Oficina: Make a Game

Construct 2

ENCONTRO

APRENDIZAGENS ESSENCIAIS na Disciplina de TIC

O BALANÇO NECESSÁRIO!

LISBOA

7 MARÇO

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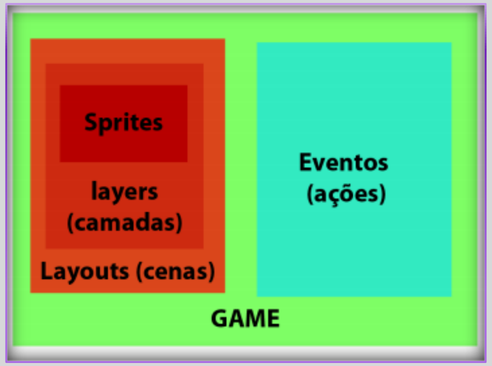
Construct 2

É um editor de jogos 2D baseado em HTML5, desenvolvido pela Scirra Ltda.

- **permite criar jogos baseados na web sem grandes conhecimentos em linguagens de programação.**
- permite a criação por meio do estilo drag-and-drop usando um editor visual e um sistema de lógica baseada em comportamento.
- oferece uma série de ferramentas para montar os mais variados tipos de jogos, que funcionem inteiramente integrados ao HTML5, e também usa o Python como linguagem de script para complementar os jogos.
- interface simples
- e é um programa bem leve.


Sprites
layers (camadas)
Layouts (cenas)
Eventos (ações)
GAME

- Um jogo possui um ou vários Layouts (níveis)
- Um nível é constituído por várias Layers (camadas)
  - Background
  - Objetos de cenário (interativos)
  - Personagem
  - GUI
- Uma Layer pode conter um ou vários sprites
- Um Sprite poderá conter um ou vários Behaviours (Comportamentos)

Alguns sites disponibilizam “sprites” gratuitos que podem ser utilizados nos jogos

- https://openclipart.org
- http://kenney.nl/assets
- http://opengameart.org/
- https://itch.io/game-assets/free/

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Sons gratuitos também podem ser encontrados

- http://incompetech.com/music/royalty-free/music.html
- http://www.animal-sounds.org/air-animal-sounds.html
- http://dig.ccmixter.org/

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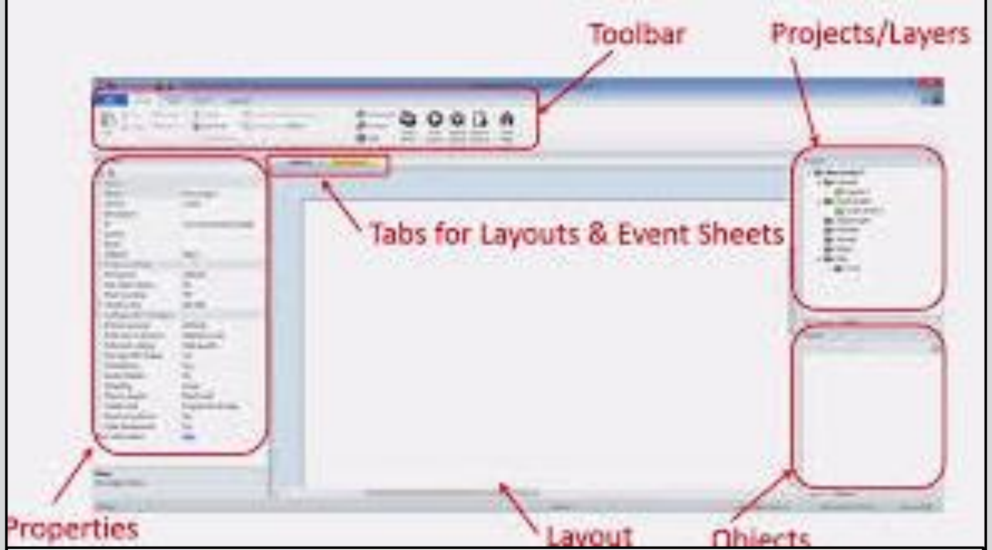
Por onde começar?

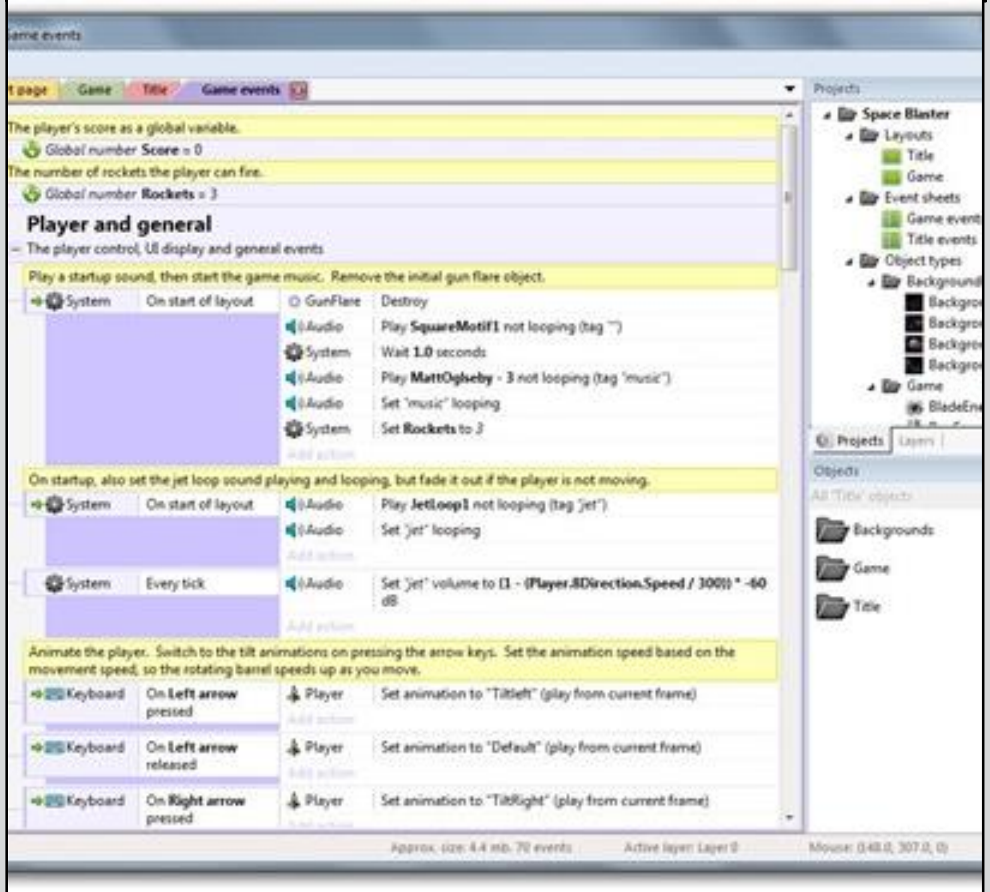
Construct 2

Ambiente de trabalho

O ecrã encontra-se dividida em dois setores:

- layout - é essencialmente visual:
  ali, podes adicionar os personagens e fazer pequenas alterações neles.
- Ações - podes adicionar a resposta a um comportamento, que será realizada quando houver qualquer interação com o item em questão (ou seja, como o programa deve se comportar quando a pessoa clicar em um elemento ou dois personagens se aproximarem, etc...).
  - A parte de eventos apresenta comandos, ciclos, instâncias, condições, contadores, entre outros.


Toolbar
Projects/Layers
Tabs for Layouts & Event Sheets
Properties
Layout
Objects


ame events
t page
Game
Title
Game events
Projects
Space Blaster
Layouts
Title
Game
Event sheets
Game event
Title events
Object types
Background
Backgro
Backgro
Backgro
Backgro
Game
BladeEn
Projects
Layers
Objects
All 'Title' objects
Backgrounds
Game
Title

The player's score as a global variable.

Global number **Score** = 0

The number of rockets the player can fire.

Global number **Rockets** = 3

Player and general

The player control, UI display and general events

Play a startup sound, then start the game music. Remove the initial gun flare object.

System	On start of layout	GunFlare	Destroy
		Audio	Play **SquareMotif1** not looping (tag "")
		System	Wait **1.0** seconds
		Audio	Play **MattOglseby - 3** not looping (tag "music")
		Audio	Set "music" looping
		System	Set **Rockets** to 3
		Add action	

On startup, also set the jet loop sound playing and looping, but fade it out if the player is not moving.

System	On start of layout	Audio	Play **JetLoop1** not looping (tag "jet")
		Audio	Set "jet" looping
		Add action	
System	Every tick	Audio	Set "jet" volume to **(1 - (Player.8Direction.Speed / 300)) * -60** dB
		Add action	

Animate the player. Switch to the tilt animations on pressing the arrow keys. Set the animation speed based on the movement speed, so the rotating barrel speeds up as you move.

Keyboard	On **Left arrow** pressed	Player	Set animation to "Tiltleft" (play from current frame)
		Add action	
Keyboard	On **Left arrow** released	Player	Set animation to "Default" (play from current frame)
		Add action	
Keyboard	On **Right arrow** pressed	Player	Set animation to "TiltRight" (play from current frame)

Approx. size: 4.4 mb. 70 events Active layer: Layer 0 Mouse: (148.0, 307.0, 0)

Construção de um jogo de plataformas

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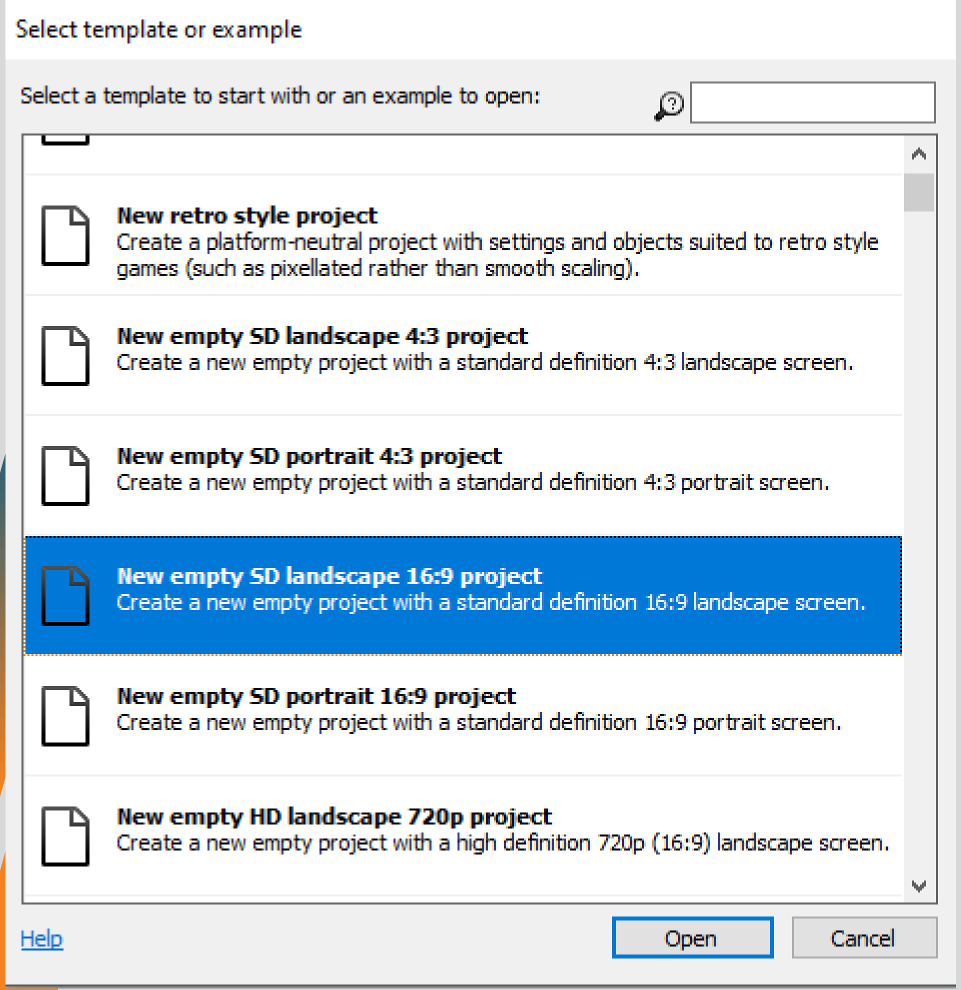


Select template or example

Select a template to start with or an example to open:

New retro style project
Create a platform-neutral project with settings and objects suited to retro style games (such as pixellated rather than smooth scaling).

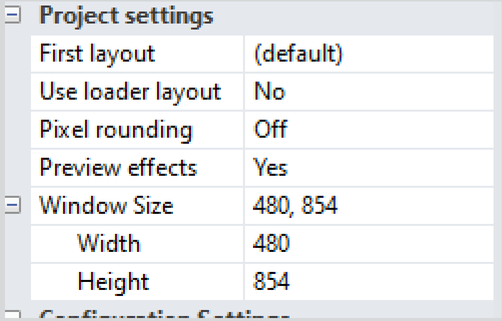
New empty SD landscape 4:3 project
Create a new empty project with a standard definition 4:3 landscape screen.

New empty SD portrait 4:3 project
Create a new empty project with a standard definition 4:3 portrait screen.

New empty SD landscape 16:9 project
Create a new empty project with a standard definition 16:9 landscape screen.

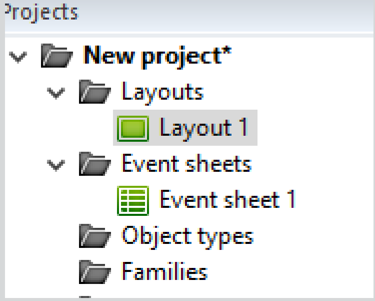
New empty SD portrait 16:9 project
Create a new empty project with a standard definition 16:9 portrait screen.

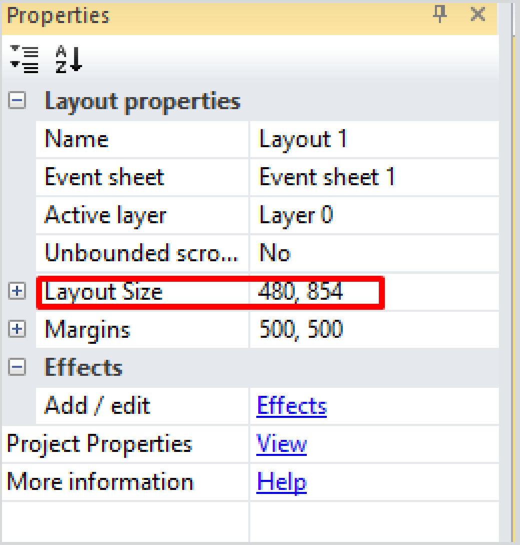
New empty HD landscape 720p project
Create a new empty project with a high definition 720p (16:9) landscape screen.



Project settings

First layout	(default)
Use loader layout	No
Pixel rounding	Off
Preview effects	Yes
Window Size	480, 854
Width	480
Height	854



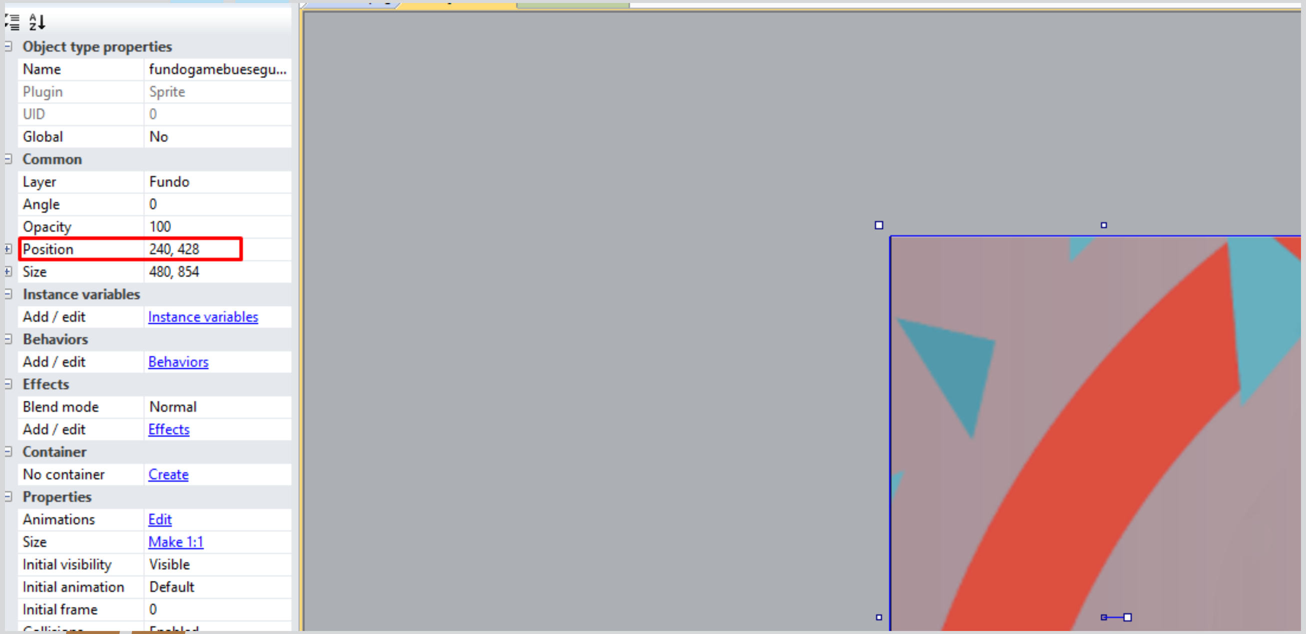


Layout properties

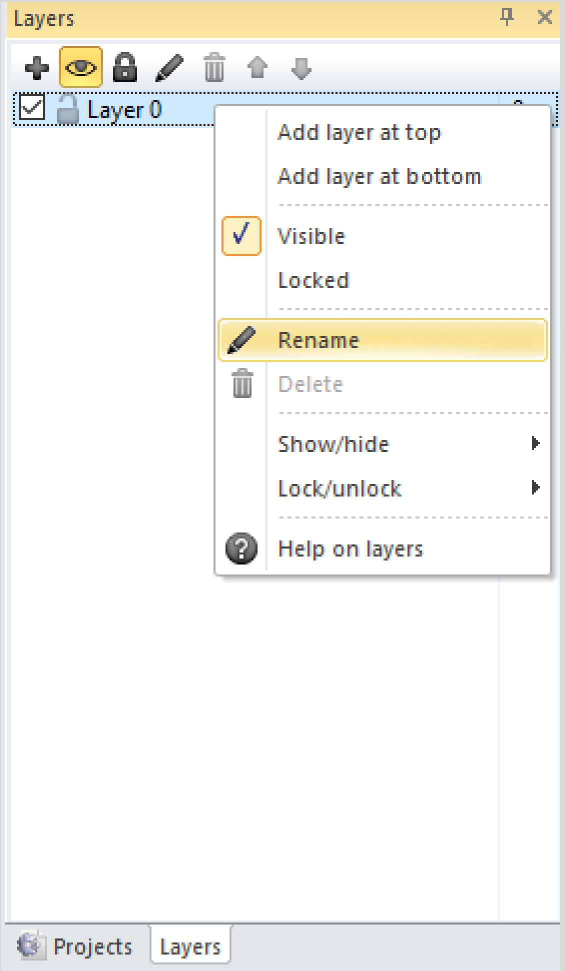
Name	Layout 1
Event sheet	Event sheet 1
Active layer	Layer 0
Unbounded scro...	No
Layout Size	480, 854
Margins	500, 500

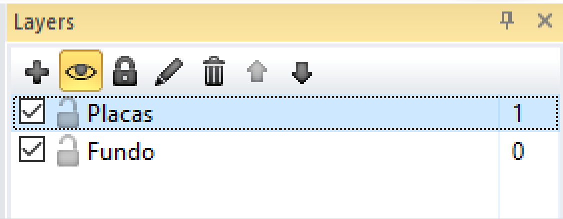
Effects

Add / edit	Effects
Project Properties	View
More information	Help



Object type properties	
Name	fundogamebuesegu...
Plugin	Sprite
UID	0
Global	No
Common	
Layer	Fundo
Angle	0
Opacity	100
Position	240, 428
Size	480, 854
Instance variables	
Add / edit	Instance variables
Behaviors	
Add / edit	Behaviors
Effects	
Blend mode	Normal
Add / edit	Effects
Container	
No container	Create
Properties	
Animations	Edit
Size	Make 1:1
Initial visibility	Visible
Initial animation	Default
Initial frame	0

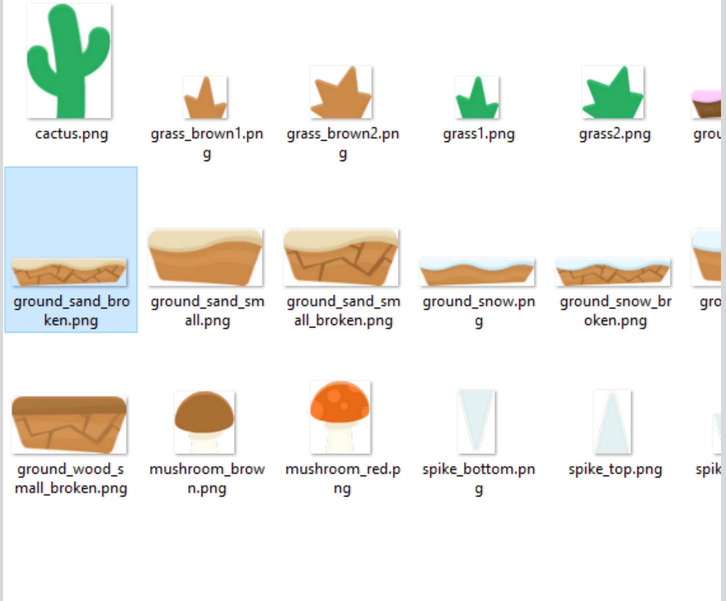

Layers
Layer 0
Add layer at top
Add layer at bottom
Visible
Locked
Rename
Delete
Show/hide
Lock/unlock
Help on layers
Projects
Layers

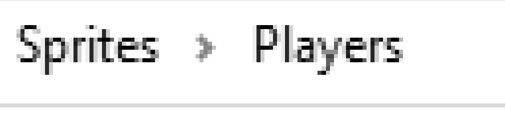


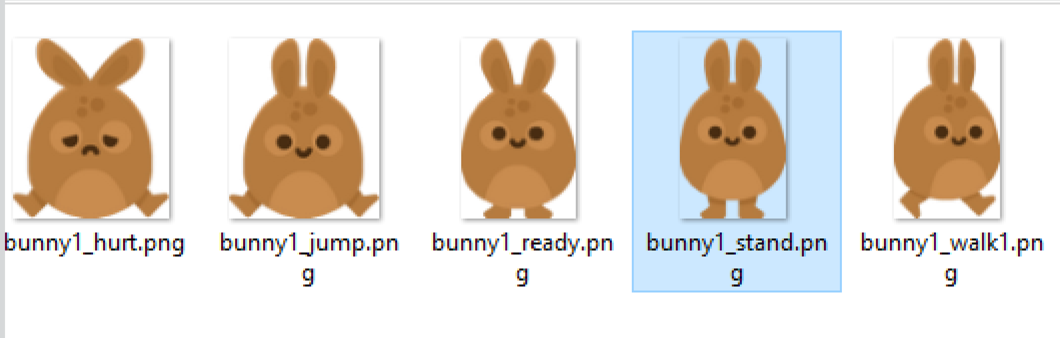
☑ Placas	1
☑ Fundo	0

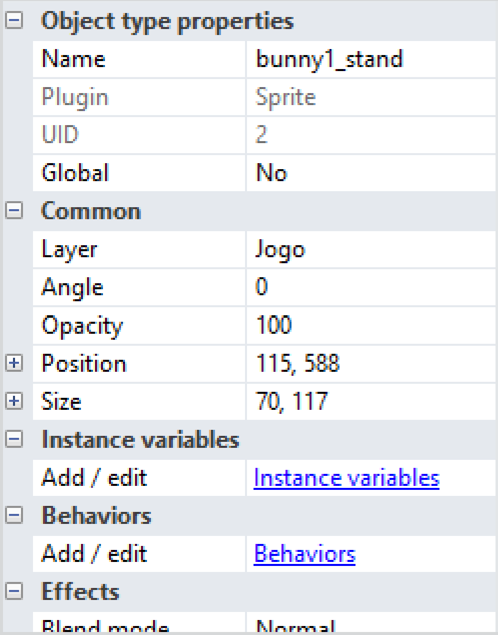
http://www.anpri.pt/course/view.php?id=353

