



Intro to Construct 2

About Construct 2



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What is Construct 2?

- "No programming required" game creation tool
- Intuitive visual editor for making 2D games
- Based on JavaScript / HTML5
- Exports to Desktop, Mobile, Console and Web
- Creation tool is only available on Windows



Licenses and Fees

- Free edition
- Personal license - \$129.99
- Business license - \$429.99



Licenses and Fees

Compare Features

	Free Edition Try now	Personal License	Business License
High Performance Engine	✓	✓	✓
Intuitive User Interface	✓	✓	✓
Intuitive Event System	✓	✓	✓
Extendable Plugin System	✓	✓	✓
Physics Engine	✓	✓	✓
Full Documentation	✓	✓	✓
Free frequent updates	✓	✓	✓
Debugger	✓	✓	✓
Debugger Watch Tab	✗	✓	✓
Profiler	✗	✓	✓
Event Breakpoints	✗	✓	✓
Make Multiplayer Games	✗	✓	✓



Licenses and Fees

	Publishing Options		
Publish to your own website	✓	✓	✓
Windows Store apps	✓	✓	✓
Chrome Web Store	✓	✓	✓
Make Facebook games	✓	✓	✓
Publish to Scirra Arcade	✓	✓	✓
Play games offline	✓	✓	✓
Make iOS apps	✗	✓	✓
Make Android apps	✗	✓	✓
Make Windows apps	✗	✓	✓
Make Mac apps	✗	✓	✓
Make Linux apps	✗	✓	✓
Make Amazon Store apps	✗	✓	✓
Make Wii U games †	✗	✓	✓
In-app Purchases	✗	✓	✓



Licenses and Fees

	Limitations		
Event Limit	100	Unlimited	Unlimited
Layer Limit	4	Unlimited	Unlimited
Special Effect Limit	2	Unlimited	Unlimited
Project Subfolders	✗	✓	✓
Event Search	✗	✓	✓
Z-Order bar	✗	✓	✓
Object Families	✗	✓	✓
Instant preview over WiFi	✗	✓	✓



Licenses and Fees

	Royalty Free Bundled Assets		
Bundled Sound Effects	16	124	124
Bundled Music	3	8	8
Bundled Ambient Sounds	3	12	12
Bundled Sprite Packs	1	3	3
	Other		
Who's it for?	Everyone*	Individuals*	Businesses*
Commercial Use	✗	Limited**	<i>Unlimited</i>
Welcoming community	✓	✓	✓
Tons of useful tutorials	✓	✓	✓
Awesome profile medal	✗	✓	✓

