses it.

## And that's almost all you need to know

You can continue to read the Getting Started page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)) to see an overview of GDevelop interface.

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » GDevelop Documentation (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>) » manual (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/start>) » **Overview of the interface** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_overview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_overview))

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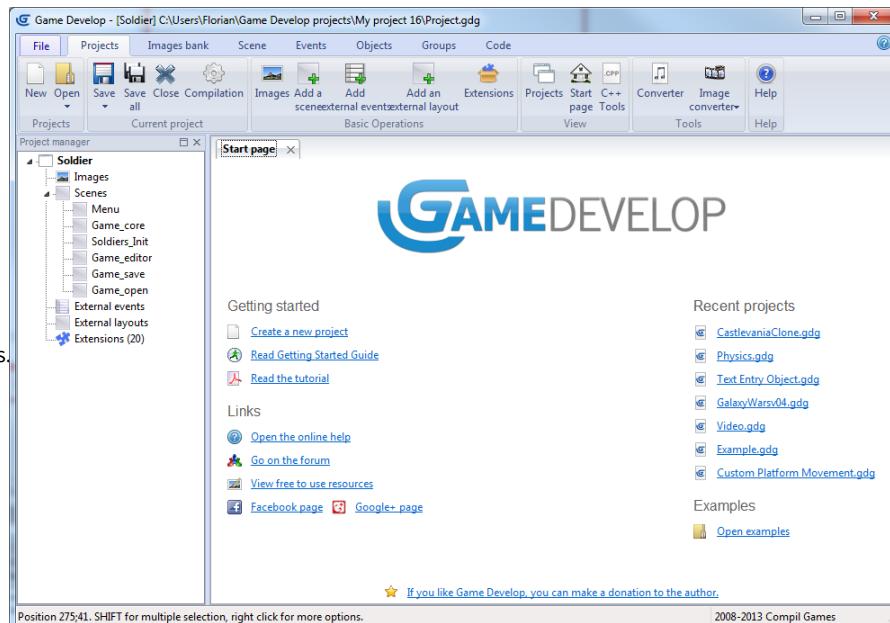
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(<https://crowdin.com/project/gdevelop>)

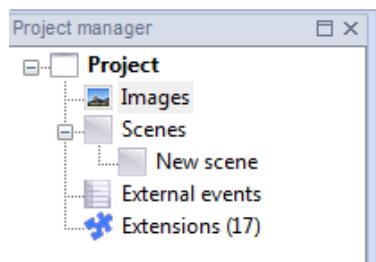
# Overview of the interface

## Interface after launching GDevelop

When you first start GDevelop, the interface looks like this:



If no game is opened, the project manager, on the left, is empty. The project manager shows the list of the opened game and their structure, notably the scenes composing the game :

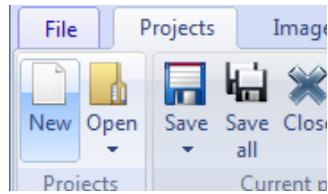


(<http://wiki.compilgames.net/lib/exe/detail.php>

/wiki/edit\_project.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit\_overview)

For more information about the other elements of the project manager, read this page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_projman](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_projman)).

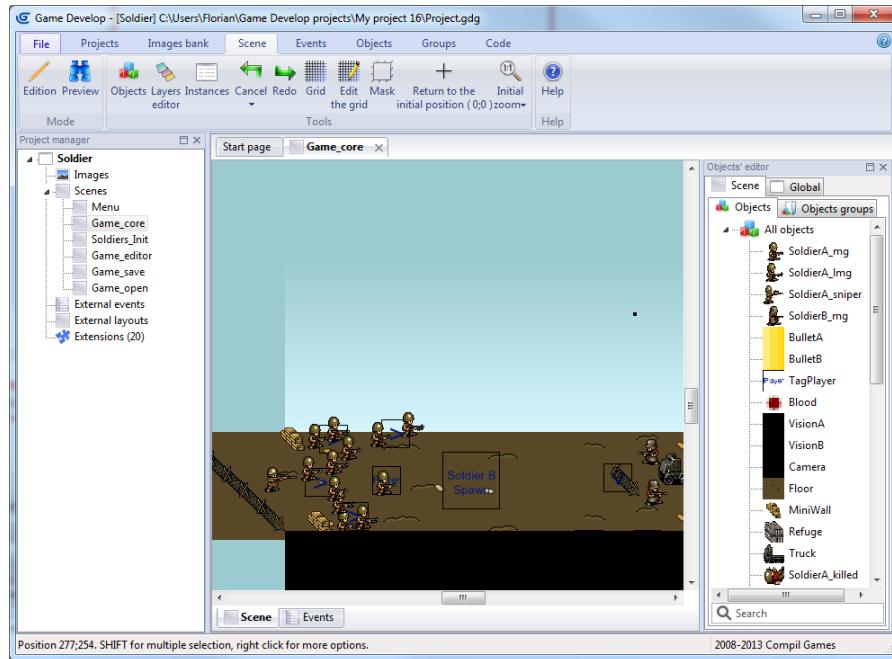
The ribbon at the top of the window displays the main commands that can be used. The ribbon page is automatically changed when you're using an editor. At the start, the ruban is showing the “Projects” page which has notably a button **New** allowing to create a new game:



If you create a new game, a scene is automatically added to the game and opened. If you open a game, double click on a scene in the project manager to open it.

## The scene editor

When a scene is opened, the scene editor is displayed instead of the Start Page :

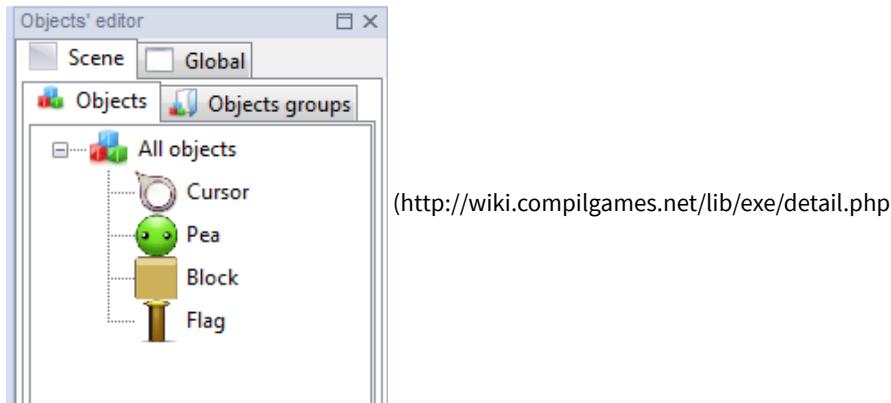


The scene editor is composed of several other smaller editors:

- The main area allows you to put objects on the scene so as to create a level, a main menu...
- On the right, the objects available for the scene are displayed by the objects editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_object](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_object)).
- You can display the events by clicking on the **Events** tab which is on the bottom.
- Others editors can also be used but are not shown by default: For example, the layers editor can be displayed by clicking on its icon in the ribbon.

## Add objects

To add objects, make a right click on the scene and choose **Add an object**. You can also directly use the objects editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_object](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_object)):



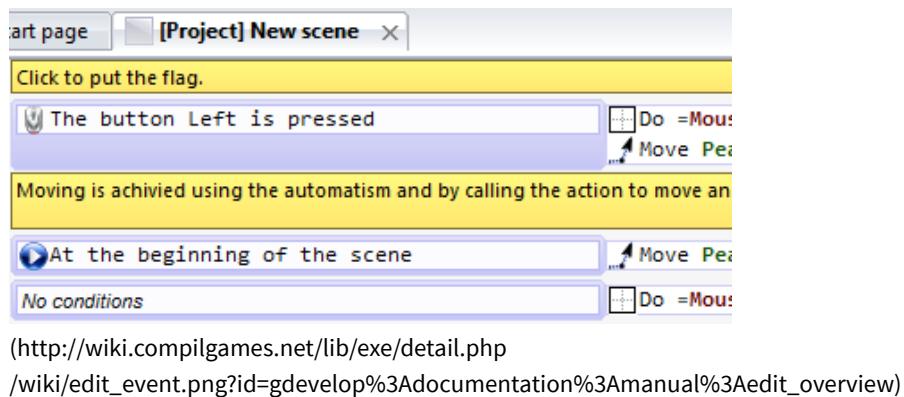
(<http://wiki.compilgames.net/lib/exe/detail.php>) /wiki/edit\_object.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit\_overview)

To put objects on the scene, do a drag'n'drop: Make a click on an object in the list and keep the left button pressed. Then, move the cursor over the scene and release the left button to put the object.

You can learn more about the objects editor on its page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_edit](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_edit)).

## Create events

To edit events, click on the **Events** tab at the bottom. The events editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_event](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_event)) is displayed:



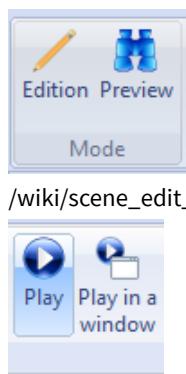
(<http://wiki.compilgames.net/lib/exe/detail.php>) /wiki/edit\_event.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit\_overview)

You can read this page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_event](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_event)) to learn how to use it.

To add the first event, click on **Add an event** in the ribbon.

## Preview a scene

Editors presented above can be used when you are in edition mode. You can play to the scene being edited by launching a preview. Click on the **Preview** button in the ribbon, and then on **Play**:



(<http://wiki.compilgames.net/lib/exe/detail.php>

Mode

/wiki/scene\_edit\_mode.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit\_overview)

As usual, you can learn more about the editor by reading its dedicated page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_preview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_preview)).

## Learn more

This quick overview was designed to present the most useful editors.

If you want to learn more about a specific editor, browse the table of contents (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>) of the help to find the appropriate page.

Learn more about how to use GDevelop by reading the **Getting Started page** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_getstart](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_getstart)).

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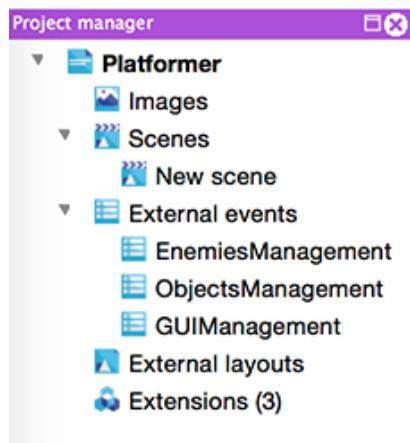
## Links

GDevelop Website  
(<http://www.compilgames.net>)

## Forum

(<http://www.forum.compilgames.net>). From the Project Manager you can modify the game parameters and access other editors.

Help to translate GD  
(<https://crowdin.com/project/gdevelop>)



## Managing games

You can create a new game by clicking on the **New** button in the ribbon, or by pressing **Ctrl-N**. A window will popup to let you choose a file for your new project as well as a template ( You can also choose to start from an empty project ).

You can close a game by right-clicking on it in the **Project Manager** and choosing **Close this project**, or by pressing **Ctrl-W**. Right-clicking on an item in the **Project Manager** will activate a menu: from there you can modify other settings, like the game parameters or the global variables.

Once a game is open, you need to double-click on it to activate it. To save a game, use the **Save** icon in the ribbon or press **Ctrl-S**.

## Images

Double-click on **Images** to open the Image Bank ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_image](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_image)).

## Scenes

A game is composed of **scenes**: the first scene in the list will be launched first. To add a scene, right-click on **Scenes** and choose **Add a scene**. Double-click on a scene to modify it in the Scene Editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_layer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_layer)), or right-click it for more options.

## External events

External events ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/external\\_events](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/external_events)) are events which are not directly linked to a scene. They can be included to one or more scene using Link events.

To add an external event, right-click on **External events** and choose **Add external events**. To modify an external event, double-click on it, or right-click for more options.

## External layouts

External layouts ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/external\\_layouts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/external_layouts)) are objects which are not directly linked to a scene. They can be dynamically created on a scene using the appropriate action.

It can be very useful to load a level into a scene ( See example “Multiple levels with external layouts” ).

To add an external event, right-click on **External layouts** and choose **Add an external layout**. To modify an external event, double-click on it, or right-click for more options.

## Extensions

Extensions allow to add, extend and simplify GDevelop creation capabilities. Double click on **Extensions** to choose the extensions (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/extensions>) to use in your project.

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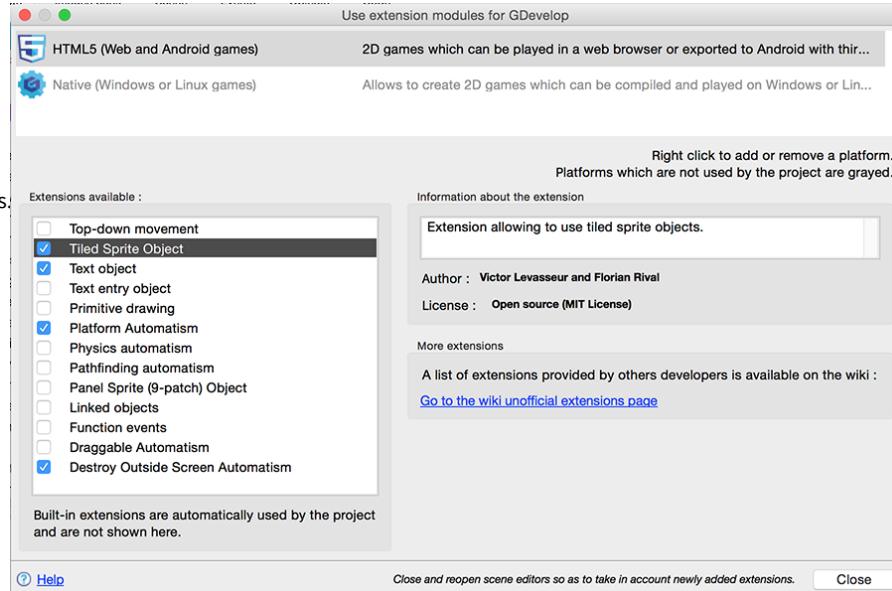
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(<http://www.forum.compilgames.net>)

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# Extensions

All features offered by GDevelop are built using the extensions system. Extensions can provide new objects, new events, actions, conditions and behaviors. A lot of extensions are bundled with GDevelop, offering a large range of features.

To view the extensions available and select which one you want to use in your project, double click on “Extensions” in the Project Manager ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_projman](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_projman)). The following window will popup:



You can see all the extensions available. Check the ones you want to use in your project.

You must close any scene editor already open and open them again to see the changes (notably for extensions providing new events)

## Activate a new platform

You can choose the platforms for which your game can be build. Most of the time, you'll stick with the platform you chose when creating the game, but if you want to activate another platform you can make a right click on it and choose to activate it (or deactivate).

If you activate both native and HTML5 platforms for your game, you'll be able to

compile your game as a native game and also export it as HTML5. Just make sure to only use features **compatible** with both platforms.

Are you a developer? You can create your extensions! See how in <http://4ian.github.io/GD-Documentation/GDCore%20Documentation/> (<http://4ian.github.io/GD-Documentation/GDCore%20Documentation/>)

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » manual (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/start>) » **Edit initial variables** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global\\_variables](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global_variables))

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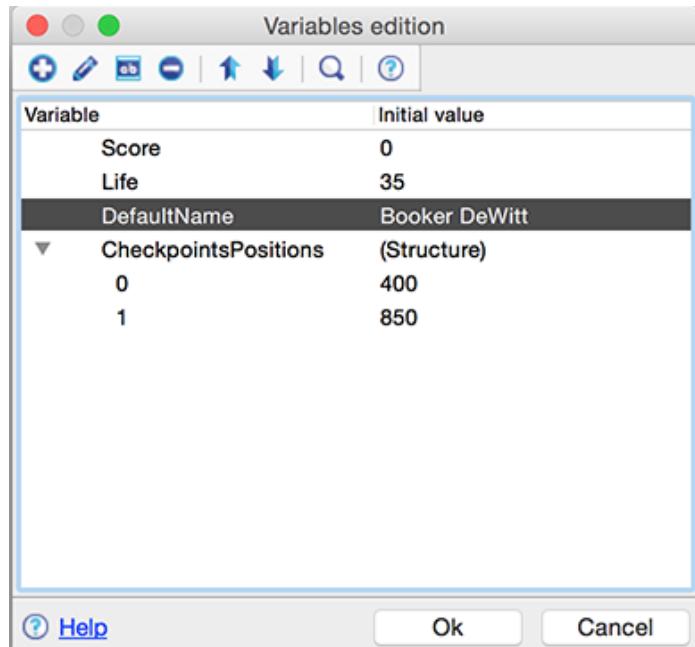
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(<https://crowdin.com/project/gdevelop>)

# Edit initial variables

You can declare variables and their initial values for any variable type: **global** variables, **scenes** variables or **objects** variables.



Variables can be used in events without declaring them, but declaring variables allows to attribute initial values and declared variables are more efficient than not declared variables when used intensively in events.

## Basic changes

Use the first button of the toolbar to add a new variable. You can then change its value by double clicking on it. Toolbar can also be used to reorder the variables, delete the selected variable or modify the name of an existing variable.

## Finding undeclared variables

For scenes and global variables, you can scan the project for undeclared variables using this button:



After clicking on it, GDevelop will scan the project and will present you a list containing the name of variables used in the events but not declared in the list. You can then check in this list the variable you want to be added to the already declared variables.

## Declaring structures

GDevelop supports the use of **structures**: structures are variables that contains other variables, called the **child variables**, instead of a single value or text.

You can add a child to a variable by making a right click on it, and choosing Add a new child : The variable will be transformed into a structure and the child variable will be added.

In the events, you can access to a child variable using this syntax:

Variable . ChildName . You can also enter a text expression instead of the child name using brackets : Variable . [ "Child" +ToString(Variable(Index)) ]

You can learn more about structures in this tutorial (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtousevariables>).

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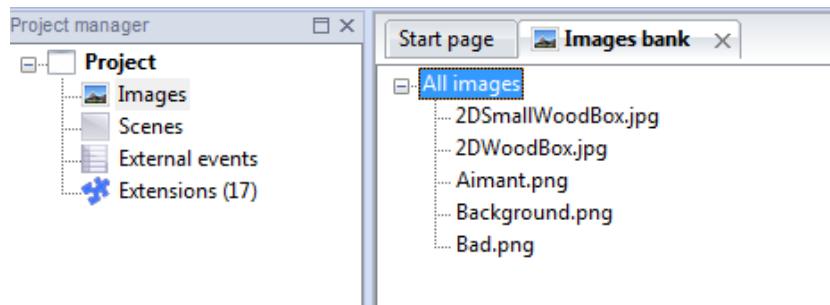
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(<https://crowdin.com/project/gdevelop>)

# The Image Bank

The **Image Bank** contains all images used by your game. The top-left part of the editor contains an image list, and the bottom-right part shows a preview of the selected images. As explained below, you can organize images in folders.



## Basic Changes

- To add an image, right-click it and choose **Add an image**. A window will pop-up and let you choose a file. A new image will be named like its source file and added to the list;
- Right-click on an image to access other properties and to copy, cut and paste it.

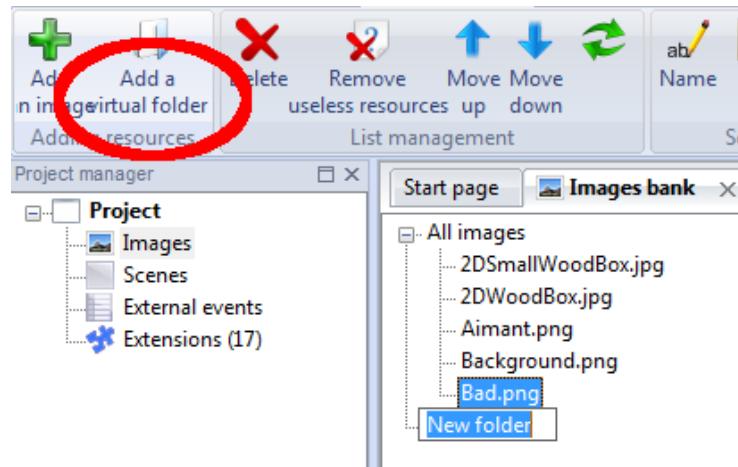
## Properties

You can access to an image properties by simply selecting it. Properties are shown in the bottom-right part of the editor by default. You can then modify the image file, its name, choose if the image must be smoothed ( **True** by default; deactivate this option if you want a pixel-perfect display) and if the image must be kept in memory (useful with drawing actions and if no objects use the image).

## Folders

You can use folders to organize your images. Click on the **Add a virtual folder**

icon in the ribbon or on the toolbar in the **Images Bank** to open the window below:



([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/folder.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit\\_image](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/folder.png?id=gdevelop%3Adocumentation%3Amanual%3Aedit_image))

Multiple folders can contain the same image, and all the images in your game are visible in the **All images** folder. To add a folder, right-click and choose **Add a folder**. You can rename the new folder by right-clicking it and choosing **Rename**. To add an image to a folder, right-click on the folder and choose **Add an image**. A window will appear and let you choose a file. The image will be added to the folder and to the **All images** folder. You can remove an image by right-clicking on it and choosing **Remove from the folder only**.

## Other features

- You can edit an image in your favorite image manipulation program with the button **Edit** ;
- You can search an image by typing a part of its name in the search box display on the bottom part of the editor.

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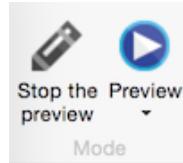
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# The Scene Editor

From the **Scene Editor** you can edit the scene layout and access other editors.

The **Scene Editor** can be launched in two modes, the **edit mode** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_edit](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_edit)) and, for native games, the **preview mode** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_preview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_preview)).



Click on the second button to launch a preview.

HTML5 games will be launched in your browser. Native games will be launched inside the scene editor: click on the first button to go back to the edit mode ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_edit](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_edit)).