Sprites > Environment

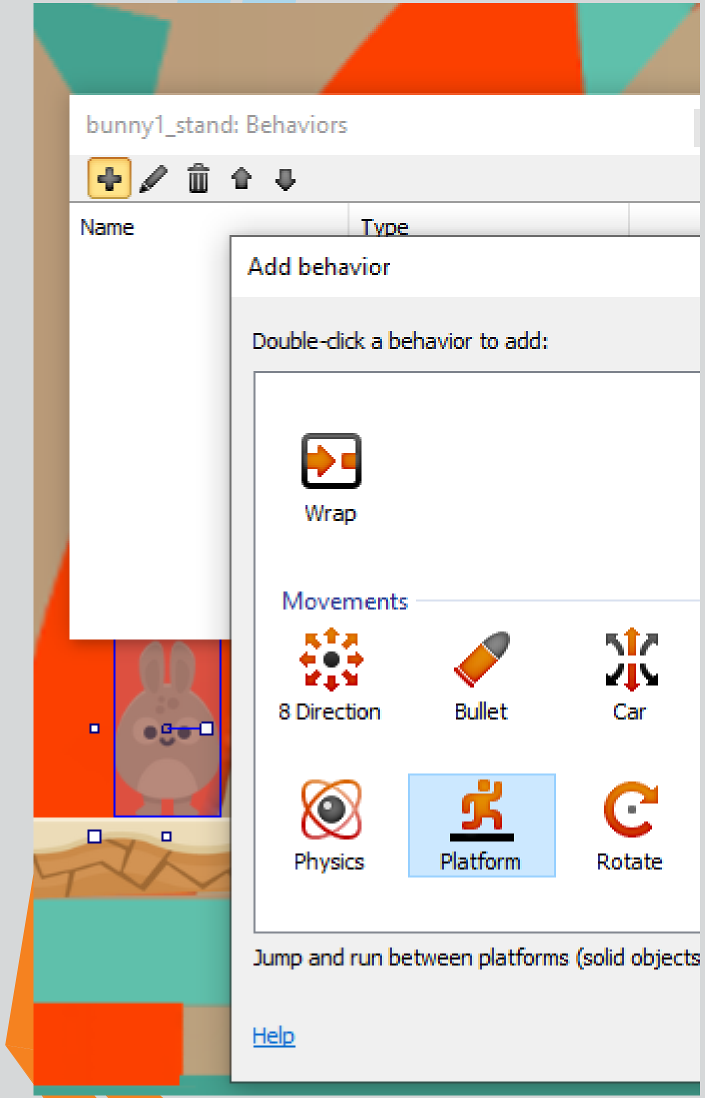

cactus.png
grass_brown1.png
grass_brown2.png
grass1.png
grass2.png
grou
ground_sand_broken.png
ground_sand_small.png
ground_sand_small_broken.png
ground_snow.png
ground_snow_broken.png
gro
ground_wood_small_broken.png
mushroom_brown.png
mushroom_red.png
spike_bottom.png
spike_top.png
spik


Sprites > Players


bunny1_hurt.png
bunny1_jump.png
bunny1_ready.png
bunny1_stand.png
bunny1_walk1.png

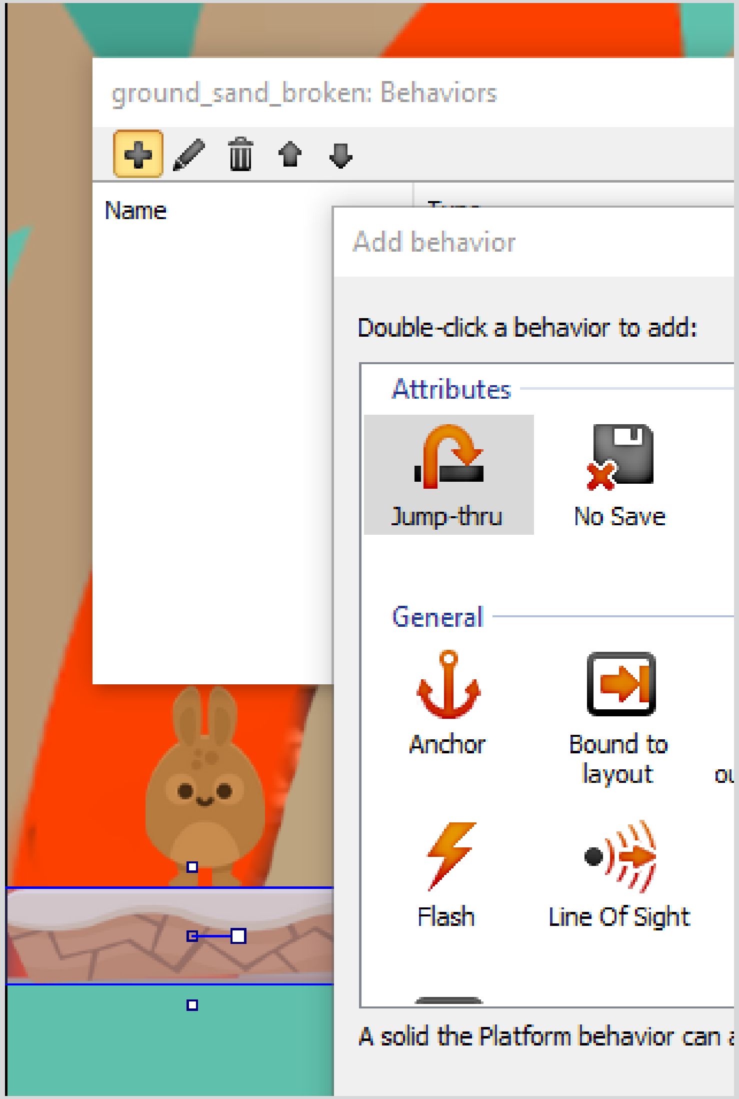


Object type properties	
Name	bunny1_stand
Plugin	Sprite
UID	2
Global	No
Common	
Layer	Jogo
Angle	0
Opacity	100
Position	115, 588
Size	70, 117
Instance variables	
Add / edit	Instance variables
Behaviors	
Add / edit	Behaviors
Effects	
Blend mode	Normal


bunny1_stand: Behaviors
Name
Type
Add behavior
Wrap
Movements
8 Direction
Bullet
Car
Physics
Platform
Rotate
Help

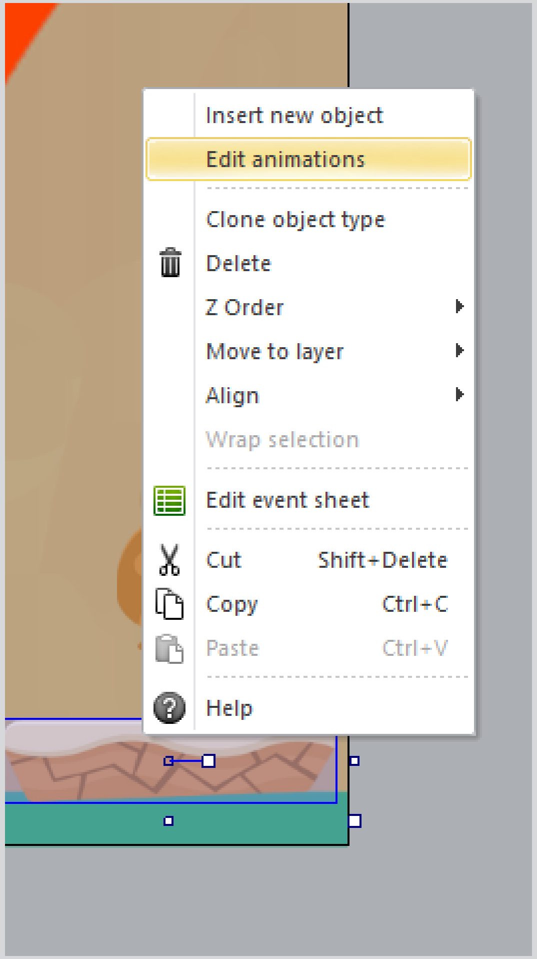
Double-click a behavior to add:

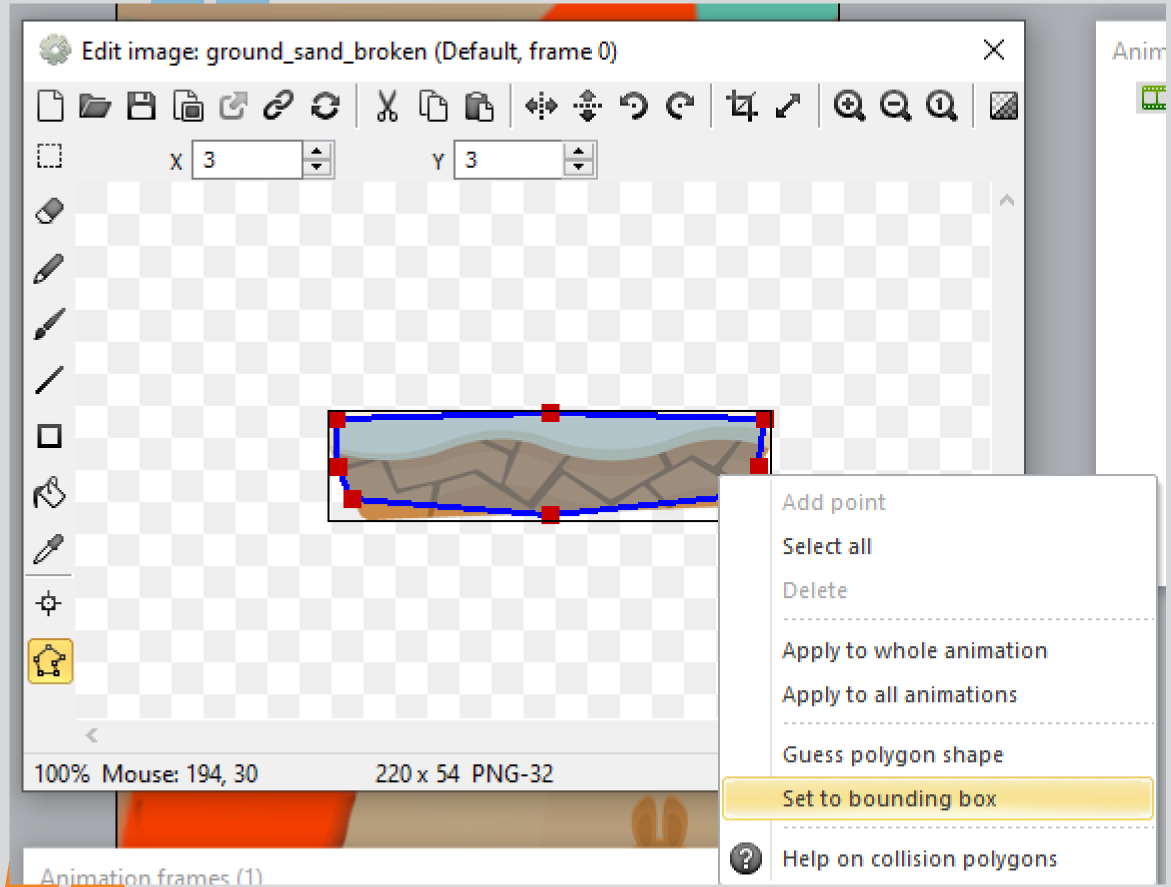
Jump and run between platforms (solid objects


ground_sand_broken: Behaviors
Name
Add behavior
Attributes
Jump-thru
No Save
General
Anchor
Bound to layout
Flash
Line Of Sight

Double-click a behavior to add:

A solid the Platform behavior can a


Insert new object
Edit animations
Clone object type
Delete
Z Order
Move to layer
Align
Wrap selection
Edit event sheet
Cut Shift+Delete
Copy Ctrl+C
Paste Ctrl+V
Help



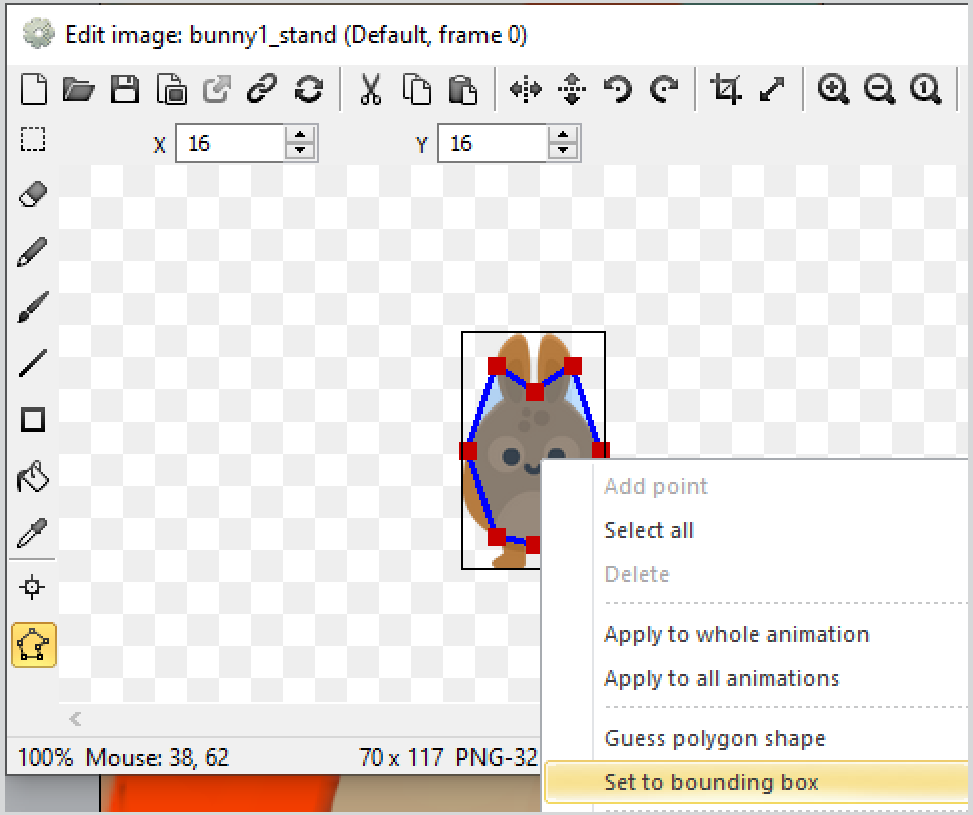
Edit image: ground_sand_broken (Default, frame 0)

X 3

Y 3

100% Mouse: 194, 30 220 x 54 PNG-32

Add point
Select all
Delete
Apply to whole animation
Apply to all animations
Guess polygon shape
Set to bounding box
Help on collision polygons
Anim
Animation frames (1)



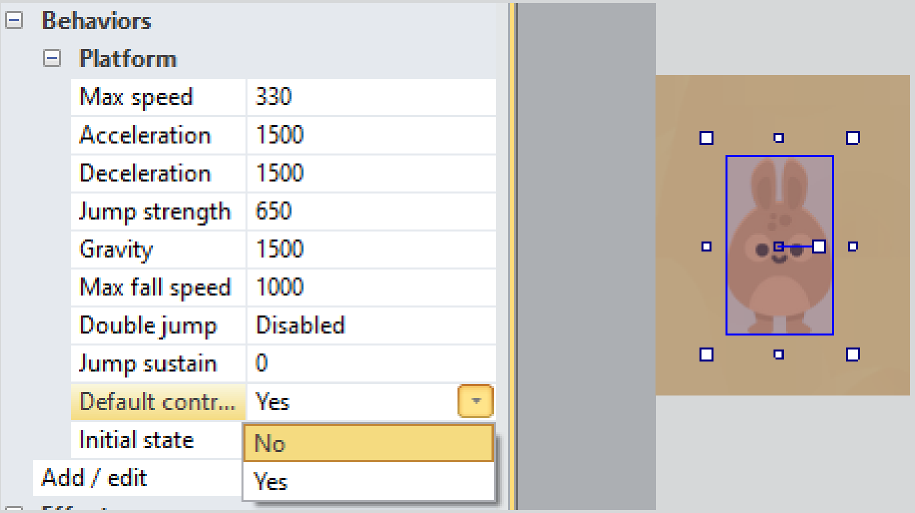
Edit image: bunny1_stand (Default, frame 0)

X 16

Y 16

100% Mouse: 38, 62 70 x 117 PNG-32

Add point
Select all
Delete
Apply to whole animation
Apply to all animations
Guess polygon shape
Set to bounding box

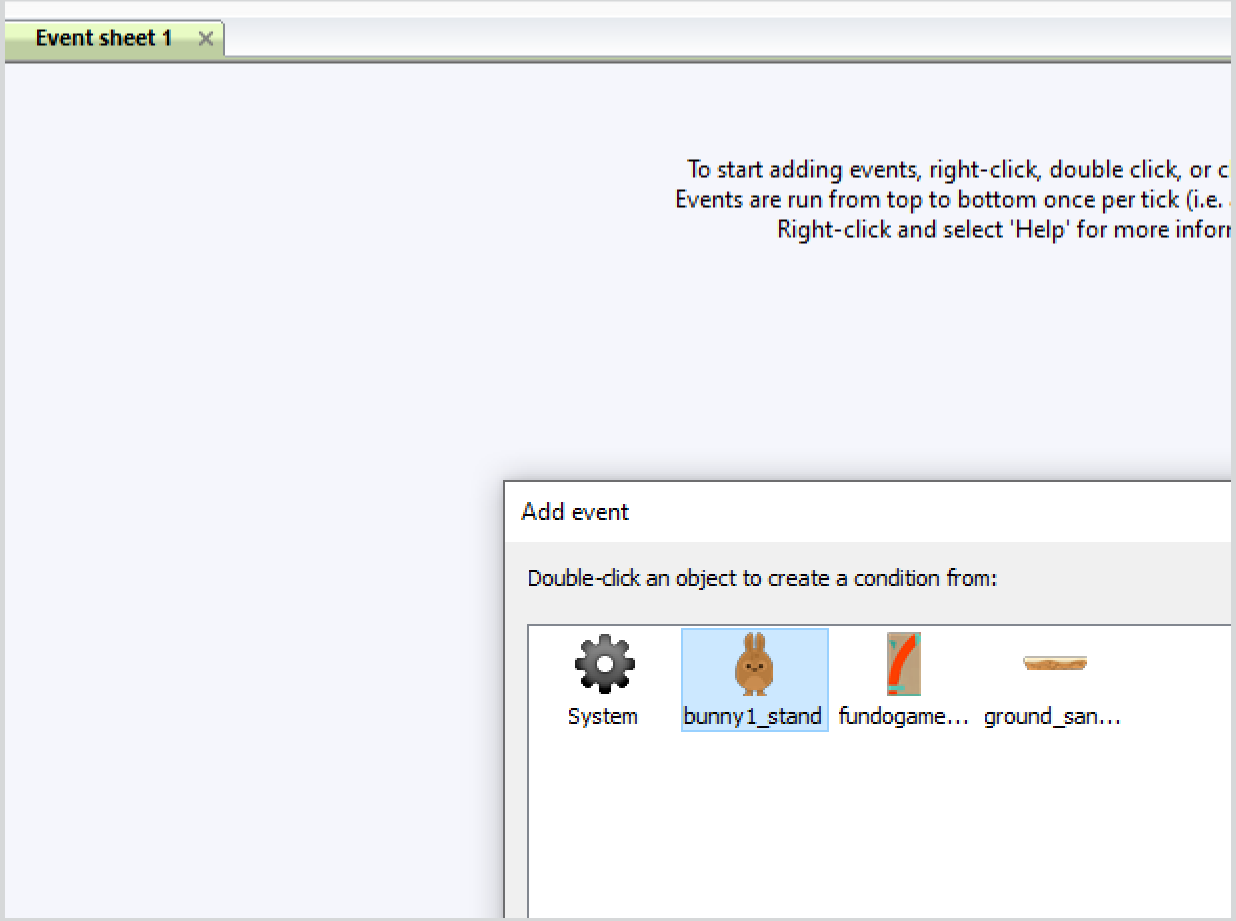


Behaviors

Platform

Max speed	330
Acceleration	1500
Deceleration	1500
Jump strength	650
Gravity	1500
Max fall speed	1000
Double jump	Disabled
Jump sustain	0
Default contr...	Yes
Initial state	

No
Yes
Add / edit



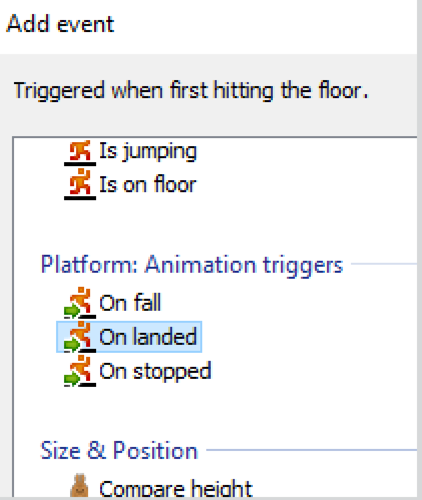
Event sheet 1

To start adding events, right-click, double click, or c
Events are run from top to bottom once per tick (i.e.
Right-click and select 'Help' for more infor

Add event

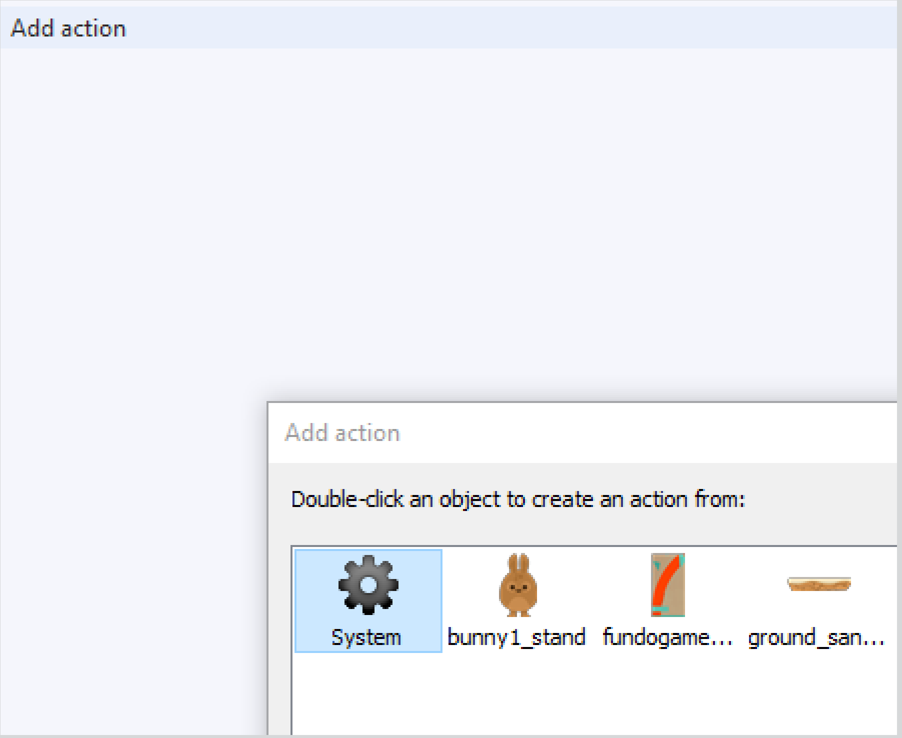
Double-click an object to create a condition from:

System
bunny1_stand
fundogame...
ground_san...


Add event

Triggered when first hitting the floor.

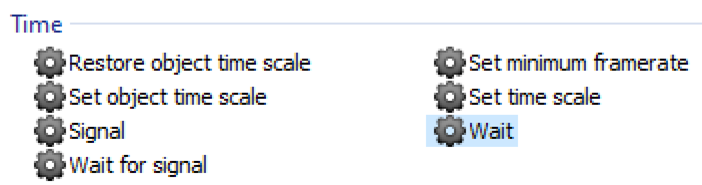
Is jumping
Is on floor
Platform: Animation triggers
On fall
On landed
On stopped
Size & Position
Compare height

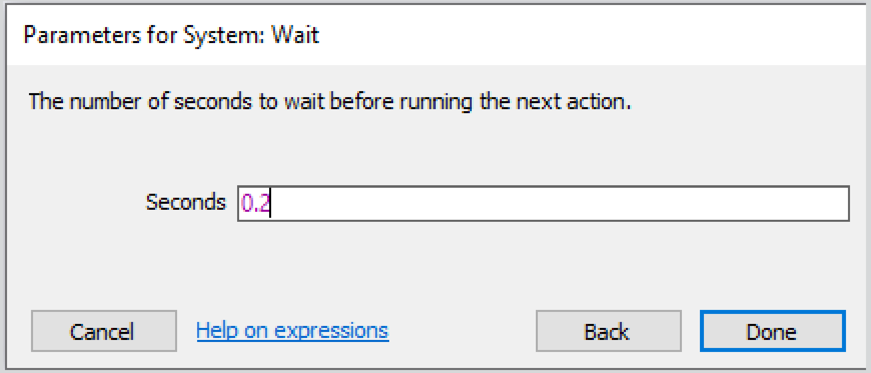

Add action

Add action

Double-click an object to create an action from:

System
bunny1_stand
fundogame…
ground_san…

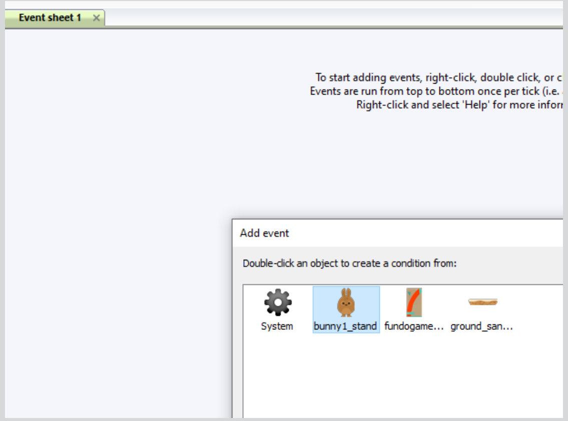

Time
Restore object time scale
Set object time scale
Signal
Wait for signal
Set minimum framerate
Set time scale
Wait


Parameters for System: Wait

The number of seconds to wait before running the next action.