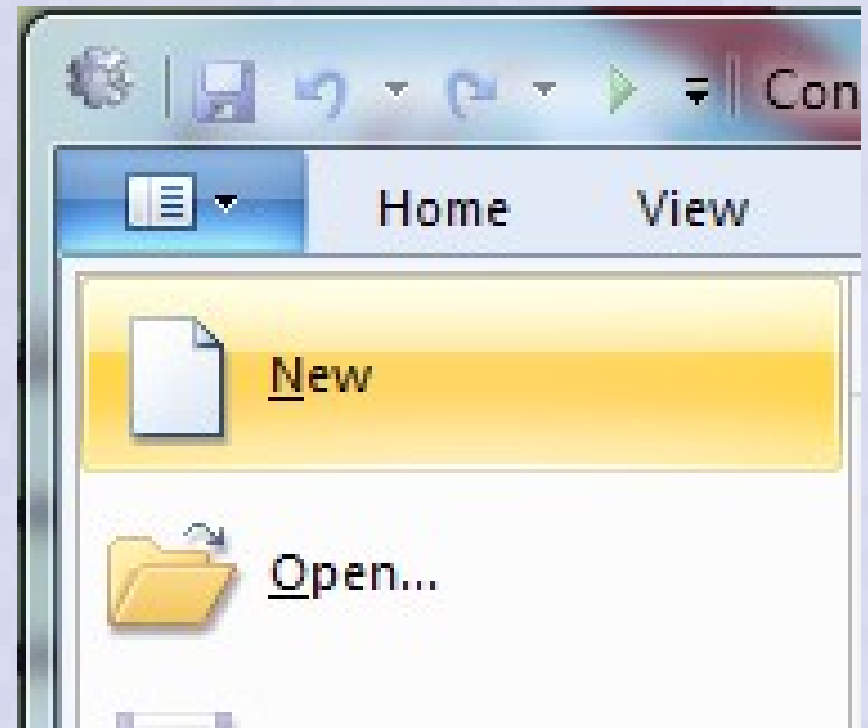


The basics

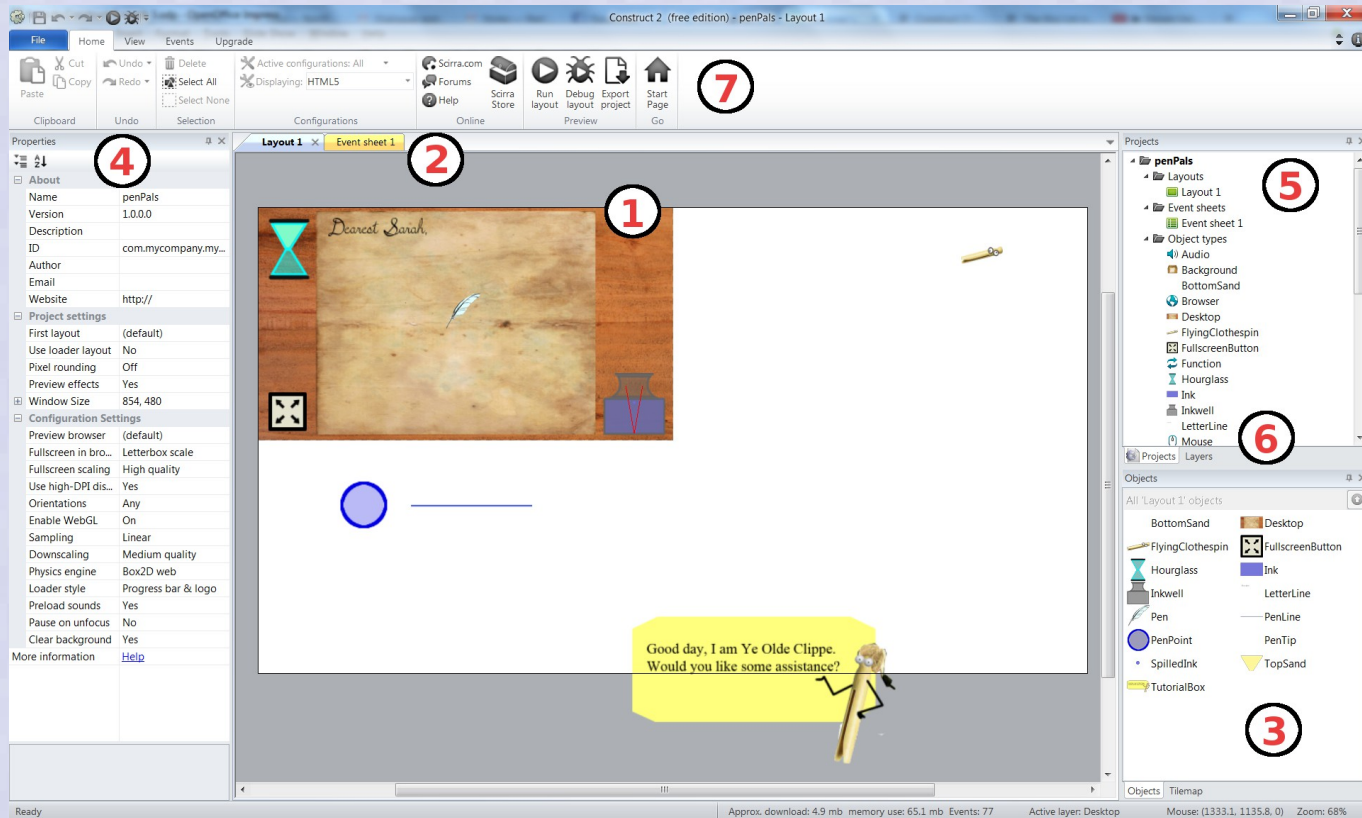


Creating a new project

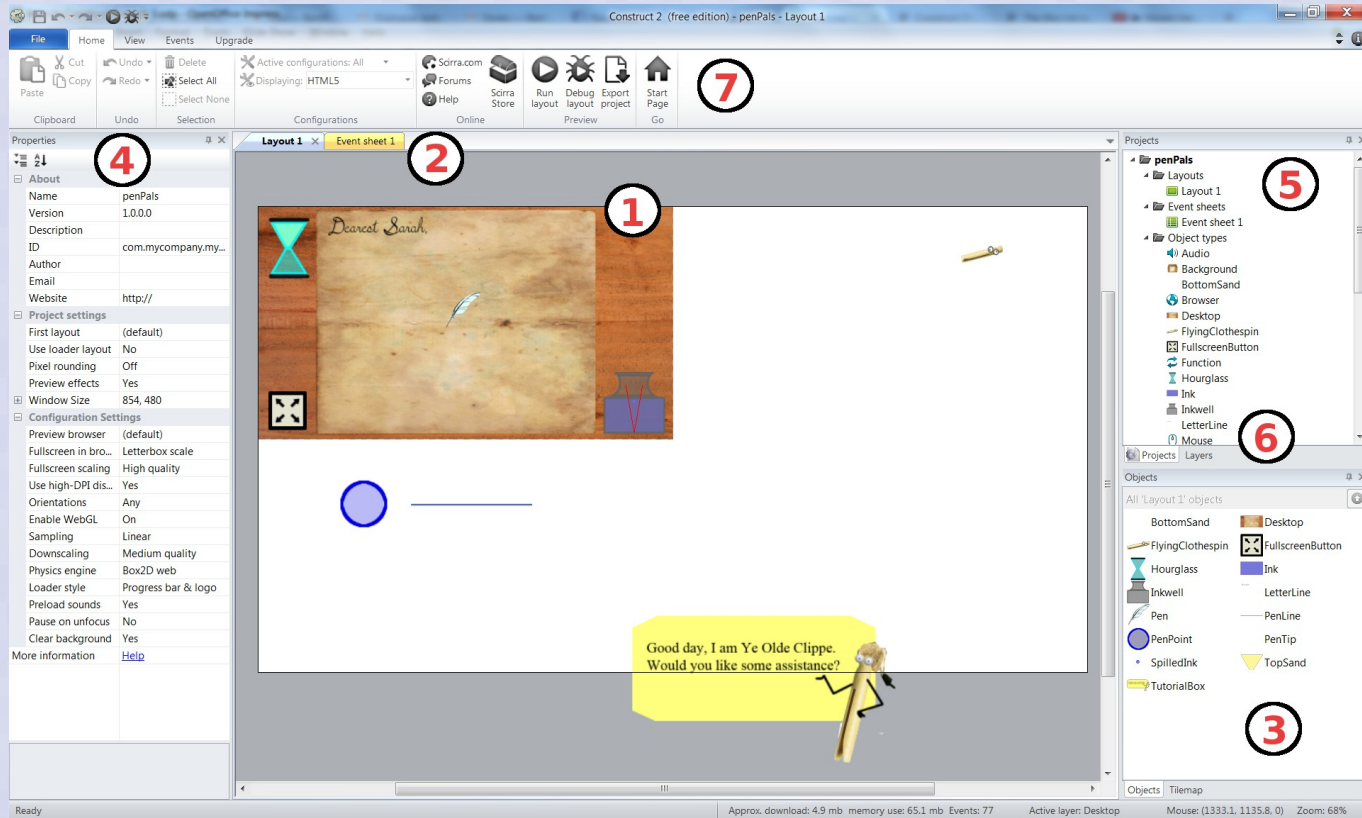
- Click File -> New
- Make sure 'New empty project' is selected
- Click the 'open' button