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# The Scene Editor: the edit mode

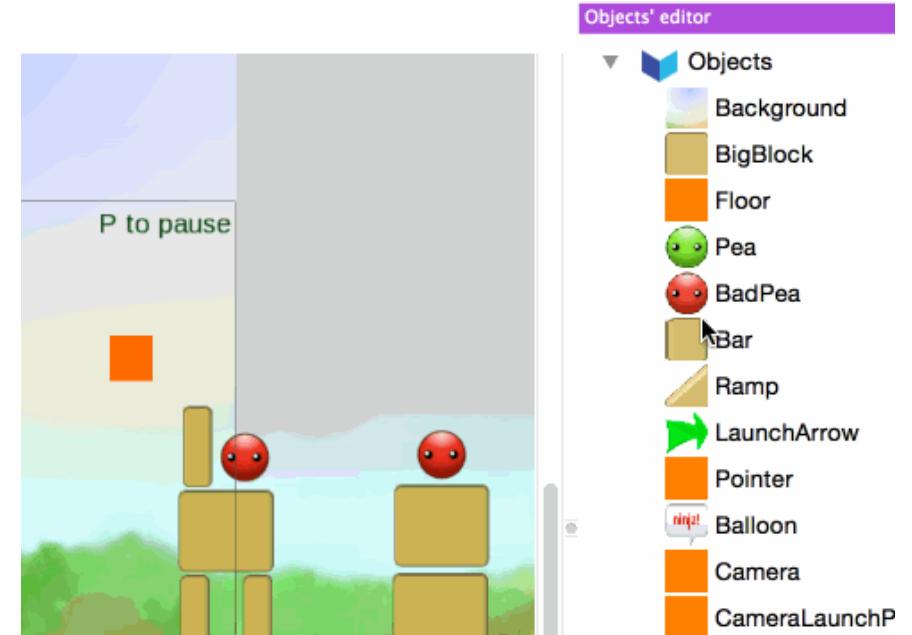
The **edit mode** allows you to design the scene (which represent a level of your game, or a menu, or any particular screen that should be shown to the user). You put objects on the scene, move, resize and rotate them, and you specify additional properties if needed.

Note that objects can be put on different layers: by default, objects are put on the **Base layer**. Most objects should live on this layer, but you can add other layers and objects on it using the layer editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_layer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_layer)).

## Basic usage

### Add and delete objects

To put an object on the scene, drag it (that means that you click on the object, then move your mouse to the scene while keeping the left button pressed) from the object list of the **Object Editor**, which is on the right by default.





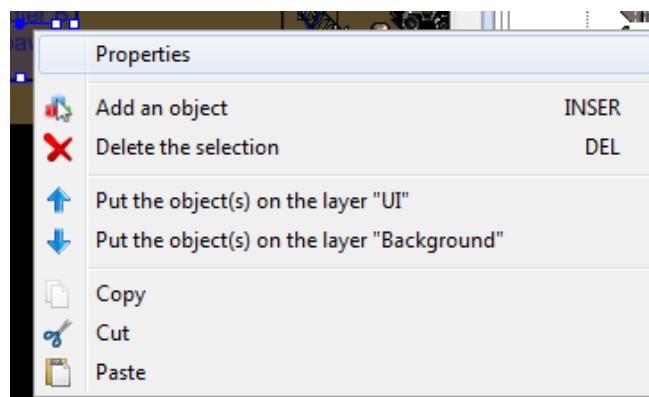
To delete an object, just select it by clicking on it and press the `Delete` key on your keyboard.

To resize an object, click to select it and drag one of the buttons that are around the border. If you keep pressing the `SHIFT` key while doing it, the ratio width/height of the object will be preserved.



You can also rotate an object: drag the button that is near the center of the object. Keep pressing `SHIFT` to make sure that the angle of the object is a multiple of 45 degrees.

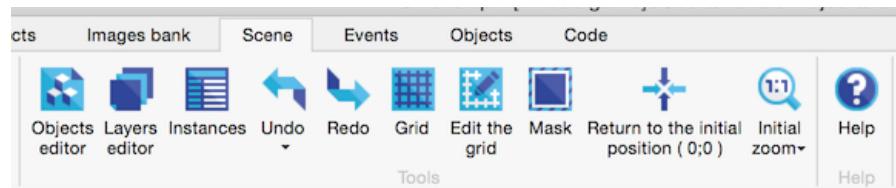
You can edit more object properties by right-clicking on it and choosing `Properties`:



Note that you can choose more than one object by holding the `Shift` key while clicking.

# Advanced features available in the ribbon

The ribbon provides more features and short-cuts:



## Editors

The first buttons allow you to open the **Objects Editor** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_object](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_object)) and the **Layer Editor** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_layer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_layer)). By default, the Objects Editor is opened on the right.

**Instances** is used to open a list of all objects put on the scene (called *instances* of objects). You can use it if you need to search for a specific objects that may be hidden by others on the scene.

## Undo/Redo

You can **Undo** and **Redo** the changes you've made on the scene. You can use the menu below the Undo button to undo a lot of changes.

## The grid and window mask

You can toggle a **grid**. Objects will snap to the grid when moved or resized. Edit the size of the grid using **Edit the grid** button.

The mask button will display a rectangle on the screen, showing the size of the game area. You can update the size of the game window from the projects manager.

## Origin and zoom

The last buttons are used to go back to the origin of the scene (the coordinates 0;0). The **zoom** button is used to change the zoom of the game or go back to the initial zoom (100%).

You can also zoom/unzoom in the scene editor using the mouse wheel.

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([manual documentation](#)) » editors ([editors documentation](#)) » scene\_editor ([scene\\_editor documentation](#)) » **Layer Editor** ([Layer Editor](#))

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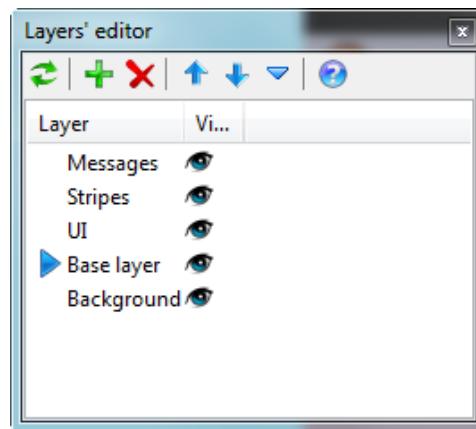
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# Layer Editor

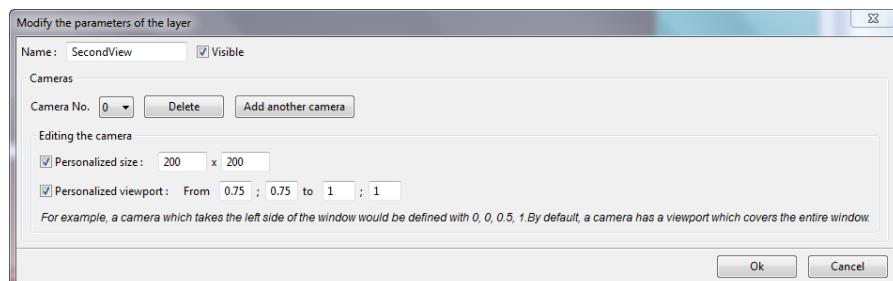
Layers allow to set which objects are to be displayed. For example, you can create an **Interface** layer for all the objects in the interface and a **Base** layer for the rest. This way you can move the camera around the **Base** layer without affecting the interface.



The **Layer Editor** can be opened from the Scene Editor ([Scene Editor](#)) ribbon. From there you can add, remove and move layers from the toolbar. The layer currently selected is highlighted with a blue arrow: objects added to the scene will be added to the selected layer. Double-click on a layer to edit it, and on the eye to hide/show it.

## Editing a layer

The **Edit layer** window allows you to change the layer name and the camera behavior. By default, a layer only has one camera of standard size (the game window size) covering the whole window. You can add another camera by clicking on **Add another camera** and choosing the camera to display in the list.



---

The area where a camera is rendered on the screen is called the **viewport**. The first coordinates represent the viewport top-left corner, and the second pair of coordinates the bottom-right corner. The values need to be between 0 and 1: they are then multiplied by the window size.

In the picture above, the top-right corner coordinates are three quarters of the total screen width and three quarters of the total screen height. With a resolution of for example 1024×768, that corresponds to point (768, 576). The bottom-left corner is the same as the monitor bottom-left screen, so in our example (1024, 768). As explained in the Concepts ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts)) section, remember that the Y-axis increases from top to bottom, and the origin is in the top-left corner.

You can also change the size “filmed” by the camera by checking **Personalized size**.

---

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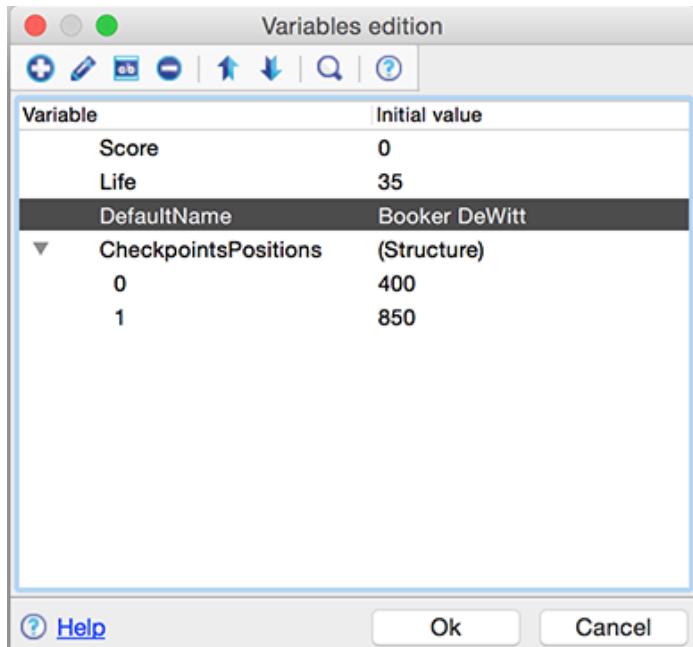
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# Edit initial variables

You can declare variables and their initial values for any variable type: **global** variables, **scenes** variables or **objects** variables.



Variables can be used in events without declaring them, but declaring variables allows to attribute initial values and declared variables are more efficient than not declared variables when used intensively in events.

## Basic changes

Use the first button of the toolbar to add a new variable. You can then change its value by double clicking on it. Toolbar can also be used to reorder the variables, delete the selected variable or modify the name of an existing variable.

## Finding undeclared variables

For scenes and global variables, you can scan the project for undeclared variables using this button:



After clicking on it, GDevelop will scan the project and will present you a list containing the name of variables used in the events but not declared in the list. You can then check in this list the variable you want to be added to the already declared variables.

## Declaring structures

GDevelop supports the use of **structures**: structures are variables that contains other variables, called the **child variables**, instead of a single value or text.

You can add a child to a variable by making a right click on it, and choosing Add a new child : The variable will be transformed into a structure and the child variable will be added.

In the events, you can access to a child variable using this syntax:

Variable . ChildName . You can also enter a text expression instead of the child name using brackets : Variable . [ "Child" +ToString(Variable(Index)) ]

You can learn more about structures in this tutorial (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtousevariables>).

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**The Scene Editor: preview mode** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_preview](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_scene_preview))

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## The Scene Editor: preview mode

The **preview mode** allows you to play a scene directly in the Scene Editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_scene](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_scene)). To launch the scene, click on **Play**. Alternatively, you can launch the scene in an external window.



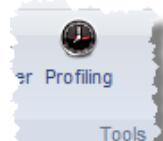
Click on **Pause** to pause the scene:



While playing the scene, click on Debugger ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_preview\\_debug](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_preview_debug)) to open it.



You can try to improve your game performance using the Profiler ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_preview\\_profiler](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene_editor/edit_preview_profiler)):



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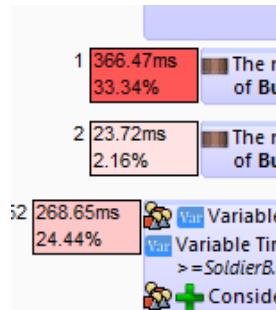
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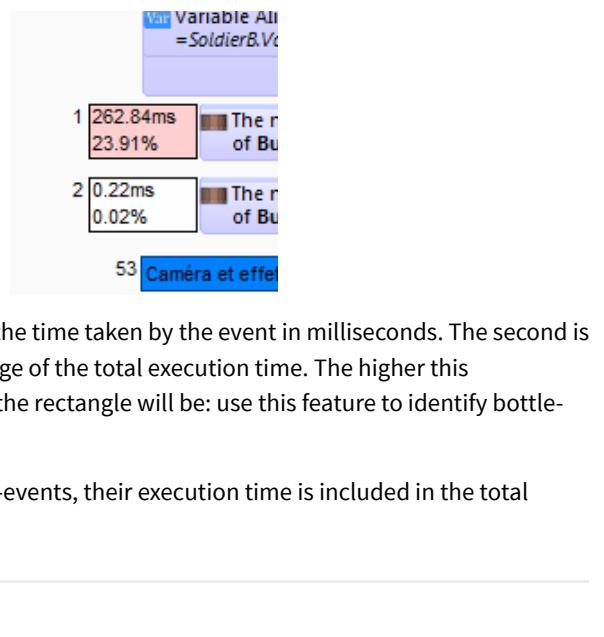
## Basic usage

The **Profiler** helps you improve the performance of your game. Open it by clicking on **Profiler** in the ribbon of a scene in Preview Mode ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/editors/scene\\_editor/edit\\_scene\\_preview](#)). To activate *profiling*, tick the box in the top-left corner: this will reload the scene. Now launch the game as usual. The **Profiler** will display graphs about the event execution speed, scene rendering and number of objects. You can change the refresh rate and add/hide curves by right-clicking on the graphics.

## Measuring events efficiency

In order to view an event execution speed, open the Event Editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_event](#)) and click on **Profiling** in the ribbon:





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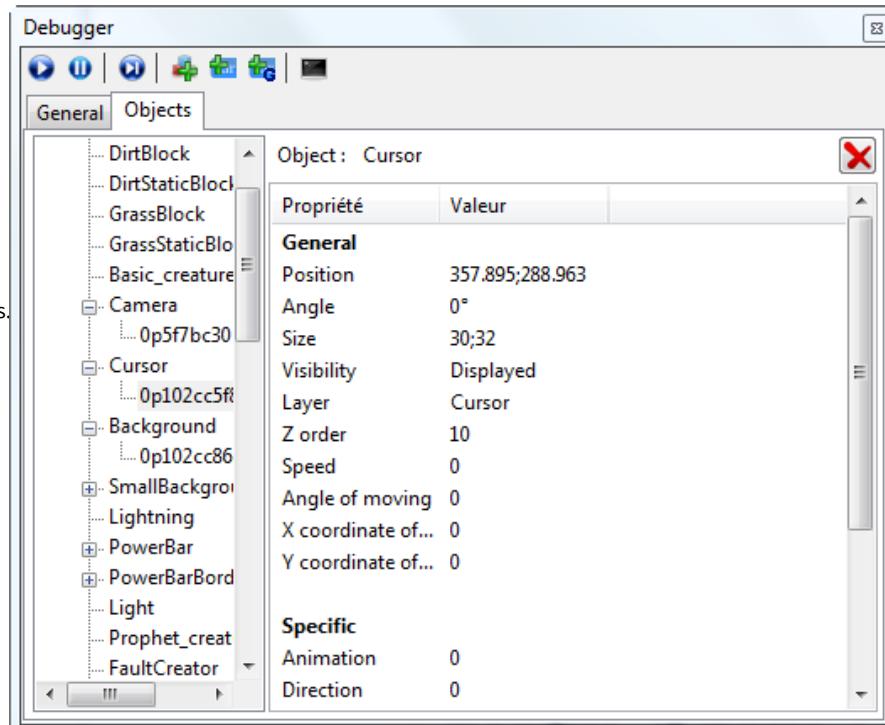
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# Preview mode: the debugger

The **debugger** allows you to view and modify data related to the scene, like the scene properties or an object variable.

The debugger displays the properties in lists. At any moment, double click on a property to edit it.



## The General tab

The **General** tab shows data about the scene (frames per second, number of objects...), as well as the value of the scene variables. Double-click on the values to modify them.

## Objects tab

Objects are displayed in the tree on the left side. Choose an object by first clicking on its name and then on its number (Remember that there can be multiple objects with the same name). You can view data about the objects and their variables. Double-click on the objects to modify them.

## Extension-related tabs

More tabs can be available depending on which extensions in use. Use them to get information about the extension features.

## Scene execution flow

With the toolbar buttons you can play the scene, pause it, or render it frame by frame. You can also insert objects and new variables.

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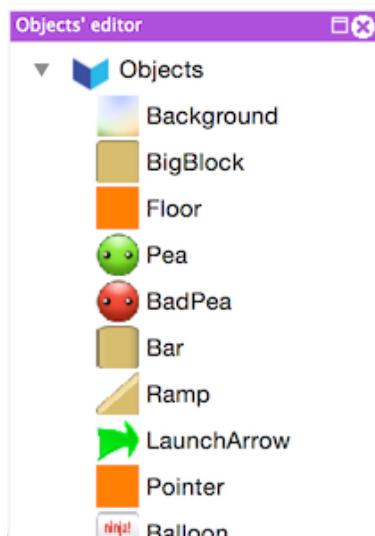
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# Objects Editor

The **Objects Editor** lists all the objects in a scene. Each object has a unique name and a type which determines its appearance and capabilities. From the **Objects Editor** you can also access to global objects (i.e. objects that can be used in any scene) and groups ([groups](#)).

You can add new objects, remove, rename existing ones and edit them (for example, most of your objects will be *Sprite* objects: you can edit them to add animations with images inside).



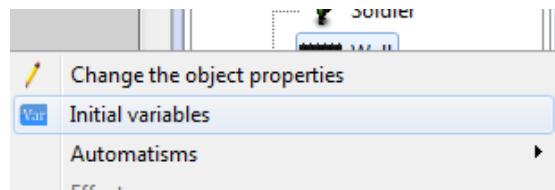
## Add and edit objects

Right-click on **Objects** and choose **Add an object** from the menu, or use the button in the ribbon. GDevelop will ask you to choose the kind of your object. Each kind (also called type) of object bring specific features.

For example, *Sprite* objects are objects with animations and that can be used for most part of your game. *Text* objects are used to display texts. Some objects can have a very specific usage. For example, the *AdMob* ([AdMob object](#)) is used to display ads when you export your game with Intel XDK on iOS or Android ([AdMob tutorial](#)).

## Advanced usage

Right-click on an object or use the ribbon to access to more options:



You can in particular edit an object variables ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global\\_variables](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/global_variables)) (i.e. variables created inside the object, when the object is created on the scene).

Click on `Properties` to open a window containing all the properties of the object, in particular behaviors: check this page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_automatisms](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_automatisms)) for more information about adding behaviors to objects.

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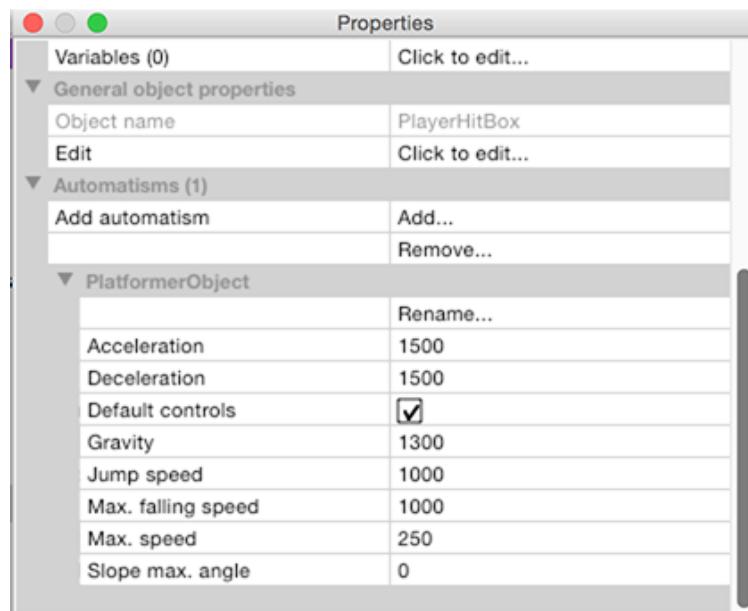
# Behaviors of objects

Behaviors are premades features that can be used to add a specific behaviour to any kind of object.

For example, the Physics behavior ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_physics](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_physics)) can be used to add a realistic behaviour to objects.

## Add behaviors to an object

To see the behaviors of an object, make a right click on the object in the objects editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_object](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_object)) and then click on Properties. Behaviors are shown in the window containing all the object properties:



The behaviors used by the object are displayed at the bottom of the list. To edit a behavior, simply edit the properties in the list. To add or remove a behavior, use the Add and Remove buttons in the list.

## Using behaviors during the game

When a behavior is added to an object, the behavior is enabled when the scene is launched. You can use the events to enable or disable behaviors of a specific object.

For example, it can be useful to **disable useless behaviors** such as the Light obstacle behavior ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_layer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_layer)) or Platform behavior ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_platformer](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_platformer)), when objects are far from the player.

Behaviors can also bring new actions, conditions or expressions: In this case, there will be a new category in the actions or conditions list.

Most of the time, you should try to use as much as possible **actions or conditions of the behavior**: for example, when using the Physics behavior, you should not use the built-in force system to move the object, but rather use the actions provided by the behavior.

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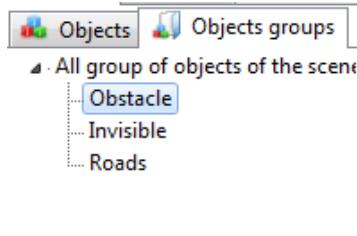
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# Edit groups of objects

The objects editor has a tab which is displaying the object groups :



Each object group contains the name of one or more objects. You can then use the name of the group in the event to refer to all the objects contained in the group. To add a group, use the ribbon. You can edit the objects included in a group by double clicking on it in the list.

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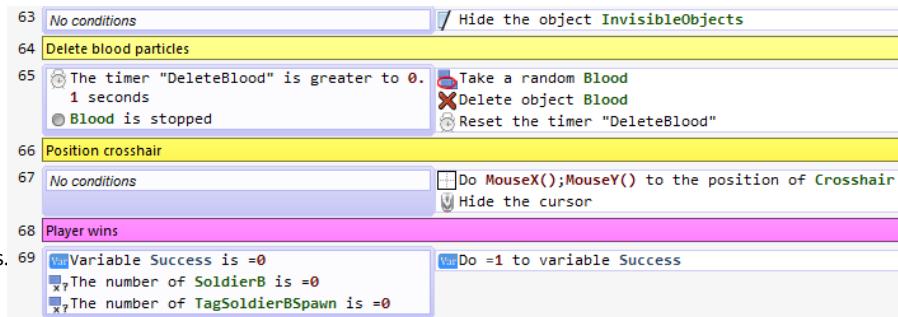
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# Events Editor

In the **Events Editor** you can design how a scene works.