Seconds 0.2

Cancel
Help on expressions
Back
Done



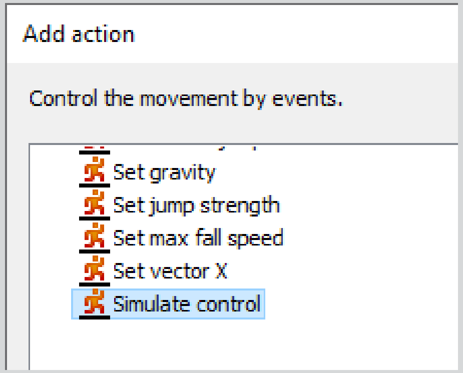
Event sheet 1

To start adding events, right-click, double click, or c
Events are run from top to bottom once per tick (i.e.
Right-click and select 'Help' for more infor

Add event

Double-click an object to create a condition from:

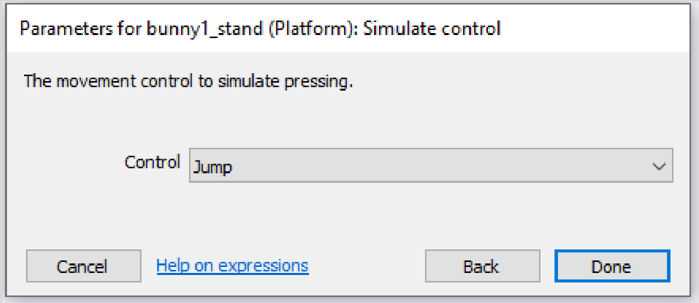
System
bunny1_stand
fundogame…
ground_san…



Add action

Control the movement by events.

Set gravity
Set jump strength
Set max fall speed
Set vector X
Simulate control

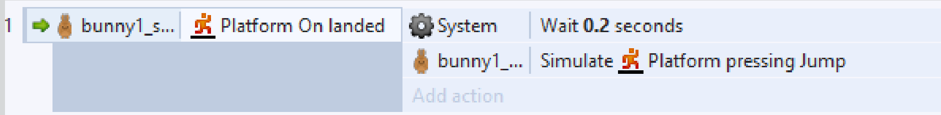


Parameters for bunny1_stand (Platform): Simulate control

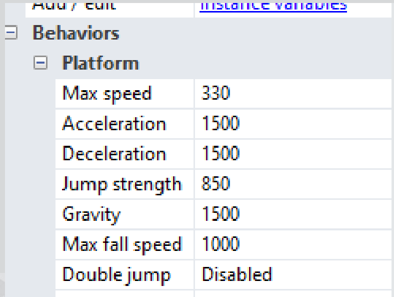
The movement control to simulate pressing.

Control: Jump

Cancel
Help on expressions
Back
Done



1 bunny1_s… Platform On landed | System Wait **0.2** seconds
bunny1_… Simulate Platform pressing Jump
Add action

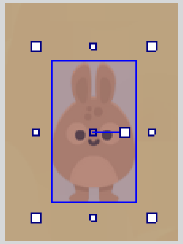


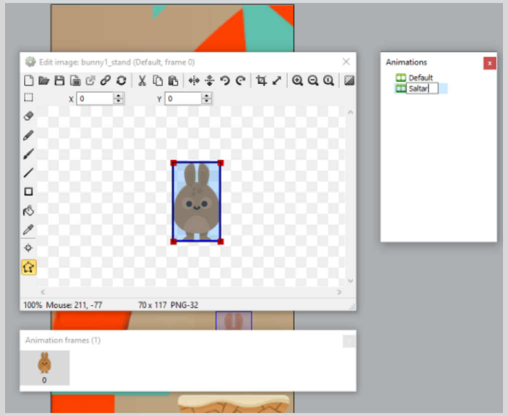
Add / edit Instance variables

Behaviors

Platform

Max speed	330
Acceleration	1500
Deceleration	1500
Jump strength	850
Gravity	1500
Max fall speed	1000
Double jump	Disabled
Jump sustain	0





Edit image: bunny1_stand (Default, frame 0)

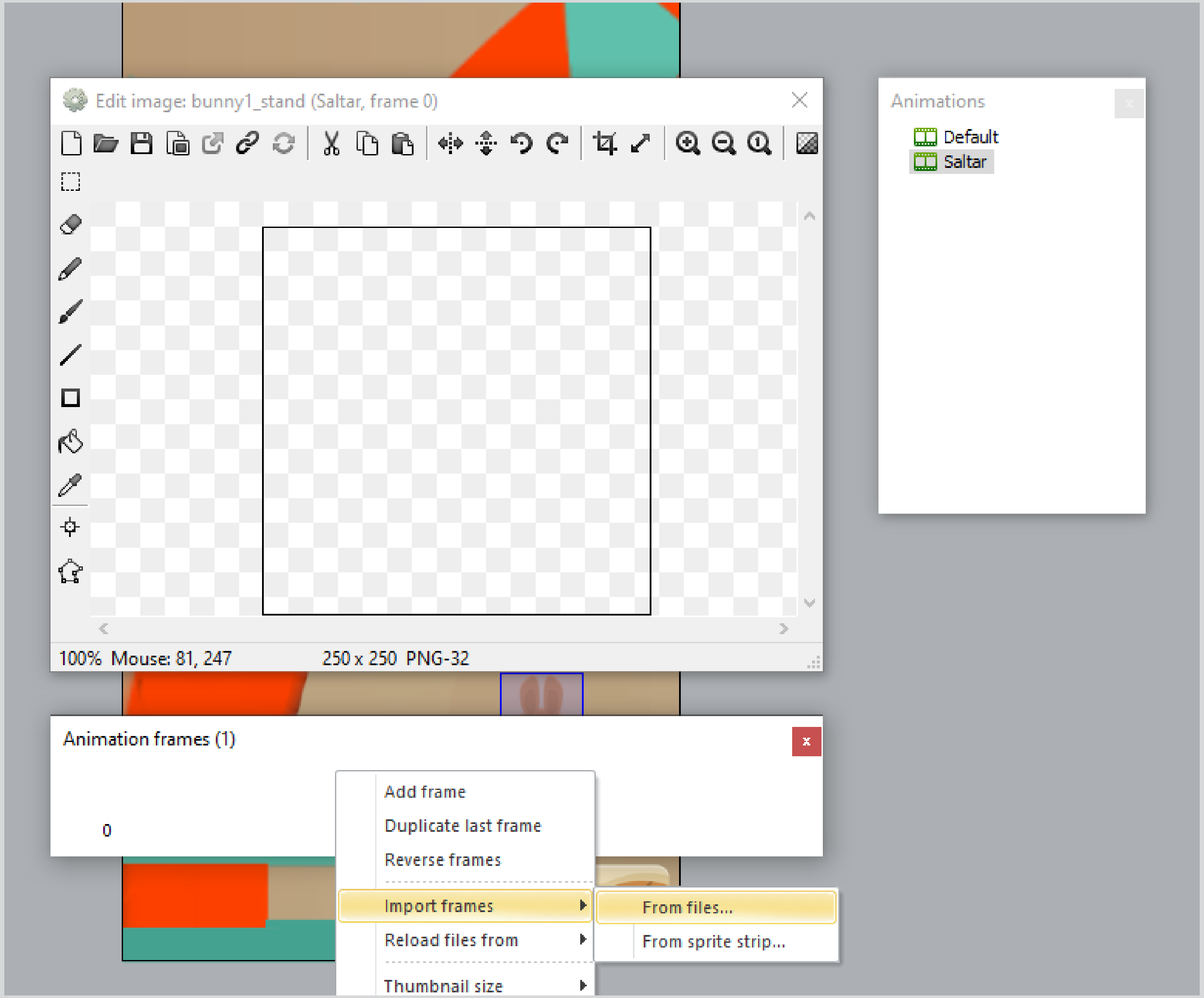
X 0 Y 0

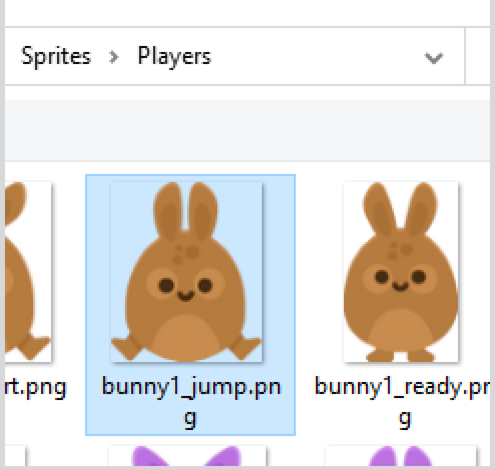
100% Mouse: 211, -77 70 x 117 PNG-32

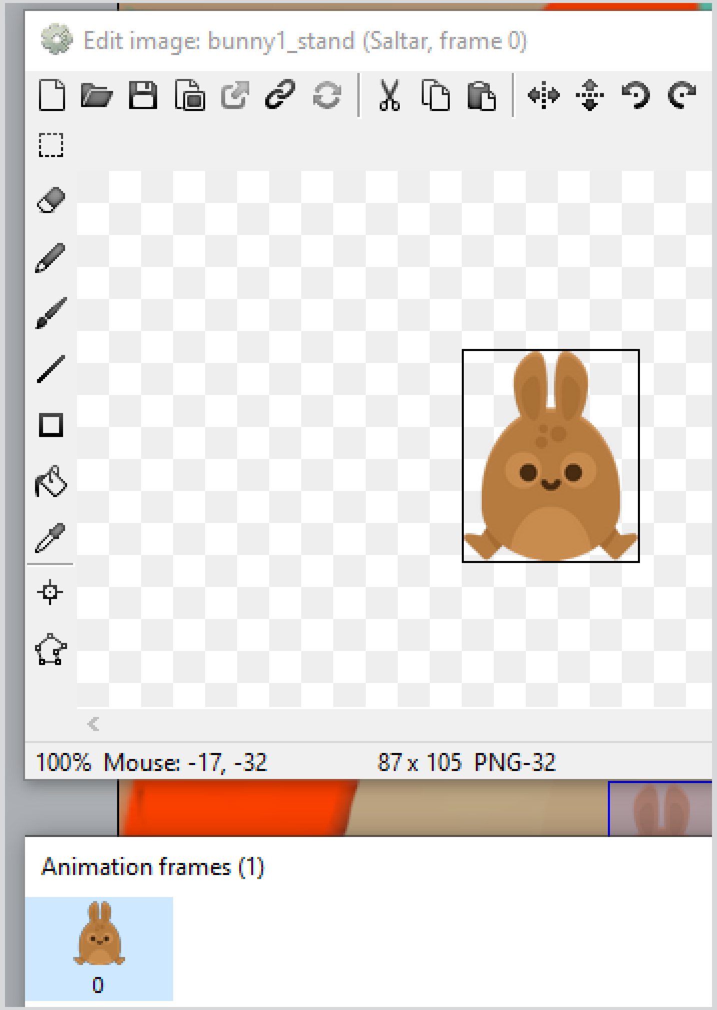
Animations

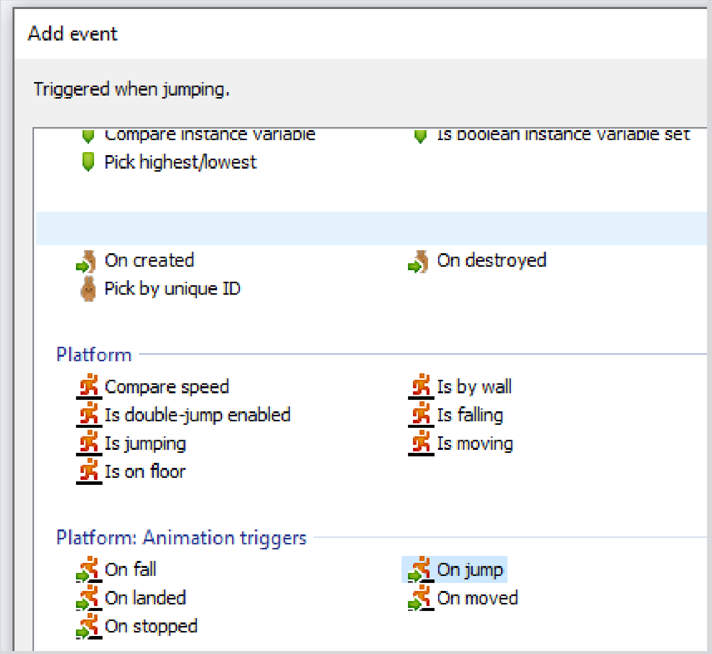
Default
Saltar

Animation frames (1)


Edit image: bunny1_stand (Saltar, frame 0)
100% Mouse: 81, 247
250 x 250 PNG-32
Animations
Default
Saltar
Animation frames (1)
0
Add frame
Duplicate last frame
Reverse frames
Import frames
From files...
From sprite strip...
Reload files from
Thumbnail size

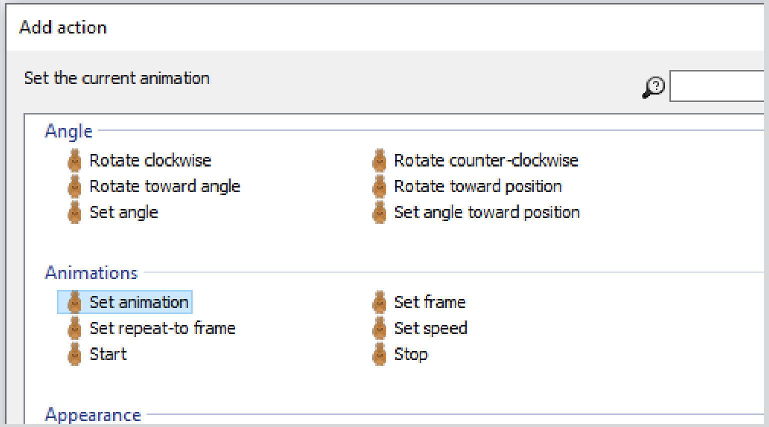

Sprites › Players
rt.png
bunny1_jump.png
bunny1_ready.pn
g


Edit image: bunny1_stand (Saltar, frame 0)
100% Mouse: -17, -32
87 x 105 PNG-32
Animation frames (1)
0


Add event

Triggered when jumping.

Compare instance variable
Is boolean instance variable set
Pick highest/lowest
On created
On destroyed
Pick by unique ID
Platform
Compare speed
Is by wall
Is double-jump enabled
Is falling
Is jumping
Is moving
Is on floor
Platform: Animation triggers
On fall
On jump
On landed
On moved
On stopped



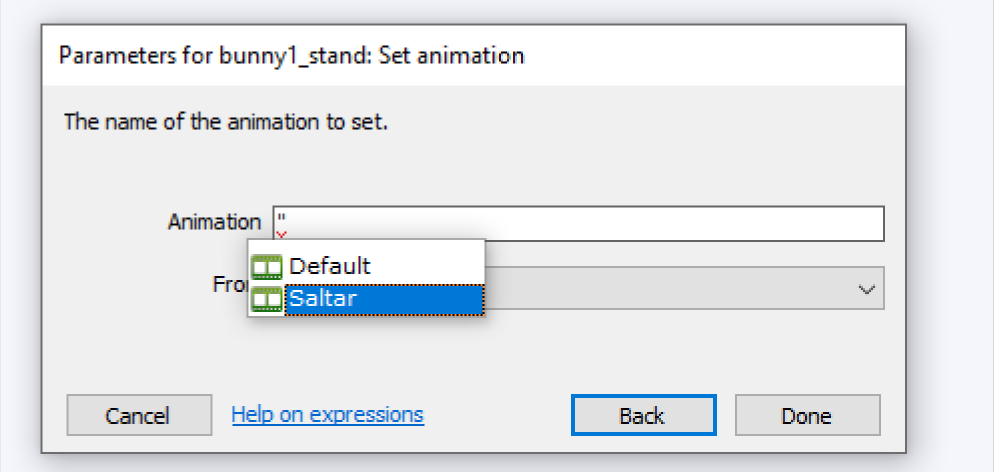
Add action

Set the current animation

Angle
- Rotate clockwise
- Rotate toward angle
- Set angle
- Rotate counter-clockwise
- Rotate toward position
- Set angle toward position

Animations
- Set animation
- Set repeat-to frame
- Start
- Set frame
- Set speed
- Stop

Appearance

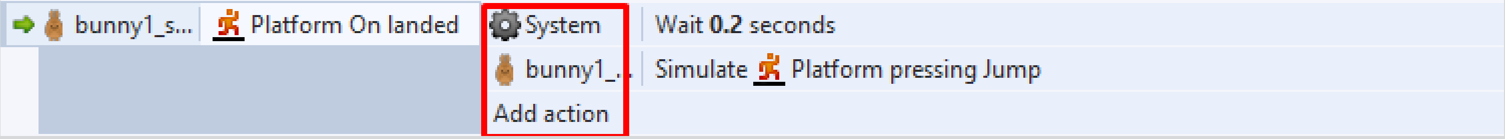


Parameters for bunny1_stand: Set animation

The name of the animation to set.

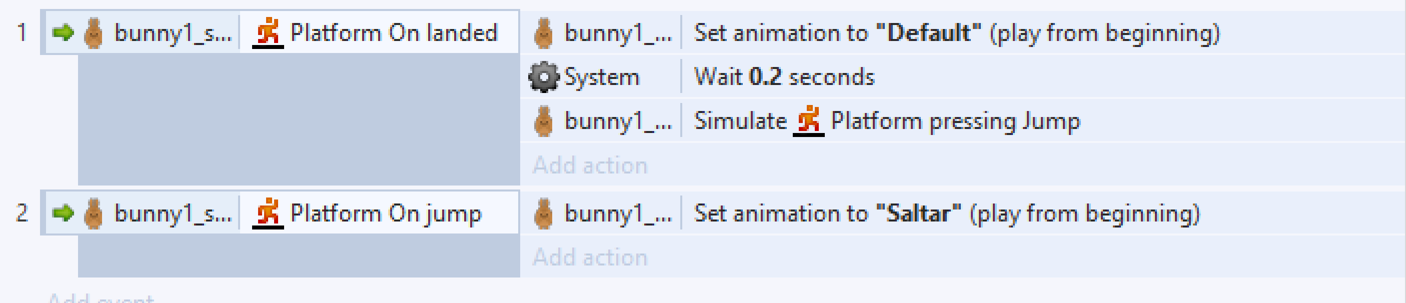
Animation: "

Fro



bunny1_s... | Platform On landed | System | Wait **0.2** seconds
bunny1_... | Simulate Platform pressing Jump

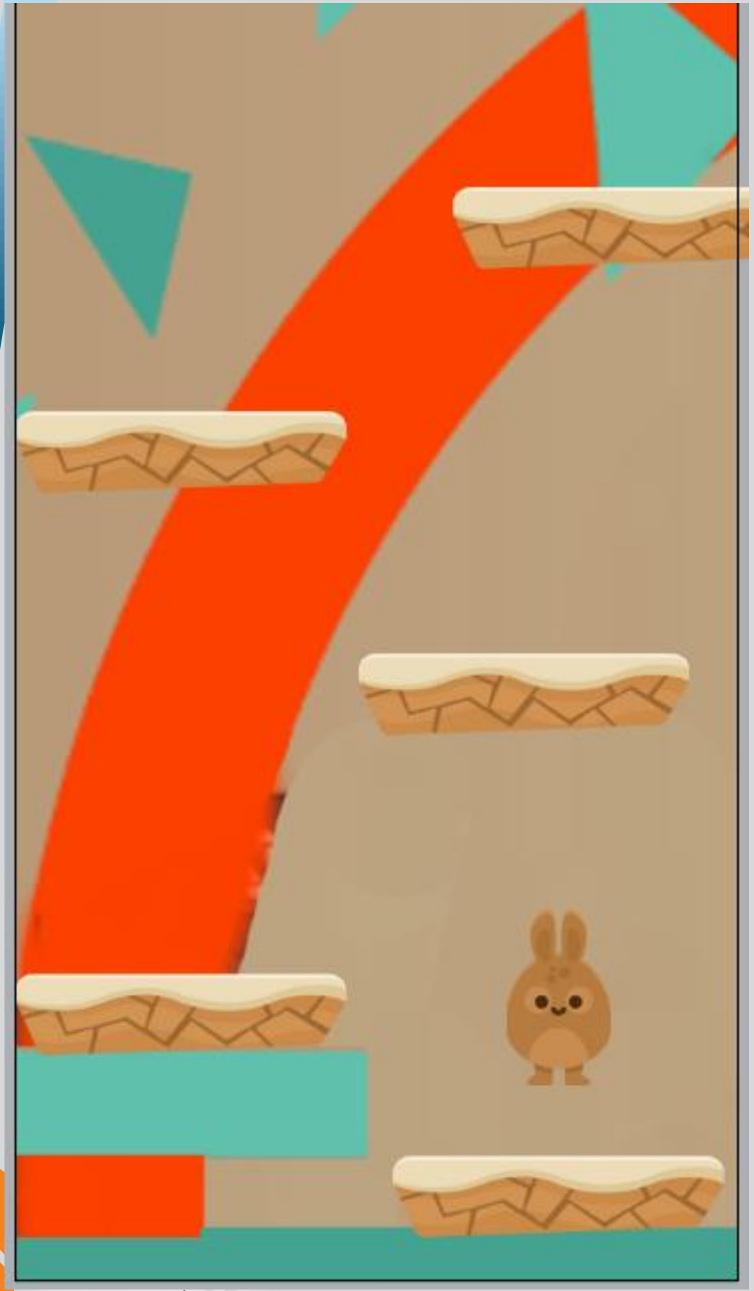
Add action

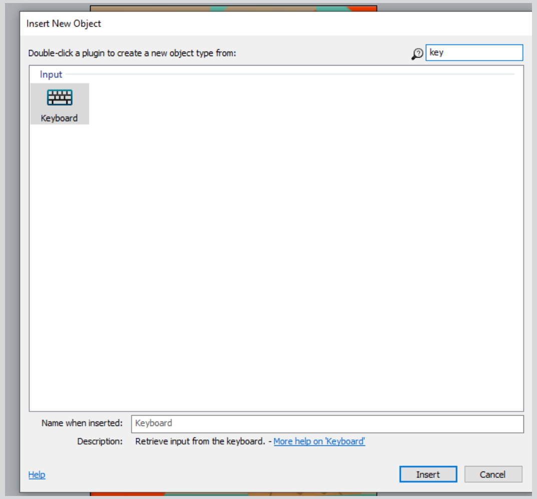


1 bunny1_s... Platform On landed
- bunny1_... Set animation to **"Default"** (play from beginning)
- System Wait **0.2** seconds
- bunny1_... Simulate Platform pressing Jump
- Add action

2 bunny1_s... Platform On jump
- bunny1_... Set animation to **"Saltar"** (play from beginning)
- Add action

Add event





Insert New Object

Double-click a plugin to create a new object type from: key

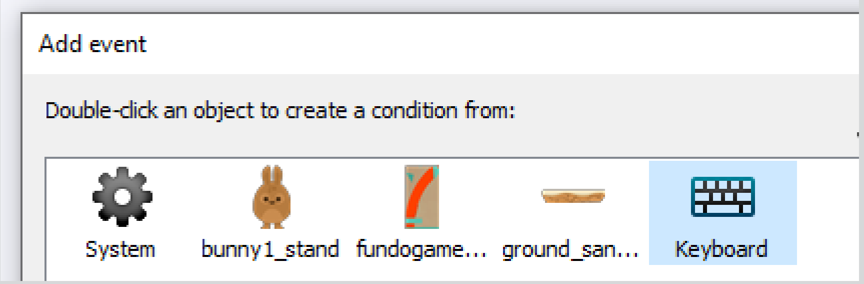
Input

Keyboard

Name when inserted: Keyboard

Description: Retrieve input from the keyboard. - More help on 'Keyboard'

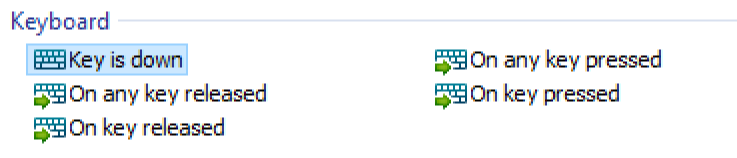
Help
Insert
Cancel



Add event

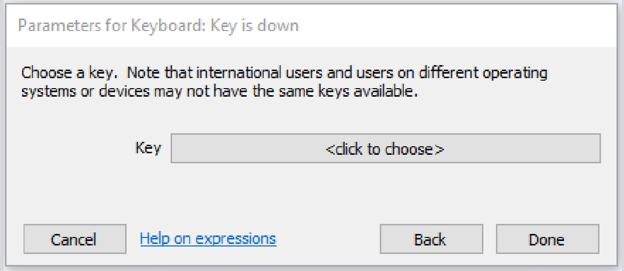
Double-click an object to create a condition from:

System
bunny1_stand
fundogame…
ground_san…
Keyboard



Keyboard

Key is down
On any key released
On key released
On any key pressed
On key pressed

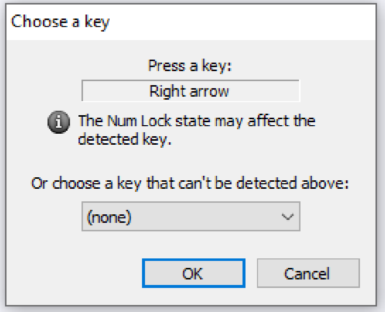


Parameters for Keyboard: Key is down

Choose a key. Note that international users and users on different operating systems or devices may not have the same keys available.

Key <click to choose>

Cancel
Help on expressions
Back
Done

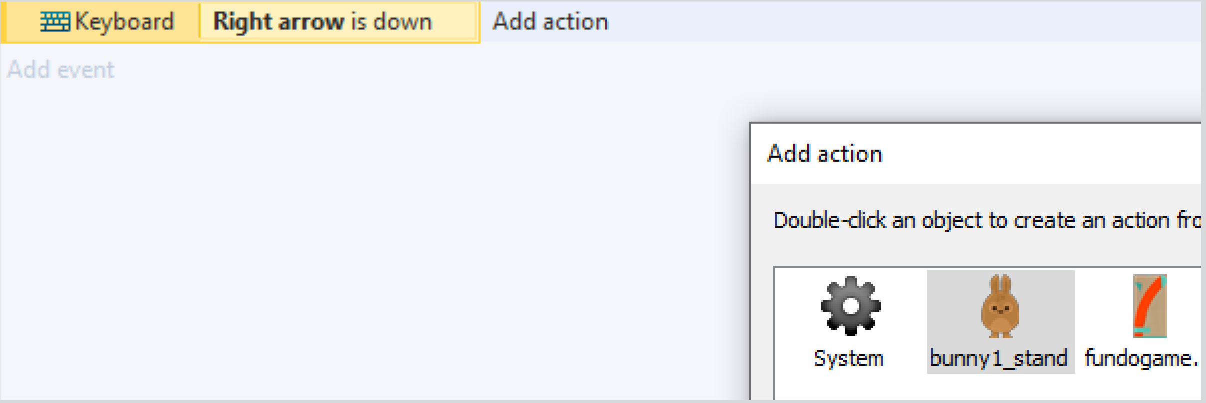


Choose a key

Press a key: Right arrow

The Num Lock state may affect the detected key.