Editor overview



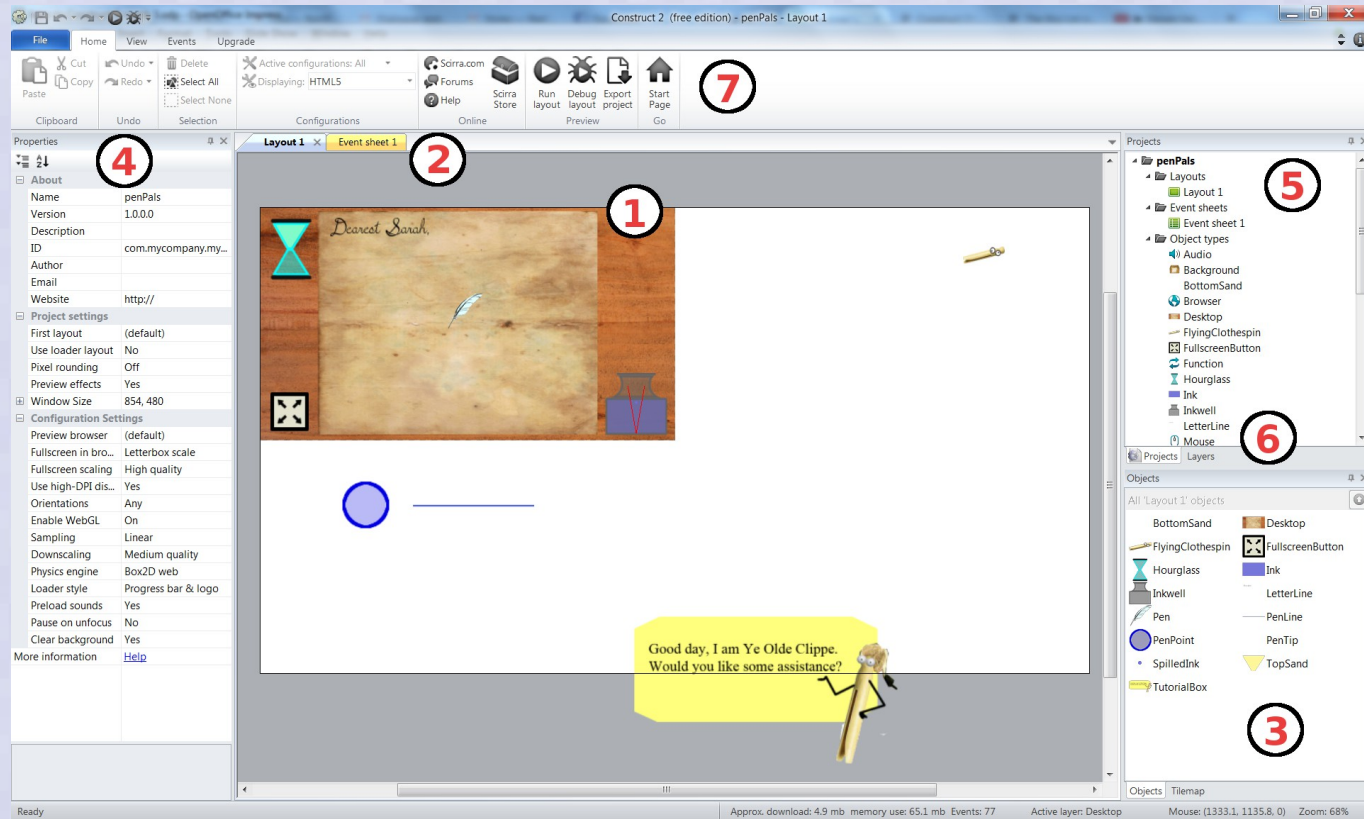
Editor overview



1 - Layout



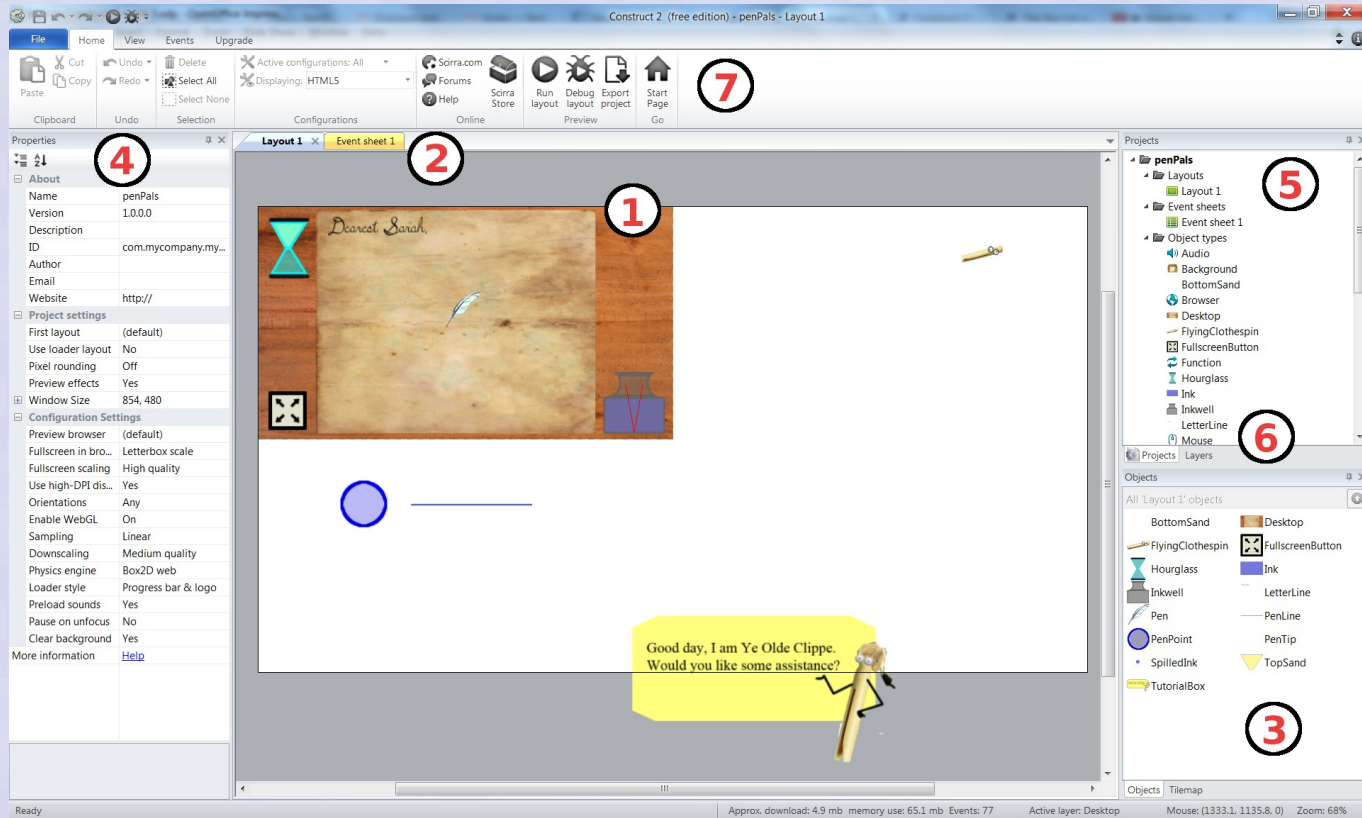
Editor overview



2 - Event sheet tab



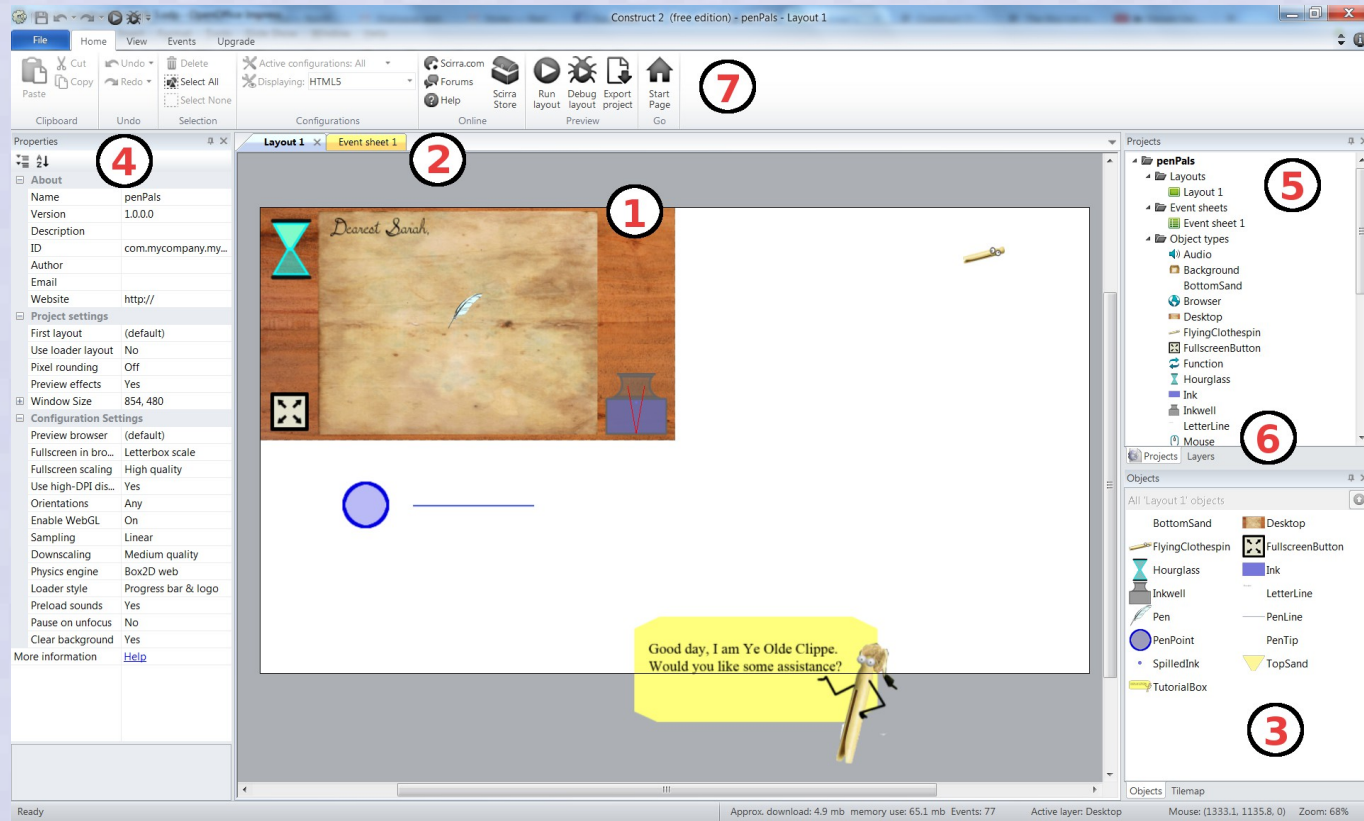
Editor overview



3 - Objects bar



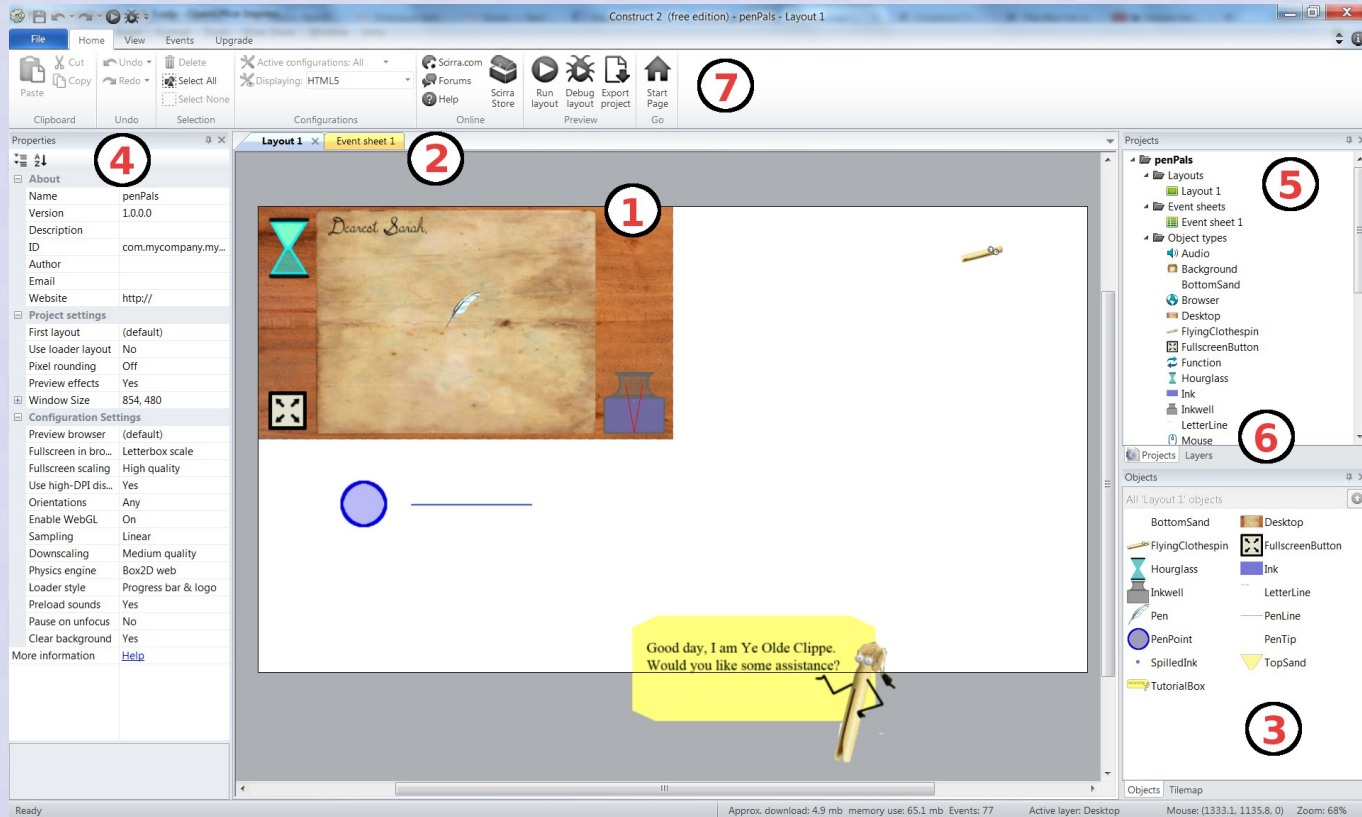
Editor overview



4 - Properties bar



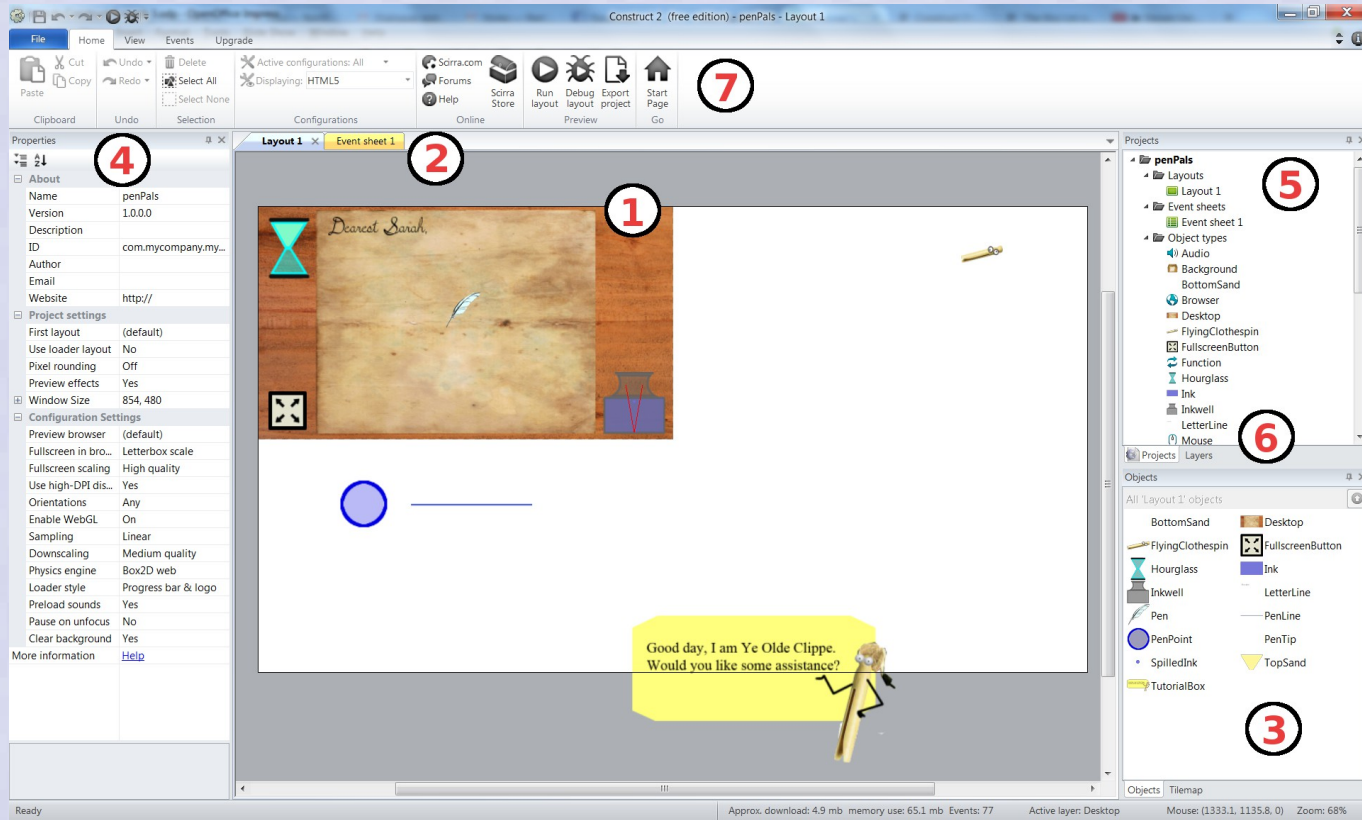
Editor overview



5 - Projects bar



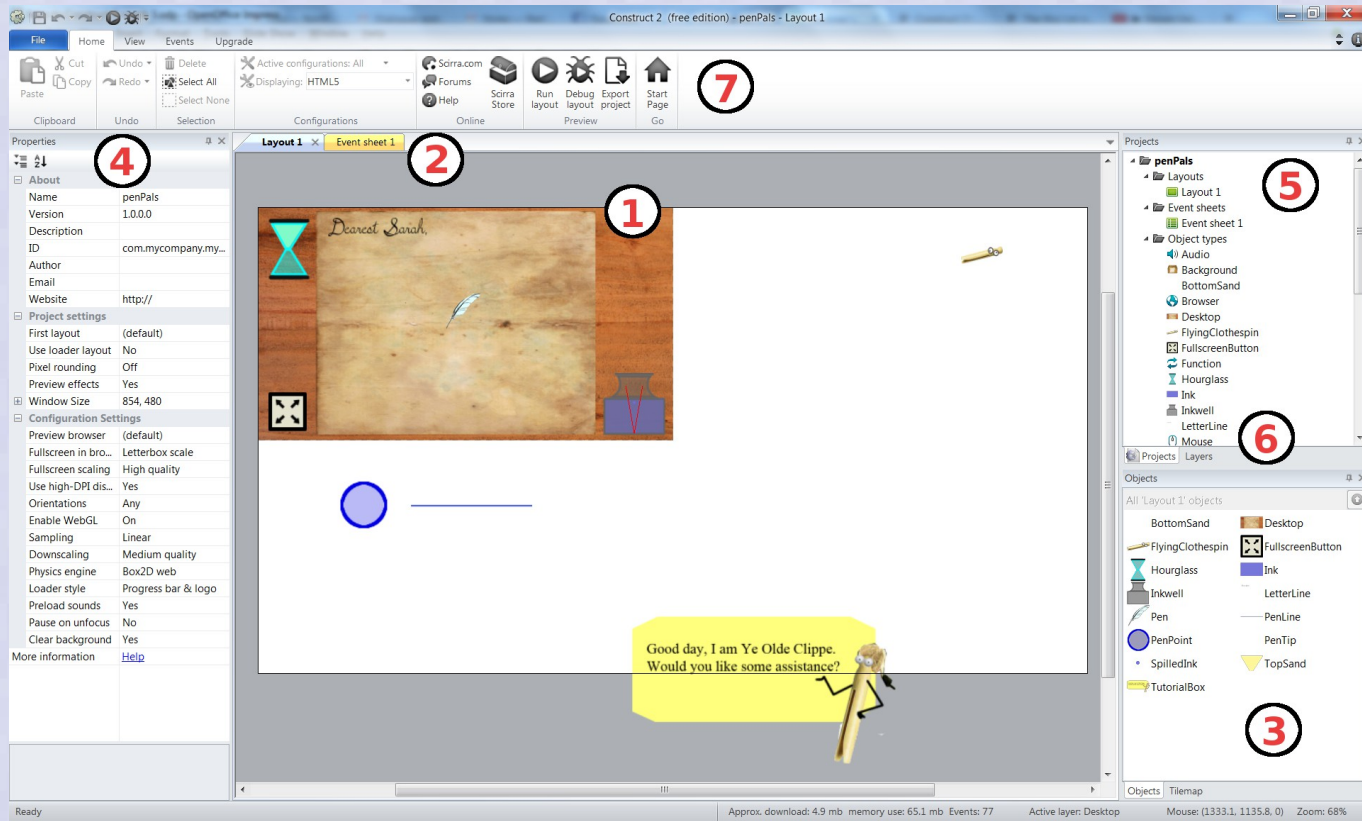
Editor overview



6 - Layers tab



Editor overview



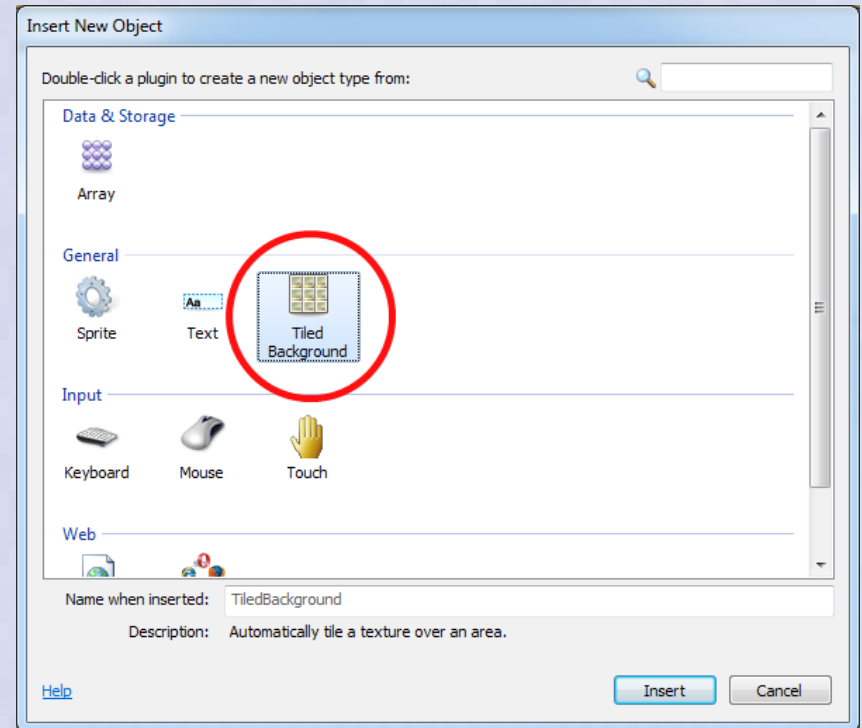
7 - Run, debug and export buttons