Events are presented in a list, with **conditions** on the left and **actions** on the right. In addition to standard events using conditions and actions, other event types can be added: For example, with comment events you can add some text in the event list. Finally, you can add **sub-events**, which are executed only if the parent conditions are fulfilled.



## Standard events

Standard events animate the game using actions, making it possible to create objects, move them, change animations, etc...

Actions are triggered by conditions: the hero's health must equal a given number, or the object position must be within a particular area, etc...

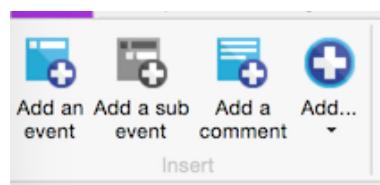
## Other types of events

GDevelop provides additional event types:

- With **Comments** you can add some text in the event list, for example to explain what an event block does;
- Links** allow you to include events from other scenes;
- Repeat** events are repeated a certain number of times;
- For each object** events are repeated for all objects specified in a list;
- While** events are repeated while their specified conditions are true.

More event types can be provided by extensions (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/extensions>) that you can activate for your game.

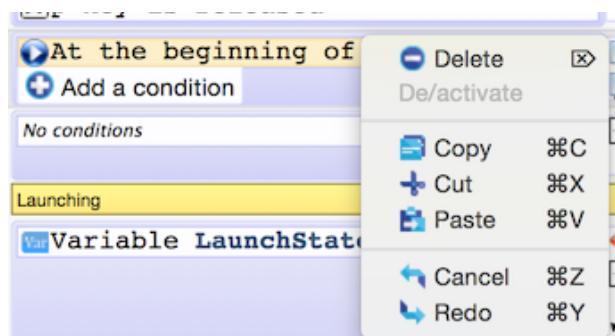
## Manipulating events



To add an event, click on **Add an event** in the ribbon. You can also hover with the mouse on an already existing event and choose **Add an event** in the resulting panel. You can add and edit other type of events and sub-events in the same way, either by using the ribbon or the panel appearing the event (in the latter case, choose **Other** ).

You can move an event up or down by **dragging** it with the mouse.

Delete an event by selecting it and pressing the **Delete** key, picking **Delete selection** from the ribbon, or right-clicking on it and then choosing **Delete** from the menu, as shown below:



You can also use right click to copy/cut events.

## Actions and conditions



To add an action or a condition in a list, hover on the list with the mouse and choose **Add an action/condition** from the panel appearing below. Actions and conditions can be moved and deleted in the same way as events.

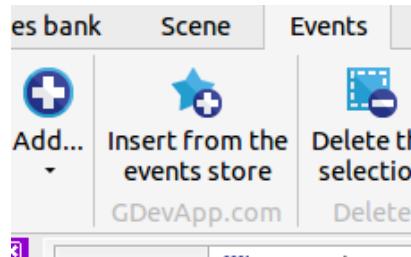
Make a double click to edit a condition ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/events\\_editor/condition](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/events_editor/condition)) or an action ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/events\\_editor/action](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/events_editor/action)).

## The Event Store

The Event Store allow you to browse and customize events made by others users: in a few click, you can quickly prototype your game and structure your events into large blocks dedicated to a single task.

To open the Event Store ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/event\\_store](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/event_store)), click on **Insert from the Event Store** in the

ribbon:



Events available in the Event Store are the events shared on GDevApp.com (<https://gdevapp.com>), the online game creator based on GDevelop.

## Other features

The ribbon provides access to other features such as **Undo**, **Redo** and **Search and Replace** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_event\\_find](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_event_find)) operations.

Conditions and actions are listed in two separate columns. You can resize these columns by dragging the column separator.

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([manual documentation](#)) » **The event store** ([The event store](#))

gdevelop:documentation:manual:event\_store

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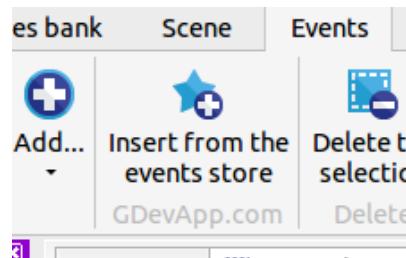
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# The event store

The event store give you access to events **made by others users** of GDevelop: you can browse the events using the list on the left and **customize the event** to your game using the right part, just like when you're editing a condition or an action (that's why these events are also called **templates**).

Templates are powerful because you can add complex events to your game in a few clicks: for example, some templates are very simple (like the one to rotate an object toward the mouse) and others are more advanced (like the one to add spaceship-like controls to an object).

When you're in the events editor, click on **Insert from the events store** in the ribbon to open the store:



The event store is composed of two parts: the list of templates on the left and, on the right, the description and the parameters of the selected template.

<b>Spaceship control v1.1</b> By using this event, you can add a top down view s...	<b>Move an object left, right, up and down by using the arrow keys</b> By ddabrahim With this event you can move an object in any direction by using the arrow keys. value of movement speed: <input type="text" value="100"/> <input type="button" value="Σ"/> name of object to move: <input type="text" value="truck"/> <input type="button" value="↑"/>
<b>Move an object left, right, up and down by using the arrow keys</b> With this event you can move an object in any direction by using the arrow keys. to any d...	
<b>Shoot bullets from position of an object</b> This event going to create bullets at "Centre" poi...	
<b>Rotate an object toward mouse</b> This event going to rotate an object toward positi...	
<b>Car / Ship control v1.4</b> By using this event, you can add car or ship behav...	
<b>okokbla</b> bla	
<b>test</b> blabla	
<input type="text" value="Search"/> <input type="button" value="Search"/>	
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

## Choose a template

All templates available are listed on the left: they are fetched from GDevApp.com (<https://gdevapp.com>), the online game creator based on GDevelop.

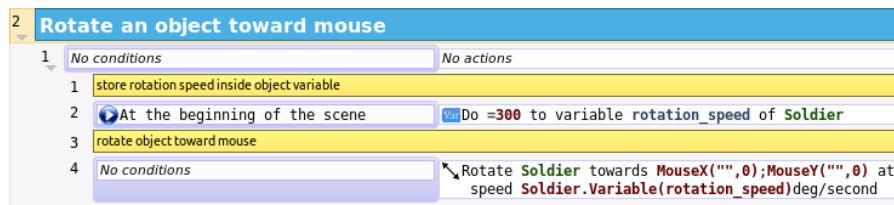
Each template has a name and a description to let you know what it does: just choose a template by clicking on it. You can also enter a keyword in the search field, at the bottom of the list, to search for a specific event.

## Customize and insert the template

After choosing a template, the entire description is shown on the right and as well as the parameters of the template. Parameters varies according to each template: some templates can have few or no parameters, other can ask you to fill lots of parameters to be used.

Customize the parameters just like a condition or an action: you can either enter manually the value of the parameters or click on the buttons on the right to autocomplete them.

When you're done, just click on Ok and the template is inserted in the events editor:



Here, the template we've added is a very simple template that turn an object toward the mouse (or the finger on a touchscreen).

You can see that all the events of the template are contained inside a **group** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/group\\_events](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/group_events)). You can click on the arrow on the left of the group to collapse the events if you don't care or want to hide the events.

## Modify and update the template

Even after you added a template, you can still edit it using the event store: just **double click** on the title of the template in the events editor.

The **event store** will be opened again with the parameters you've entered when you inserted the template: it's really useful if you made a mistake in the name of a parameter, or if you want to change the template.

Note that if the author of the template updated it, for example to enhance it or fix an issue, the template will be **updated in your game** after closing the event store!

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[gdevelop:documentation:manual:external\\_events](#)

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# External events

External events are events which are not directly linked to a scene. They can be included to one or more scene using Link events. They can be used to separate and organize large events sheets into smaller ones: Typically, a scene can contains some events and a bunch of Link events linking to one or more external events sheets.

For example, you can have a scene called *GameEngine* with links to external events called *EnemyManagement*, *PlayerManagement*, *UserInterfaceManagement*, *EnvironmentManagement*.

## Basic usage

You can create a new external events using the project manager. Double click then on the newly added external events to open the editor.

Before using it, you just need to choose, using the list located at the top of the editor, the scene to use to edit the events. When you choose a scene, the events can be edited as if they were included to the scene: You can use the objects, variables and everything offered by the scene.

The editor can be used as a classical events editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_event](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_event)).

## Advanced use: Enable separate compilation

The events of a scene are automatically compiled into machine code. Even if it is quite fast most of the time, you can make the compilation of the external events separated from the compilation of the events of the scene in which it is included. To enable this, you have to:

1. Include the external events using a Link event which is located at the root of the events of the scene. That is to say, the Link events which is used to include the external events must not have any parent event.
2. Make sure that the external events are included from only one scene.
3. Activate the separate compilation in the properties of the external events sheet.

When these requirements are met, GDevelop will compile the external events separately from the scene: Any change in the external events will only trigger the internal compilation of the external events. And similarly, a change in the events of the scene won't require the external events to be recompiled.

This can be useful when you have a very large amount of events which require a lot of time to be compiled.

If you do not need any speed boost, you can still use external events: They provide a nice way of structuring the events of your scene by putting together the events related to a specific task.

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# External layouts

An external layout can be used to create a layout of objects, just as in a scene editor. The objects can be then dynamically inserted in a scene using the actions in the *External layouts* category.

This can be useful to :

- Create entire levels into different external layouts, and then load them into the scene containing the game engine.
- Create complex layout of objects ( For example, a fleet of spaceships ) and then insert them into a scene.

## Basic usage

As with external events ([external events](#)), you have to choose a scene before editing an external layout. After choosing a scene using the list, the editor will be loaded, displaying the external layout with the objects and the layers of the chosen scene.

To edit the layout, the editor is similar to a scene editor ([edit scene](#)).

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » manual (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/start>) » **Expression Editor** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_expr](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_expr))

gdevelop:documentation:manual:edit\_expr

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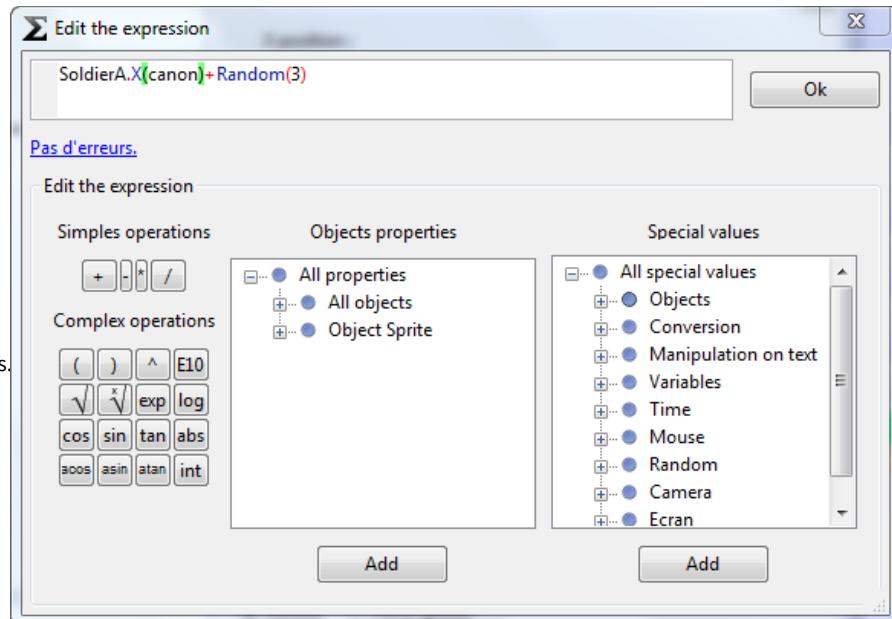
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# Expression Editor

The expression editor allows you to edit expressions in actions and conditions. An expression is a calculation using object properties like its position or angle, as shown at the top of the below image:



## Expression structure

An expression is a mathematical calculation. It can be composed of numbers (e.g. **42**), operators (e.g. **42 + 5**), or functions (e.g. the random function: **Random(5)**).

A function is invoked by writing its name followed by parentheses. Parentheses optionally contain parameters to be sent to the function (e.g. **Random(5)**).

In order to invoke the function of an object, use the object name followed by a dot before the function (e.g. **MyObject.X()**).

## Help writing expressions

In the image above you can see a list of available operators and expressions: click to add one. You can also add properties in one of the two lists: click on **Add**, and fill out the parameters if necessary.

## Some examples and helpful functions

- You can convert text to numerical values using **ToNumber**. For example:

```
ToNumber(StrAt("157", Random(2)))
```

will give 1, 5 or 7 as result.

- **Random(x)** will give a random number between 0 and x.

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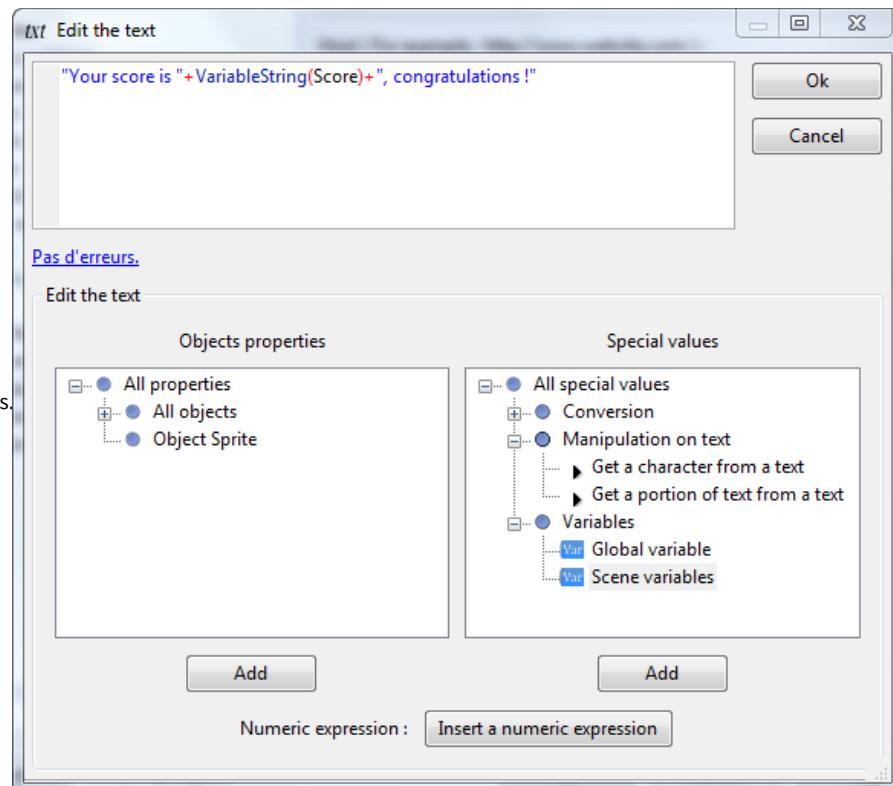
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# The Text Editor

The text editor allows you to edit strings and combine them with parameters from actions and conditions, as shown below:



## Writing expressions

Expressions are displayed in the upper part of the window. They can contain a simple text in quotation marks (e.g. "Game Over") or function calls (e.g. VariableString(PlayerName)), separated by the plus sign + (e.g. "Lives: " + Variable(Lives)).

The bottom half of the editor shows the available properties: choose a property in one of the two lists, click on **Add**, and fill out the necessary parameters. You can also insert the result of a numeric expression by clicking on **Insert a numeric expression**: edit the numeric expression in the pop-up.

## Some examples and helpful functions

You can insert mathematical expression using **ToString** function, e.g. "4+5=" +  
ToString(4+5) . ToString() converts a numerical value to a string.

By pressing the *Insert a numeric expression button*, you can enter a numeric expression. The ToString() function will be automatically added:

```
"Object position: " + ToString(myObject.X())+"; "+ToString(myObj
```

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# Operators

Operator	Description
<b>-A</b>	Unary minus.
<b>A *B</b>	Multiplication.
<b>A / B</b>	Division.
<b>A + B</b>	Sum.
<b>A - B</b>	Subtraction.

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# Built in functions

## Variable

```
ToJSON(var)
Object.VariableString(var)
GlobalVariableString(var)
VariableString(var)
GlobalVariable(var)
Variable(var)
Object.Variable(var)
```

## Window

```
WindowTitle()
```

## Screen

```
ColorDepth()
SceneWindowHeight()
SceneWindowWidth()
ScreenHeight()
ScreenWidth()
```

## All objects

```
Object.Angle()
Object1.Distance(Object2)
Object1.SqDistance(Object2)
Object.X()
Object.Y()
Object.ForceAngle()
Object.ForceLength()
Object.ForceX()
Object.ForceY()
Object.Height()
Object.Width()
Object.Variable(var)
Object.ZOrder()
Count(Object)
```

## Sprite

```
Object.Animation()
Object.Sprite()
Object.Direction()
Object.PointX(pointName)
Object.PointY(pointName)
Object.ScaleX()
Object.ScaleY()
```

## Conversion

```
ToDeg(angleRad)
ToRad(angleGrad)
ToNumber("text")
LargeNumberToString(numExpression)
ToString(num)
```

## Mouse

```
MouseWheelDelta() - returns 0, 1, -1
MouseX("", 0) - Default: Base layer, camera 0
MouseY("", 0)
```

## Joystick

```
GetJoystickAxis(0, axis) - joystick, axis
```

## Random

```
Random(MaxNumber)
```

## Time

```
Time(keyWord) Keywords: hour, min, sec, mday, mon, year, wday,  
TimeDelta()  
TimeFromStart()  
TimerElapsedTime("timerName")
```

## Math

```
AngleDifference(angle1,angle2)
```

## Camera

```
CameraHeight("layer",camNum)  
CameraRotation("",0)  
CameraViewportBottom("",0)  
CameraViewportLeft("",0)  
CameraViewportRight("",0)  
CameraViewportTop("",0)  
CameraWidth("",0)  
CameraX("",0)  
CameraY("",0)
```

## Sound

```
GlobalVolume()  
SoundChannelPitch(0)  
SoundChannelPlayingOffset(0)  
SoundChannelVolume(0)
```

## Musics

```
MusicChannelPitch(0)  
MusicChannelPlayingOffset(0)  
MusicChannelVolume(0)
```

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# Standard events

The most common events used in GDevelop are the standard events:

They are composed of a list of conditions, displayed on the left, and a list of actions, displayed on the right. When all the conditions are true, the actions are executed.

## Example

Here is an event that will destroy the “Square” objects whose X position is inferior to 100 pixels:

The screenshot shows a GDevelop event editor window. On the left, there is a condition block labeled "The X position of Square is < 100". On the right, there is an action block labeled "Delete object Square". The URL for this screenshot is provided below the image.

([http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres\\_event2.png?id=gdevelop%3Adocumentation%3Amanual%3Abase\\_events](http://wiki.compilgames.net/lib/exe/detail.php?/wiki/pres_event2.png?id=gdevelop%3Adocumentation%3Amanual%3Abase_events))

If you are still unsure on how the events work, take a look at the basic concepts  
([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres\\_concepts](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/pres_concepts)) used by GDevelop.

You are here: [Home](#) » gdevelop ([gdevelop](#)) » manual ([manual](#)) » **Comment events** ([Comment events](#))

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# Comment events

Comments events are not used during the game, but they are useful to insert texts displayed in the events editor.

If you want to organize your events, take also a look at Events groups  
([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/group\\_events](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/group_events)).

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# Link events

Link events are placeholder to indicate to GDevelop that it must insert at this place some events that are stored into an external events sheet ([external\\_events](#)).

When adding a link event or when double clicking on it in the events editor, a window will popup, allowing you to choose the external events to be included here. You can create external events from the project manager.

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# For each Event

*For each objects* events allows to repeat their conditions and actions ( as well as their sub events ) for each object specified.

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# Repeat events

Repeat events are working like standards events, but they are repeated more than one time. ( The other events are not executed as long as the number of repetition has not been reached ).

After adding a such event, you can enter the number of repetition to be done each time. Note that this number can be an expression ([expression documentation](#)).

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# While events

While events are a special kind of events : As long as the *While conditions* are true, the event is repeated, without interruption ( i.e : next events are **not executed** and the screen is **not** refreshed ).

They can be used to repeat actions as long as a condition is true.

Be careful, if the *While conditions* are always true, the events will be repeated indefinitely and the game will be frozen. In the editor, GDevelop will display a message to ask you if you want to stop the preview if a such events is repeated for more than 100 000 times. You can deactivate this warning by double clicking on the event.

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([Events groups](#))

[gdevelop:documentation:manual:group\\_events](#)

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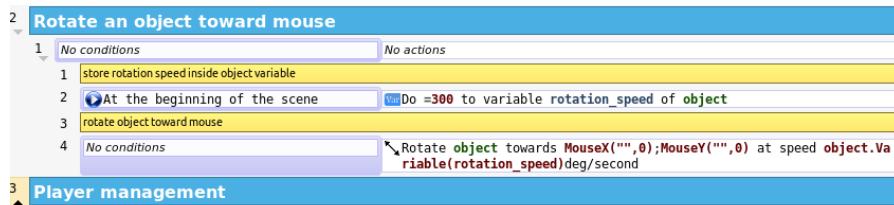
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# Events groups

Groups are events that do nothing particular: they are used to organize and structure your events. To add a group, go in the events editor, and click on Add... in the ribbon, and choose Group .



You can add a group and choose a name describing what it contains ("Player management", "Map creation"...). In the events editor, click on the arrow on the left of the group event to hide the sub events. Click again on this arrow to unfold the group and show what it contains.

Groups are added automatically when you add events using the Event Store ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/event\\_store](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/event_store)).