Or choose a key that can't be detected above: (none)

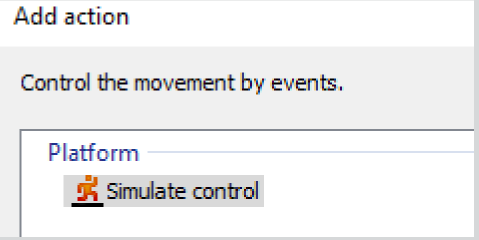

Keyboard | **Right arrow** is down | Add action

Add event

Add action

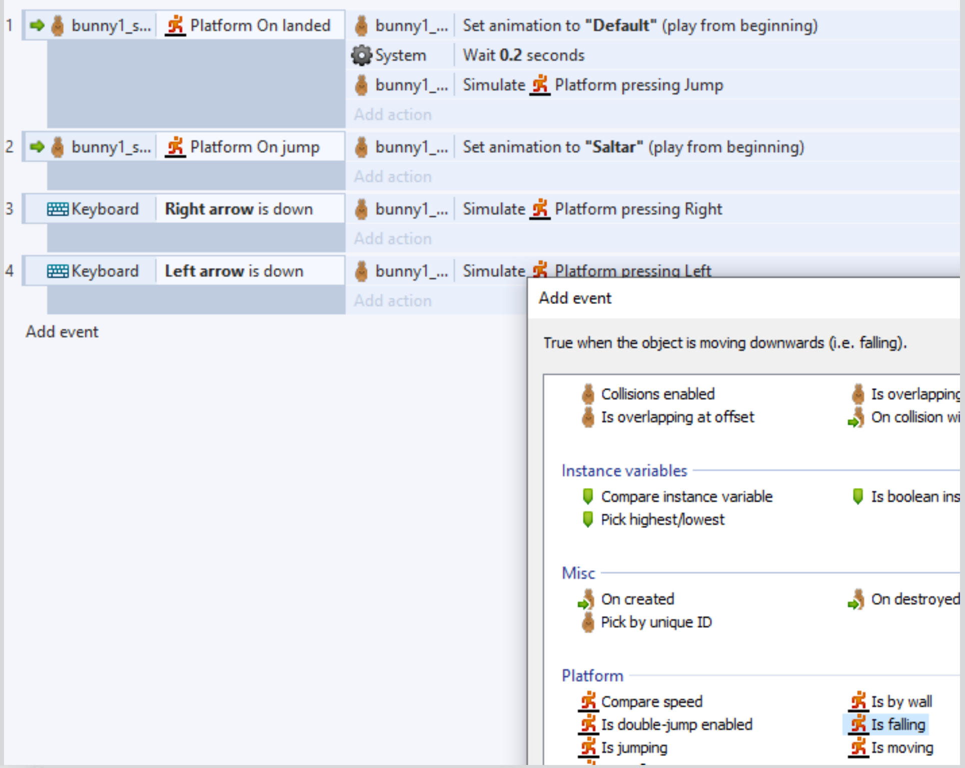
Double-click an object to create an action fro

System
bunny1_stand
fundogame.


Add action

Control the movement by events.

Platform
Simulate control


1 bunny1_s... Platform On landed | bunny1_... Set animation to **"Default"** (play from beginning)
System Wait **0.2** seconds
bunny1_... Simulate Platform pressing Jump
Add action

2 bunny1_s... Platform On jump | bunny1_... Set animation to **"Saltar"** (play from beginning)
Add action

3 Keyboard **Right arrow** is down | bunny1_... Simulate Platform pressing Right
Add action

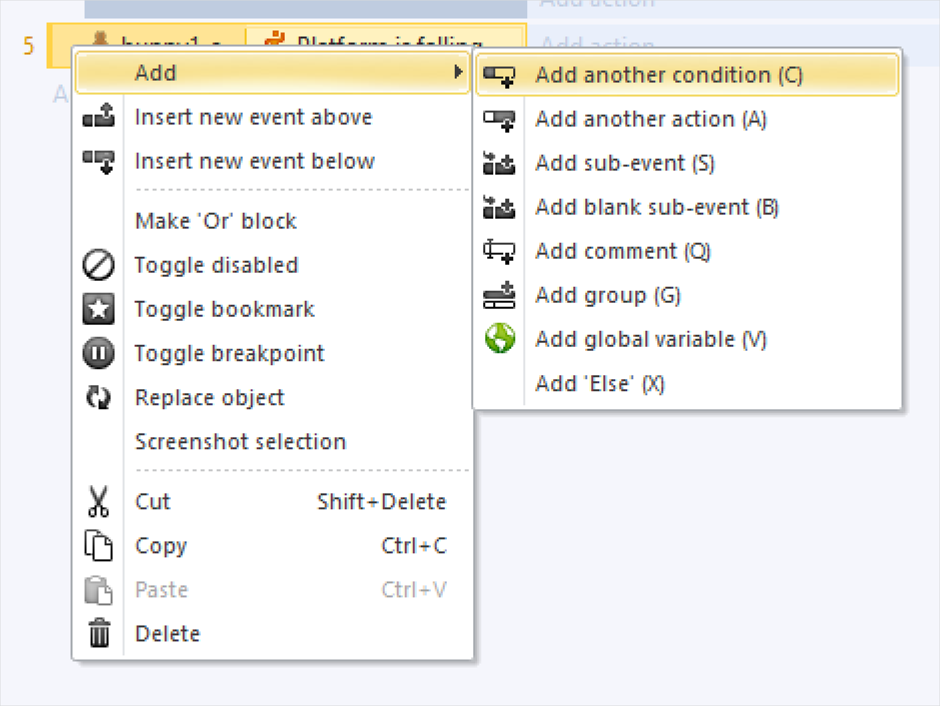
4 Keyboard **Left arrow** is down | bunny1_... Simulate Platform pressing Left
Add action

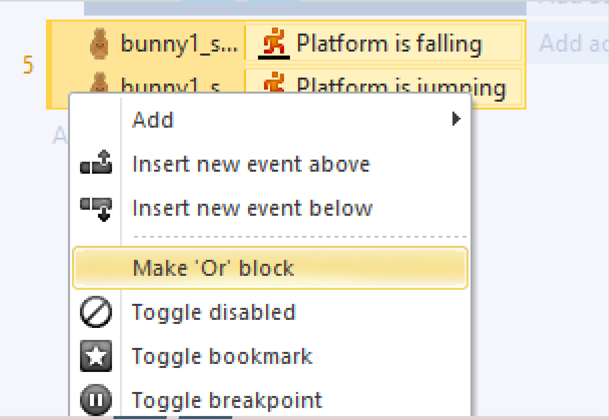
Add event

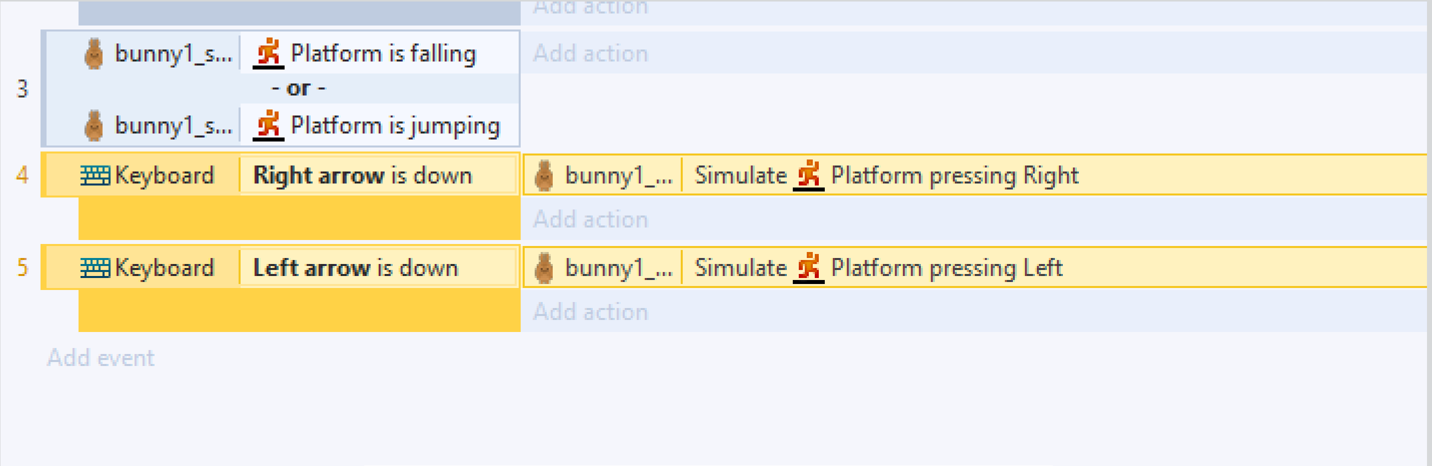
Add event

True when the object is moving downwards (i.e. falling).

Collisions enabled
Is overlapping at offset
Is overlapping
On collision wi
Instance variables
Compare instance variable
Pick highest/lowest
Is boolean ins
Misc
On created
Pick by unique ID
On destroyed
Platform
Compare speed
Is double-jump enabled
Is jumping
Is by wall
Is falling
Is moving


5
Add
Insert new event above
Insert new event below
Make 'Or' block
Toggle disabled
Toggle bookmark
Toggle breakpoint
Replace object
Screenshot selection
Cut Shift+Delete
Copy Ctrl+C
Paste Ctrl+V
Delete
Add another condition (C)
Add another action (A)
Add sub-event (S)
Add blank sub-event (B)
Add comment (Q)
Add group (G)
Add global variable (V)
Add 'Else' (X)


5
bunny1_s... Platform is falling
bunny1_s... Platform is jumping
Add
Insert new event above
Insert new event below
Make 'Or' block
Toggle disabled
Toggle bookmark
Toggle breakpoint

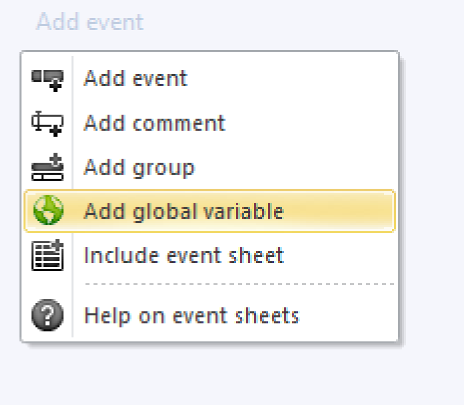


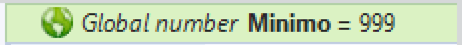
3 bunny1_s... Platform is falling
- or -
bunny1_s... Platform is jumping
Add action

4 Keyboard **Right arrow** is down | bunny1_... Simulate Platform pressing Right
Add action

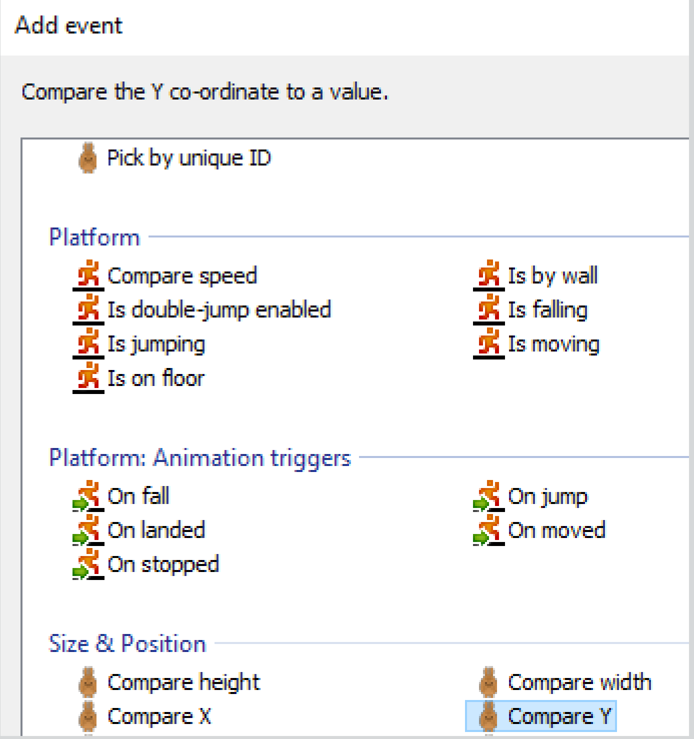
5 Keyboard **Left arrow** is down | bunny1_... Simulate Platform pressing Left
Add action

Add event


Add event
Add event
Add comment
Add group
Add global variable
Include event sheet
Help on event sheets



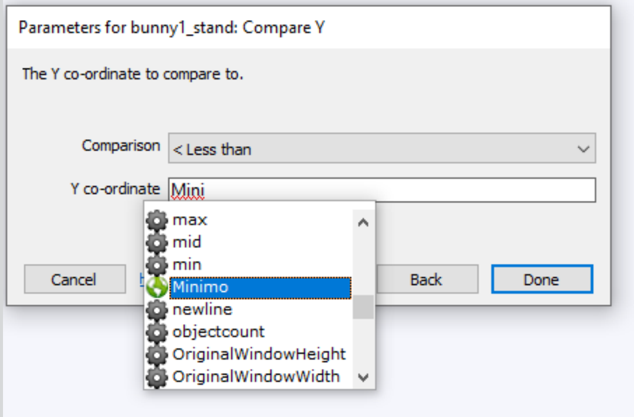
Global number **Minimo** = 999



Add event

Compare the Y co-ordinate to a value.

Pick by unique ID
Platform
Compare speed
Is double-jump enabled
Is jumping
Is on floor
Is by wall
Is falling
Is moving
Platform: Animation triggers
On fall
On landed
On stopped
On jump
On moved
Size & Position
Compare height
Compare X
Compare width
Compare Y



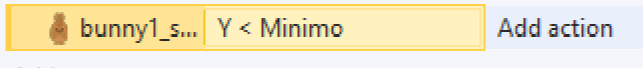
Parameters for bunny1_stand: Compare Y

The Y co-ordinate to compare to.

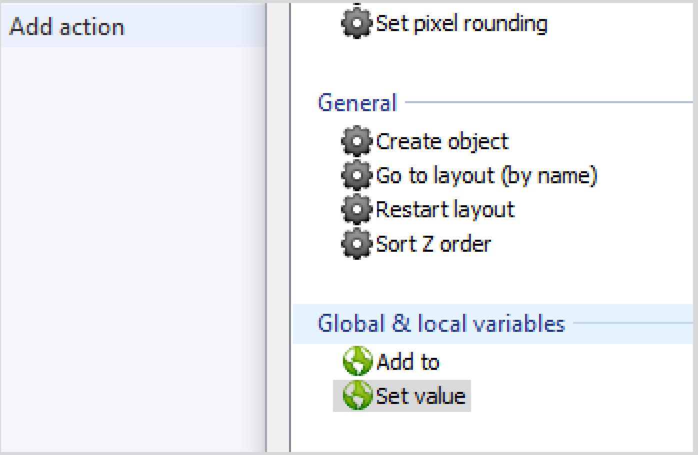
Comparison: < Less than

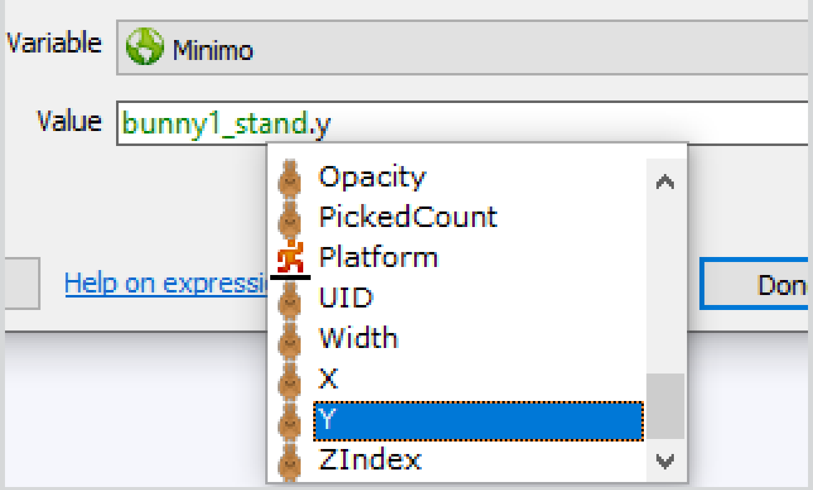
Y co-ordinate: Mini

max
mid
min
Minimo
newline
objectcount
OriginalWindowHeight
OriginalWindowWidth
Cancel
Back
Done

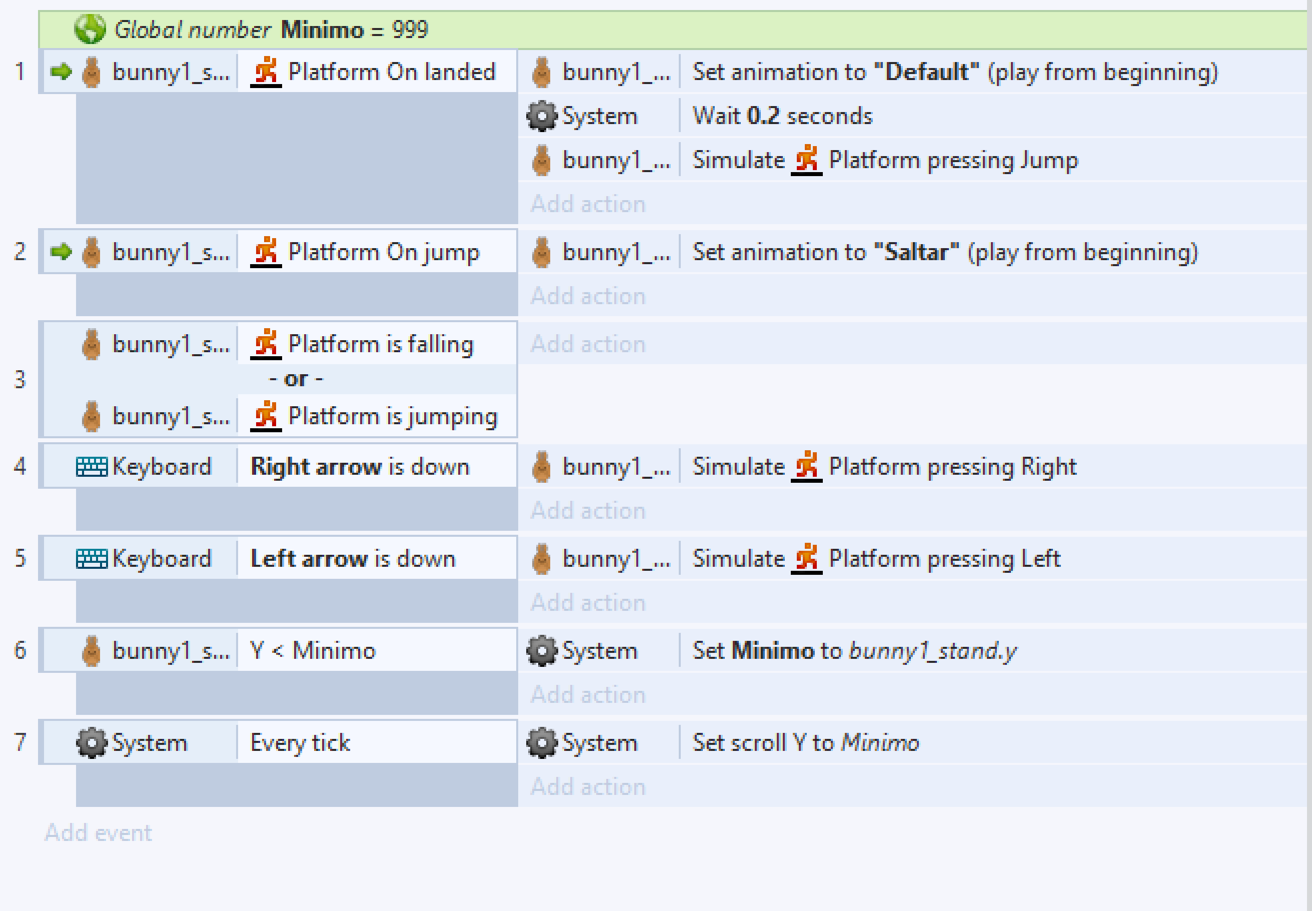


bunny1_s... Y < Minimo | Add action


Add action
Set pixel rounding
General
Create object
Go to layout (by name)
Restart layout
Sort Z order
Global & local variables
Add to
Set value

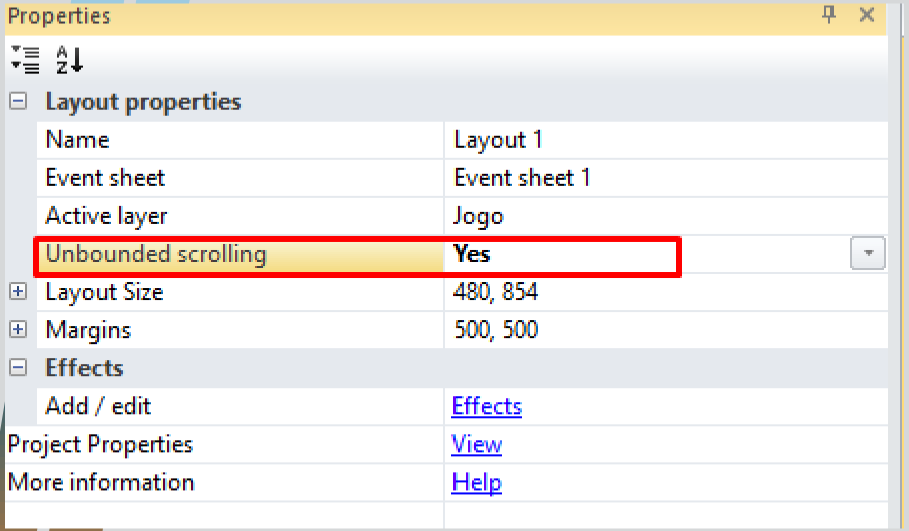

Variable: Minimo

Value: bunny1_stand.y
Opacity
PickedCount
Platform
UID
Width
X
Y
ZIndex
Help on expressi
Don


Global number **Minimo** = 999

	Object	Condition	Object	Action
1	bunny1_s...	Platform On landed	bunny1_...	Set animation to **"Default"** (play from beginning)
			System	Wait **0.2** seconds
			bunny1_...	Simulate Platform pressing Jump
				Add action
2	bunny1_s...	Platform On jump	bunny1_...	Set animation to **"Saltar"** (play from beginning)
				Add action
3	bunny1_s...	Platform is falling		Add action
		- or -		
	bunny1_s...	Platform is jumping		
4	Keyboard	**Right arrow** is down	bunny1_...	Simulate Platform pressing Right
				Add action
5	Keyboard	**Left arrow** is down	bunny1_...	Simulate Platform pressing Left
				Add action
6	bunny1_s...	Y < Minimo	System	Set **Minimo** to *bunny1_stand.y*
				Add action
7	System	Every tick	System	Set scroll Y to *Minimo*
				Add action

Add event

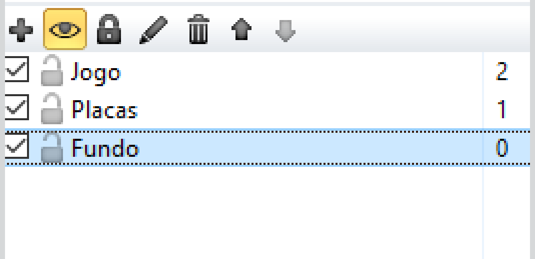


Layout properties

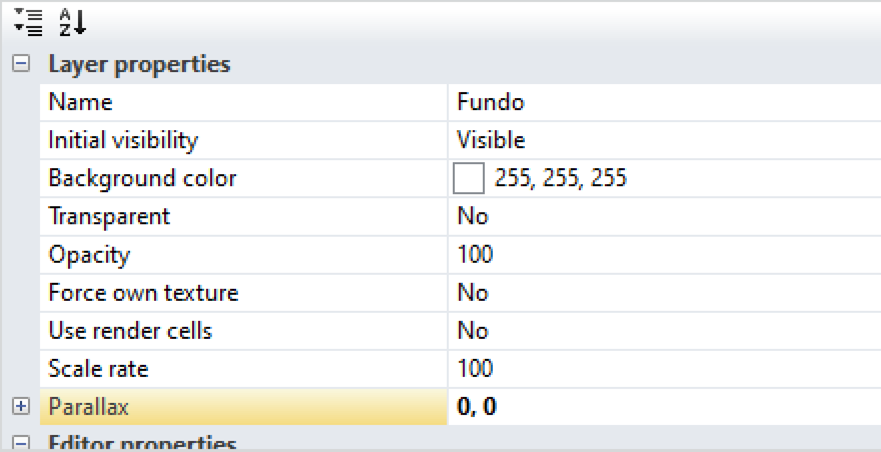
Name	Layout 1
Event sheet	Event sheet 1
Active layer	Jogo
Unbounded scrolling	**Yes**
Layout Size	480, 854
Margins	500, 500