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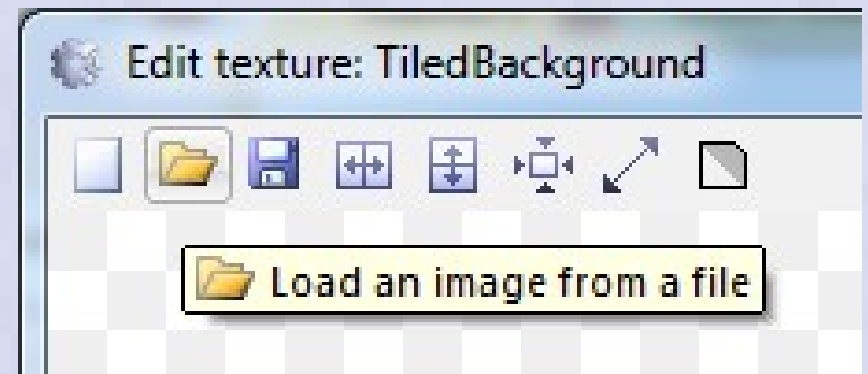
Inserting objects

- Double click on the layout
- Double click the 'tiled background' object
- When the crosshair appears, click somewhere near the middle of the layout



Editing images

- Click the Folder icon in the image editor
- Select the 'bg.png' image from the assets directory
- Close the image editor



Altering object properties

- Click on 'Layout 1' in the Projects bar on the top right
- Go to the Properties bar on the top left and Find the 'Layout Size' property
- Change the values to 1280, 1024



Altering object properties