You are here: [Home](#) » gdevelop ([gdevelop](#)) » GDevelop Tutorials ([GDevelop Tutorials](#)) » **How to use Javascript events** ([How to use Javascript events](#))

[gdevelop:tutorials:usingjsevents](#)

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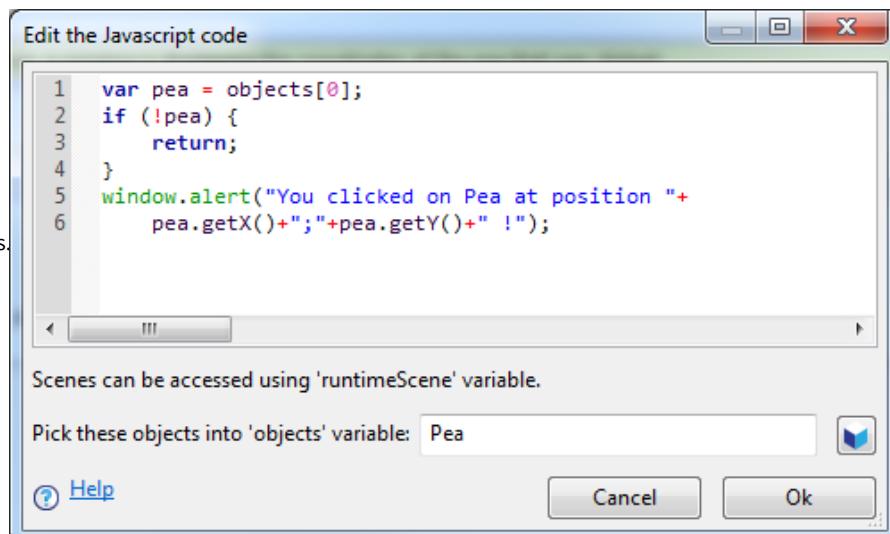
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# How to use Javascript events

Using Javascript events, you can insert an arbitrary code of Javascript into your games created with the Web platform.

This can be useful if you want to use some external libraries or a very specific code. With external source files, you can also integrate entire Javascript source files into your game: it's nice to progressively learn Javascript programming or create a game with a programmer.



## Add a Javascript event

Simply add the event into a game: the event is called `Javascript code`.

When added, double click on it to edit the code that will be executed. Note that in the code, you have access to a variable named `runtimeScene` representing the scene being played. If you choose some objects in the field below the code, then an `objects` variable will be available. It's an array containing the selected objects.

Check the GDJS documentation (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/index.html>) for more informations about these types:

- RuntimeScene (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.RuntimeScene.html>)
- RuntimeObject (<http://4ian.github.io/GD-Documentation/GDJS%20Runtime%20Documentation/classes/gdjs.RuntimeObject.html>)

To check that the event is working, you can start by calling a simple method on the `runtimeScene`, like the one to change background color:

```
runtimeScene.setBackgroundColor(0,0,255); //Set the background
```

or change objects position:

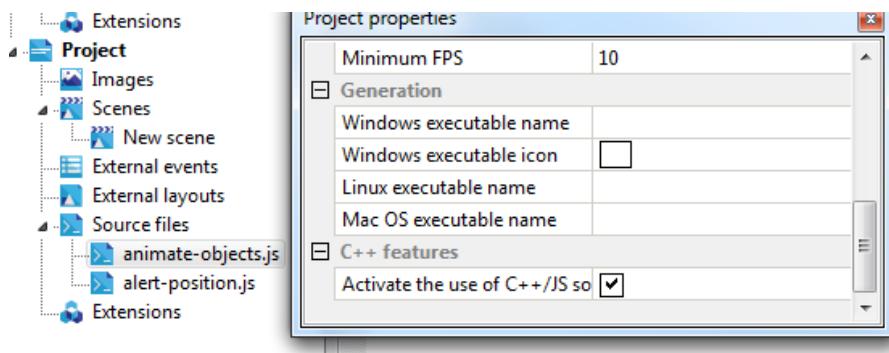
```
for(var i = 0;i<objects.length;++i) {
    objects[i].setX(50); //Set the X position of all picked obj
}
```

## Use external source files

Using external Javascript source files (.js files) is very easy: just include it into the folder of the game (or a subfolder).

Then, activate the use of external source files in your game property (right click on the game name in the Project Manager, than choose properties, and finally check `Activate the use of C++/JS source files`).

Now there is a new item in the structure of your project called `Sources`. Make a right click on it to choose to create a new source file or to import an existing one.



You can edit the files using GD integrated editor or you preferred text editor (take a look at Sublime Text (<http://www.sublimetext.com/>)). When your game will be exported or when you launch a preview, the source files will be integrated to the game.

Source files are included like any other javascript file: if you want to access to functions defined inside, you have to store them into a global object or make these functions globals (just declare it with any prefix, like this: `function myFunction() { ... }`). Then you can call them from your events using a Javascript event.

## Tips about writing Javascript code

If you don't know how to code in Javascript, there are lots of nice tutorials available.

Here are some tips about Javascript events and external source files:

- Always use the debugging tools available in your browser to check if you made

errors in your code: any error will block the game from running. Developers tools are most of the time available by pressing F12 in your browser.

- If you use lots of Javascript in your game, you'll better use external sources files and a dedicated text editor (like Sublime Text).
- Read the documentation (<http://4ian.github.io/GD-Docmentation/GDJS%20Runtime%20Documentation/index.html>) to know how to use the objects and functions provided by GDevelop.

## Code examples

### **Read and change the value of a variable:**

```
var myVar = runtimeScene.getVariables().get("MyVar");
var myVar2 = runtimeScene.getVariables().get("MyVar2");

var currentValue = myVar.getAsNumber();
myVar.setNumber(currentValue+1);

myVar2.setString("Hello, world");
```

See the documentation of `gdjs.Variable` (<http://4ian.github.io/GD-Docmentation/GDJS%20Runtime%20Documentation/classes/gdjs.Variable.html>) and `gdjs.VariablesContainer` (<http://4ian.github.io/GD-Docmentation/GDJS%20Runtime%20Documentation/classes/gdjs.VariablesContainer.html>).

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# The Base object

GDevelop provides many built-in features and official extensions. For example, games automatically use the **Base object** extension, which provides actions, conditions and expressions for all objects.

## Displacement

Actions belonging to this category allow to apply forces of an object and move it. The corresponding conditions allow to test if an object has stopped, if it is moving and where to (for example towards another object, or in a particular direction).

## Visibility

You can hide and show objects thanks to the actions of this category.

## Layers and cameras

These actions and conditions allow to test and modify layers.

## Z Order

These actions and conditions allow to test and modify the Z order of an object.

## Objects

These actions and conditions allow to create, delete, pick an object at random or duplicate an object.

## Position

These actions and conditions allow to change an object's position.

## Variables

These actions and conditions allow to test and modify variables of objects.

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([manual start](#)) » **Sprites** ([gdevelop documentation/manual/built\\_sprite](#))

gdevelop:documentation:manual:built\_sprite

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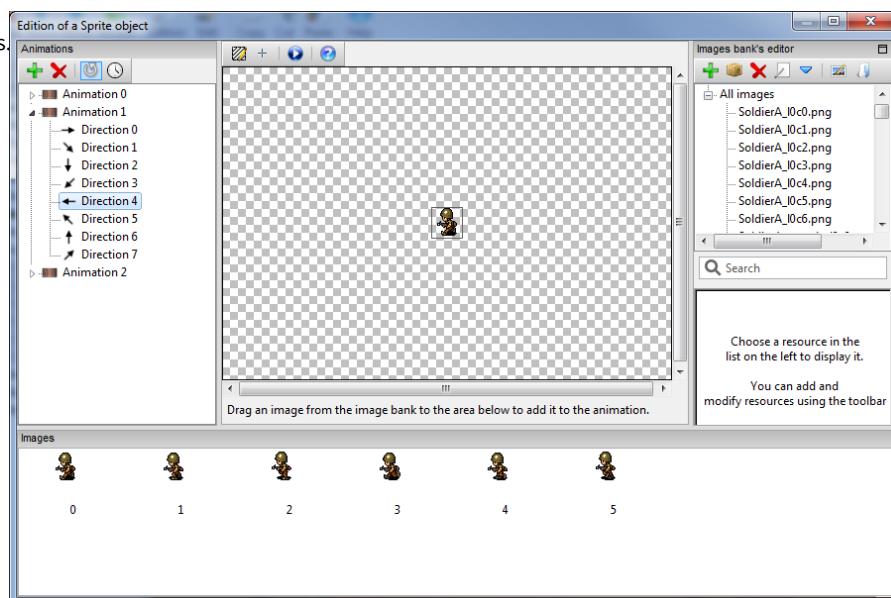
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# Sprites

Sprite objects consist of images and animations and are very popular in games: Sprites can display a large variety of game components such as characters, platforms and user interface elements.. Each animation can represent for example a state of the object (running, walking, exploding...). An animation is itself composed of directions, corresponding to the angle of the object (looking left, right, etc...).

## Editing sprites

All the objects in a scene are listed in the Object Editor ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_object](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_object)), on the screen right-side. Double-clicking on a Sprite object opens a pop-up from where you can edit sprites:



## Animations

Animations are displayed in the Animations panel, on the left by default. A default animation exists when a Sprite object is created:

▶ **Animation 0**

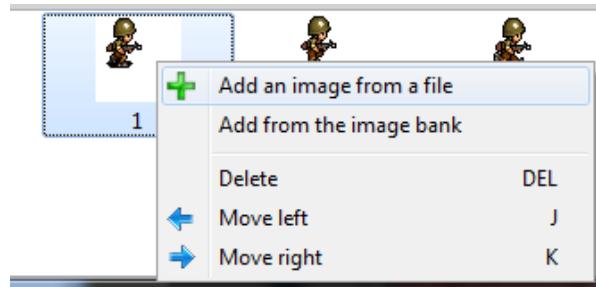
To add a new animation, just click on the first button of the toolbar. You can also make a right click on an already existing animation and choose “Add an animation”.



To edit a specific animation, just select it, and its images will be displayed in the Images panel.

## Images

When an animation is chosen, its images are displayed in the Images panel. You can add or remove an image by making a right click in this panel:



You can set the interval between each image, and specify if the animation should loop, using the toolbar of the Animation panel :



If you want to see a preview of the animation, just click on the preview button:

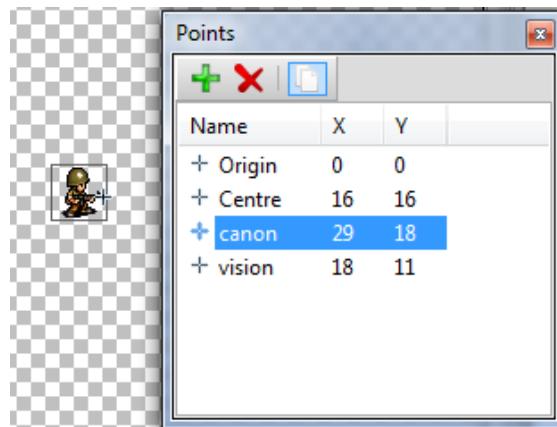


## Points

Points allow to specify special positions on objects (Like the motor for a vehicle, the gun for a soldier...) Each image can have one or more points. Points can be edited by clicking on the first button of the center toolbar:



When editing points, the following window will popup. It displays the list of the points:



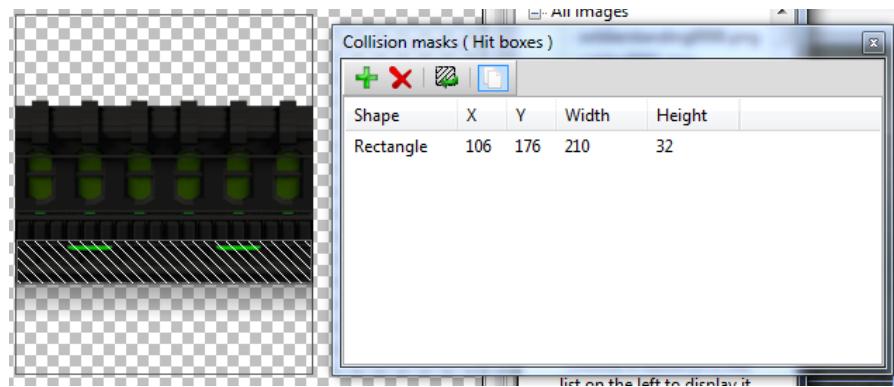
Select a point in the list to display it on the image. You can then click on the image to move the point.

## Collision masks

You can test whether objects are colliding with conditions in the *All objects* category. Collision detection works with *collision masks* ( also called *Hit boxes* ). Collision masks are, by default, a single invisible rectangle with the size of the object. You can customize collision masks for your object by click on this button in the toolbar:



When editing collision masks, the following window will popup. It displays the list of the collision masks:



You can add a new rectangle by clicking on the first button of the toolbar. Masks are displayed on the image, and they can be moved by dragging them. You can also make a double click on a mask in the list to enter its coordinates.

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[gdevelop:documentation:manual:built\\_tiled](#)

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# Tiled background

The Tiled background object displays a repeating pattern:

Using a Tiled background is much more **efficient** than using multiple Sprite object:  
The Tiled background object is designed to be able to display a **very large pattern** while displaying lots of Sprites can decrease performances.

It is also much **more convenient** to use a Tiled background object in a scene editor:  
Just add the object and resize it so as it covers the area you want. You can then **lock** the object to work on the other objects without moving the background (see the Scene editor page ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit\\_scene](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/edit_scene)) to get more information about locking objects).

You are here: [Home](#) » gdevelop (<http://wiki.compilgames.net/doku.php/gdevelop/start>) » GDevelop Documentation (<http://wiki.compilgames.net/doku.php/gdevelop/documentation>) » manual (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/start>) » **Text Object extension** ([http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built\\_text](http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/built_text))

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# Text Object extension

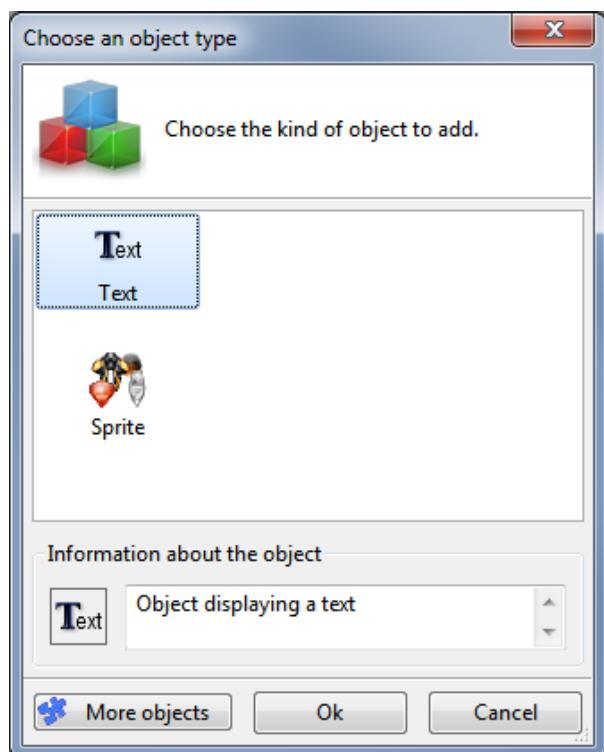
This extension provides objects displaying a text on the scene:



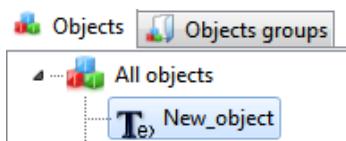
A text object used on a scene

## Basic use

To add a text object, add a new object and choose the “Text” object type (The Text Object extension must be activated in the extension list (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/extensions>)) :

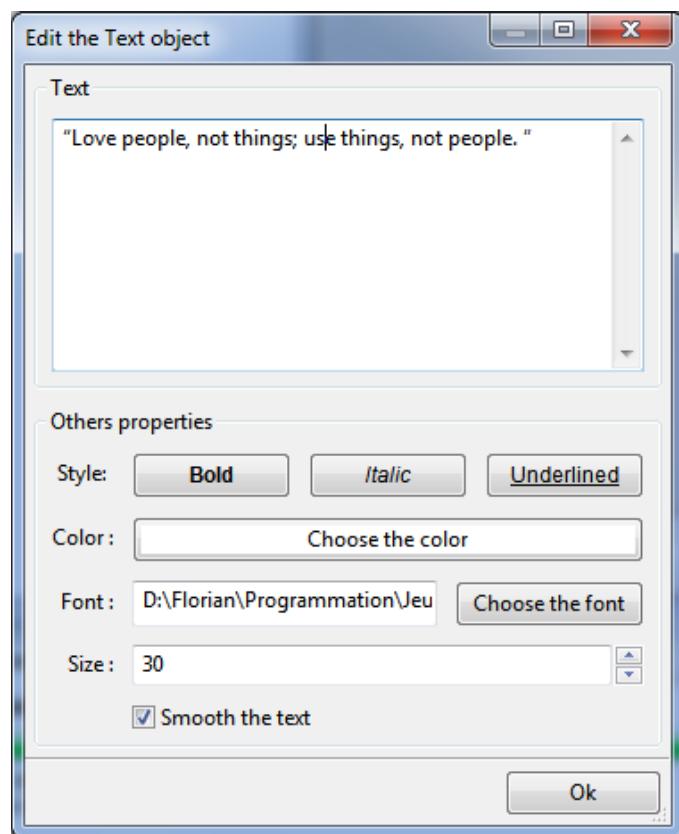


Choosing the text object when adding an object



The object in the object list

When the object is added in the object list, double click on it to edit its properties. If you inserted the object by right clicking on the scene, the window is automatically shown:



You can then close the window and drag'n'drop the Text object on the scene.

Text object comes with several actions to change its states during the game.

You are here: [Home](#) » gdevelop ([gdevelop](#)) » GDevelop Documentation ([GDevelop Documentation](#)) » manual ([manual](#)) » **Text Entry Object** ([Text Entry Object](#))

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# Text Entry Object

The link to the forum with examples how to use it:

[http://www.forum.compilgames.net/viewtopic.php?f=19&t=5258](#)  
([http://www.forum.compilgames.net/viewtopic.php?f=19&t=5258](#))

Forums for **GDevelop**, the open source game development software, and **GDevApp**, the online and easy-to-use game creation webapp.

- 🏠 (./index.php?sid=9d9a35e3a9880fdc1f25ff211db04cd1)
- ▶ Board index (./index.php?sid=9d9a35e3a9880fdc1f25ff211db04cd1)
- ▶ English community (./viewforum.php?f=17&sid=9d9a35e3a9880fdc1f25ff211db04cd1)
- ▶ GDevelop (./viewforum.php?f=42&sid=9d9a35e3a9880fdc1f25ff211db04cd1)
- ▶ Help for games creation (./viewforum.php?f=19&sid=9d9a35e3a9880fdc1f25ff211db04cd1)

## [SOLVED]HOW TO USE THE TEXT ENTRY (./VIEWTOPIC.PHP?F=19&T=5258&SID=9D9A35E3A9880FDC1F25FF211DB04CD1)

Search this topic...

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🖨 (./viewtopic.php?f=19&t=5258&sid=9d9a35e3a9880fdc1f25ff211db04cd1&view=print)

✚ Reply (./posting.php?mode=reply&f=19&t=5258&sid=9d9a35e3a9880fdc1f25ff211db04cd1)



### [SOLVED]HOW TO USE THE TEXT ENTRY #43280 (./VIEWTOPIC.PHP?P=43280& SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P43280)

By komencanto (./memberlist.php?mode=viewprofile&u=1528&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - ⚡ Fri 13 Jun 2014, 05:07

For example, how to ask to input a name and then print "Hello, <name>!"  
In my case I cannot terminate input after pressing Enter...

Last edited by komencanto (./memberlist.php?mode=viewprofile&u=1528&sid=9d9a35e3a9880fdc1f25ff211db04cd1) on Sat 30 Aug 2014, 23:22, edited 1 time in total.



### RE: HOW TO USE THE TEXT ENTRY #43287 (./VIEWTOPIC.PHP?P=43287& SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P43287)

By Lizard-13 (./memberlist.php?mode=viewprofile&u=592&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - ⚡ Fri 13 Jun 2014, 10:13

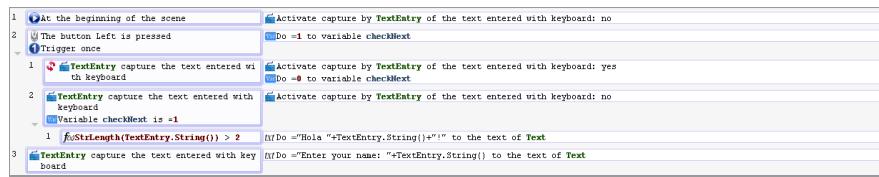
GD has an extension named "Text entry" (Native Platform)  
You can add the Text Entry object to the scene (is invisible) and des/activate the text input capture, the object save the captured text in a string. Then you can use the string for whatever you want 😊

“ how to ask to input a name and then print "Hello, <name>!"

”

Example 😊 (left click to des/activate the text entry):

()



TextEntry.png (22.34 KiB) Viewed 1581 times

Note: variable checkNext is my "elif or else if", other way GD will read:

Text entry is desactivated ===> Activate it

Text entry is now activated ===> Desactivate it 😊

•••

I should be studying now:/



### RE: HOW TO USE THE TEXT ENTRY #43292 (.VIEWTOPIC.PHP?P=43292& SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P43292)

By komencanto (.memberlist.php?mode=viewprofile&u=1528&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - Ⓛ Fri 13 Jun 2014, 15:20

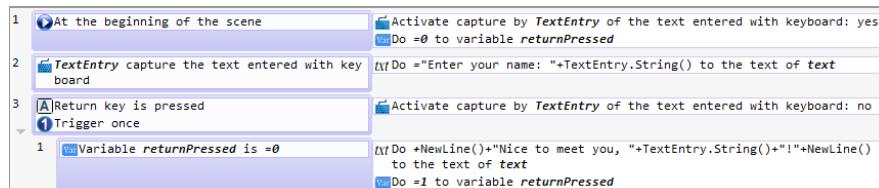
So complicated in GD! 😊 OK, I'll try it... Thanks for help!



### RE: HOW TO USE THE TEXT ENTRY #44640 (.VIEWTOPIC.PHP?P=44640& SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P44640)

By komencanto (.memberlist.php?mode=viewprofile&u=1528&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - Ⓛ Mon 11 Aug 2014, 23:03

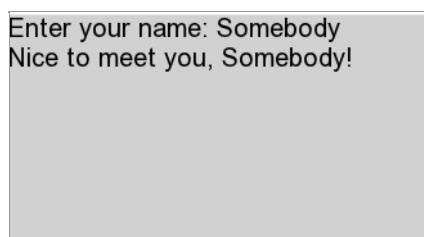
Simplified version of using Text entry object:



text\_entry\_example.png (17.22 KiB) Viewed 1511 times

Enter your name and press [Return]

The result:



text\_on\_screen.png (4.29 KiB) Viewed 1511 times

Before using Text Entry Object in Events you need to put it somewhere on the Scene and add the object Text to the

( )

Scene where do you want messages to display.