Effects

Add / edit	Effects
Project Properties	View
More information	Help



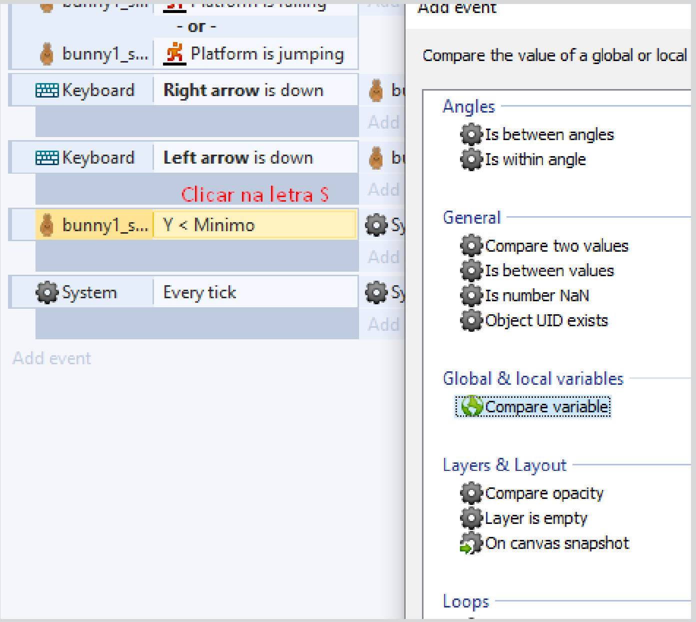
☑	Jogo	2
☑	Placas	1
☑	Fundo	0



Layer properties

Name	Fundo
Initial visibility	Visible
Background color	255, 255, 255
Transparent	No
Opacity	100
Force own texture	No
Use render cells	No
Scale rate	100
Parallax	**0, 0**

Editor properties



	- or -
bunny1_s...	Platform is jumping
Keyboard	**Right arrow** is down
Keyboard	**Left arrow** is down
bunny1_s...	Y < Minimo
System	Every tick

Clicar na letra S

Add event

Compare the value of a global or local

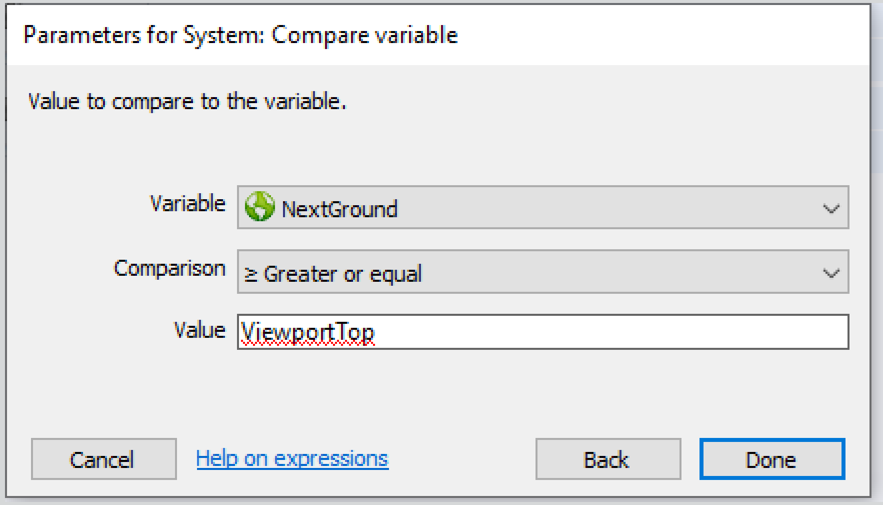
Angles
- Is between angles
- Is within angle

General
- Compare two values
- Is between values
- Is number NaN
- Object UID exists

Global & local variables
- Compare variable

Layers & Layout
- Compare opacity
- Layer is empty
- On canvas snapshot

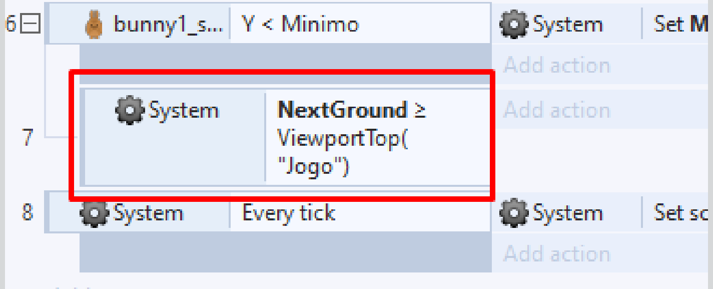
Loops



Parameters for System: Compare variable

Value to compare to the variable.

Variable	NextGround
Comparison	≥ Greater or equal
Value	ViewportTop



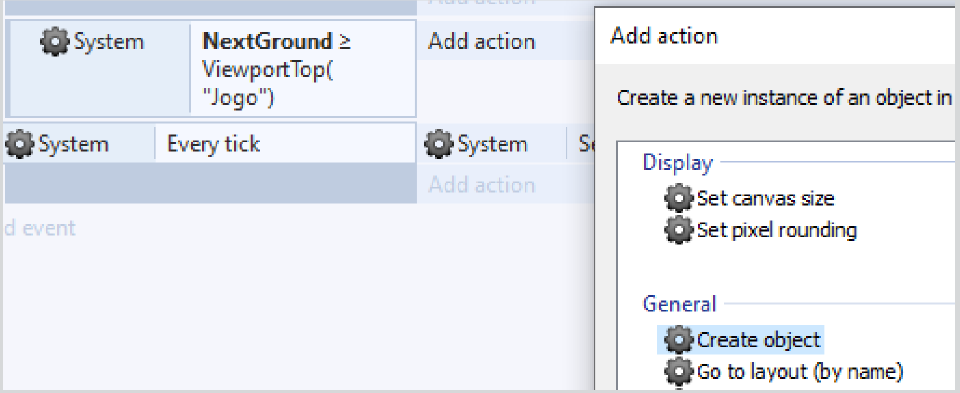
6 bunny1_s... Y < Minimo — System Set M

Add action

7 System NextGround ≥ ViewportTop("Jogo") — Add action

8 System Every tick — System Set sc

Add action



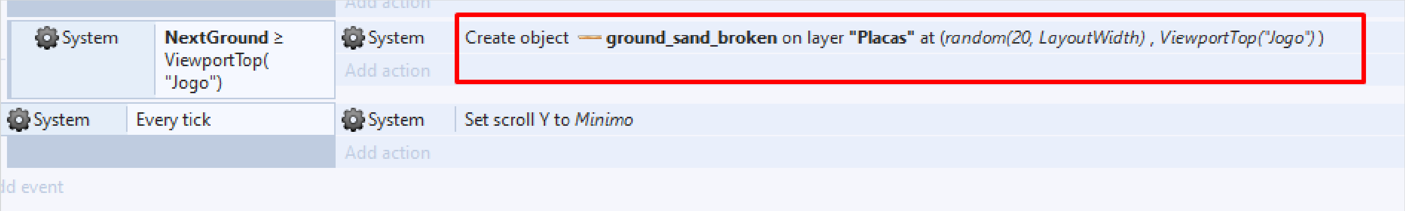
System NextGround ≥ ViewportTop("Jogo") — Add action

System Every tick — System Se

Add action

d event

Add action
Create a new instance of an object in
Display
Set canvas size
Set pixel rounding
General
Create object
Go to layout (by name)



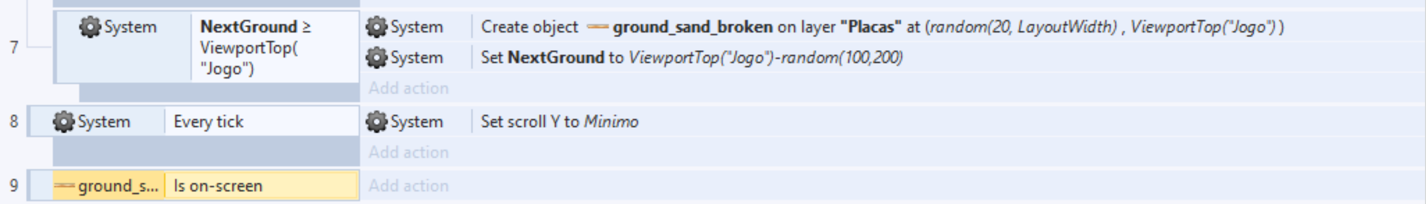
System NextGround ≥ ViewportTop("Jogo") — System Create object ground_sand_broken on layer "Placas" at (*random(20, LayoutWidth)* , *ViewportTop("Jogo")*)

Add action

System Every tick — System Set scroll Y to *Minimo*

Add action

dd event



7 System NextGround ≥ ViewportTop("Jogo") — System Create object ground_sand_broken on layer "Placas" at (*random(20, LayoutWidth)* , *ViewportTop("Jogo")*)

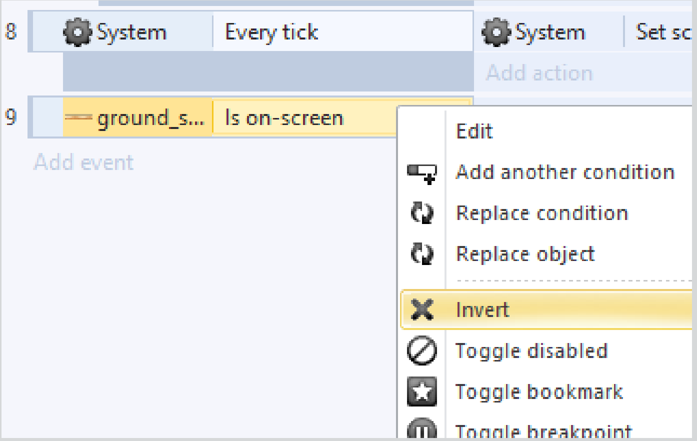
System Set NextGround to *ViewportTop("Jogo")-random(100,200)*

Add action

8 System Every tick — System Set scroll Y to *Minimo*

Add action

9 ground_s... Is on-screen — Add action



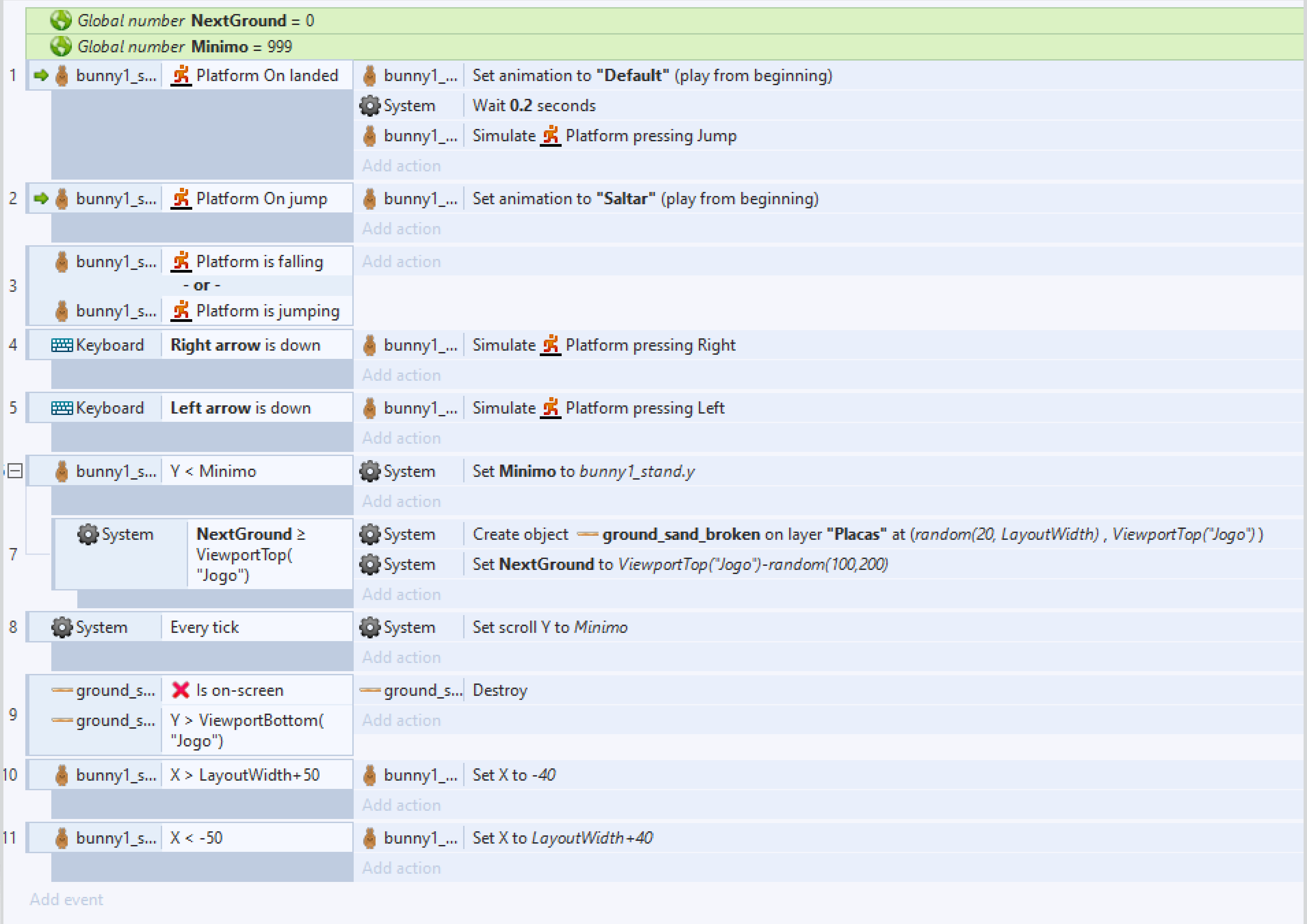
8 System Every tick — System Set sc

Add action

9 ground_s... Is on-screen

Add event

Edit
Add another condition
Replace condition
Replace object
Invert
Toggle disabled
Toggle bookmark
Toggle breakpoint

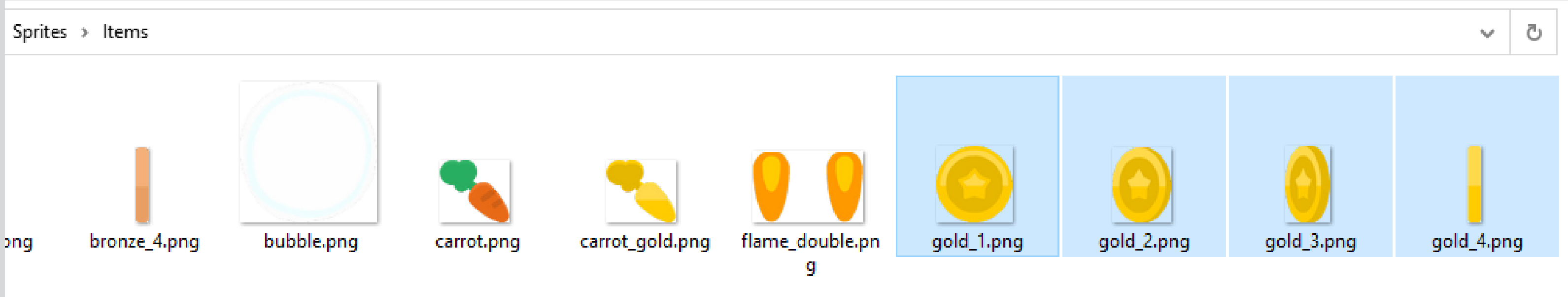


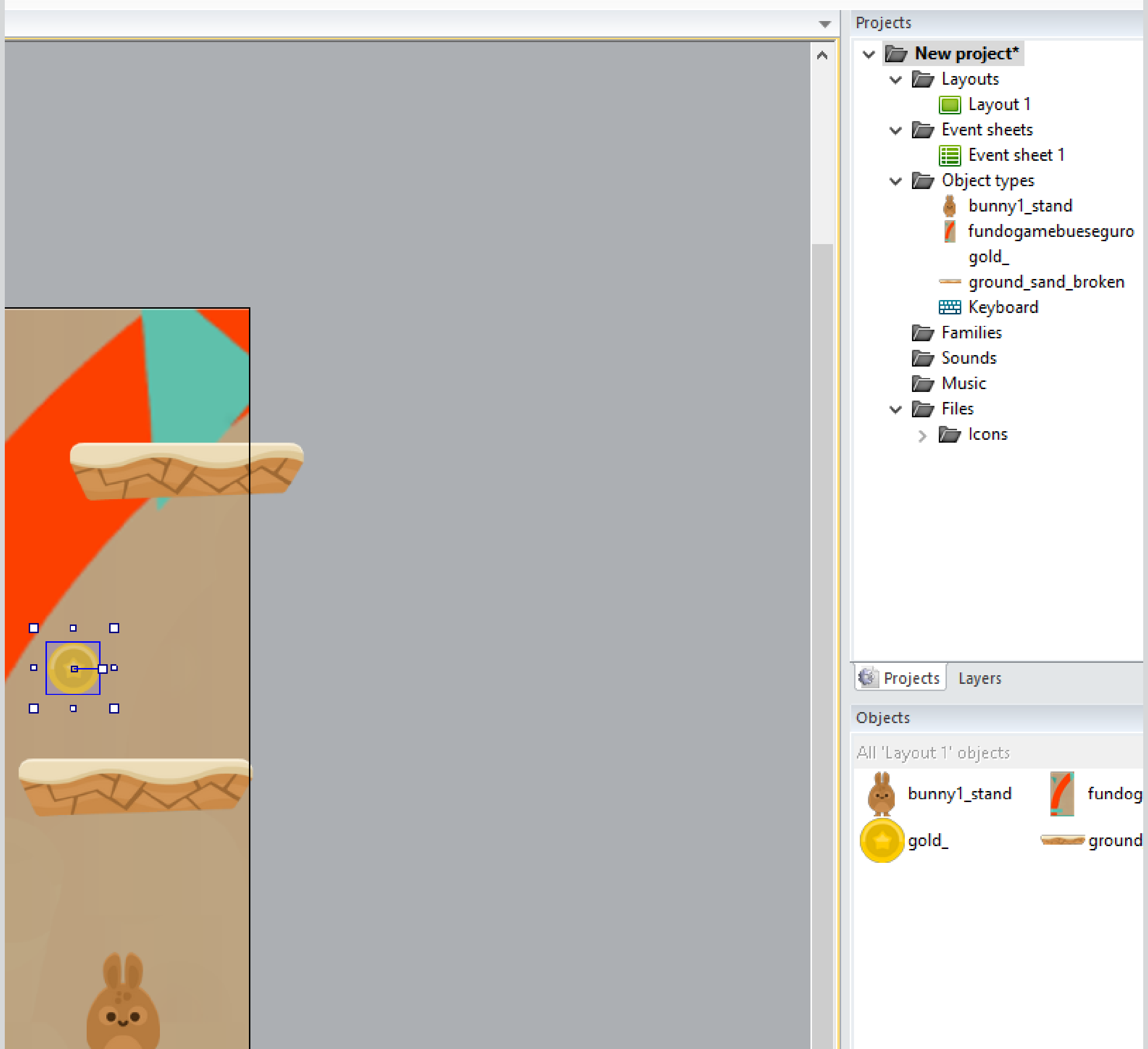
Global number **NextGround** = 0

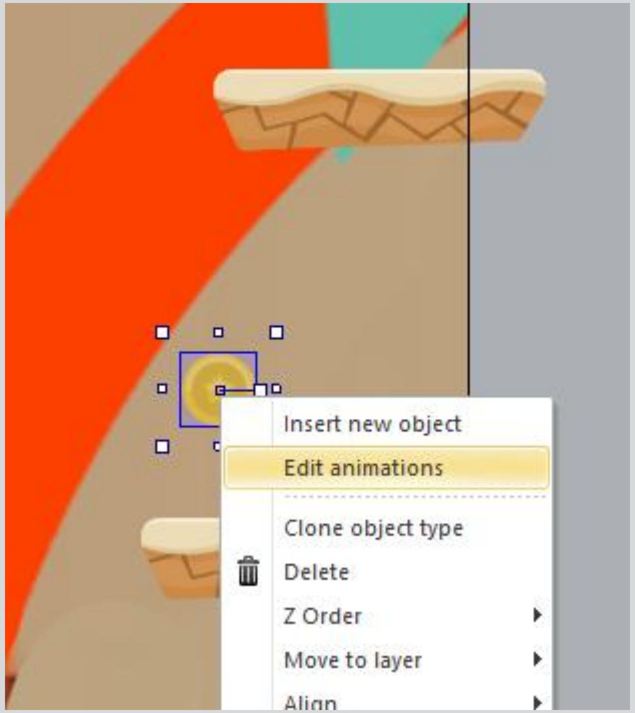
Global number **Minimo** = 999

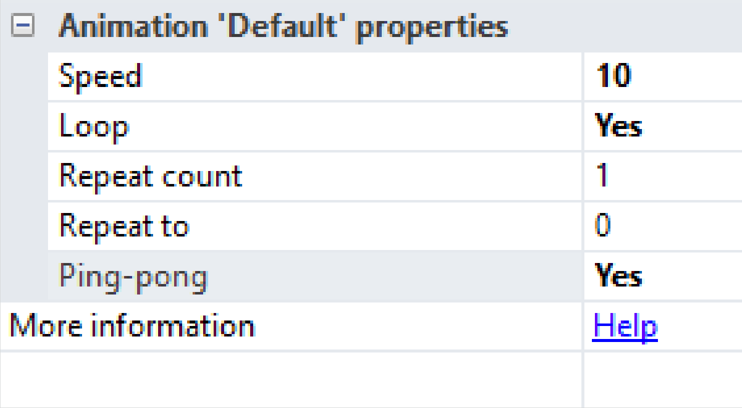
#	Object	Condition	Object	Action
1	bunny1_s...	Platform On landed	bunny1_...	Set animation to **"Default"** (play from beginning)
			System	Wait **0.2** seconds
			bunny1_...	Simulate Platform pressing Jump
				Add action
2	bunny1_s...	Platform On jump	bunny1_...	Set animation to **"Saltar"** (play from beginning)
				Add action
3	bunny1_s...	Platform is falling		Add action
		- **or** -		
	bunny1_s...	Platform is jumping		
4	Keyboard	**Right arrow** is down	bunny1_...	Simulate Platform pressing Right
				Add action
5	Keyboard	**Left arrow** is down	bunny1_...	Simulate Platform pressing Left
				Add action
⊟	bunny1_s...	Y < Minimo	System	Set **Minimo** to *bunny1_stand.y*
				Add action
7	System	**NextGround** ≥ ViewportTop("Jogo")	System	Create object **ground_sand_broken** on layer **"Placas"** at (*random(20, LayoutWidth) , ViewportTop("Jogo")*)
			System	Set **NextGround** to *ViewportTop("Jogo")-random(100,200)*
				Add action
8	System	Every tick	System	Set scroll Y to *Minimo*
				Add action
9	ground_s...	✗ Is on-screen	ground_s...	Destroy
	ground_s...	Y > ViewportBottom("Jogo")		Add action
10	bunny1_s...	X > LayoutWidth+50	bunny1_...	Set X to *-40*
				Add action
11	bunny1_s...	X < -50	bunny1_...	Set X to *LayoutWidth+40*
				Add action

Add event

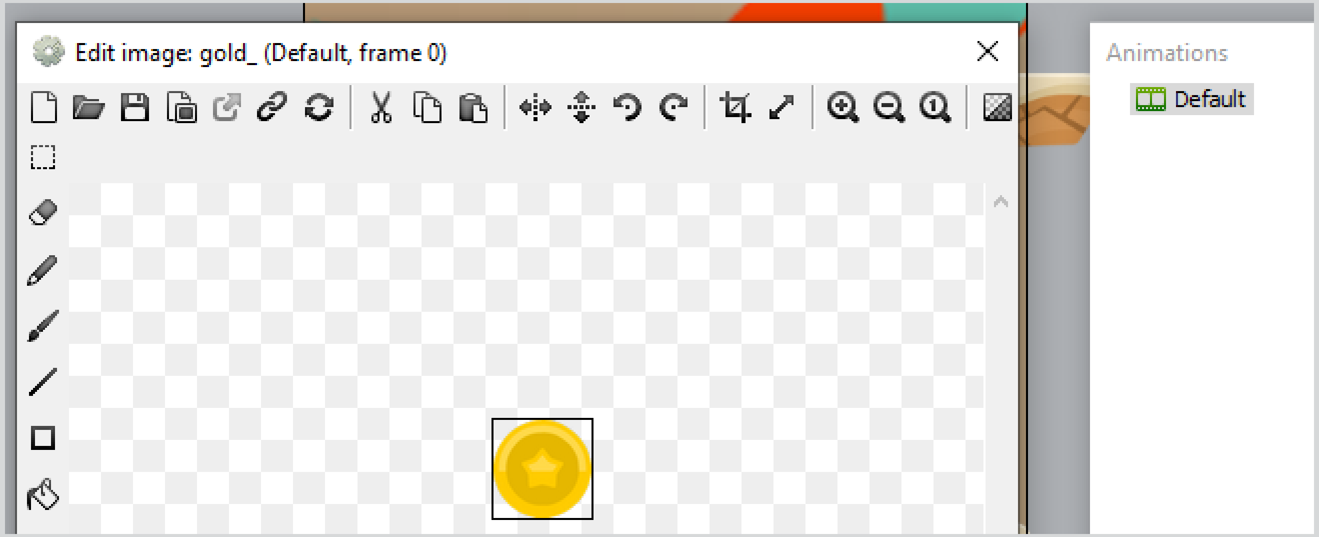

Sprites › Items
png
bronze_4.png
bubble.png
carrot.png
carrot_gold.png
flame_double.png
gold_1.png
gold_2.png
gold_3.png
gold_4.png