- Click the bg image in the layout to select it
- Change the 'Position' property to 0, 0
- Change the 'Size' property to 1280, 1024

[-] Object Type Properties	
Name	TiledBackground
Plugin	Tiled Background
[-] Common	
Layer	Layer 0
Angle	0
Opacity	100
Position	0, 0
Size	1280, 1024
[-] Instance variables	
Edit variables	Add / edit



Saving the project

- Click File -> Save
- Name the project 'ghostShooter.capx'



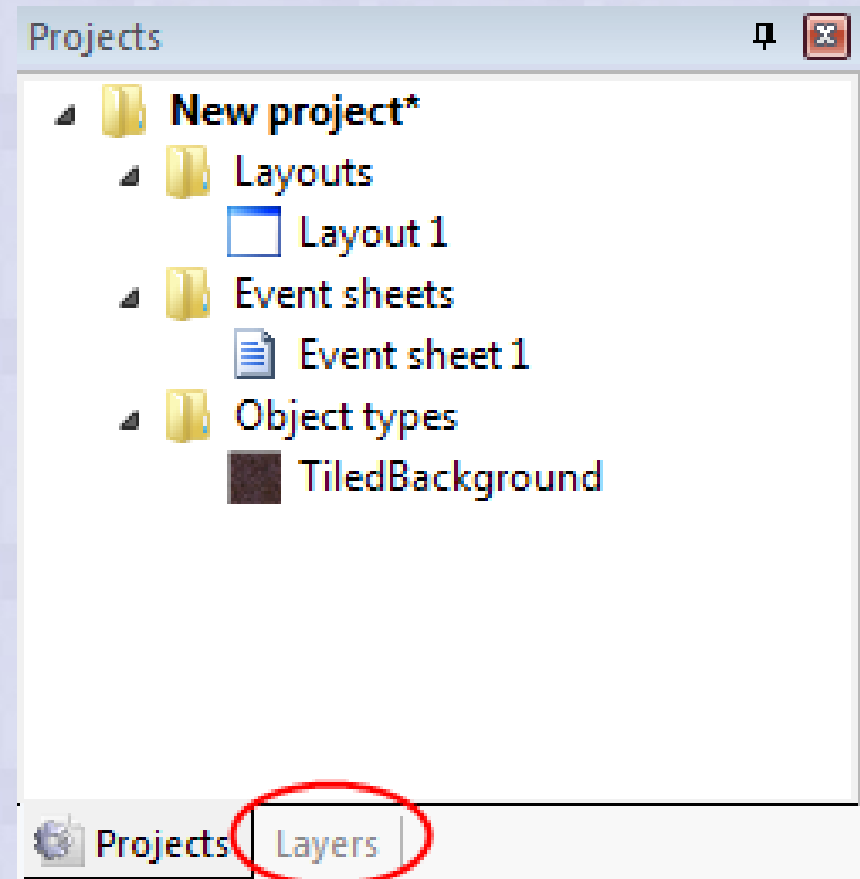
Running the project

- Click 'Run layout' button on the top middle
- Game should launch inside your default web browser
- Not too exciting, but it's a start!