PS: Currently you can type only English text in the Text Entry, no Russian, for example. 😊



### RE: HOW TO USE THE TEXT ENTRY

**#44641 (./VIEWTOPIC.PHP?P=44641&SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P44641)**

By erdo (./memberlist.php?mode=viewprofile&u=1535&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - Ⓜ Tue 12 Aug 2014, 02:38

“ komencanto wrote:

Currently you can type only English text in the Text Entry, no Russian, for example. 😊

”

You can also type spanish text on it 😊

I'm sure you wanted to say "currently you can type only modern latin characters on it, not cyrillic ones"

BTW, this a very cool example and useful of how to use the input entry.

\*\*\*

*Yeah, my english is not perfect but you don't want to meet my french.*

#### SPAM ALERT!

Test this small board game made in GD:

<http://gamejolt.com/games/puzzle/group-it/30709/> (<http://gamejolt.com/games/puzzle/group-it/30709/>)

Image



### RE: [SOLVED]HOW TO USE THE TEXT ENTRY

**#45123 (./VIEWTOPIC.PHP?P=45123&SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P45123)**

By BenDansie (./memberlist.php?mode=viewprofile&u=1609&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - Ⓜ Mon 1 Sep 2014, 07:11

Hi all,

Currently investigating GameDevelop as an option for a project, but one of the requirements is a form at the end for users to enter some details and have those details plus some of the variables entered on different scenes emailed to the organisation who is running the project.

We were planning to use the Web platform, but is it even possible to have user entry text forms (or a mail function) in the Web platform?

Other than that, it seems GameDevelop is able to do all the things we need it to.

Cheers,  
Ben.



### RE: [SOLVED]HOW TO USE THE TEXT ENTRY

**#45127 (./VIEWTOPIC.PHP?P=45127&SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P45127)**

By 4ian (./memberlist.php?mode=viewprofile&u=2&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - Ⓜ Mon 1 Sep 2014, 08:33

Not really for now, it would be a matter of porting the text entry extension to the web platform to get the text entered on Keyboard...

But GD is fully capable of sending classical http requests so you can perfectly send details/variables to an API end-

( )

point (=a PHP page for example that send emails).

Just make sure to ask the user for its details using a classic HTML form before starting the game, or wait for the text entry extension but I can't promise any release date.

4ian  
GDevelop lead developer

**RE: [SOLVED]HOW TO USE THE TEXT ENTRY**  
**#45163 ./VIEWTOPIC.PHP?P=45163&**  
**SID=9D9A35E3A9880FDC1F25FF211DB04CD1#P45163)**

By BenDansie (./memberlist.php?mode=viewprofile&u=1609&sid=9d9a35e3a9880fdc1f25ff211db04cd1) - **Tue 2 Sep 2014, 00:47**

Thanks very much for the quick reply, we will keep that in mind as we design it.

**+ Reply (./posting.php?mode=reply&f=19&t=5258&sid=9d9a35e3a9880fdc1f25ff211db04cd1)**

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◀ Return to Help for games creation (./viewforum.php?f=19&sid=9d9a35e3a9880fdc1f25ff211db04cd1)

**07 Jul PROBLEM WITH UNIT MOVEMENT (RTS)**  
**(./VIEWTOPIC.PHP?F=19&T=8057&SID=9D9A35E3A9880FDC1F25FF211DB04CD1)**

- By Caleb\_0718

Nevermind, solved it!

**07 Jul CREATE CUSTOM CURSOR (./VIEWTOPIC.PHP?F=45&T=8047&SID=9D9A35E3A9880FDC1F25FF211DB04CD1)**

- By joso23

Hum i don't know if the properties  
windowScene.Wi[...]

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# Shape Painter objects

The \*Primitive Drawing\* extension provides **Shape Painter** objects. These invisible objects can be put on the scene, and used to display simple shapes using the appropriate actions.

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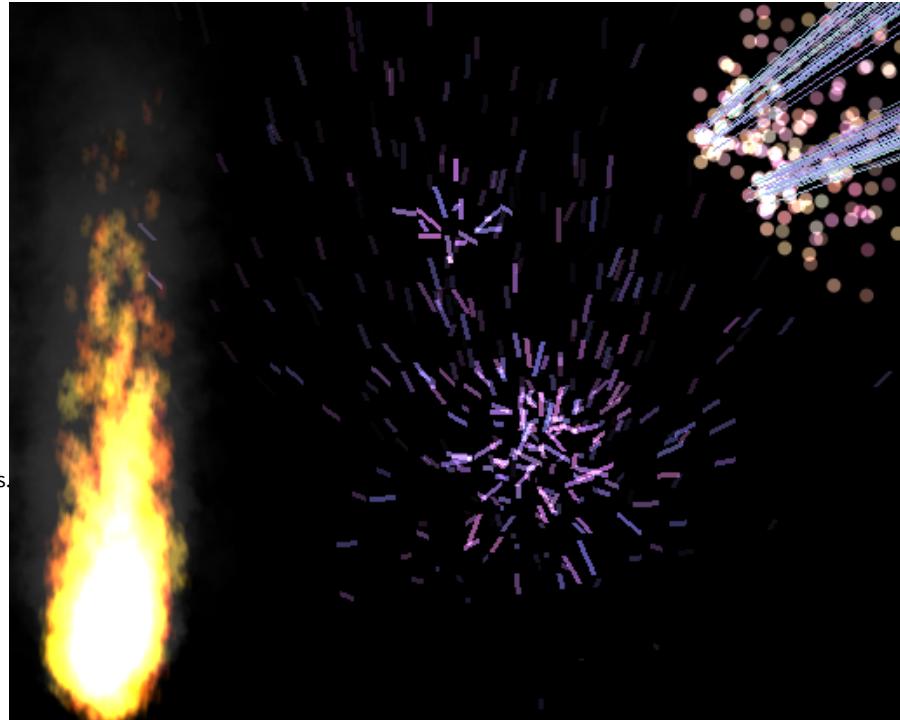
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# The Particle system extension



This extension provides the **Particle Emitter object**, which allows to display a large number of small particles, so as to simulate effects like *fire, explosion and many more*.

## Editing the object

Particle Emitter allows to change a large number of parameters :

### Rendering mode

3 rendering mode are available : Points, Lines and Quad.

The first mode will display points with the specified size.

The second will display lines with specified thickness, and a length that will vary according to the length specified and the speed of the particle.

The last mode will display image with the specified size.

You can also choose if the particles must be rendered using standard or additive mode.

## Particles

Each particle have a limited lifetime, chosen randomly between two values which can be changed.

Quantity of particle can be unlimited or fixed to a number, in which case the emitter will stop emitting after reaching this number of particle.

The flow is the number of particle created by seconds. You can enter -1 so as to throw all particles in a single shot.

You can also change the maximum number of particle. Note that this number change the memory taken by the emitter. If this number is really huge, it can cause a crash.

### Simple setup

You can choose an initial color for particles, and a color to fade to.

### Advanced setup

Each particle have a red, green, blue component. For each of them, you can choose if the value must be fixed ( In which case you can enter the value in the box below ), if the value must be randomly choosen ( In which case, you can choose the minimum and maximum using the two boxes ) or if the value must be changed over the time ( In which case, you can also choose the minimum and maximum using the two boxes ).

You can also choose an initial and final value for the transparency.

Size and angle of particles can also be customized in the same way. You can in addition choose if these values must changed over the time or take a random value when they are created.

## Emission zone and direction

Particles appears in a sphere, around the position of the emitter object. You can change the radius of the sphere.

### Simple setup

Particles will be emitted in a direction. You can choose the angle of this direction as well as the angle of the spray cone. A important value for this spray cone will result in a emission of particles in a large number of direction around the direction specified. A value of 0 will emit particles only in the specified direction.

### Advanced setup

Particles will be emitted in a direction. This direction is characterized by its value on X, Y and Z axis ( like forces, with an additional Z axis representing depth ).

A direction using values like 1;0;0 will thus be the same as a direction using values like 5;0;0

You can also personalize two angle which describe a portion of a sphere.

For example :

0 et 6.28 will define a complete sphere, meaning particles will be thrown in all directions.

0 et 0 will throw particles only in the specified direction.

3.14 and 3.14 will create a disc.

1.57 and 1.57 will define a cone of angle 1.57 radians ( 90° )

These angles are in radians : PI(=3.14159) radians is equal to 180°

You can finally choose the force of the emission, by choosing a minimal and a maximal value.

## Gravity and friction

### Simple setup

You can add a gravity to particles : Simple choose the angle of the gravity force, and the value of this force.

### Advanced setup

You can change the gravity applied to particle of the emitter : Enter its value on X, Y and Z ( depth ) axis. A value of 0;0;0 will define no gravity. Finally, friction influence particles' deceleration.

## Actions and conditions

Actions and conditions allow to change same parameters as described above.

Condition "**No more particles**" allows to test if an emitter does not emit particle anylonger. If such a case, it must often be destroyed.

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# Tile map objects

The tile map object allow you to create maps composed of tiles.

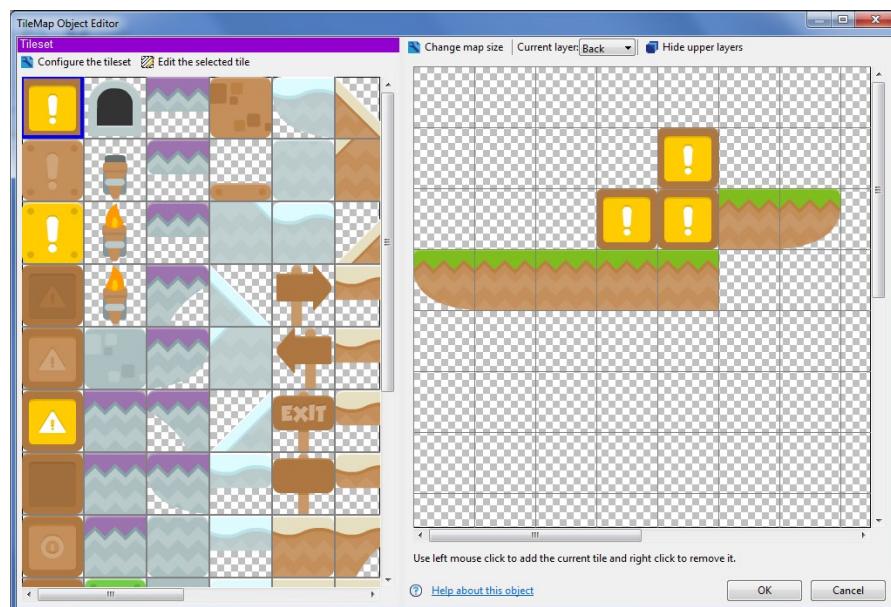
## How does it work ?

This object manages a **tileset** which is the texture containing all the tiles. These tiles are cut depending on the size and the spacing you have requested. Eventually, they can be set into the tile map to create a scenery.

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## Edition

This tile map object editor is composed of 2 main parts.



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# Lights extension

Lights extension provides Light object and Light obstacle behavior.

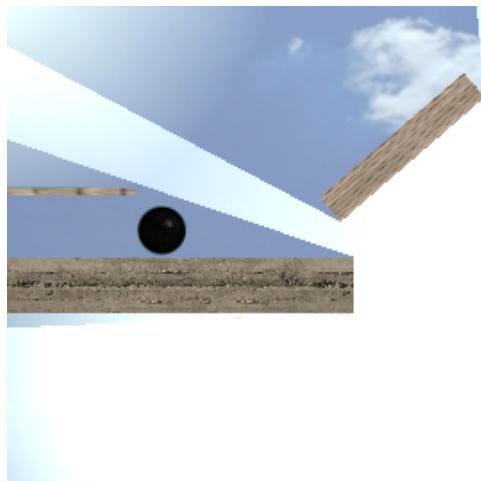
## Lights

Lights can be created and placed as any other object. You can change their color, radius ( in pixels ), intensity ( A high intensity will create a bright light ), and quality.

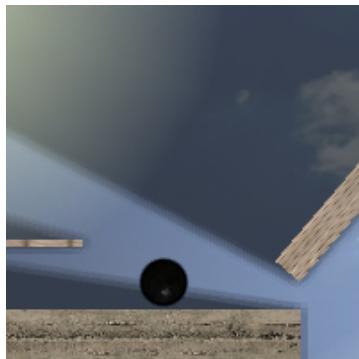
Quality represents the initial number of triangles that are going to be used to create the light. Be sure to set the quality to 4 at least. A high number will require more processing power. 16 is usually enough.

You can also choose if the light is a global light : Whereas a simple light makes things brighter, a global light makes the whole scene darker, excepting area covered by the light. Currently, only one global light can be used on the scene.

### Simple light:



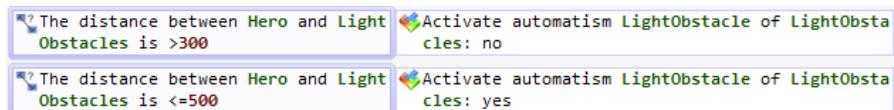
### Global light:



## Light obstacle behavior

You can add light obstacle behavior to objects so as to prevent lights passing through them. No setup is required.

Using this behavior on a lot of objects can lead to bad performance. You can instead activate this behavior only for objects which are near the light. For example :



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# AdMob object

The AdMob object can be used to display an ad banner or an interstitial screen (an ad covering the whole screen, usually shown at the end of a level).

After adding the AdMob object you need to configure it with the ad unit identifiers from your AdMob account. You also need to export your game with Intel XDK and the third-party plugin `com.google.cordova.admob`. For a detailed explanation, read the step-by-step tutorial [How to show ads with AdMob and Intel XDK](http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoshowadswithadmobandintelxdk) (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtoshowadswithadmobandintelxdk>).

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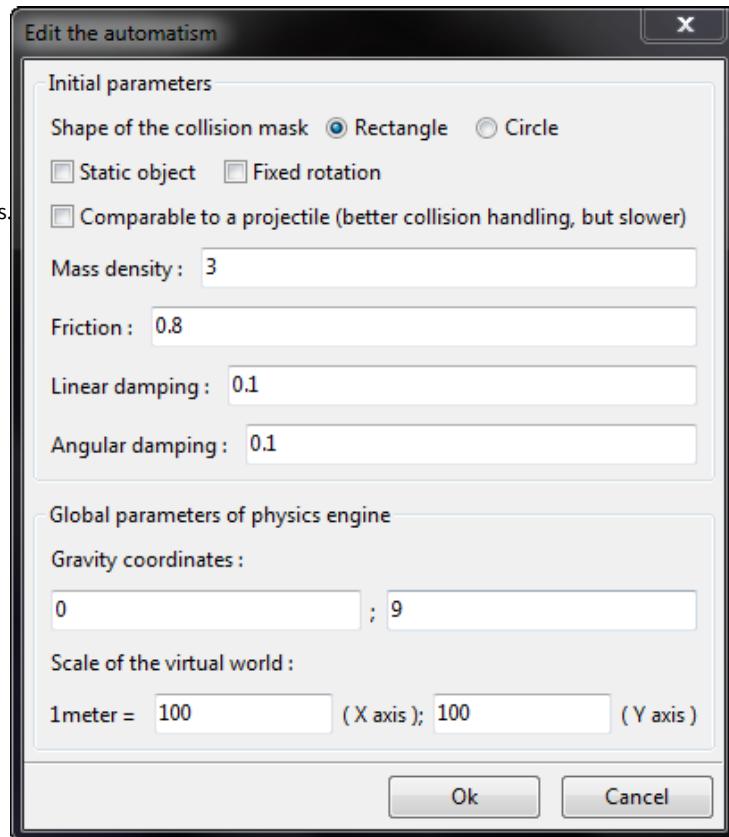
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# Physics behavior

This extension provide Physics behavior, which gives a realistic behavior to the object.

## Editing the behavior

The edition of the behavior allows you to modify some properties relative to the object and to the physics engine :



- You can choose if the object must be considered as a rectangle or a circle, if it static (In which case, it will be immovable), if it can rotate and if it must be considered as a bullet.
- You can also setup the mass density, the mass of the object will be computed using its size and this density.
- The friction is used when two object are colliding : If this value is low, the

objects will slide on each others.

- Linear damping affects the deceleration of the object : Deceleration is faster when this value is high. If set to 0, the object won't stop as long as it does not collide with another object. Angular damping is the equivalent for the rotation.

You can also change parameters global to the whole physics engine:

- The gravity vector will affect all dynamics objects.
- The scale of the virtual world is the ratio between one pixel displayed in scene and one meter in physics engine. The physics engine is tuned for objects between one and 10 meters. Thus, if your objects' sizes are between 100 and 300 pixels, they will be seen as objects between 1 and 3 meters. But if your objects' sizes are between 1000 and 3000 pixels, you have to change the scale to set for example 1 meter = 1000 pixels on X and Y axis. Otherwise, you will suffer from a bad quality simulation.

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# Pathfinding

Pathfinding extension provide a behavior that is able to move an object and avoid obstacles. Note that pathfinding is not able to avoid obstacle that have moved after the object started moving on the computed path.

So as to compute a path, GDevelop will use a virtual grid. You can setup the size of this grid when editing an object with the behavior.

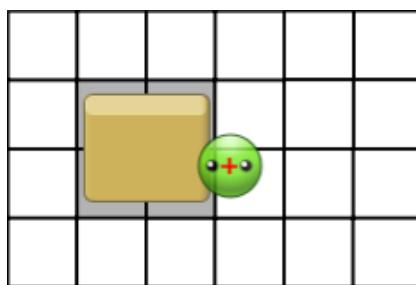
The algorithm used to compute path is A\* : [http://fr.wikipedia.org/wiki/Algorithme\\_A](http://fr.wikipedia.org/wiki/Algorithme_A)

## Using the behavior

Add the behavior to objects that will be moved, and to the objects that will act as obstacle. You can then use the action “Go to a position” to move an object, avoiding obstacles.

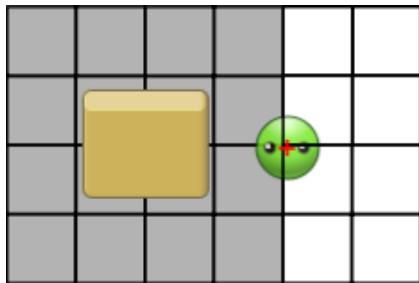
As said before, you can change the virtual grid size so as to adapt it to the size of your objects. You can also change objects speed using actions.

If your objects are bigger than grid size, they can collide with obstacles when moving on their path. So as to avoid this, you can add to the obstacle some “extra borders”, when editing the behavior. For example, on this picture, the cells which are grayed represent the area the “pea” cannot cross :



However, the pea can collide with the obstacle.

To avoid this, you can add one extra cell at the top, right, bottom and left of the obstacle. Thus, the pea will properly avoid the obstacle :

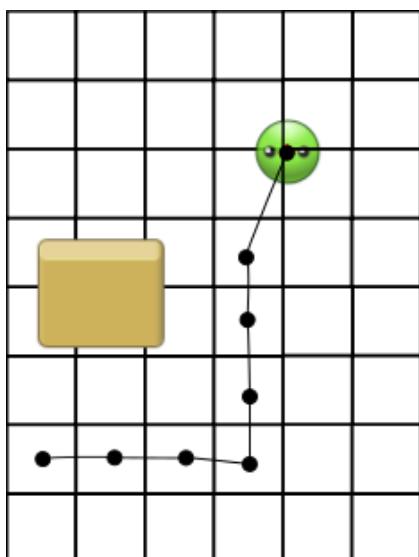


## Advanced functions

Path computed by the behavior are internally represented as a succession of “nodes”.

The object will thus go from node to node.

Expressions are available to get the X/Y position of the last or next node, so as to turn for example the object according to its movement.



*Each point represents a node*

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# Destroy outside screen

This behavior is one of the most simple, yet useful, behavior: just add it to an object and then, whenever an instance of this object will go out of the screen, this instance will be destroyed.

It's a simple way of making sure that your game is not filled with garbage objects that could slow down it.

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# Linked objects

Linked objects extension allows to virtually link two objects that are on the scene.

When two objects are linked, you can easily access to the other: Just call “Take linked object into account” condition/action and the linked object will be concerned for next actions or conditions.

It is important to link objects on a case by case basis: If you are linking a lot of objects, make sure that only two objects are concerned by the “Link two objects” actions.

Typically, you can link two objects when creating them, or by using a “For each object” event to take each object individually.

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# Storage

Games automatically use the **Storage features** extension. This extension provides actions and conditions to manage files, and to save and load data from XML Files (for native games) or Browser Local Storage (for HTML5 games).

## XML Files (for native games)

XML is a widespread format used to represent data structure. XML files basically allow you to categorize the value you want to save into groups, which can themselves contain other groups with values.

XML files are written in plain text and you can edit with any text editor.

## LocalStorage (for HTML5 games)

For HTML5 games, storage is done inside the browser using the webstorage HTML5 feature. This means that no files are really created : there are emulated. This is done this way because HTML5 games can't access the the OS (Operating System) filesystem for security reasons.

## Using XML related actions and conditions

Actions that allow saving and loading data from XML files work in a similar fashion: first enter the name of the file you want to edit, then choose the group to edit. Groups allow to organize values: each group can have a value and can also contain an infinite number of sub groups. Write the name of the group using slash (/), like this :  
Hero/Money/Bank Hero/Money/Current CurrentLevel Level1/BestScore  
Level2/BestScore ...

## Expression editor

In the expression editor it's possible to walk up in the the file tree by typing “..”

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# Multimedia extensions

**GDevelop** provides the following multimedia extensions: the Audio extension, the 3D Box Object, the Primitive Drawing and the - experimental - Video object extensions.

## The Audio extension

The Audio extension enables actions to reproduce sounds (.wav files) and music (.ogg files), optionally using channels.

Actions that launch sounds or music must not be called repeatedly. Use conditions like *At the beginning of the scene* or a variable to prevent multiple calls.