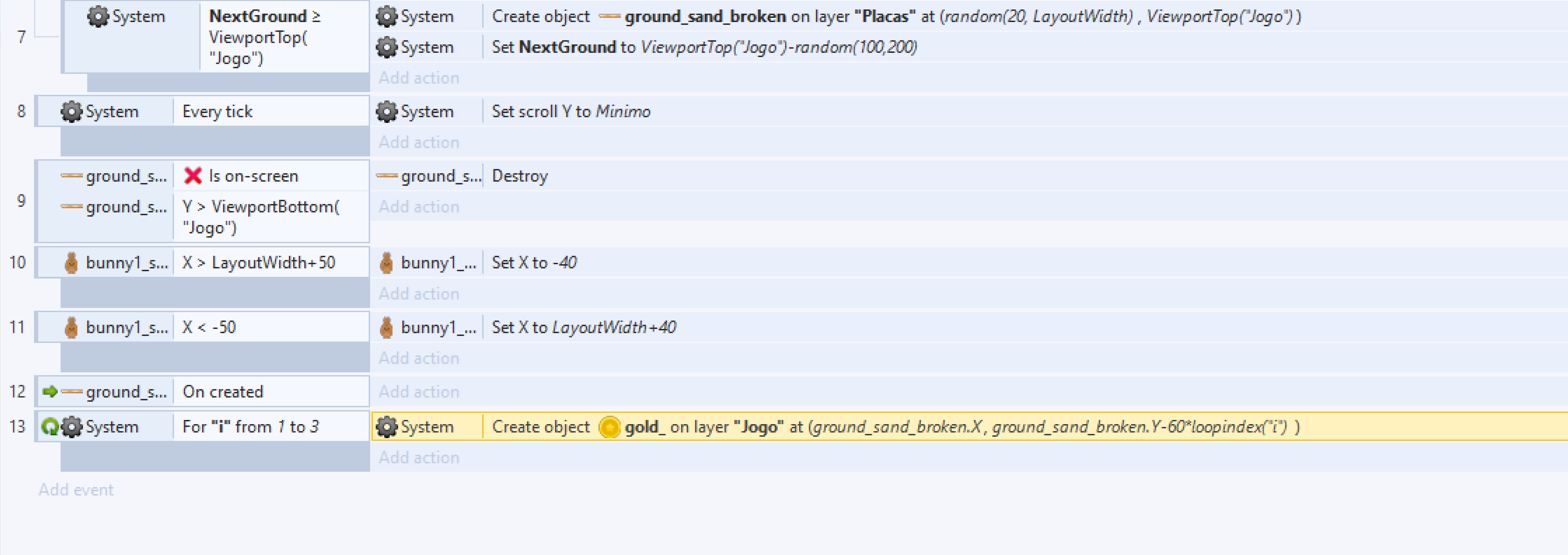

Projects
New project*
Layouts
Layout 1
Event sheets
Event sheet 1
Object types
bunny1_stand
fundogamebueseguro
gold_
ground_sand_broken
Keyboard
Families
Sounds
Music
Files
Icons
Projects
Layers
Objects
All 'Layout 1' objects
bunny1_stand
fundog
gold_
ground


Insert new object
Edit animations
Clone object type
Delete
Z Order
Move to layer
Align



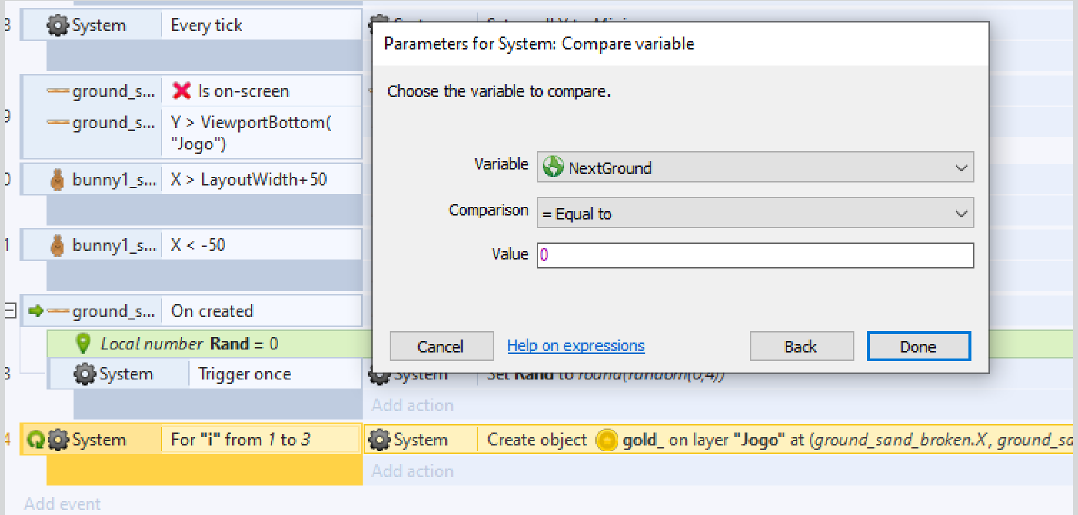
Animation 'Default' properties	
Speed	**10**
Loop	**Yes**
Repeat count	1
Repeat to	0
Ping-pong	**Yes**
More information	Help


Edit image: gold_ (Default, frame 0)
Animations
Default



7	System	**NextGround** ≥ ViewportTop("Jogo")	System	Create object **ground_sand_broken** on layer **"Placas"** at (*random(20, LayoutWidth)* , *ViewportTop("Jogo")*)
			System	Set **NextGround** to *ViewportTop("Jogo")-random(100,200)*
				Add action
8	System	Every tick	System	Set scroll Y to *Minimo*
				Add action
9	ground_s...	❌ Is on-screen	ground_s...	Destroy
	ground_s...	Y > ViewportBottom("Jogo")		Add action
10	bunny1_s...	X > LayoutWidth+50	bunny1_...	Set X to *-40*
				Add action
11	bunny1_s...	X < -50	bunny1_...	Set X to *LayoutWidth+40*
				Add action
12	ground_s...	On created		Add action
13	System	For "i" from *1* to *3*	System	Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y-60*loopindex("i")*)
				Add action

Add event



8	System	Every tick		
9	ground_s...	❌ Is on-screen		
	ground_s...	Y > ViewportBottom("Jogo")		
10	bunny1_s...	X > LayoutWidth+50		
11	bunny1_s...	X < -50		
12	ground_s...	On created		
	Local number **Rand** = 0			
13	System	Trigger once	System	Set **Rand** to *round(random(0,4))*
				Add action
14	System	For "i" from *1* to *3*	System	Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sa*
				Add action

Add event

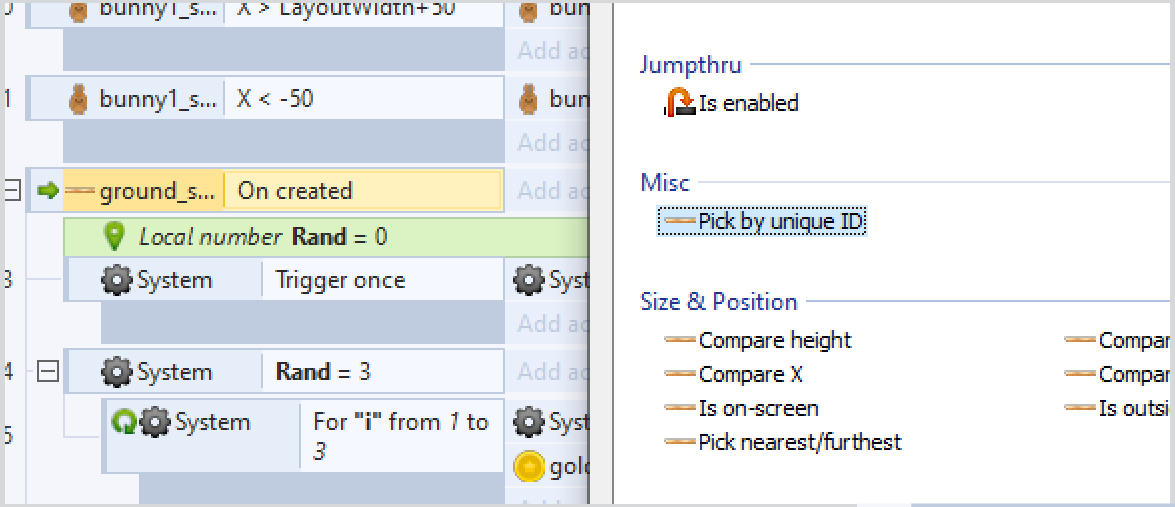
Parameters for System: Compare variable

Choose the variable to compare.

Variable: NextGround

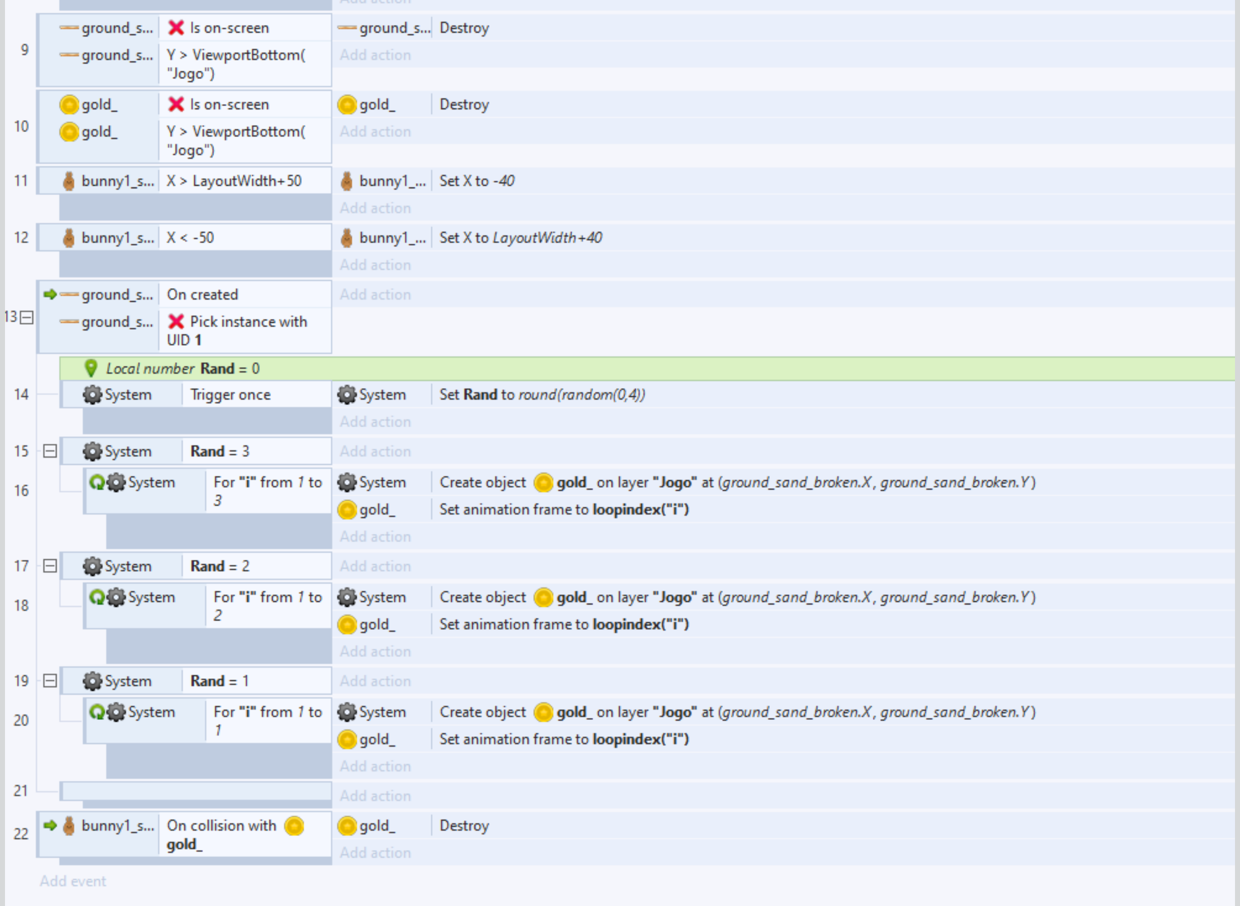
Comparison: = Equal to

Value: 0



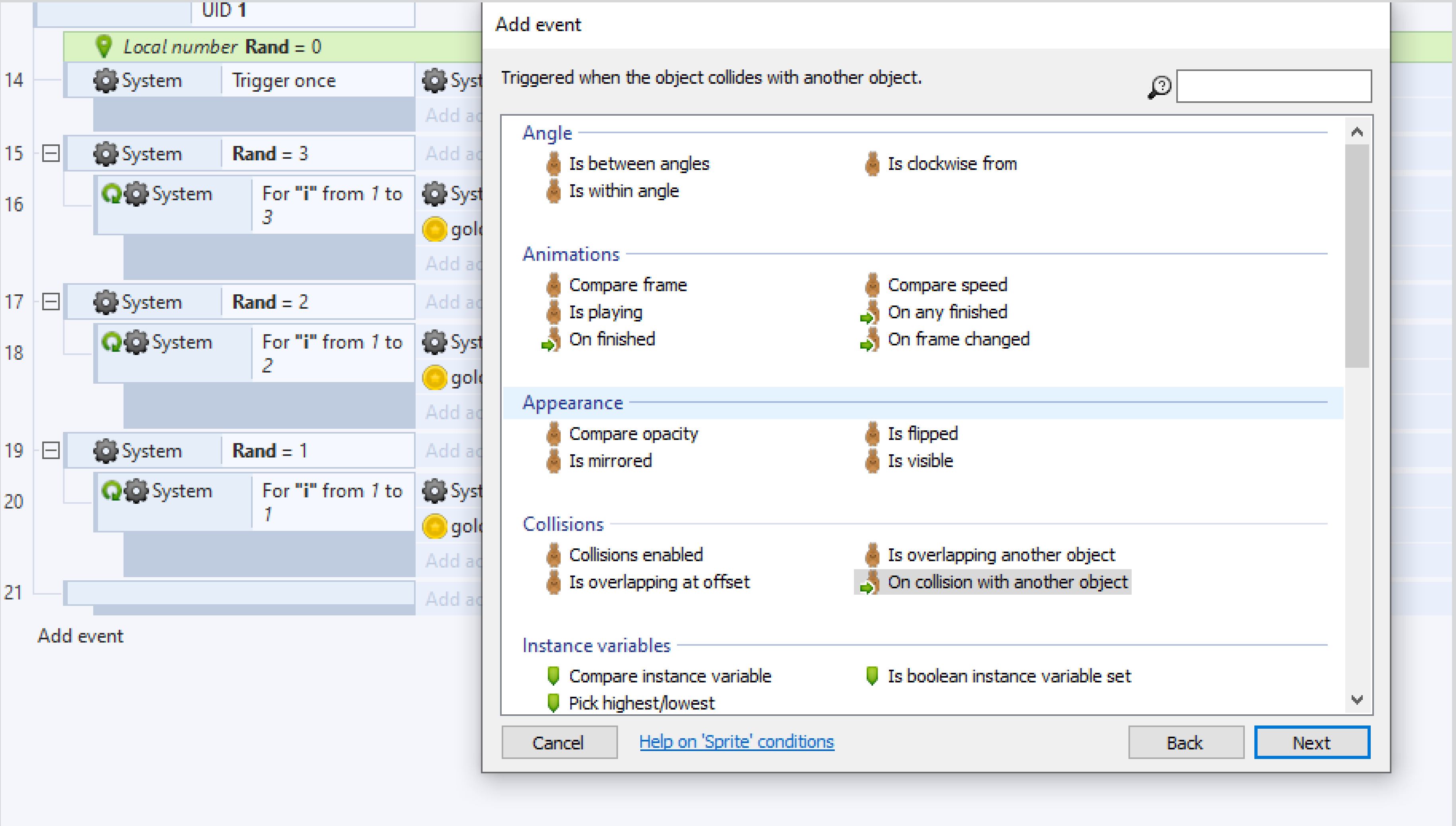
	Object	Condition	Object
	bunny1_s...	X > LayoutWidth+50	bun
1	bunny1_s...	X < -50	bun
	ground_s...	On created	
	Local number **Rand** = 0		
3	System	Trigger once	Syst
4	System	**Rand** = 3	
5	System	For "i" from 1 to 3	Syst gold

Add ac
Jumpthru
Is enabled
Misc
Pick by unique ID
Size & Position
Compare height
Compare X
Is on-screen
Pick nearest/furthest
Compar
Compar
Is outsi



Event	Object	Condition	Object	Action
9	ground_s... ground_s...	✗ Is on-screen Y > ViewportBottom("Jogo")	ground_s...	Destroy
10	gold_ gold_	✗ Is on-screen Y > ViewportBottom("Jogo")	gold_	Destroy
11	bunny1_s...	X > LayoutWidth+50	bunny1_...	Set X to *-40*
12	bunny1_s...	X < -50	bunny1_...	Set X to *LayoutWidth+40*
13	ground_s... ground_s...	On created ✗ Pick instance with UID **1**		
	Local number **Rand** = 0			
14	System	Trigger once	System	Set **Rand** to *round(random(0,4))*
15	System	**Rand** = 3		
16	System	For **"i"** from *1* to *3*	System gold_	Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) Set animation frame to **loopindex("i")**
17	System	**Rand** = 2		
18	System	For **"i"** from *1* to *2*	System gold_	Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) Set animation frame to **loopindex("i")**
19	System	**Rand** = 1		
20	System	For **"i"** from *1* to *1*	System gold_	Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) Set animation frame to **loopindex("i")**
21				
22	bunny1_s...	On collision with **gold_**	gold_	Destroy

Add action
Add event



UID 1

Local number **Rand** = 0

14 System | Trigger once | Syst
Add ac

15 System | **Rand** = 3 | Add ac

16 System | For "i" from *1* to *3* | Syst
gol
Add ac

17 System | **Rand** = 2 | Add ac

18 System | For "i" from *1* to *2* | Syst
gol
Add ac

19 System | **Rand** = 1 | Add ac

20 System | For "i" from *1* to *1* | Syst
gol
Add ac

21 Add ac

Add event

Add event

Triggered when the object collides with another object.

Angle
- Is between angles
- Is clockwise from
- Is within angle

Animations
- Compare frame
- Compare speed
- Is playing
- On any finished
- On finished
- On frame changed

Appearance
- Compare opacity
- Is flipped
- Is mirrored
- Is visible

Collisions
- Collisions enabled
- Is overlapping another object
- Is overlapping at offset
- On collision with another object

Instance variables
- Compare instance variable
- Is boolean instance variable set
- Pick highest/lowest

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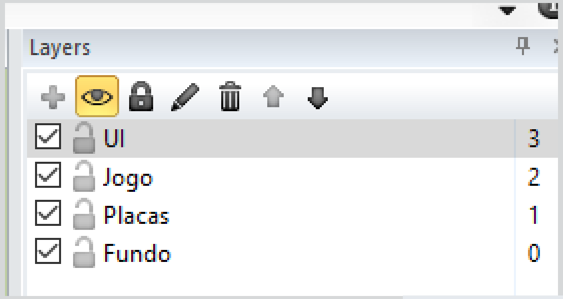
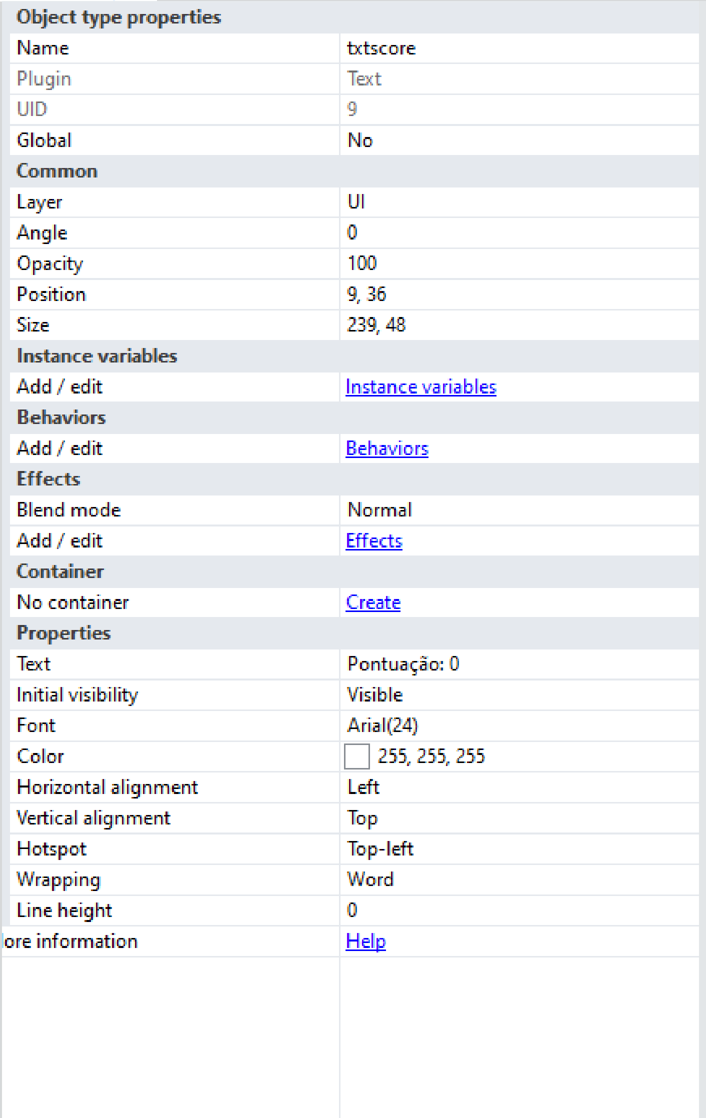
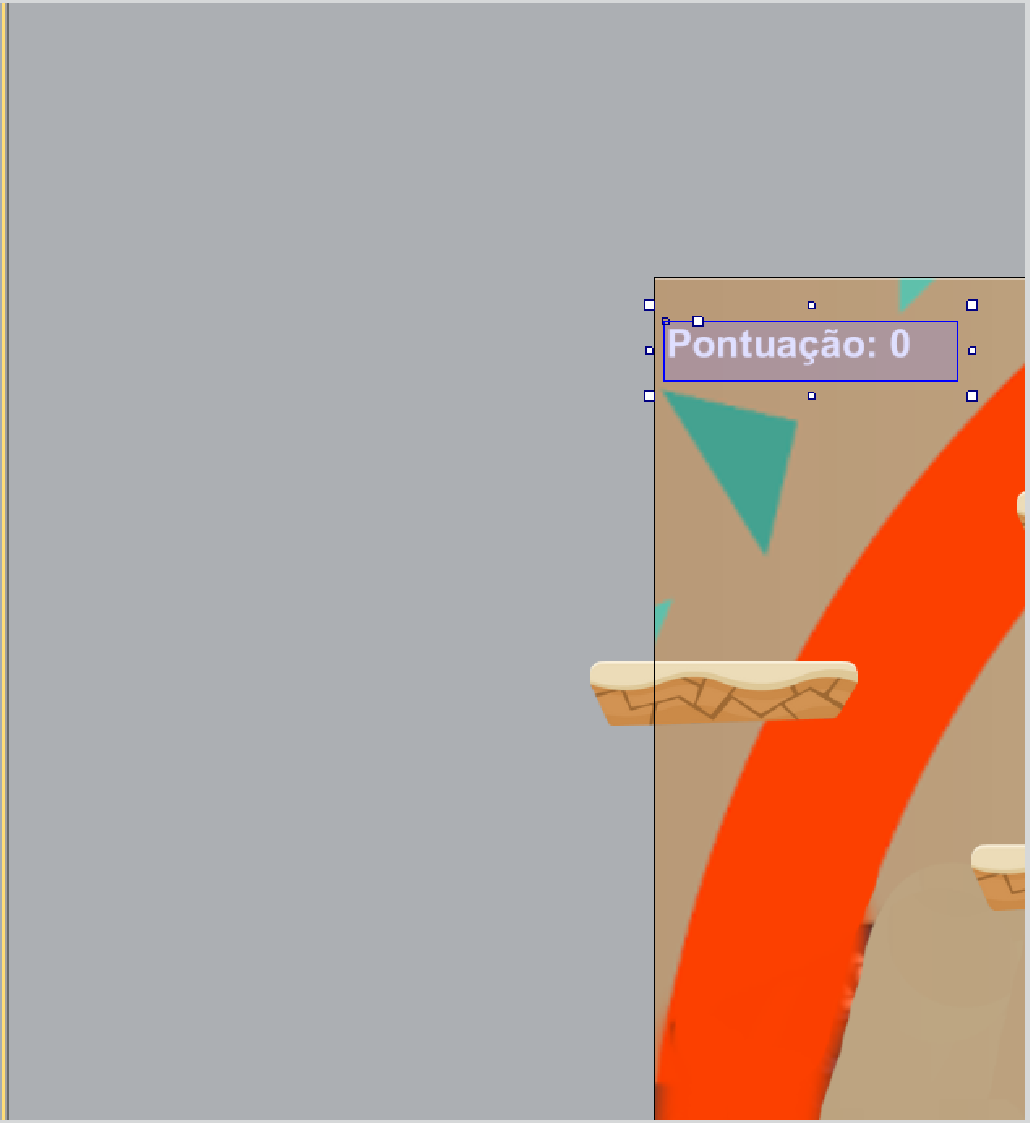
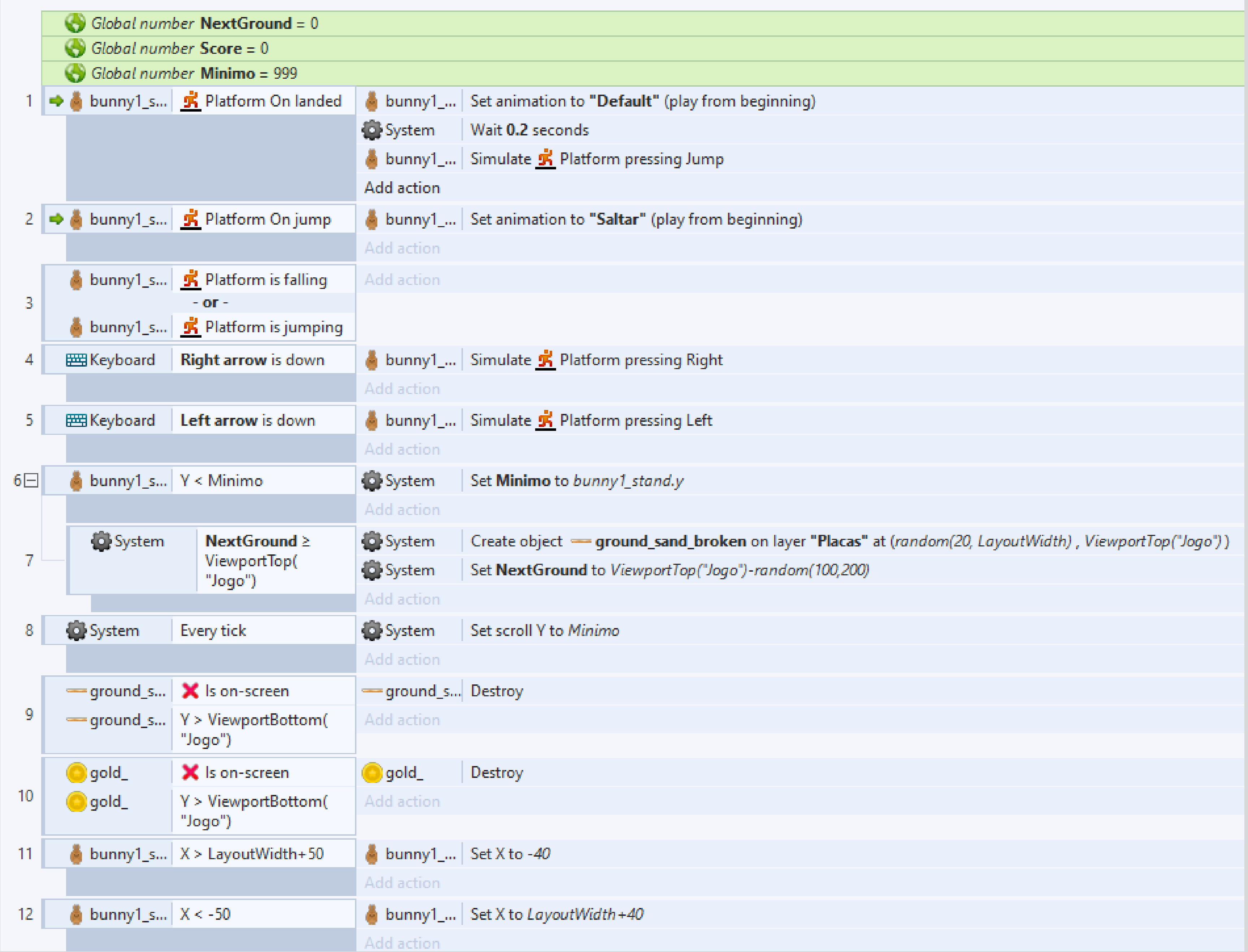