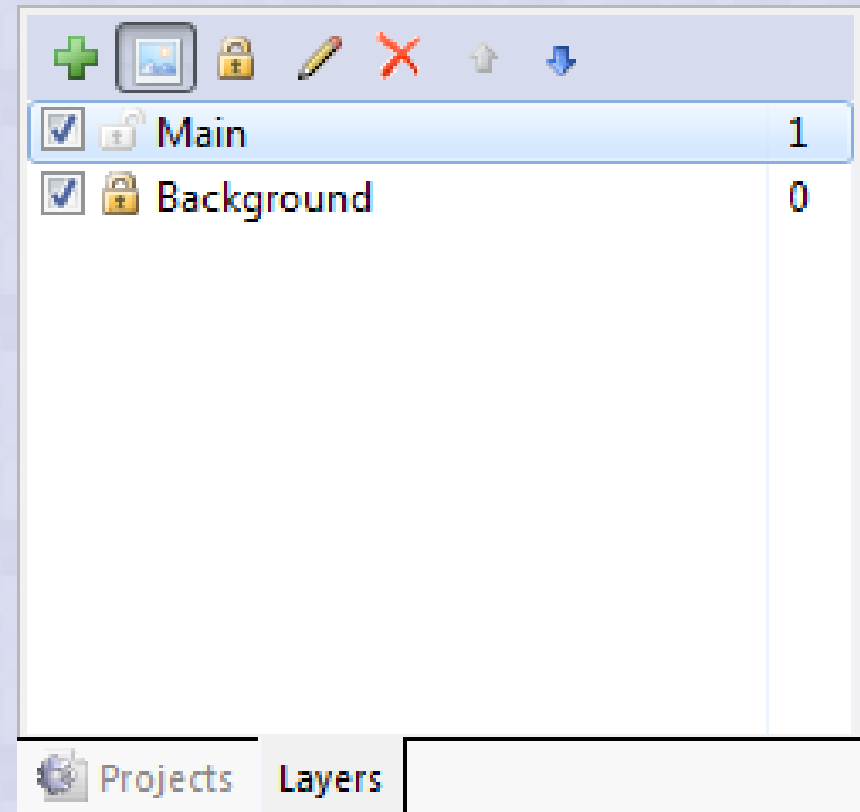
Adding layers

- Click the Layers tab on the right middle
- Select 'Layer 0', then click the pencil icon and rename it to 'Background'
- Click the plus icon to add a layer named 'Main'



Adding layers

- Click the padlock icon next to the Background layer to lock it
- Select the Main layer
- Double check the display in the bottom right to make sure active layer is 'Main'



Adding input objects

- Double click the layout
- Double click the 'mouse' object to add project-wide support for mouse input
- Do the same for the 'Keyboard' object to add keyboard support



Importing sprites

- Double click the layout
- Double click the 'sprite' object
- When the crosshair appears, click on the layout to place the sprite (be sure the Main layer is selected!)
- When the image editor appears, click the open icon



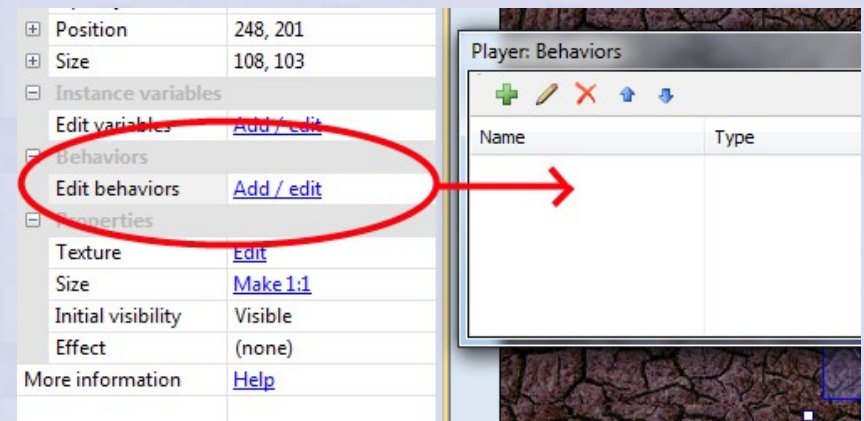
Importing sprites

- Select the 'player.png' image From the assets directory and close the image editor
- Repeat this process to add sprite objects For the monster, bullet and explosion
- Rename the sprites to Player, Monster, Bullet and Explosion using the Properties bar
- Move the Bullet and Explosion offscreen



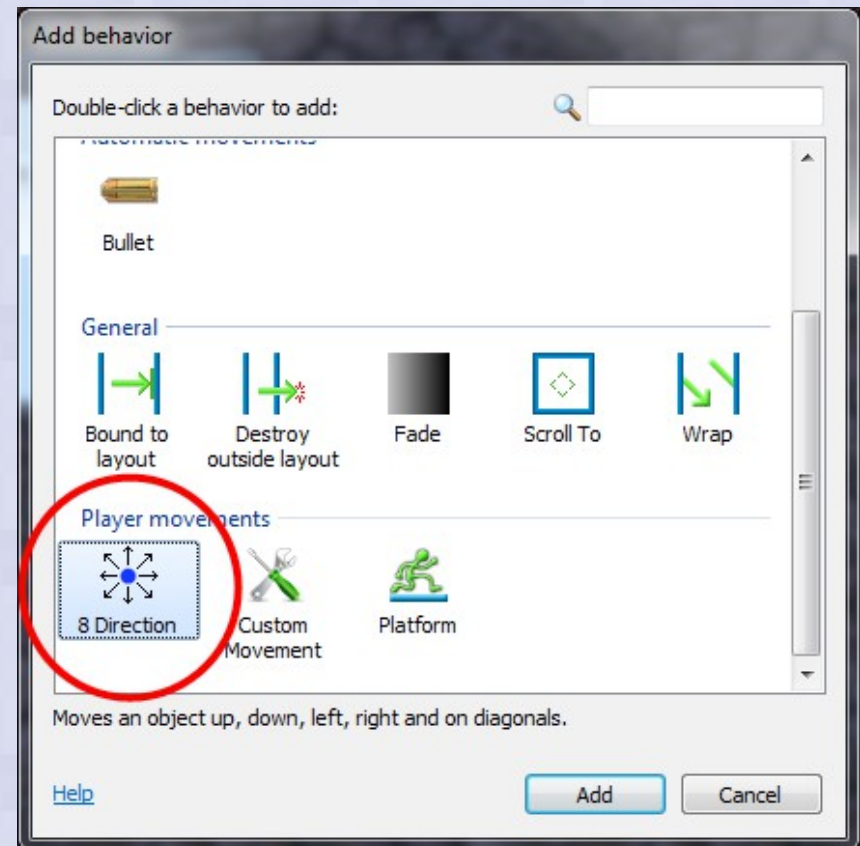
Attaching behaviors

- Click the player to select it
- Find the 'Behaviors' category in the Properties bar and click 'Add/edit'
- Click the plus icon to add a new behavior



Attaching behaviors

- Double click the '8 Direction' behavior to assign it to the player
- Repeat this process to add the 'Scroll To' and 'Bound To Layout' behaviors



Attaching behaviors

- Add the 'Bullet Movement' and 'Destroy Outside Layout' behaviors to the Bullet object
- Add the 'Bullet Movement' behavior to the Monster object
- Add the 'Fade' behavior to the Explosion object
- Change the Bullet's 'Speed' property to 80
- Change the Explosion's 'Fade Out Time' property to 0.5