## The 3D Box object

The 3D Box Object extension provides an object that will be displayed a simple three-dimensional box in the scene. Each 3D Box can have a different image on each side. You can also modify the box size, choose the initial angle of the object, and its Z coordinate.

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# Function events

This extension allow to use functions-like events, in other words, events that are launched only when they are called thanks to action “Launch a function”.

## Name of functions

Each function name must be unique.

## Function call

Call a function using the action “Launch a function”. The first parameter is the function name. When a function is launched, it executes its conditions, actions and subevents, as a standard events. When it has finished, GDevelop will continue to execute actions and events that are put after the action which has launched the function.

The second parameter of the action allow to specify if objects currently concerned must be passed to the function or not.

The other parameters are text that are passed to the function, and which can be retrieved in a text expression.

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# AES encryption

This extension allow to use AES algorithm on files. Each action/condition need a password of exactly 24 characters.

## Example

When saving a file, you will want to :

1. Save using usual actions in a temporay file. ( i.e. save.tmp )
2. Encrypt the temporary file in another file ( i.e. save.sav )
3. Delete the temporary file

To reload the file, you will want to :

1. Decrypt the encrypted file in a temporary file.
2. Load, from the temporary file, using usual actions.
3. Delete the temporary file when loading is finished.

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# Common dialogs

This extension provides *actions* allowing to use common dialogs, like message boxes:



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# Timed events

This extension allow to use events executing their conditions and actions only when a specific amount of time is reached.

## Use of timed events

Timed events automatically increment their internal timer each time GDevelop execute them. When the timer reach the specified time, they execute their conditions and actions as standard events. Conditions and actions are executed as long as events is not reset.

Note that the time is not updated if the events is not executed : For example, if a timed event is put as a sub events, you have to be sure that the parent event remains executed to let the timed event be executed.

## Name of timed events

Timed event can have an optional name.

You can then use actions to reset timed events with specified name. An action is also available to reset a timed event as well as timed events contained as sub events of the first one.

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# The Network Extension

The Network extension allows inter-game communication, for example to create multiplayer games.

## How a network works

In order to communicate on a network, a computer needs an IP address and a port. IP addresses uniquely identify network interfaces, while ports specify the desired kind of communication. IP addresses and ports are together referred to as sockets, and two or more sockets can communicate with each other thanks to the TCP/IP protocol stack.

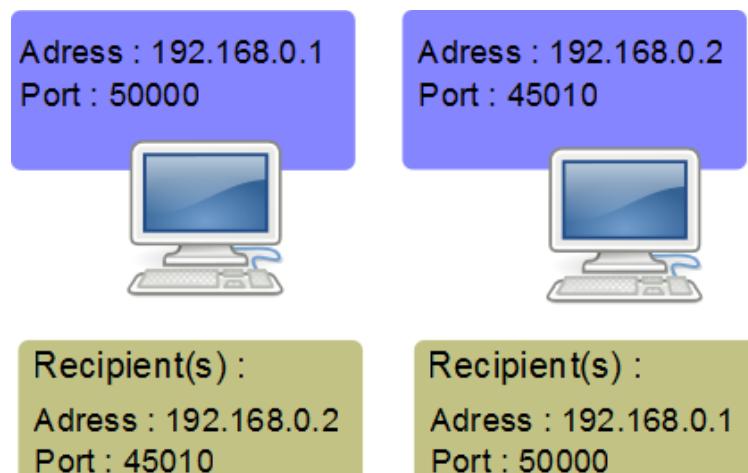
## How the extension works

Sockets used by **GDevelop** are based on the UDP protocol, which allows to easily and quickly send data on a network.

You can set up a computer for data exchange from within **GDevelop** thanks to the action *Initialize data reception*: from there you can set up a port number the computer will be listening to. If no port is chosen, a default one will be assigned.

Then, you have to specify which computer to send the data to. You can do so with the action *Add a recipient*: insert here the the IP address and port number of the other computer.

Make sure that the IP addresses are correct and the port the same for both computers:



After this initialization step, which can be done at the start of the scene, you can send and receive data. **GDevelop** makes it easy by adding a title to each data send or receive. Data can be texts or numbers.

To send data, use action *Send a value* ou *Send a text*, specifying the title of the data, and then its value.

To receive data sent by other computers, you have to first receive data waiting on the network and save them in memory. Use the action *Receive waiting data*. This action can be placed in an event without condition, for example at the beginning of the events.

When the action is called, data received from others computers will be saved in memory. You can get their values using the expressions

**GetReceivedDataValue(DataTitle)** or **GetReceivedDataString(DataTitle)**. You can access the data from the expression editor/text editor.

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# The Automatic Network Updater Automatism

The Automatic Network Updater Automatism allows to automatically synchronize objects position/size/angle on different computers.

## The Basics

This behavior works by automatically sending data concerning position, size or angle of the objects, or by updating these objects according to data received.

## Using the behavior

In order to get the behavior working properly, each object to be synchronized must be identified by a unique number, which must be the same on all computers running the game. You can use the **Generate objects' identifier** action to assign a unique number to each object. In order to be sure that the identifiers are the same on all computers, you must call this action at the beginning of the scene or make sure that all objects to be used by the action are the same on all computers. You can manually attribute an identifier using the action **Change object's identifier**.

Be careful! If this action is used on more than one object, these objects will have all the same identifier. Make sure that only one object is used (For example, with a “For each object” event).

Once identifiers are generated, a computer must send the data, and the other only receive it. You can specify whether the computer should send the data (typically the computer hosting the game) or receive it (typically a client joining the online game).

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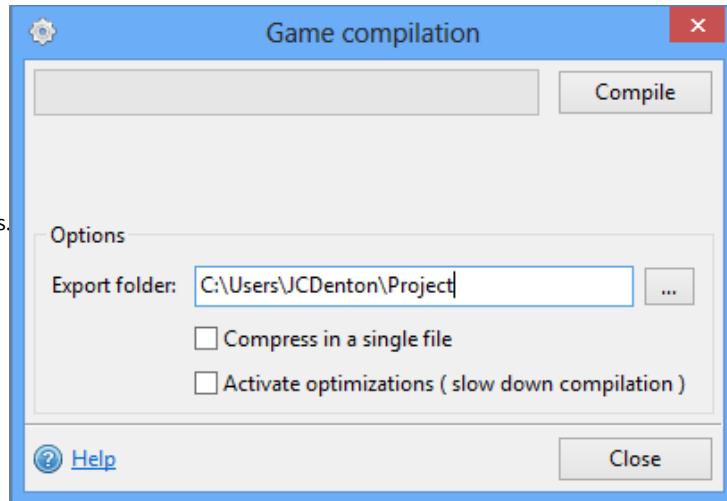
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# Compilation

## Exporting HTML5 games

You can learn more about how to distribute HTML5 games on this page  
(<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtodistribute>).

## Exporting native games



Compilation is the name of the process that creates all the files needed to distribute your game.

Open the project to compile in the editor, and click on “Compilation” button in Ribbon.

## Launch the compilation

Click on “Launch” so as to launch the compilation.

The progress and a description of the task being made will be displayed in the window.

## Launching your game

When compilation has finished, GDevelop will ask you if you want to open the directory where the compiled game has been generated.

- Game can be launched by double clicking on the main executable on Windows (typically called GameWin)
- On Linux, double click on the launch script (typically called GameLinux)

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# Export native games to Android

The latest version of GDevelop has an experimental feature allowing to compile a native game for Android. Compared to HTML5 games built with Intel XDK, the games natively built for Android have better performances and can use more extensions.

Currently, only the base features (including “Sprites”, “Text objects”, “Tiled Sprite objects”, “Panel Sprites (9-patch) objects”, “TileMap object”, “Physics behavior”, “Top-down movement”, “Destroy outside screen behavior”, “Platformer behavior” and “Platform behavior” are compatible with the android export feature. The other extensions will be available soon!

## Tools installation

This section explains the installation of all required tools used to compile a game to Android.

### CMake

For **Windows**, download CMake on the official website: <https://cmake.org/> (<https://cmake.org/>). Be sure to check “Add CMake to the system PATH for all users” ou “Add CMake to the system PATH for the current user”.

For Linux, check the packages available for your distribution.

### Apache Ant

Download Ant for Windows on the official website (<http://ant.apache.org/bindownload.cgi>). Extract the compressed file somewhere on your computer.

For Linux, use again the package manager of your distribution.

### JDK

The *Java Development Kit* is needed to build Android apps:

For Windows, download it on site officiel (<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>) and install it.

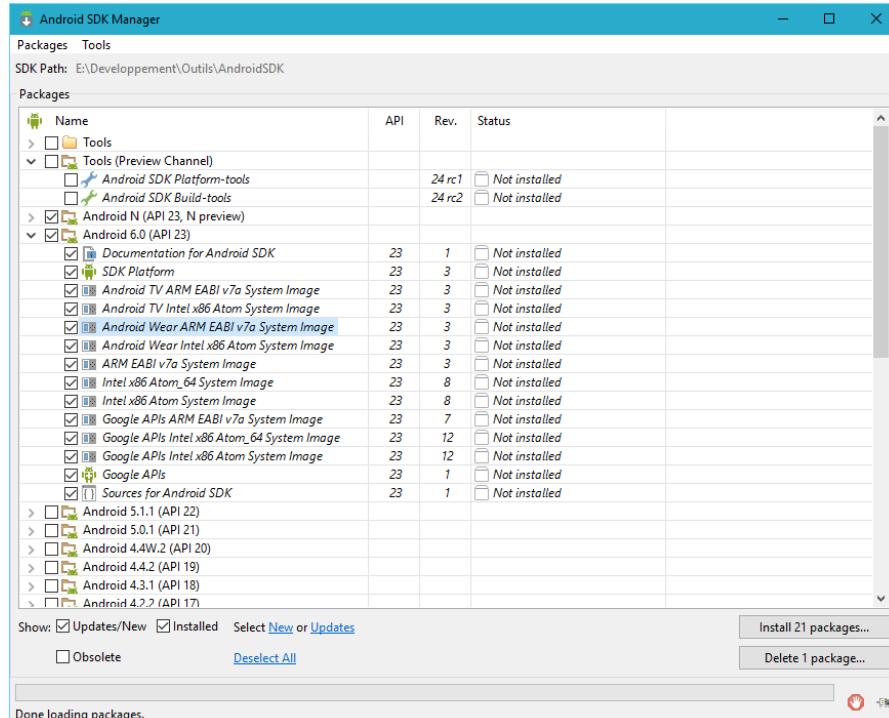
For Linux, you can install the package called openjdk-7-jdk or openjdk-8-jdk (this can varies according to your distribution).

### Android SDK

The Android SDK contains the tools that are specific to Android development. For Windows and Linux, download it on the website by selecting your operating system in the section called “Get just the command line tools” on this SDK download page (<http://developer.android.com/sdk/index.html#downloads>).

Launch the installer.

At the end, launch “SDK Manager.exe” (This file is inside the folder where the SDK was installed) on Windows or the script called “android” inside the “tools” folder on Linux. Wait a bit for this window to appear:



Uncheck everything, we're going to select only what we need.

Select “SDK Platform”, “Source for Android SDK” in the category 4.4.2, API (Application Programming Interface) 19. If you want to launch the game in an emulator later, select “System images” in “ARM EABI v7a System image” and “Intel x86 Atom System image”.

The game will work on older/newer versions of Android even if we select a particular version of the API (Application Programming Interface).

Then in “Tools”, check “Android SDK Tools”, “Android SDK Platform-tools” et “Android SDK Build-tools” (the most recent one). Finally, for Windows only, in “Extras”, choose “Google USB Driver”.

You can now click on `Install X packages...`.

## Android NDK

To compile games exported by GDevelop, you also need the Android NDK (a software development kit for native apps). GDevelop currently supports the **r11c** version of the Android NDK. You can download this version by following these links:

- Windows 32 bits : <http://dl.google.com/android/repository/android-ndk-r11c-windows-x86.zip> (<http://dl.google.com/android/repository/android-ndk-r11c-windows-x86.zip>)
- Windows 64 bits : [http://dl.google.com/android/repository/android-ndk-r11c-windows-x86\\_64.zip](http://dl.google.com/android/repository/android-ndk-r11c-windows-x86_64.zip) ([http://dl.google.com/android/repository/android-ndk-r11c-windows-x86\\_64.zip](http://dl.google.com/android/repository/android-ndk-r11c-windows-x86_64.zip))
- Linux 64 bits : [http://dl.google.com/android/repository/android-ndk-r11c-linux-x86\\_64.zip](http://dl.google.com/android/repository/android-ndk-r11c-linux-x86_64.zip) ([http://dl.google.com/android/repository/android-ndk-r11c-linux-x86\\_64.zip](http://dl.google.com/android/repository/android-ndk-r11c-linux-x86_64.zip))

It seems that the 32 bits NDK causes some problems when compiling a game for Android. If you have Windows 32 bits, you may not be able to export your game to Android.

## SFML

Download this file (<http://wiki.compilgames.net/lib/exe/fetch.php/fr/gdevelop/documentation/manual/sfml-2.3.2-for-ndk-r11c.zip>) and extract it into the “sources” folder inside the folder where you extracted the Android NDK.

## Compile the game

These steps should be done each time you want to build a game for Android.

Start by exporting your game in GDevelop. In the `File` menu, choose “Export for Android (experimental)” and export the game in a folder.

**Open a terminal** and go to the folder where the game was exported. For example, on Windows: `cd C:\Users\Florian\MyExportedGame`

Update the `PATH` by doing :

### Windows :

In the terminal enter  
`"GDEVELOP_FOLDER\CppPlatform\MinGW32\mingwvars.bat"` with  
GDEVELOP\_FOLDER being  
`C:\Program Files (x86)\GDevelop` on Windows 64  
bits and being `C:\Program Files\GDevelop` on Windows 32  
bits.

Type in the command line prompt:  
`PATH="PATH_TO_ANT\bin";"PATH_TO_NDK";"PATH_TO_SDK\tools";"PATH_TO_SDK\platform-tools";%PATH%` with  
PATH\_TO\_ANT being the folder  
where Ant was extracted,

### Linux :

In the terminal: `export PATH="PATH_TO_NDK":PATH_TO_SDK/tools":PATH_TO_SDK/platform-tools":$PATH`  
with PATH\_TO\_NDK the folder of  
the Android NDK and  
PATH\_TO\_SDK the path to the  
Android SDK. (Beware, be sure to  
use /, don't forget the quotes and  
the separator between the paths is  
: !)

PATH\_TO\_NDK the folder to the  
Android NDK and PATH\_TO\_SDK  
the path to the Android SDK.  
(Beware, be sure to use \ and not  
/, and don't forget the quotes!)

Stay in the folder of the game and type these commands in this order:

```
android update project --target "android-19" --path .  
ndk-build  
ant debug
```

## Run the game

The game is generated as an .apk file, called NativeActivity-debug.apk , available in the bin directory. To run the game, you can send the APK file to your Android phone and launch it. To allow the installation, you must go in your Phone Settings > Security and activate *Unknown sources*. This will enable you to install the APK file even if it is not yet registered on the Google Play Store.

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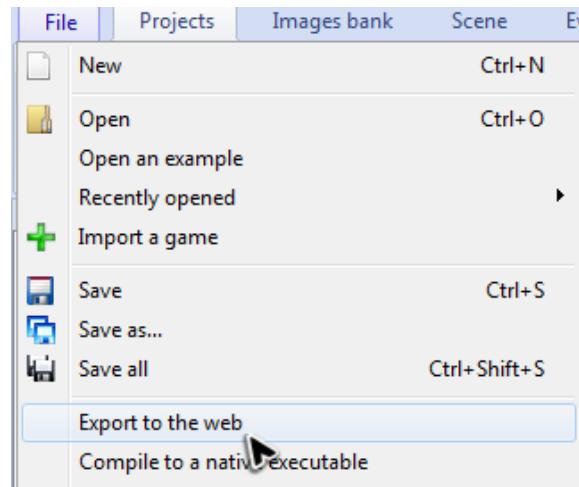
# How to distribute your game?

When developing your game, you can preview it using the Preview button of the ribbon. When you want to distribute your games, you have to go through the export process.

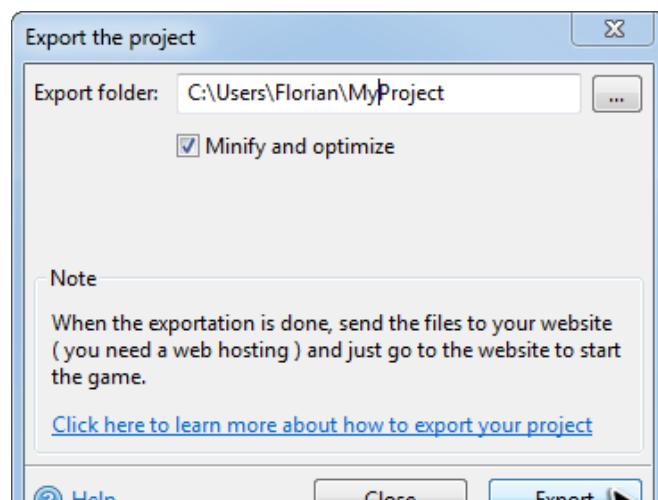
## Exporting a HTML5 game

If you are creating a game using the Web Platform, this section applies for you:

In File menu, choose Export to the web :



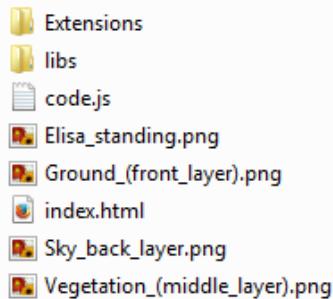
Then, choose a directory where export the game. You can also choose if the game will be minified.





Click on `Export` to launch the export process. When it's over, you will be asked if you want to open the export directory.

In this directory, all the files needed by your game are present:



You can't play to the game from here, you have first to send all the files to a web hosting and then go with a browser to the location where you uploaded the game.

## Exporting a native game

Exporting a native game is similar to HTML5 games:

- \* In `File` menu , choose `Compile to a native executable` .
- \* In the dialog, choose an export directory and then click on `Compile` . You can read here (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/distribution/compilation>) a description of all the options available.
- \* When the compilation is finished, all the files needed by your game are present in the chosen directory.

You can launch the game by double clicking on the executable ( `GameWin.exe` by default on Windows, `GameLinux` by default on Linux ). If you want to share your game, you can compress the whole directory in a zip file, and then send it on the web using a web hosting or a service like DropBox.

If you use external text files (`.txt` or `.xml`) for value storage/reading, files will not be compiled in an unique file nor moved in the folder, you'll have to copy/paste it and respect the relative path you've choosen in the project.

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# How to export your game with Cocos2d-x

**Cocos2d-x** is a game engine that can be used by GDevelop to render HTML5 games. By default, the underlying rendering engine used by GDevelop when previewing or exporting HTML5 games is **Pixi.js**.

Cocos2d-x provides an engine that enables games to be both exported to the web (using HTML5 and WebGL) and to native platforms, including iOS, Android, Windows, Mac OS (Operating System) X and Linux. In both cases, GDevelop game engine is the same, but the rendering is done with Cocos2d-x, using either WebGL on the web or native OpenGL on the other platforms.

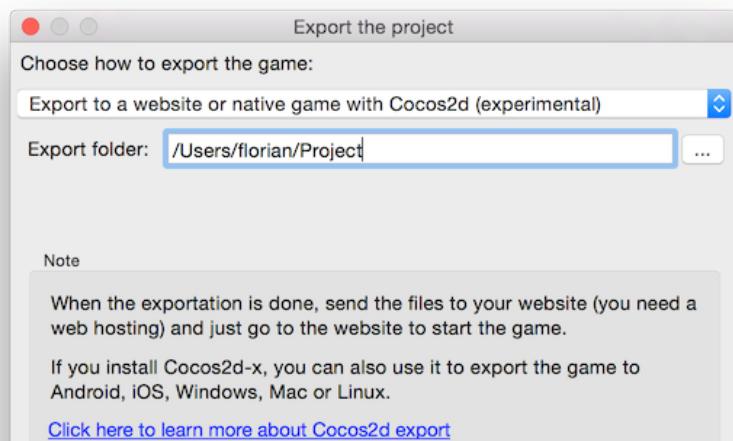
Export with Cocos2d-x is still *experimental*. Also, native export to iOS, Android, Windows, Mac OS (Operating System) X and Linux involves installation of some *additional tools*.

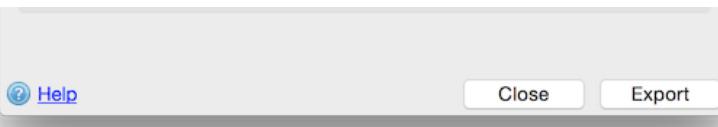
If you want to read about the normal export, read [How to distribute your game](#) (<http://wiki.compilgames.net/doku.php/gdevelop/tutorials/howtodistribute>).

## Export your game

To export with Cocos2d-x, make sure that your game is using the HTML5 platform. In the **File** menu, choose **Export to the web**.

Choose **Export to a website or native game with Cocos2d-x (experimental)**, and select a folder where the game will be exported (be sure to choose an empty folder as the content will be erased!). Finally, click on **Export**.





Your game is now available in the folder you've chosen.

## Publish your game on a website

Similar to the default export to a website, you can now upload all the files in the folder of the exported game to a website. Then, open the page with a browser to play to the game.

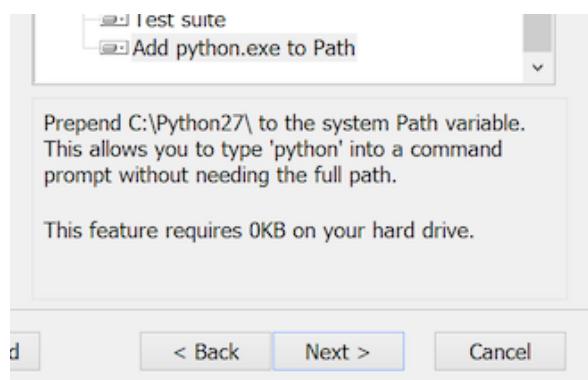
You can't play directly to the game by opening index.html. You need to upload it to a web server.