☑ UI	3
☑ Jogo	2
☑ Placas	1
☑ Fundo	0



Object type properties	
Name	txtscore
Plugin	Text
UID	9
Global	No
Common	
Layer	UI
Angle	0
Opacity	100
Position	9, 36
Size	239, 48
Instance variables	
Add / edit	Instance variables
Behaviors	
Add / edit	Behaviors
Effects	
Blend mode	Normal
Add / edit	Effects
Container	
No container	Create
Properties	
Text	Pontuação: 0
Initial visibility	Visible
Font	Arial(24)
Color	☐ 255, 255, 255
Horizontal alignment	Left
Vertical alignment	Top
Hotspot	Top-left
Wrapping	Word
Line height	0
ore information	Help



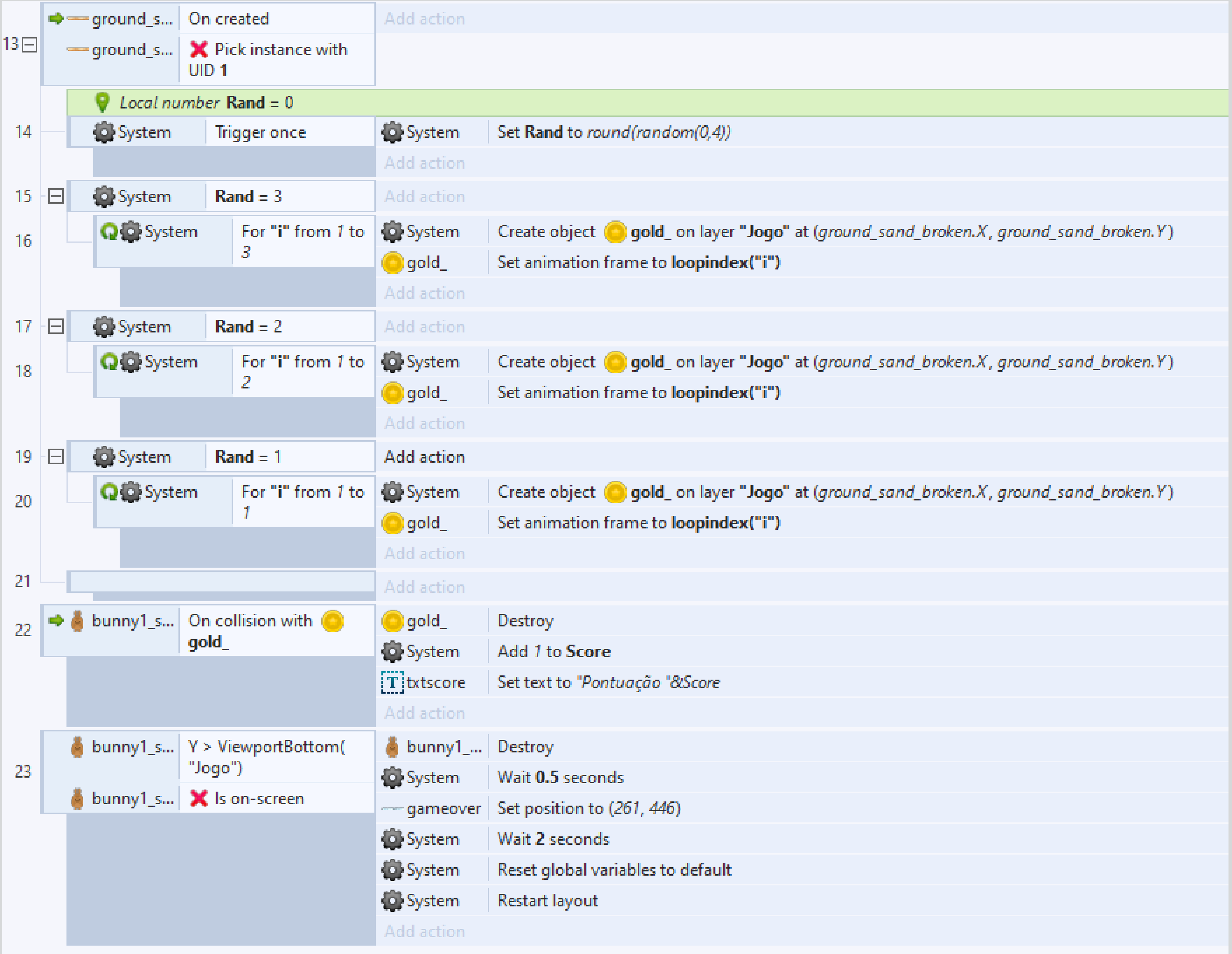


Global number **NextGround** = 0

Global number **Score** = 0

Global number **Minimo** = 999

1	bunny1_s...	Platform On landed	bunny1_...	Set animation to **"Default"** (play from beginning)
			System	Wait **0.2** seconds
			bunny1_...	Simulate Platform pressing Jump
				Add action
2	bunny1_s...	Platform On jump	bunny1_...	Set animation to **"Saltar"** (play from beginning)
				Add action
3	bunny1_s...	Platform is falling		Add action
		- **or** -		
	bunny1_s...	Platform is jumping		
4	Keyboard	**Right arrow** is down	bunny1_...	Simulate Platform pressing Right
				Add action
5	Keyboard	**Left arrow** is down	bunny1_...	Simulate Platform pressing Left
				Add action
6	bunny1_s...	Y < Minimo	System	Set **Minimo** to *bunny1_stand.y*
				Add action
7	System	**NextGround** ≥ ViewportTop("Jogo")	System	Create object **ground_sand_broken** on layer **"Placas"** at (*random(20, LayoutWidth)* , *ViewportTop("Jogo")*)
			System	Set **NextGround** to *ViewportTop("Jogo")-random(100,200)*
				Add action
8	System	Every tick	System	Set scroll Y to *Minimo*
				Add action
9	ground_s...	❌ Is on-screen	ground_s...	Destroy
	ground_s...	Y > ViewportBottom("Jogo")		Add action
10	gold_	❌ Is on-screen	gold_	Destroy
	gold_	Y > ViewportBottom("Jogo")		Add action
11	bunny1_s...	X > LayoutWidth+50	bunny1_...	Set X to *-40*
				Add action
12	bunny1_s...	X < -50	bunny1_...	Set X to *LayoutWidth+40*
				Add action

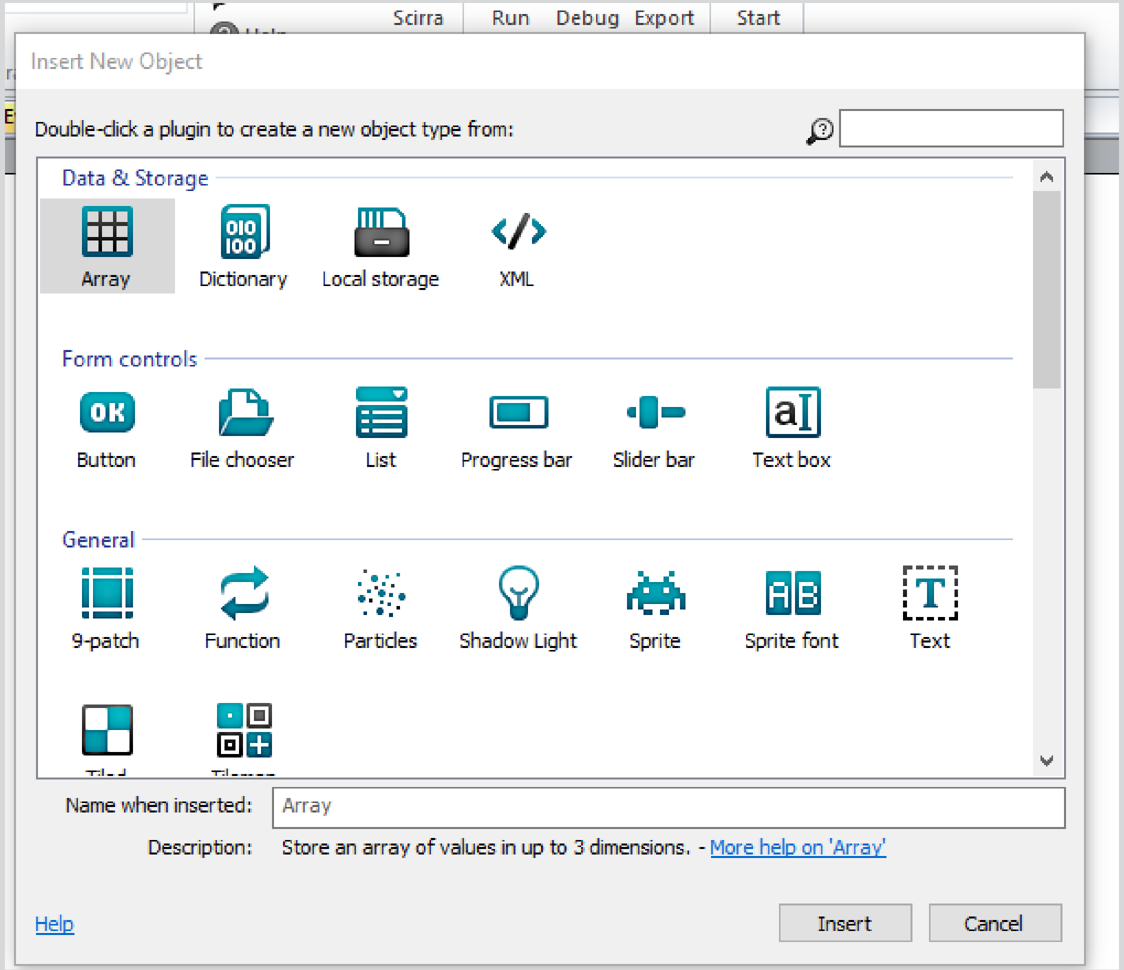


	Conditions	Actions
13	ground_s... On created ground_s... ✗ Pick instance with UID **1**	Add action
	Local number **Rand** = 0	
14	System Trigger once	System Set **Rand** to *round(random(0,4))* Add action
15	System **Rand** = 3	Add action
16	System For "i" from *1* to *3*	System Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) gold_ Set animation frame to **loopindex("i")** Add action
17	System **Rand** = 2	Add action
18	System For "i" from *1* to *2*	System Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) gold_ Set animation frame to **loopindex("i")** Add action
19	System **Rand** = 1	Add action
20	System For "i" from *1* to *1*	System Create object **gold_** on layer **"Jogo"** at (*ground_sand_broken.X*, *ground_sand_broken.Y*) gold_ Set animation frame to **loopindex("i")** Add action
21		Add action
22	bunny1_s... On collision with **gold_**	gold_ Destroy System Add *1* to **Score** txtscore Set text to *"Pontuação "&Score* Add action
23	bunny1_s... Y > ViewportBottom("Jogo") bunny1_s... ✗ Is on-screen	bunny1_... Destroy System Wait **0.5** seconds gameover Set position to (*261*, *446*) System Wait **2** seconds System Reset global variables to default System Restart layout Add action

Outro desafio – Jogo de plataformas

Vamos praticar

- Vamos adicionar um plano de fundo ao nosso projeto.
- Clique duas vezes em cima qualquer parte da janela do centro.
- Selecione inicialmente o objeto “Tiled Background”.


Scirra
Run
Debug
Export
Start
Insert New Object

Double-click a plugin to create a new object type from:

Data & Storage
Array
Dictionary
Local storage
XML
Form controls
Button
File chooser
List
Progress bar
Slider bar
Text box
General
9-patch
Function
Particles
Shadow Light
Sprite
Sprite font
Text

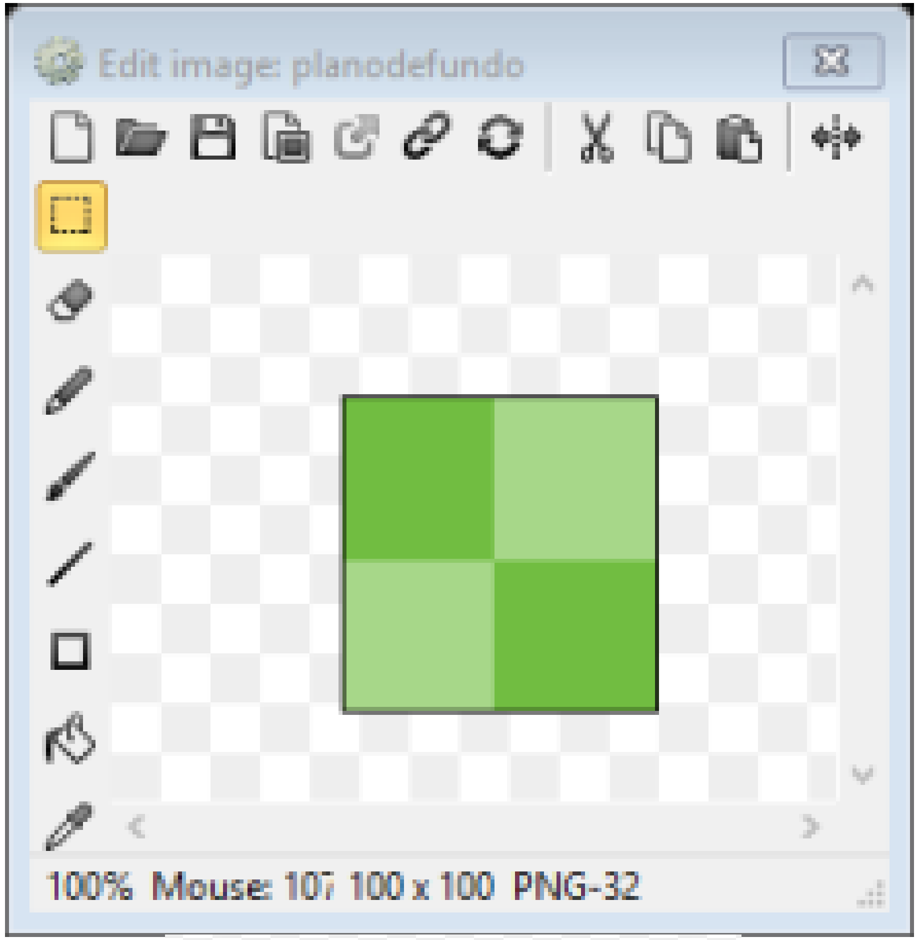
Name when inserted: Array

Description: Store an array of values in up to 3 dimensions. - More help on 'Array'

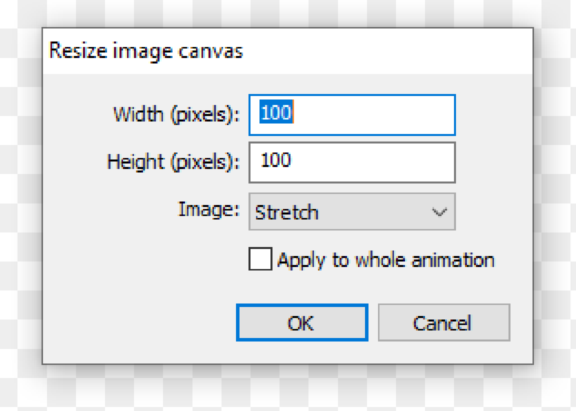
Help
Insert
Cancel

Vamos praticar

- Clique em qualquer ponto da tela branca.
- Crie um plano de fundo
- Verifique que tem o tamanho 100*100 para isso passe o rato por cima dos ícones e localize o ícone denominado “Resize”.
- Feche o editor.


Edit image: planodefundo

100% Mouse: 107 100 x 100 PNG-32


Resize image canvas

Width (pixels): 100

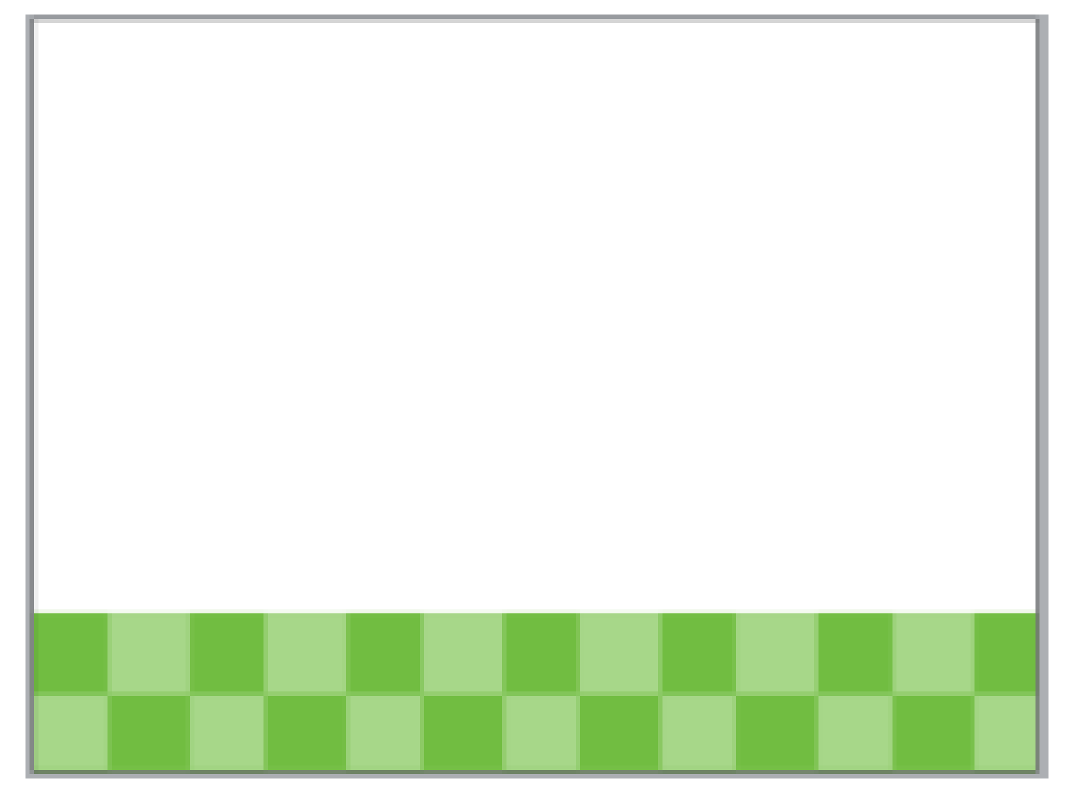
Height (pixels): 100

Image: Stretch

☐ Apply to whole animation

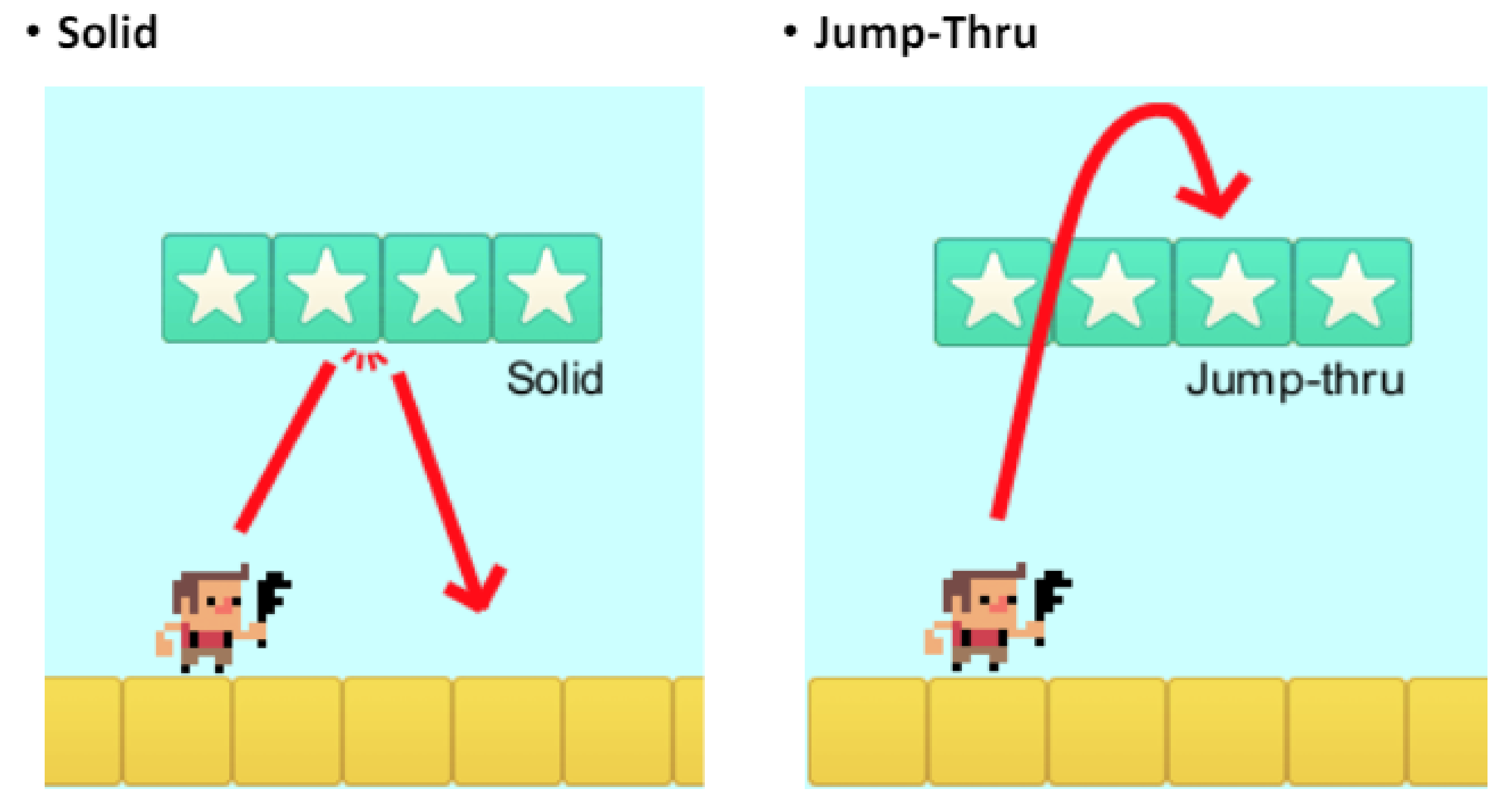
OK
Cancel

Vamos praticar



- Ao redimencionar o plano dr fundo é replicado

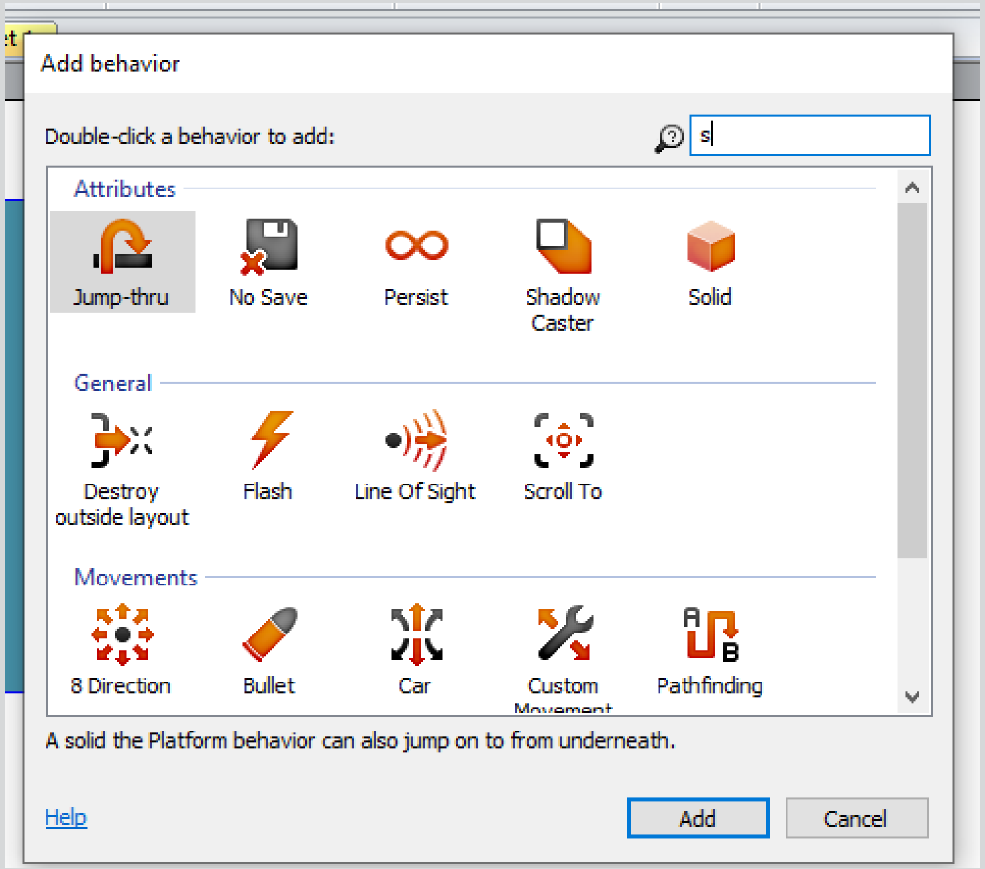
Diferença entre solid e junp-thru



- Solid
- Jump-Thru

Vamos praticar

- Para que o personagem não caia da plataforma ela tem que ser solida.
- Seleciona o plano de fundo e adiciona o behavior solid