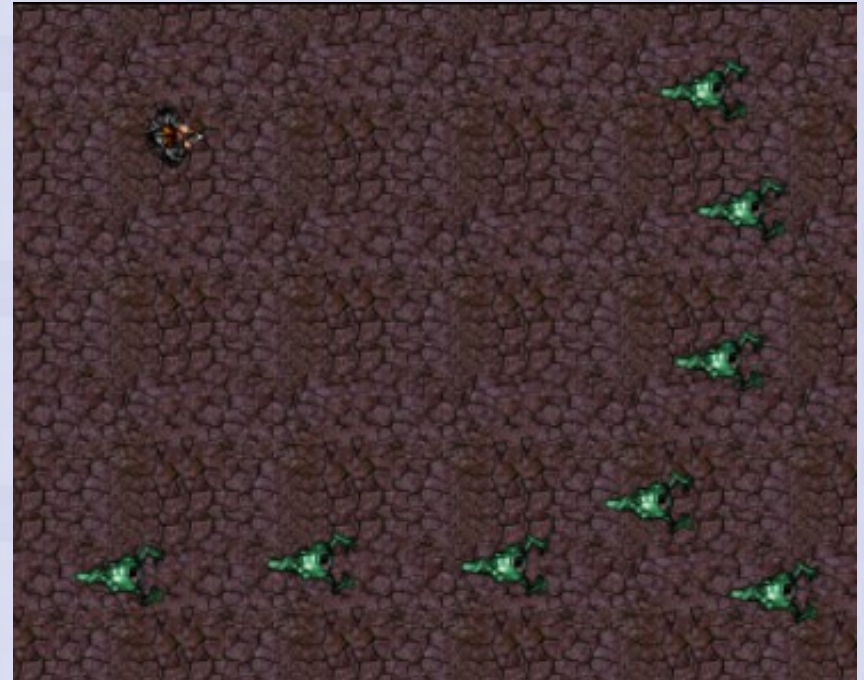
Managing game objects

- Objects are like templates that can be 'stamped out' to populate your layout
- Each individual 'stamp' is called an instance
- For now, think of it like this: each different type of enemy is a different **object**, whereas the actual enemies you've placed in the layout are **instances**



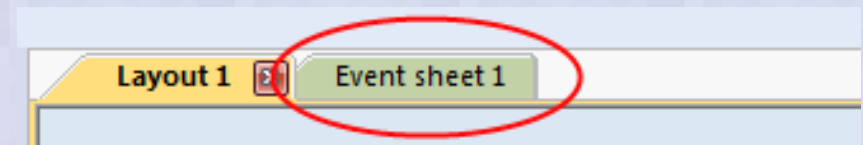
Managing game objects

- Hold down Ctrl, then click/drag on the Monster in your layout to create a duplicate instance
- Create 8 separate instances of the Monster object and spread them out in the layout



Programming using events

- Click the Event sheet tab
- Events are run every 'tick', and are evaluated in order from top to bottom
- Events are the main way of adding custom behavior to your game



Programming using events

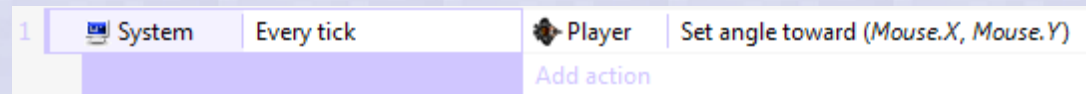
- Events consist of two parts: conditions and actions
- When the conditions for an event are met, the actions for that event will be performed
- Examples:
 - [c] 'Am I hungry?' -> [a] 'Eat a sandwich'
 - [c] 'Is the weather nice?' -> [a] 'Go outside'
 - [c] 'Is spacebar down?' -> [a] 'Spawn a bullet'



Programming using events

- Double click the Event sheet to add a new condition

- Double click the 'System' object



- Double click the 'Every tick' condition

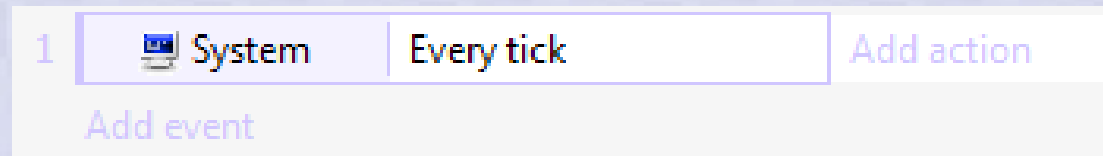


Programming using events

- Click the 'Add action' link next to our new condition

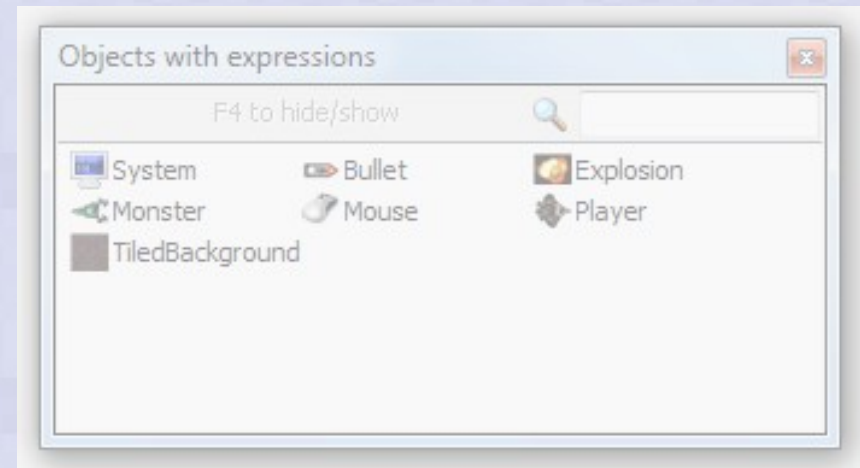
- Double click the 'Player' object

- Double click the 'Set angle toward position' action



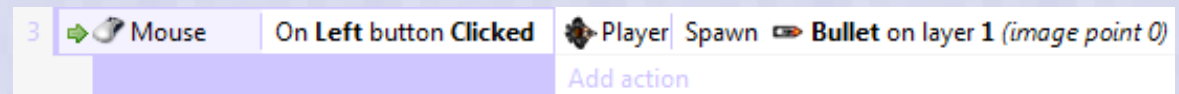
Programming using events

- Enter 'Mouse.X' and 'Mouse.Y' For the X and Y parameters
- Mouse over the semi-transparent 'Object panel' For a list of available expressions



Spawning objects dynamically

- Add condition 'Mouse'
-> 'On click' -> 'Left
clicked'

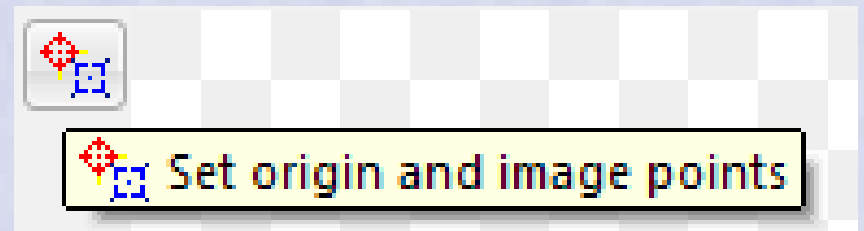


- Add action 'Player' ->
'Spawn another object'
-> type = Bullet, Layer
= 1, ImagePoint = 0



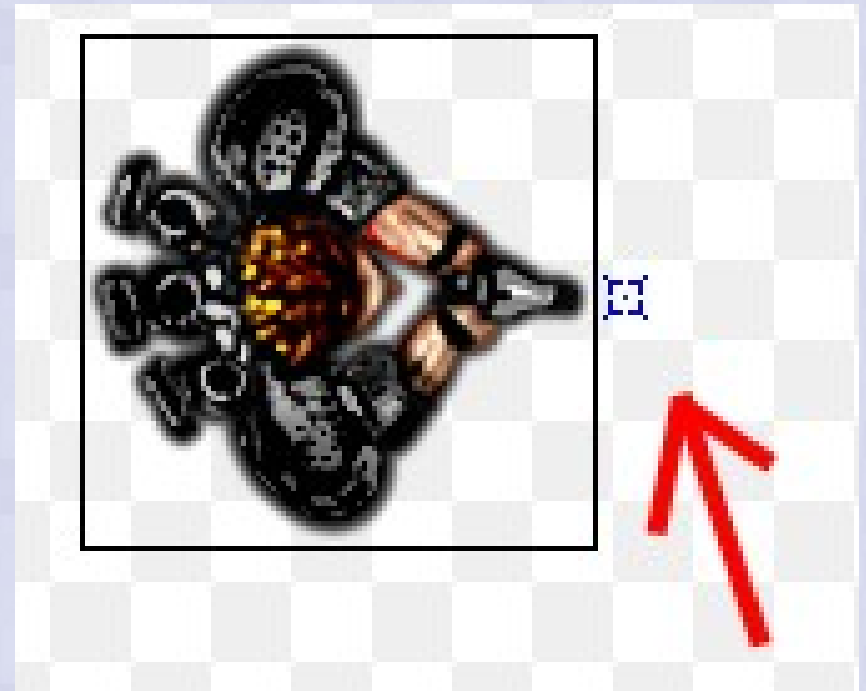
Adding image points

- Double click the player in the Objects bar
- Click the 'origin and image points' button
- Click the plus button to add a new image point