## Advanced: export your game to native platforms

Export to a native platform involves the compilation of your game into a native executable that can be launched on the platform. First, you need Cocos2d-x tools to be installed:

- Download Cocos2d-x 3.10 using [this link](http://www.cocos2d-x.org/filedown/cocos2d-x-3.10.zip) (<http://www.cocos2d-x.org/filedown/cocos2d-x-3.10.zip>).
- Extract the content of the zip file somewhere on your computer.
- Install Python on your computer. Python is a programming language used by Cocos2d-x command-line tools. On Mac OS (Operating System) X and Linux, it is installed by default. On Windows, you must download the Python installer (<https://www.python.org/ftp/python/2.7.11/python-2.7.11.msi>) and run it to install Python.

On Windows, when installing Python, make sure to check Add Python.exe to the system PATH :



- Check that Python is working : open a command line/terminal, type `python` and press Enter. If python is launched, you're ready to continue.

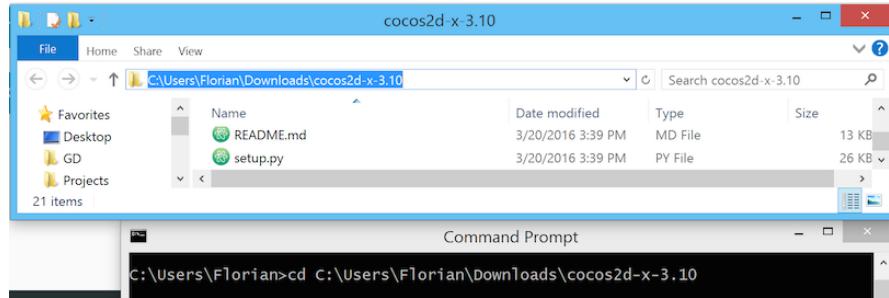
To open a command line (also called Command Prompt) on **Windows**, type cmd in the start menu.

On **OS (Operating System) X or Linux**, open the *Terminal* app.

- Open a new command line and go to the directory where Cocos2d-x was extracted. To do this, type cd followed by the path of the folder of Cocos2d-x. Put quote at the beginning and the end of the path if it contains spaces.

For example:

```
cd C:/Users/Florian/Downloads/Cocos2d-x-3.10 on Windows,  
cd /Users/florian/Downloads/cocos2d-x-3.10 on OS (Operating System) X.
```



- Install Cocos2d-x by typing python setup.py in the command line (or C:\Python27\Python.exe setup.py on Windows). When asked for path of some tools, just press Enter.
- Check that Cocos2d-x is properly installed: reopen **a new command line** and type cocos in the command line. You should see some text explaining the available cocos commands.

Congratulations, Cocos2d-x is now installed on your computer! Now you need to create a game skeleton with Cocos and export your game with GDevelop to be able to compile it.

## For all platforms: create the Cocos game skeleton and export from GDevelop

The first time you want to export your game to a native platform, you must use the cocos program we've installed in the previous section:

- Open a command line.
- Type cocos new -l js MyGame -p com.yourname.mygame and press Enter. Replace MyGame by the name of your game. com.yourname.mygame is a *package name* used to identify your game on the stores.

Wait a bit: Cocos will now create a new folder with the name of your game. It will contain everything needed to compile the game.

- With the command line, go in the folder created by Cocos2d-x: cd MyGame (replace MyGame by the name of your game).



```
> Copying directory from cocos root directory...
> Copying files from template directory...
> Copying cocos2d-x files...
> Rename project name from 'HelloJavascript' to 'MyAwesomeGame'
> Replace the project name from 'HelloJavascript' to 'MyAwesomeGame'
> Replace the project package name from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
> Replace the Mac bundle id from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
> Replace the iOS bundle id from 'org.cocos2dx.hellojavascript' to 'com.florianrival.myawesomegame'
C:\Users\Florian>cd MyAwesomeGame
C:\Users\Florian\MyAwesomeGame>
```

- Now, using GDevelop, choose to export your game with Cocos2d-x (see the first section if you need help). Choose the folder created by Cocos2d-x as the export folder in GDevelop. Finally press Export.

You're ready! You now have a full game exported with GDevelop and ready to be compiled with `cocos` : see the sections below to know how to export for a specific platform.

Later, if you change your game and want to rebuild the native games, just export the game in the same folder using GDevelop, and relaunch the `cocos` commands explained in the sections below.

## Android export

 This section is a draft and not yet complete. You can help by completing it with more information!

- Download and install the **Android SDK**.
- Download and install the **Android NDK**.
- Relaunch `python setup.py` (or `C:\Python27\Python.exe setup.py`), using the command line, in the folder of Cocos2d-x.
- Create a keystore inside the game folder:

The following command requires `keytool` which is installed as part of the Java Development Kit (JDK). It will create a keystore in the current folder, just remember to change '`Your_personal_file_title`' and then press enter. You will be asked a few questions and then be prompted to create the keystore, just type yes and press enter.

```
keytool -genkey -v -keystore Your_personal_file_title.keystore
-alias alias_name -keyalg RSA -keysize 2048 -validity 10000
```

- In the game folder, open the file `frameworks/runtime-src/proj.android/jni/Application.mk` and add `APP_PLATFORM := android-9` at the end.
- With the command line, in the folder of your game, launch `cocos compile -p android -m release`.
- The first time you compile this project you will be asked to enter the path to the keystore at the end of the compilation. Enter the full path, including the filename i.e `F:\GDevelop\cocos2d-x-3.10\MyAwesomeGame\mystore.keystore` and press enter. You will then be asked for the `alias_name` and password you entered when creating the keystore.

Wait for the compilation to be done: this can be quite long the first time you launch it. When it's done, an APK file should be available in the folder `publish/android`.

## Mac OS X export

- You need to have XCode (<https://developer.apple.com/xcode/>) installed on your Mac. You can install it from the App Store.
- With the command line, in the folder of your game, launch `cocos compile -p mac -m release`.

Wait for the compilation to be done: this can be quite long the first time you launch it.  
When it's done, the app is available in `publish/mac`.

## iOS export

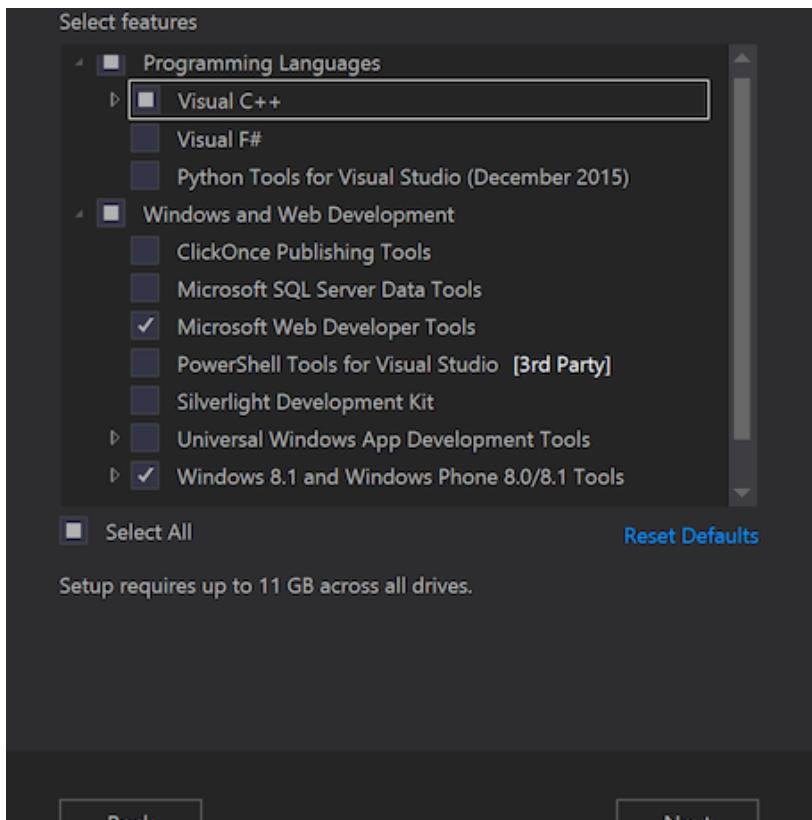
- You need to have XCode (<https://developer.apple.com/xcode/>) installed on your Mac. You can install it from the App Store.
-  Open the XCode project
-  In XCode, click on Play.

Wait for the compilation to be done: this can be quite long the first time you launch it.

## Windows export

 This section is a draft and not yet complete. You can help by completing it with more information!

- Install **Visual Studio Community 2015** (<https://www.visualstudio.com/>).  
This is the compiler of Microsoft and is required to compile your game to a Windows executable. Choose *Advanced* installation, and check `Windows 8.1` and `Windows Phone 8.0/8.1 Tools`:



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- With the command line, in the folder of your game, launch `cocos compile -p metro -m release`

If the result of the command is `Can't find correct Visual Studio's path in the registry.`, then you have not Visual Studio properly installed. Check that you've installed it, close and relaunch the command line after the installation.

Wait for the compilation to be done: this can be quite long the first time you launch it.

-  **Fix Me!** Export your game for the Store.

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# Reporting a bug

If the program has freezed or crashed, you have encountered a bug.

When reopening GDevelop, a window will popup, offering you the possibility to create an error report.

If the window does not open, please send a message ( to CompilGames@gmail.com (<mailto:CompilGames@gmail.com>) or on the forum (<http://www.forum.compilgames.net>) ) with some explanations :

- How to recreate the bug.
- If you cannot recreate the bug, where did it happened.
- What was the error message
- If the bug is related to game, please send us also the game.

Thanks !

You are here: [Home](#) » gdevelop ([gdevelop documentation](#)) » manual ([manual troubleshooting](#)) » **Two objects are flickering/An object disappeared** ([Two objects are flickering/An object disappeared](#))

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# Two objects are flickering/An object disappeared

If two objects are flickering, some z-fighting must be happening: If the objects have the same z order value, GDevelop cannot decide which one must be drawn first, so that some times one of the object is drawn first, and some times it is the other objects.

You can prevent this issue from happening by changing the z Order of your objects in the Scene editor ([Scene editor documentation](#)).

If an object seems to have disappeared, check that it is not hidden by a large image such as a background.

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# About GDevelop

## The developers

GDevelop was created by Florian “4ian” Rival.

To contact me: [Florian.Rival@gmail.com](mailto:Florian.Rival@gmail.com) (<mailto:Florian.Rival@gmail.com>)

You can also go on: [www.FlorianRival.com](http://www.FlorianRival.com) (<http://www.FlorianRival.com>)

Check this GitHub page (<https://github.com/4ian/GD/graphs/contributors>) for other developers contributing to GDevelop.

## Contributors, used technologies and thanks

In GDevelop, click on ? in the ribbon then on “About...” to display more information about technologies and contributors.

Your contribution is also welcome (<http://wiki.compilgames.net/doku.php/gdevelop/documentation/manual/takepart>)!

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# GDevelop license

GDevelop is an open source software:

- The IDE is distributed under the **GPL v3** (<http://www.gnu.org/copyleft/gpl.html>) license.
- The Core library, the native and HTML5 platforms are distributed under the **LGPL v3** (<https://www.gnu.org/licenses/lgpl.html>) license.
- Extensions (in the Extensions folder) are distributed under the **zlib/libpng** (<http://opensource.org/licenses/Zlib>) license.
- The name, GDevelop, and its logo are the exclusive property of Florian Rival.

## About games created with GDevelop

Games exported with GDevelop are based on the native and/or HTML5 platforms: these platforms are distributed under the LPGL v3 license, so that you can **distribute, sell or do anything** with the games you created with GDevelop. In particular, you are not forced to make your game open source.

## Contributing to GDevelop

GDevelop code source is available on <http://www.github.com/4ian/GD> (<http://www.github.com/4ian/GD>).

If you have any questions, contact GDevelop lead developer: [Florian.rival@gmail.com](mailto:Florian.rival@gmail.com) (<mailto:Florian.rival@gmail.com>)

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# Contribute to GDevelop

GDevelop is open source, but its development takes time and sometimes money. If you want to help the author, you can :

- If you have some knowledge in programming, GDevelop is **open source** and you can help its development on GitHub (<https://github.com/4ian/gd>).
- You can **help to translate GD** on Crowdin (<http://crowdin.com/project/gdevelop>) with other contributors.
- Create tutorial about how to use GDevelop or **contribute to the wiki**: you can edit most of the pages available on the wiki to enhance them.
- You can publish an article about GDevelop in the press.
- Create a nice game (<http://compilgames.net>) with GDevelop.

Thanks!

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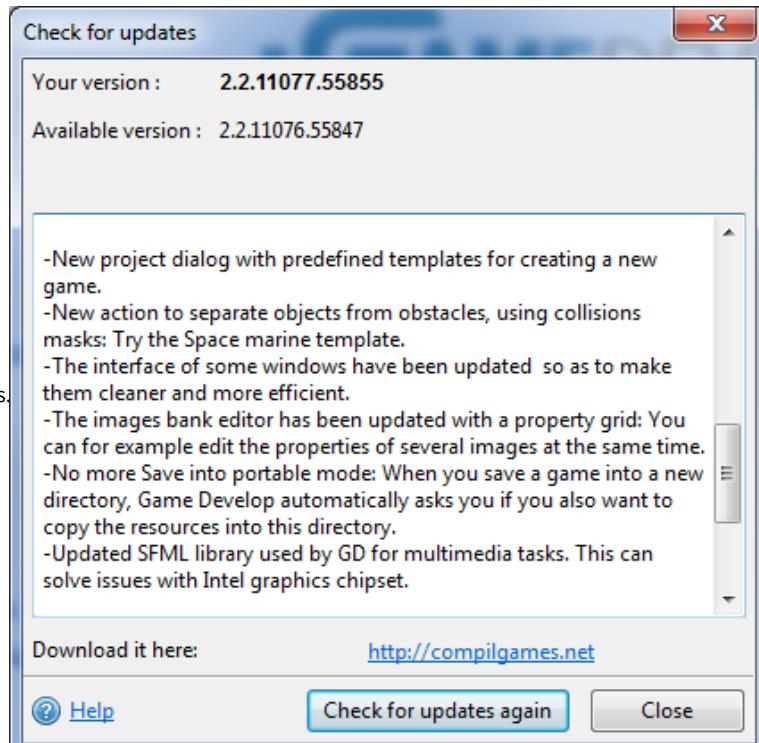
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# Updating GDevelop

GDevelop checks at startup if there is a new version available and will alert you in this case:



Update window

Notably, you can see a link to the GDevelop website (<http://www.compilgames.net>), so as to download the new version.

When the download is over, you can install the new version as usual.

Note that you can manually open this window by clicking on ? button in the ribbon, and then choosing Check for update .

## Be sure to stay up to date

New release of GDevelop often brings new features and bug fixes : Be sure to use the latest version of GDevelop available so as to avoid suffering from bugs already fixed in new versions.



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# Revision history

The history of version is now available on GitHub

To see the history of changes, go on the **GitHub Release page of GDevelop** (<https://github.com/4ian/GD/releases>).

History of changes of old versions

You can see here the release history of old versions:

Version 3.6.77

- Added **Shape Painter objects** for HTML5 games (already available for native games).
- Added **Panel Sprite (“9-patch”) objects** for HTML5 games (already available for native games).
- Added **Text entry objects** for HTML5 games (already available for native games).
- Added support for “**Change global color**” action for Sprite objects in HTML5 games.
- Added **LastPressedKey()** expression to get the name of the latest pressed key.
- Fixed hitboxes of Tiled Sprite and Text objects not always properly updated on HTML5 games.
- Ensure that platformer objects are able to jump after being stuck into an obstacle.
- HTML5 games are now fullscreen by default.
- Fixed crashes with extensions (like LinkedObjects) due to an internal error in the game engine.
- Auto complete behavior name when editing a condition or action and clicking on the button next to the parameter field.
- Updated Pixi.js, the HTML5 rendering engine used by GDevelop, to the latest version.
- Disable ribbon buttons in the Scene tab according to the scene editor state (preview or edition).
- Translations are now made using Crowdin.com: <https://crowdin.com/project/gdevelop> (<https://crowdin.com/project/gdevelop>) (Any help is welcome! :D).

Version 3.6.76

- **Improved object editor:** objects can be dragged to groups, the content of a group is now displayed in the list, global objects and groups are now shown in bold.
- Reworked the window to select a condition or an action to be more simple and

clear.

- Added the **Event Store**: Browse the events templates made by users from GDevApp.com, customize and insert them in your game. And double click on a template inserted in your game to edit it even after its insertion.
- Added **Event Groups**, that can be used to organize events.
- Added experimental support for **Javascript events**, for HTML5 games (see examples).
- Added support for saving (and loading) games to JSON files.
- **New start page**, and fixed bad alignment on Ubuntu.
- **Fixed severe memory leaks** when loading textures.
- Changed the middle click behavior: the middle button must be kept pressed to move in the scene editor.
- Platformer characters are pushed out of platforms if stuck inside.
- Added a Fill tool and Undo/Redo buttons in the editor of Tile Map objects.
- Various fixes and performance improvements for Tile Map objects.
- Added optional offset for the grid in the scene editor.
- Fixed bad cursor shown on Ubuntu in the scene editor.
- Fixed condition testing for the visibility of a layer.
- Changed titles of some mouse related conditions to highlight the support of touchscreens.
- Added ScreenWidth and ScreenHeight expressions for HTML5 games.
- Fixed SceneWindowWidth and SceneWindowHeight for HTML5 games.
- Ensure that when multiple images are added to a sprite object on Ubuntu, the insertion is made in alphabetical order.
- Fixed syntax highlighting in the events editor.
- Various minor fixes and improvements.
- Switched from LGPL (GNU Lesser General Public License) to **MIT license** for most codebase. Enjoy!

#### Version 3.5.75

- New action to open an URL (Uniform Resource Locator) in a browser.
- Fixed crash with collision condition for TileMap object.
- Fixed button with incorrect behavior in the ribbon.

#### Version 3.5.74

- GDevelop is now called **GDevelop!** If you have any article, website or forum related to GDevelop, please rename any mention of “GDevelop” to “GDevelop”.
- New **Tilemap** object: easily create tile based games with tilemaps! (Native games only)
- Fix functions not working properly with multiples scenes or external events.
- Fix object not renamed properly after it was added (Linux).
- Fix debugger and profiler graphical glitches.
- Fix some toolbars not rendered properly on Linux.
- Fix conditions testing Joysticks' axis values.
- Fix crash with the pathfinding behavior.
- Updated UglifyJS to fix minification issues with HTML5 games.
- Added link to download Node.js if needed for minification of games.
- New “Advanced Shape based Painter” example.
- Other minor bugfixes.

## Version 3.4.73

- Updated SFML multimedia library: Fix crash with audio files introduced in 3.4.72
- Fix layers not hidden in HTML5 games
- Updated Russian translation (thanks to Komencanto)

## Version 3.4.72

- GDevelop is now **open source!**
- New behavior: **Top down movement** (4 or 8 directions).
- New **russian translation**: Thanks to Airvikar!
- Multiple images can be dragged from the image bank to an animation of a sprite object.
- Updated SFML library: graphics improvements, errors and memory leaks fixes on old graphics card.
- Updated Pixi.js library: rendering of HTML5 games is 400% faster, improved CocoonJS support.
- Added support for Intel XDK, to export HTML5 games to Android or iOS.
- Minification of HTML5 games now faster with UglifyJS. Require Node.js to be installed.
- The scene editor now displays the border of the window.
- Fixed crashed when searching in events.
- Fixed support of projects with filenames using Windows separator (\) on linux.
- Various fixes.

## Version 3.3.71

- Replaced icons still using the old style
- Added a dialog asking for feedback about GD
- Fixed typos.
- Fixed proper frame for sprite objects not always shown if animation was paused.
- Fixed initial value of texts objects not always properly shown in HTML5 games.
- HTML5 games physics engine is now Box2d.js (for better performances).
- Fixed “Time” expression for HTML5 games.
- Fixed error when the parsed JSON was not correct for HTML5 games.
- Fixed “Random” expression for HTML5 games.
- Fixed crashes (with scrollbars for example)

## Version 3.3.70

- Entirely new icons for the interface, specifically designed for GDevelop. Many thanks to Constantine Shvetsov !
- Spanish translation available: Merci à Franco Maciel !
- Pathfinding behavior is now available for HTML5 games.
- The pathfinding behavior has been rewritten and enhanced: You have to update your game if you're using it.
- Added condition “Trigger once”.
- Custom collision mask are now supported by HTML5 games.
- The maximum angle of slopes is now customizable for objects on platforms.
- Added “lerp” function.
- Fixed crashes

- Fixed velocity of objects not maintained after an object was resized.
- Fixed renamed behaviors not taken into account.
- Fixed ToDeg/ToRad for native games.
- Minors bug fixes.
- GDevelop is now on Twitter! Follow it on [https://twitter.com/Game\\_Develop](https://twitter.com/Game_Develop) ([https://twitter.com/Game\\_Develop](https://twitter.com/Game_Develop))

#### Version 3.2.69

- Fixed various bugs for Ubuntu.
- Fixed recompilation not triggered for some external events

#### Version 3.2.68

- A confirmation dialog is now shown when closing a project only if changes have been made.
- Fixed lots of issues for Ubuntu 31.10 64bits.
- GDevelop is now available for the latest Ubuntu version in a nice and easy to install .deb package.
- Fixed errors when using C++ Code events.
- Fixed touch invalid location (notably when using CocoonJS)

#### Version 3.2.67

- Fixed scene change regression introduced in the last version.

#### Version 3.2.66

- New default theme “GDevelop Metro”.
- HTML5 games can now be directly exported to [www.gamedevshare.com](http://www.gamedevshare.com) (<http://www.gamedevshare.com>), online gaming platform for games created with GDevelop.
- Support for fullscreen, canvas resizing and title change for HTML5 games.
- Fixed rare crash with links.
- Fixed display of some toolbars.
- Scenes/External events/External layouts can now be easily moved.
- Fixed actions related to the audio for HTML5 games.
- The help window can be minimized.
- Command lines options for the IDE are now recognized.
- Fixed variables with an empty initial value for HTML5 games.
- Fixed resizing of Tiled Sprite objects for HTML5 games when using WebGL.
- Other minors fixes.

#### Version 3.2.65

- Added missing images for Platformer template.