Adding image points

- Position the image point at the tip of the Player's gun
- Double click the 'Spawn an object' action we created previously, and change the ImagePoint parameter to 1



Detecting object collisions

- Add condition 'Bullet' -> 'On collision with another object' -> 'Monster'
- Add action 'Monster' -> 'Destroy'
- Add action 'Bullet' -> 'Spawn another object' -> type = Explosion, Layer = 1
- Add action 'Bullet' -> 'Destroy'



Adjusting visual properties

- Click on the Explosion in the Layout
- Set the 'Blend mode' property to 'Additive'



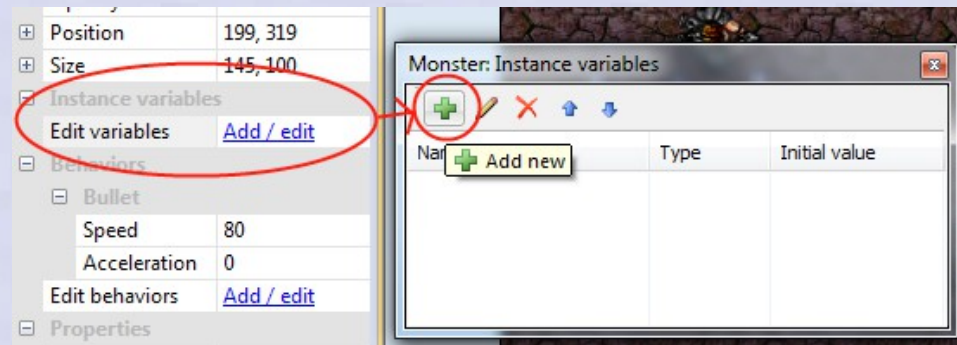
Generating random numbers

- Add condition 'System' -> 'On start of Layout'
- Add action 'Monster' -> 'Set angle' -> angle = random(360)
- Add condition 'Monster' -> 'Is outside layout'
- Add action 'Monster' -> 'Set angle toward position' -> X = Player.X, Y = Player.Y



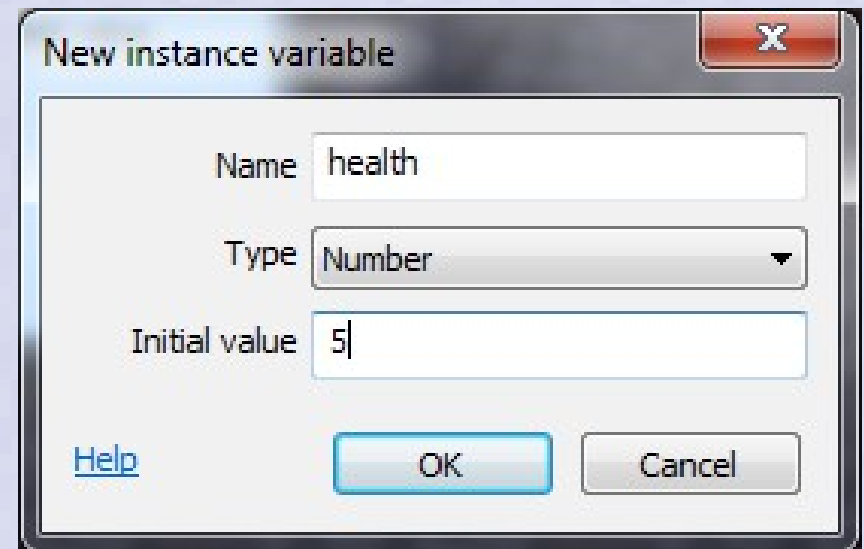
Setting instance variables

- Click the Monster in the Object bar
- In the Properties bar, click on 'Add / edit' in the 'Instance variables' category
- Click the plus button to add a new instance variable



Setting instance variables

- Type 'health' for the variable name, and set the initial value to 5
- Check that 'health' is displayed in the instance variables list



New instance variable

Name: health

Type: Number

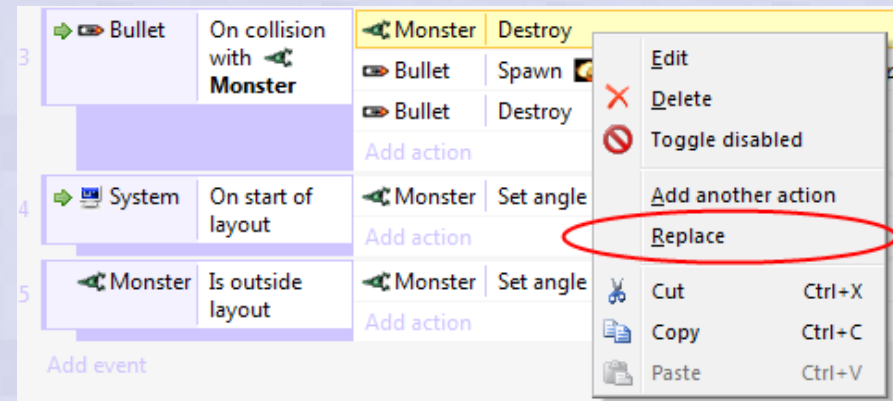
Initial value: 5

[Help](#) OK Cancel



Setting instance variables

- Return to the Event sheet, and Find the 'Destroy Monster' action
- Right click the 'Destroy Monster' action and select 'Replace'



Setting instance variables

- Choose 'Monster' -> 'Subtract From' (listed under the 'Instance variables' category) -> variable = health, Value = 1
- Add condition 'Monster' -> 'Compare instance variable' -> variable = health, comparison = Less or equal, value = 0



Setting instance variables

- Add condition 'Monster' -> 'Compare instance variable' -> variable = 'health', comparison = Less or equal, value = 0
- Add action 'Monster' -> 'Spawn another object' -> type = Explosion, Layer = 1
- Add action 'Monster' -> 'Destroy'



Creating global variables

- Right click on the Event sheet and select 'Add global variable'
- Name the variable 'Score' and click OK
- Under the 'Destroy Monster' action, add a new action 'System' -> 'Add to' (listed under the 'Global & local variables' category) -> variable = Score, value = 1



Debugging the project

- Click the 'Debug layout' button next to the Run button



Displaying text

- Add a new layer called 'HUD' in the Layers bar (make sure it's on top, and selected)
- Set the layer's 'Parallax' property to 0, 0



Displaying text

- Double click on the layout and add a Text object
- Place the text in the top left of the layout, and resize it to be large enough to accommodate a score display



Displaying text

- Return to the Event sheet, and locate the 'Every tick' condition we previously added
- Add a new action 'Text' -> 'Set text' -> text = "Score: " & Score



Adding Finishing touches

- Add condition 'System' -> 'Every X seconds' -> value = 3
- Add action 'System' -> 'Create object' -> type = Monster, layer = 1, X = 1400, Y = random(1024)
- Add condition 'Monster' -> 'On collision with another object' -> type = Player
- Add action 'Player' -> 'Destroy'



Questions?



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Beyond the basics



Beyond the basics

- Importing and playing audio
- Adding physics behavior
- Storing data in arrays and dictionaries
- Saving and loading game state
- Loading data From external Files
- Exporting the project



Thanks! ^_^



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