#### Version 3.2.64

- Added new behaviors “Platformer Object” and “Platform” to easily create platformers games.
- Added support for “TiledSprite” object for HTML5 games.
- Added new visual themes: “GDevelop Metro” and “Metro White”.
- New audio related conditions and actions for HTML5 games.
- Fixed issue with variables having a string as initial value for HTML5 games.

- Added new template Web Platformer.
- Added example Basic Platformer.
- Fixed crash when displaying objects list for a parameter.
- Fixed freeze with HTML5 games when using invalid objects.
- Fixed UI glitches.
- Fixed others bugs.

#### Version 3.2.63

- Fixed audio related issues
- Fixed freeze/crash when using variable in specific conditions.
- Fixed refreshing of properties panel in the scene editor.
- Disabled links event are now grayed.
- Fixed others minor glitches.

#### Version 3.2.62

- Added support for arbitrary structures in variables.
- Added action to send a request to a web page.
- Added actions and expressions to convert a variable from/to a JSON string.
- Fixed HTML5 games not working when using a number as first character of the scene name.
- Fixed audio and channels related actions for HTML5 games.
- Fixed Cursor is on object condition for HTML5 games.
- Added support for all strings manipulation functions for HTML5 games.
- Fixed text entered on keyboard not handled in a preview in the editor.
- Fixed arrows keys not handled when choosing a key for a parameter.
- Fixed renaming of objects on Linux.
- Fixed Show/HideLayer actions and NewLine expression.
- Reorganized some actions and conditions.
- Fixed crashes and other minors bugs. Small aesthetic changes.

#### Version 3.1.61

- Linked Objects extension is now available for HTML5 games.
- Added support for all mathematical functions for HTML5 games.
- Fixed no default camera for new layers.
- Fixed Linked Objects extension not working for compiled native games.
- Fixed crash when editing object's variables.
- Fixed moved/turned toward conditions.
- Fixed always condition for HTML5 games.
- Fixed other minor bugs.

#### Version 3.1.60

- Fixed compilation issues with native games.
- Fixed resources not properly copied/exported with the web platform.
- Added condition for testing if an object is flipped.
- Minor fixes

#### Version 3.1.59

- Fixed Destroy Outside Screen behavior
- Fixed crash when moving objects in Objects Editor.

- Fixed action changing particles color.
- SDK and internal changes: New build system ( CMake ) and improved documentation look'n'feel.
- The third number of the versioning scheme is now the release number.

#### Version 3.0.11299

- Added physics engine for the web platform.
- Added data storage for the web platform ( Web Storage )
- New objects editor
- New template "Angry Peas"
- Fixed new lines with texts ( And added NewLine function )
- Fixed potential crash
- Fixed Distance/Collision conditions when inverted

#### Version 3.0.11298

- Fixed touchscreen and mouse support for the web platform.
- Fixed texts badly positioned.
- Added an example showing how to create buttons.

#### Version 3.0.11297

- Support for touchscreen.
- Various optimisations and bugfixes.

#### Version 3.0

- Support for creating HTML5 based games using the Web Platform.
- Also support for creating games with support for the Web platform and the native platform
- Properties of objects are shown using a properties grid.
- New way of resizing objects: The origin point is now fixed when an object is scaled.
- Dialogs showing the objects/behaviors available also show the unused objects/behavior as grayed.
- Improved user interface.
- Fixed GDevelop not launching with some graphics cards.
- Fixed several bugs

#### Version 2.2.11127

-Scene editor improved:

- Properties of instances are displayed in a grid
- Objects can be locked
- New handles to resize objects

-Slightly faster internal compilation of events.

-Improved size of compiled games.

-External events are internally compiled separately from their scene if possible.

-New integrated help system

-Fixed crash when editing For Each/Repeat/While events.

-Fixed GetTimeFromStart() expression.

-Improved design of toolbars

-Fixed bugs

**Version 2.2.11076**

- New project dialog with predefined templates for creating a new game.
- New action to separate objects from obstacles, using collisions masks: Try the "Space marine" template.
- The interface of some windows have been updated so as to make them cleaner and more efficient.
- The images bank editor has been updated with a property grid: You can for example edit the properties of several images at the same time.
- No more "Save into portable mode": When you save a game into a new directory, GDevelop automatically asks you if you also want to copy the resources into this directory.
- Updated SFML library used by GD for multimedia tasks. This can solve issues with Intel graphics chipset.
- Solved issues with some strings which were showing strange characters.
- The options of the IDE are kept after a new installation.
- Fixed bad position of objects after pasting them.
- Added option to change the font of the events editor.
- GD warns that events can not be modified during a preview.
- Added "Animation is over" condition for Sprite objects.
- Various fixes.

**Version 2.1.10939**

- Collisions masks can now be arbitrary convex polygons.
- Corrected a crash when closing all projects.
- Corrected a bug with behaviors and global objects.
- Others bug fixes.

**Version 2.1.10904**

- New Sprite object editor
- New feature: External layouts.
- New example: "Multiple levels with external layouts.gdg".
- Free to use resources are provided with GD: Browse them thanks to the Resource library in the images bank editor.
- The edition of the properties of a game is now made thanks to a property grid.
- Small changes in expression editors.
- Minor fixes and enhancements ( Zoom level is now saved, new expressions ToDeg, ToRad and AngleDifference )

**Version 2.1.10873.54813**

- Enhanced Shoot example : Thanks to MillionthVector for the graphics.
- Resources ( i.e. images ) are now using paths relative to the project directory.
- Editors are greyed out when previewing a scene.
- Fixed internal compilation errors.

**Version 2.1.10871.54807**

- Minor bug fixes concerning variables-related functions.
- New example CastleDoodle

**Version 2.1.10822.54540**

- New extension Advanced XML and Path behavior. Thanks to Victor Levasseur
- New extension Sound object. Thanks to Thomas Flecy and Victor Levasseur.

- Enhanced performances when using declared scene or global variables.
- Enhanced window used to choose or edit variables.
- Added option to activate a log file.
- Corrected duplication of more than one object using Ctrl+Drag in Scene editor.
- Bug fixes in some extensions ( already available as patches for the previous version ).
- Bug fixes and internal changes.

#### Version 2.1.10682.53886

- Added initial variables specific to objects instances put on the scene
- Added File menu in the ribbon
- Enhanced debugger for sounds and musics
- Un/Fold all buttons in events editor.
- Support for the audio of video files : Thanks to Victor Levasseur for his contributions.
- Support for customized collisions masks and bugfix in Physics Automatism : Thanks to Victor Levasseur for his contributions.
- Available scenes/external events are displayed when editing a link.
- Corrected Duplicate action and condition related to objects layers.
- Added action and expression to change the game window title.
- Bugfixes.
- Added C++ code event and support for external C++ files.

#### Version 2.0.10541.53179

- Fixed important memory leak when events were modified.
- Switching between preview and edition mode is now much more faster.
- Enhanced undo/redo in scene editor.
- Added special paste in scene editor.
- Added modulo function.
- Correction displacement in scene editor using mouse wheel.
- Corrected small distortion of images when previewing games in editor.
- Corrected non working search dialog in events editor.
- Objects new names were not taken into account after renaming an object.
- Fixed non working deletion of objects in groups.
- Fixed save of images folders.
- Corrected bugs related to special characters in objects names.
- Corrected non working music/sound files in compiled games.
- Option to stop musics when starting a new scene was not working.

#### Version 2.0.10538.53165

- English tutorial now available : Thanks to Diego Schiavon for the translation.
- Corrected bug ( concerning the working directory ) with games compiled to a single executable.
- Added action to change the icon of the window.
- Events modified in external events are now properly taken in account.
- Corrected compilation crash when using scenes with a name containing special

characters.

- Corrected non working modulo operator ( % )
- Corrected crash with pixel perfect collision test on an invalid image.
- Corrected crash with string expressions.
- Minor bugfixes and enhancements.

#### Version 2.0.10498.52954

- Minor bugfixes.

#### Version 2.0

- New events management: Events are now compiled to machine code ( making them as powerful and efficient as games written with programming languages like C++ ).
- Completely new events editor: faster and more flexible.
- New linked objects extension
- Other improvements
- New logo and splashscreen : Thanks to François Dumortier (<http://www.fdumortier.com> (<http://www.fdumortier.com>) )

#### Version 1.5.10151.51202

- Corrected crash at closing.
- Enhanced internal code editor.
- Enhanced images folders.
- New pathfinding extension
- New light extension
- Actions/Conditions for playing offset of musics and sounds.
- Experimental compilation for Mac OS (Operating System).
- Minor bugfixes

#### Version 1.5.10139.51138

- Action to delete a timer
- Add button to open a text/expression editor when filling parameters of expressions.
- Corrected grid related problems and added save of parameters of the grid for each scene.
- Corrected crash involving global objects and behaviors.
- Corrected missing resources of external events when compiling.

#### Version 1.5.10138.51136

- Added collision masks.
- New extension Text Entry object

- New extension Timed event
- Portuguese translation available ( Athacyr Souza Ferreira )
- Corrected events editor shortcuts and added new.
- Added global shortcuts ( Ctrl-S/Ctrl-O/Ctrl-Shift-S/Ctrl-N/Ctrl-W )
- Better management of objects resources.
- Button to hide taskbar and title in the editor.
- Improved portable save.
- Added options to change executable name and icon
- Corrected save of the chosen method for displaying objects.
- Added button for some mathematical functions.
- Parameter to choose the size of the new cameras after having changed window's size.
- Expression to get mouse wheel movement.
- Actions to deactivate a behavior.
- Parameter for choosing musics' pitch ( speed )
- Debugger improvements.
- Minor bugfixes.
- Added experimental support for C++.

#### Version 1.5.9980.50345

- Corrected bug with Windows XP SP3
- Corrected save of parameters of Automatic Network Updater behavior.
- Corrected potential crash with sprite and images bank editor.
- Corrected crash when opening a game by double clicking on it.

#### Version 1.5.9979.50340

- Added profiling tool
- Network extension
- Added list of objects on scene
- Improved layer editor
- Particle System : Added option to modify maximum particles number.
- Particle System : Added random variation.
- Particle System : Added action to modify particles texture.
- Customizable default position of tabs.
- Automatic use of the last position of windows when opening a scene editor.
- Corrected image reloading.
- Added automatic backup
- Correction : Externals events can be imported from another game.
- Minor bugfixes.
- Optimizations

#### Version 1.5.9955.50216

- Added simplified options to particle emitter object.

-Minor corrections.

#### Version 1.5.9954.50214

- New extension Particle System
- New extension Video object
- Physics behavior : Added gears.
- Enhanced expression/text editor : Syntax highlighting, bad braces highlight, link to the error position.
- Added search and replace in events.
- Automatic renaming of objects in events.
- Multiple object suppression.
- Deletion of actions and conditions related to an object when deleting the latter.
- Scene editor : Added support for copy/cut/paste. Added predefined zoom levels.
- Corrected condition testing direction of Sprites.
- Corrected links.
- Minors changes in interface.
- Minor corrections.
- Spanish tutorial ( Thanks to Fernando José Martínez López )

#### Version 1.5.9910.49996

- Corrected error message displayed with conditions using behaviors.
- Physics behavior : Added Restitution ( Elasticity )
- Physics behavior : Added action Add a force toward a position
- Corrected condition “A group exists in a XML file”

#### Version 1.5.9904.49966

-Minor corrections.

#### Version 1.5.9900.49954

- Added behaviors.
- Added Physics Automatism. (+ Example PhysicsCrush)
- Added search controls in several windows.
- Actions and conditions can be sorted by objects.
- Actions to open and close a XML file in memory.
- Updated SFML library : Corrected border around images.
- Added ability to change 3D parameters.
- Added events deactivation
- Optimizations
- Progressive loading of images.
- Corrected layer window
- Copy/Cut/Paste for objects groups.

**Version 1.4.9641.48562**

- Added external events.
- Corrected bugs with texts using fonts.
- Corrected freeze when parenthesis were missing.
- Corrected action for changing window's size.

**Version 1.4.9606.48375**

- New conditions for keyboard.
- Corrected bug when opening old games.
- Corrected glitches.

**Version 1.4.9601.48349**

- Corrected freeze during loading of some games.

**Version 1.4.9599.48338**

- Corrected actions using layers.
- Updated expressions using layers.

**Version 1.4.9587.48275**

- Corrected “Send datas” action.
- Corrected Time expression
- Corrected return value of “Choose layer” dialog.
- Added flip actions.
- Corrected height of events after modification.

**Version 1.4.9573.48212**

- Corrected bugs with layers
- Corrected too import memory consumption with events in editor.
- Minor corrections.

**Version 1.4.9552.48094**

- Corrected bad conversion of quotes when opening a game saved with an old version.
- Corrected function name so as to get the text of an object's variable.
- Added undo/redo to scene editors.

**Version 1.3.9262.46622**

-Correction of a crash when word “distance” was in an expression.

**Version 1.3.9550.48084**

- Entirely new, powerful and elegant syntax for expressions.
- Changed text expressions so as to let them be as powerful as numerical expressions.
- Added string manipulation functions.
- Checking for validity of parameters.
- Added Selection rectangle and moving of objects thanks to keyboard to scene editors.
- Function events.
- Added global objects and groups to games merging.
- Real time displacements when using scrollbars.
- Corrected glitch when displaying sub conditions.
- Corrected bad click detection when using sub events.
- Checking of validity of objects names.

**Version 1.3.9254.46592**

- Correction of undo/redo in events editor.
- Correction of copy of events.
- Correction of a crash with a comment or a link at the end of the events.

**Version 1.3.9245.46555**

- New event structure allowing to use subconditions, and providing new types of event.
- Correction of bugs

## The historic of the previous versions is only available in French

**Version 1.3.8892.44771**

- Correction du crash au démarrage sur certaines versions de windows.
- Test de plusieurs répertoires temporaires de compilation.
- Correction de la disparition des caméras lors du zoom.

**Version 1.3.8890.44757**

- Edition des évènements sans fenêtre intermédiaire.
- Modification de l'apparence des évènements.
- Ajout d'une condition pour tester l'angle de déplacement d'un objet.
- Actions et conditions supplémentaires sur les caméras.
- Les boîtes de dialogues ont été transférées dans une extension, et utilisent les fenêtres natives de Windows.
- Correction de l'action de zoom de caméra.
- Correction de l'action de centrage de caméra.
- Correction de l'affichage de certaines fenêtres sans jeu valide.
- Correction de l'affichage de l'éditeur de la banque d'images.

#### Version 1.3.8844.44538

- Correction de l'impossibilité d'utiliser certaines touches en testant la scène dans une fenêtre externe.
- Remise de l'icône à l'exécutable de GDevelop.
- Insertion correcte des commentaires/liens quand on clique à la fin de la liste.
- Correction de la compilation en mode executable unique.
- Possibilité d'utiliser plusieurs caméras pour les calques, avec possibilité de personnaliser l'endroit où elle sera affichée ( pour créer par exemple des modes 2 joueurs en écran partagé ).
- Gestionnaire de projet, remplaçant l'éditeur de jeu, et permettant d'édition plusieurs jeux à la fois.
- Mise à disposition du logiciel en anglais.

#### Version 1.2.7630.38327

- Nouvelle interface profitant d'un ruban.
- Thème des onglets et des panneaux personnalisable.
- Changement de position des boutons Ok/Annuler.
- Automatisation complète de l'ancien système de localisation des actions/conditions.
- Possibilité d'utiliser des objets globaux à toute les scènes.
- Nouvelles actions et conditions de temps.
- Nouvelles actions et conditions d'échelle de taille des objets ( redimensionnement ).
- Possibilité de mettre et de tester la pause pour les chronomètres.
- Possibilité de choisir la couleur de la grille
- Nouvelle action "Positionner la souris en X;Y"
- Choix de la couleur transparente dans le décomposeur de feuille de sprite.
- Possibilité de glisser déposer un fichier pour l'ouvrir.
- Possibilité de glisser déposer un objet depuis l'éditeur d'objets sur l'éditeur de scène.
- Optimisation du test de collision.
- Possibilité de modifier le centre de rotation des objets
- Possibilité d'afficher la console de GDevelop depuis le debugger.
- Evaluation des expressions optimisée.
- Correction d'un bug sur l'enregistrement d'un fichier avec une expression.
- Correction du mauvais rendu quand il y avait beaucoup de sous événements

- La condition de distance ne pouvait pas utiliser les groupes d'objets
- Les expressions ne pouvait pas utiliser les groupes d'objets
- Corrections de bugs divers.

#### Version 1.1.6397.32168

Passage de plusieurs images si nécessaire pour l'animation des objets  
Bug position point avec origine modifiée  
Décomposeur de feuilles de sprites  
Amélioration de l'éditeur d'évènements ( Retour à la ligne, annulation, mise en forme, raccourcis... )  
Correction de la gestion des sous évènements avec les modèles  
Plus d'options pour la fenêtre de chargement  
Conditions/Actions d'arrêt de de reprise d'animation  
Conditions/Actions pour les joysticks  
Conditions/Actions pour les calques des objets  
Modèle "Déplacement d'unités à la souris"  
Fenêtre de choix de fichier  
Correction de l'inversion titre/message pour les actions interface  
Correction des liens qui prennent tous les évènements de la scène  
L'action "Créer un objet" peut utiliser une expression pour le nom de l'objet

#### Version 1.1.6042.30362

Debugger  
Correction de l'action Dupliquer  
Choix de la précision de "le curseur est sur un objet"  
Action/Condition de Rotation de caméra  
Accès à l'heure et au temps

#### Version 1.1.5813.29156

Correction des barres de défilement + mise à jour automatique  
Action suppression groupe d'un fichier  
Système de calque  
Correction copier-coller évènements entre scènes  
Correction crash sur les ordinateurs anciens  
Actions volume des sons et musiques  
Actions Plein écran

#### Version 1.1.5429.27129

Réorganisation de l'éditeur des objet et des évènements ( inclusion à l'éditeur de scène ).  
Amélioration de l'éditeur de scène

Corrections et refactorisations multiples.  
Deux nouveaux exemples : CourseAdvanced et PeaThrow

#### Version 1.1.4961.24740

Action “Effectuer le mouvement de objets”  
Correction du Bug “arrondissement de la position caméra”  
Correction du Bug “Suppression de l'image d'un objet”  
Corrections mineures

#### Version 1.1.4896.24425

Réarrangement de certaines fenêtres  
L'action “Centrer la caméra” suit mieux l'objet  
Compilation simple améliorée  
Édition de l'origine et ajout de points sur les objets  
Nouvelles Actions interface  
Nouvelles conditions musiques et sons  
Rafraîchissement de certaines icônes  
Correction et mises à jour diverses

#### Version 1.0.4599.22886

Correction : Crash avec l'affichage de variables globales  
Correction : Bug de duplication des dossiers

#### Version 1.0.4584.22811

Correction : Les sons sur canaux ne marchaient pas  
Correction : L'éditeur de groupes d'objets était masqué  
Instructions de Contrôle avancé ( voir exemple SaveLoad )  
Action Changer couleur objet

#### Version 1.0.4485.22325

Optimisation importante de l'affichage des événements.  
Amélioration de l'éditeur d'objets.  
Prise en compte des objets principaux lors de l'évaluation des expressions dans les actions/conditions.  
Correction du bug faisant que les polices ralentissaient le jeu.  
Outil permettant de décomposer un gif animé.  
Outil permettant de décomposer feuille de sprite RPG Maker.  
Correction : La compilation prend en compte les ressources des sous événements.  
Bouton choix son et choix musique sont de nouveaux opérationnels.

Actions déplacement : tourner autour de... .  
Correction d'un crash lors de la création d'un nouveau jeu avec un dossier d'image ouvert.  
Correction du bug de l'occupation mémoire des sons.

#### Version 1.0.4041.20109

Icônes à la place des boutons dans les fenêtres de modifications des paramètres  
Ajout d'un bouton annuler édition condition/action  
Correction du bug Mauvais évènement sélectionné  
Mode Simple ( Possibilité d'activer un mode simple, qui réduit l'interface de GDevelop aux fonctions principales, idéal pour débuter.)  
Nouvelle action pour modifier le zoom de la caméra.  
Nouvelle condition pour tester la distance entre deux objets.

#### Version 1.0.3637.18164

Corrections de bugs avec les expressions des conditions

#### Version 1.0.3628.18123

Corrections de bugs ( Polices... )  
Groupes d'objets  
Nouvel exemple : Tir

#### Version 1.0.3287.16387

Variables globales  
Correction d'un bug avec le changement de scène et la taille de la fenêtre  
Interface : Utilisation barres d'outils  
Interface : Editeur de scènes multiples  
Correction d'un crash avec l'affichage de texte sur certains pc  
Option Synchronisation verticale et FPS max/min  
Nouvel éditeur d'événements  
Sous événements

#### Version 1.0.2385.11851

Meilleure gestion du copier coller  
Correction problèmes avec l'écriture dans les fichiers ( crash si le fichier n'existant pas... )  
Ajout de bulles d'aides à divers endroits  
Ajout avertissement dans les fenêtres de choix d'objet pour signaler qu'il faut utiliser l'éditeur d'objets.

Nouvelles actions “Tourner Vers une position” et “Se diriger Vers une position”  
Les descriptions des paramètres sont maintenant situés au dessus du paramètre.  
Nouvel exemple très simple : Aimant.

#### Version 1.0.2111.10497

Réduction des dépendances des jeux linux : Le jeu se lance sur de nombreuses distributions sans nécessiter de paquets supplémentaires ( autre que X et OpenGL et les paquets de bases ). Les jeux ont été testés et se lancent directement sur : Ubuntu, Debian, Fedora, OpenSUSE, Mandriva One...

Possibilité d'enregistrer et de charger des données depuis des fichiers.

Possibilité d'envoyer des scores ou des données sur internet.

Correction de l'éditeur d'évènements : Après modification d'un évènement, l'éditeur ne revient plus en haut de la liste.

Correction de l'action “Tourne Vers” : ne se tournait auparavant jamais vers 0.

Correction de la condition “Souris sur objet” : le test s'effectuait mal si la caméra n'était pas en 0;0

Correction de l'action “Créer un objet” avec un objet inexistant : GDevelop crashait si l'objet spécifié n'existe pas.

#### Version 1.0.1979

Mise à jour de la bibliothèque graphique ( SFML ) : Résolution de problèmes sur différentes cartes graphiques

Image et fichiers du tutoriel inclus

Corrections diverses

#### Version 1.0

Première version publique ( Release )