Add behavior

Double-click a behavior to add: s

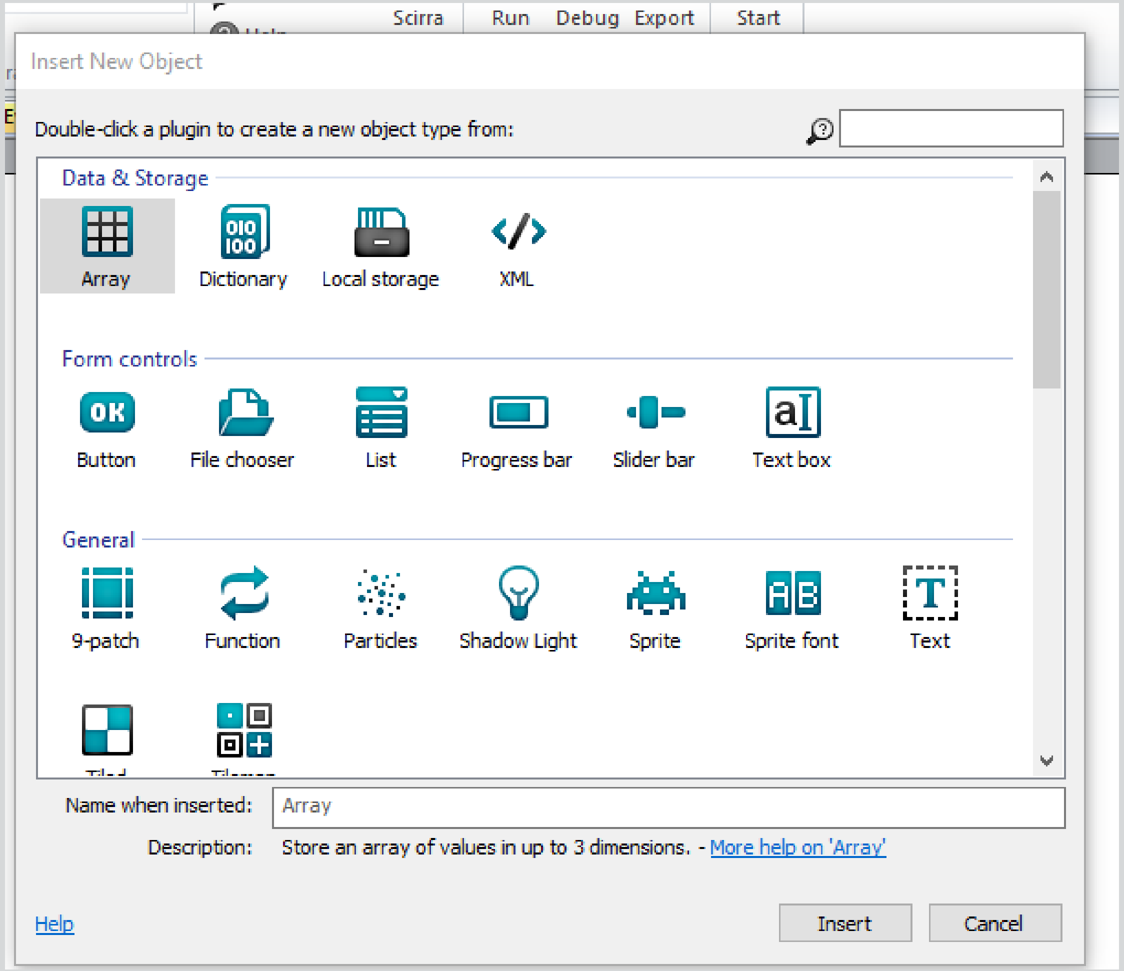
Attributes
Jump-thru
No Save
Persist
Shadow Caster
Solid
General
Destroy outside layout
Flash
Line Of Sight
Scroll To
Movements
8 Direction
Bullet
Car
Custom Movement
Pathfinding

A solid the Platform behavior can also jump on to from underneath.

Help
Add
Cancel

Vamos praticar

- Vamos criar o nosso personagem.
  - Clic direito
  - Insert new object
  - Sprite
    - Inserte
    - Clique no ecrã para inserir o sprite


Scirra
Run
Debug
Export
Start
Insert New Object
Data & Storage
Array
Dictionary
Local storage
XML
Form controls
Button
File chooser
List
Progress bar
Slider bar
Text box
General
9-patch
Function
Particles
Shadow Light
Sprite
Sprite font
Text
Help
Insert
Cancel

Double-click a plugin to create a new object type from:

Name when inserted: Array

Description: Store an array of values in up to 3 dimensions. - More help on 'Array'

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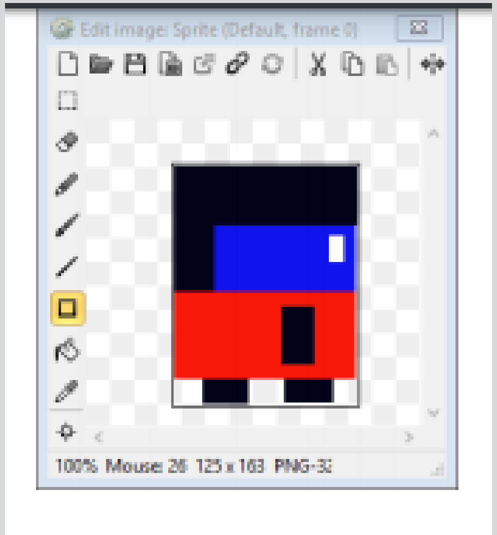
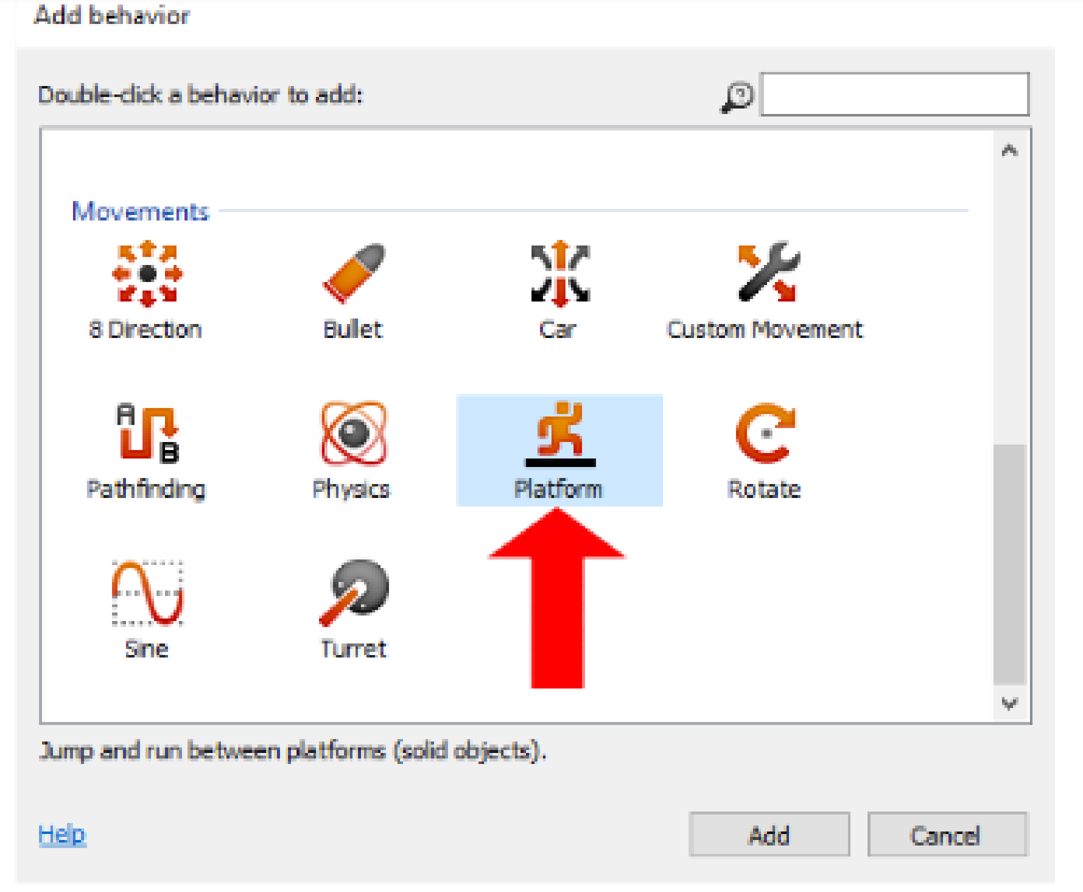
Vamos praticar


Edit image: Sprite (Default, frame 0)
100% Mouse: 26 125 x 163 PNG-32

- Desenha o personagem e pinta da cor que desejares
- Determina os pontos de colisão
- Altera o nome para jogador (não coloques espaços nem acentuação)

nstruct



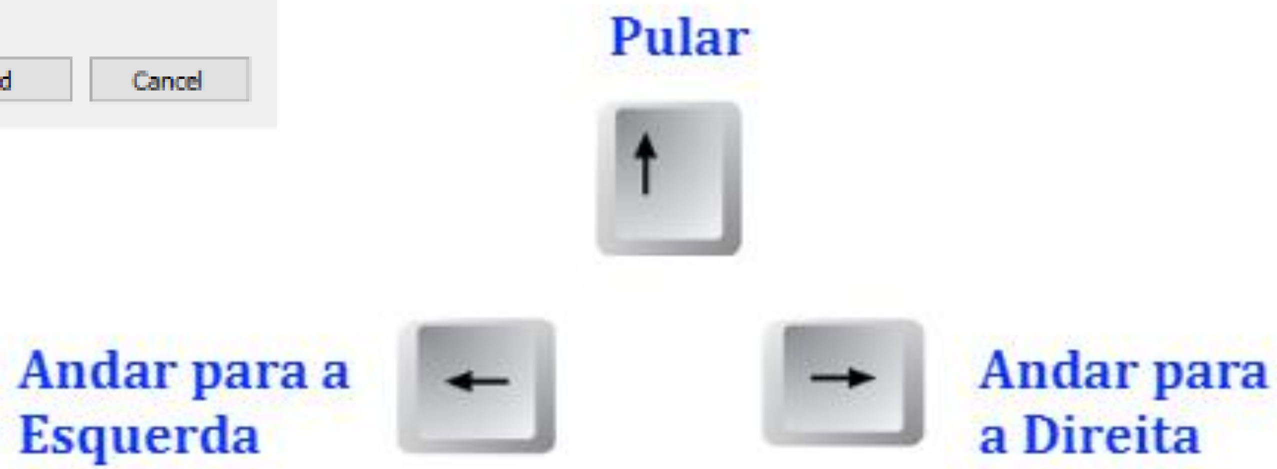
Add behavior

Double-click a behavior to add:

Movements
8 Direction
Bullet
Car
Custom Movement
Pathfinding
Physics
Platform
Rotate
Sine
Turret

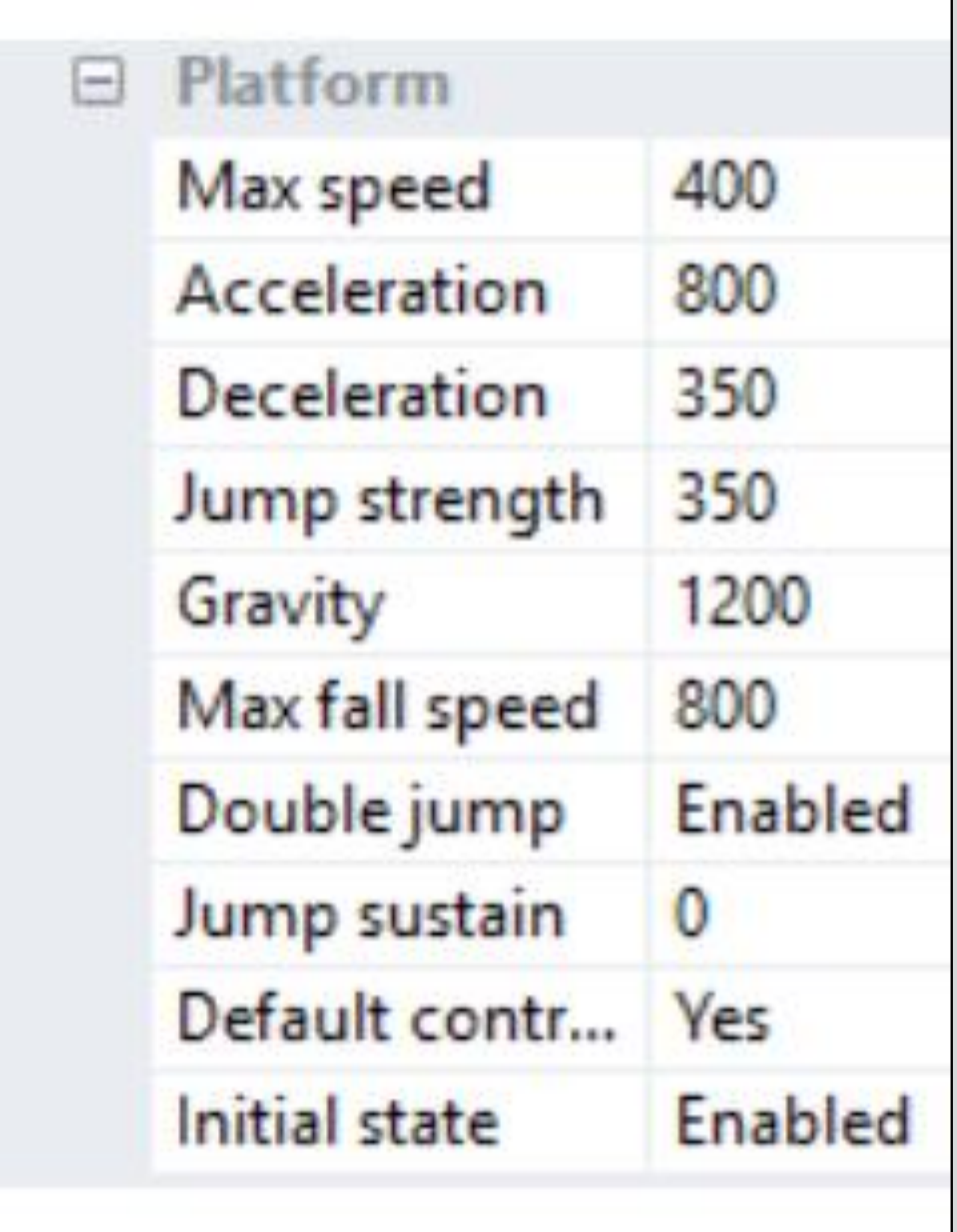
Jump and run between platforms (solid objects).

Help
Add
Cancel


Pular
Andar para a Esquerda
Andar para a Direita

Propriedades

- À Esquerda por baixo de "behaviours" aparece uma nova janela com as propriedades

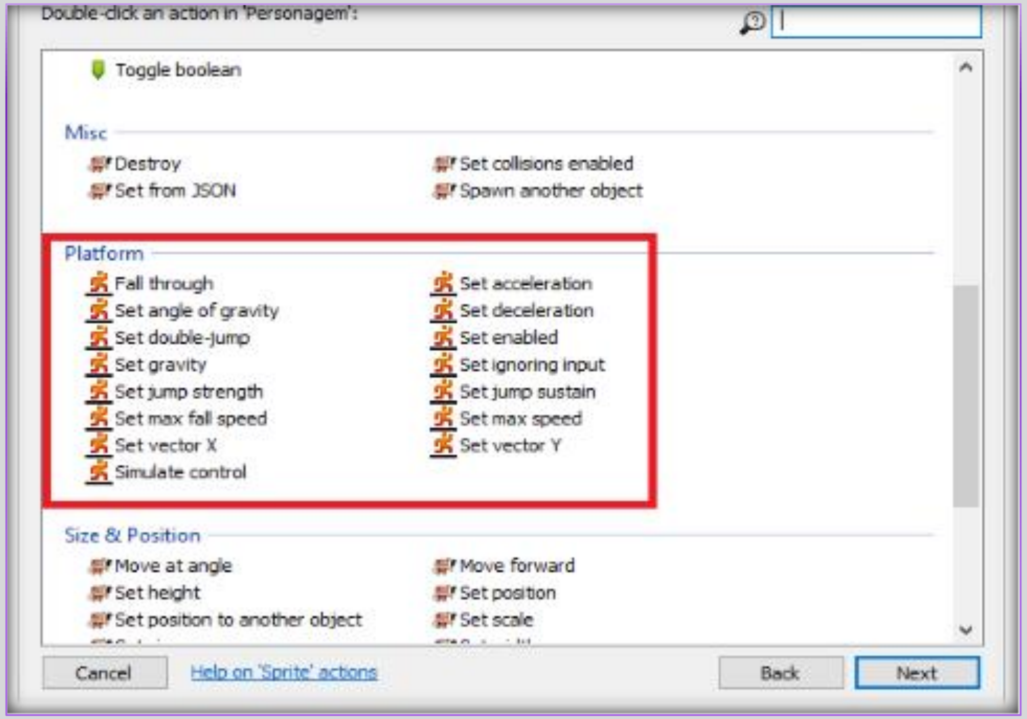


Platform

Max speed	400
Acceleration	800
Deceleration	350
Jump strength	350
Gravity	1200
Max fall speed	800
Double jump	Enabled
Jump sustain	0
Default contr...	Yes
Initial state	Enabled

Ações

- É programando as ações que defenimos o comportamento dos nossos personagens.



Double-click an action in 'Personagem':

Toggle boolean

Misc

Destroy
Set from JSON
Set collisions enabled
Spawn another object

Platform

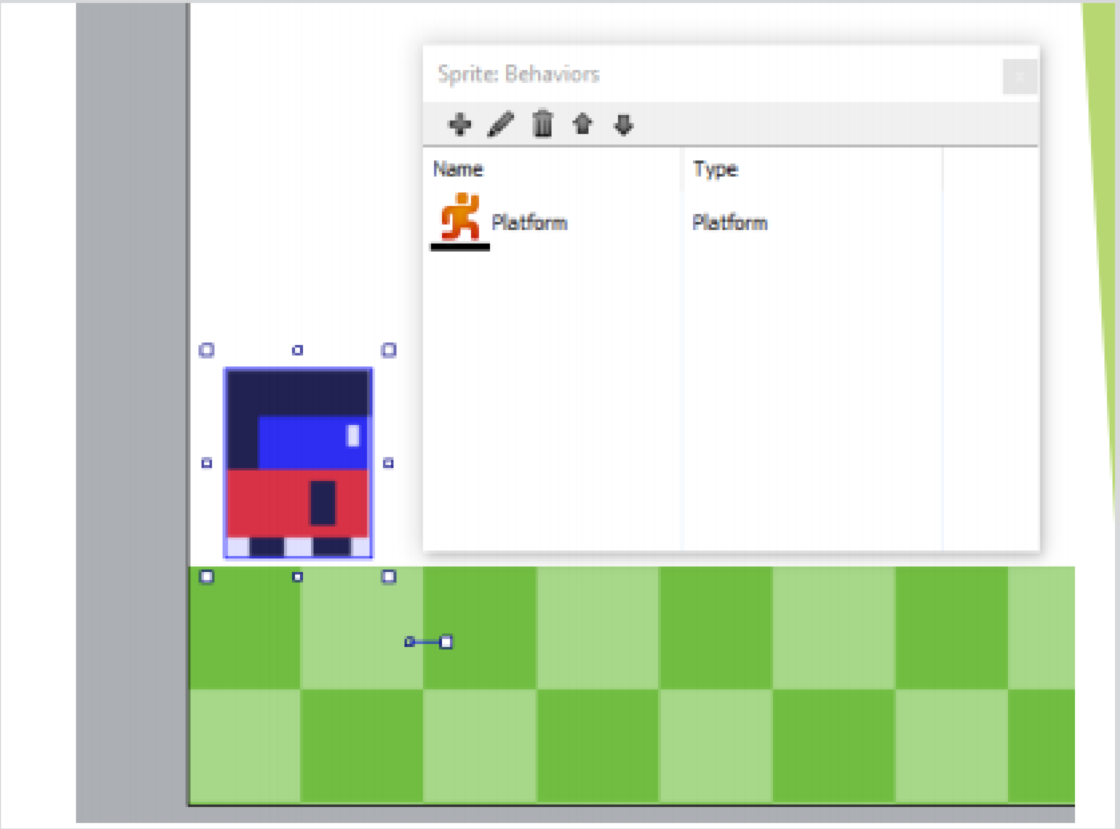
Fall through
Set angle of gravity
Set double-jump
Set gravity
Set jump strength
Set max fall speed
Set vector X
Simulate control
Set acceleration
Set deceleration
Set enabled
Set ignoring input
Set jump sustain
Set max speed
Set vector Y

Size & Position

Move at angle
Set height
Set position to another object
Move forward
Set position
Set scale

Vamos praticar

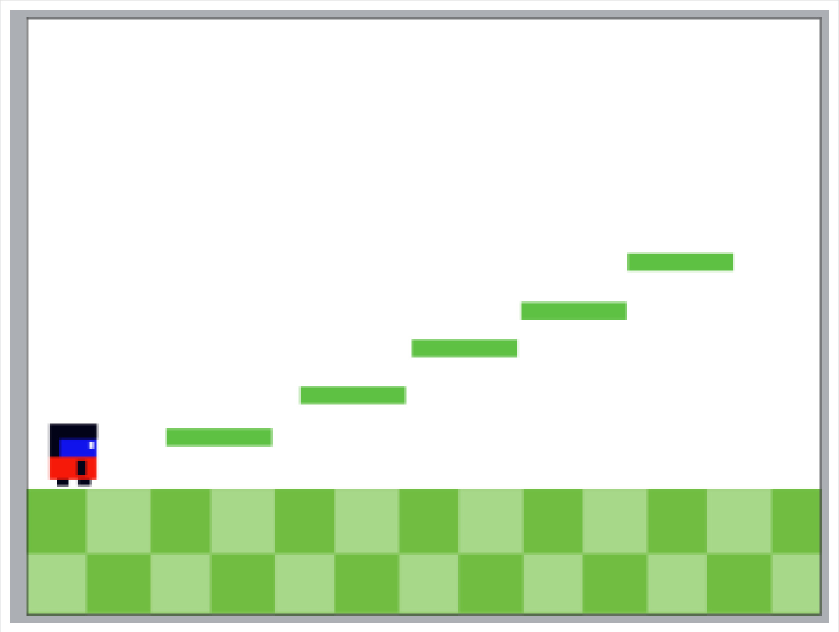
- adiciona o comportamento de Platform.
- Executa o seu projeto e vê se o personagem é capaz de andar para ambos os lados e pular.



Sprite: Behaviors

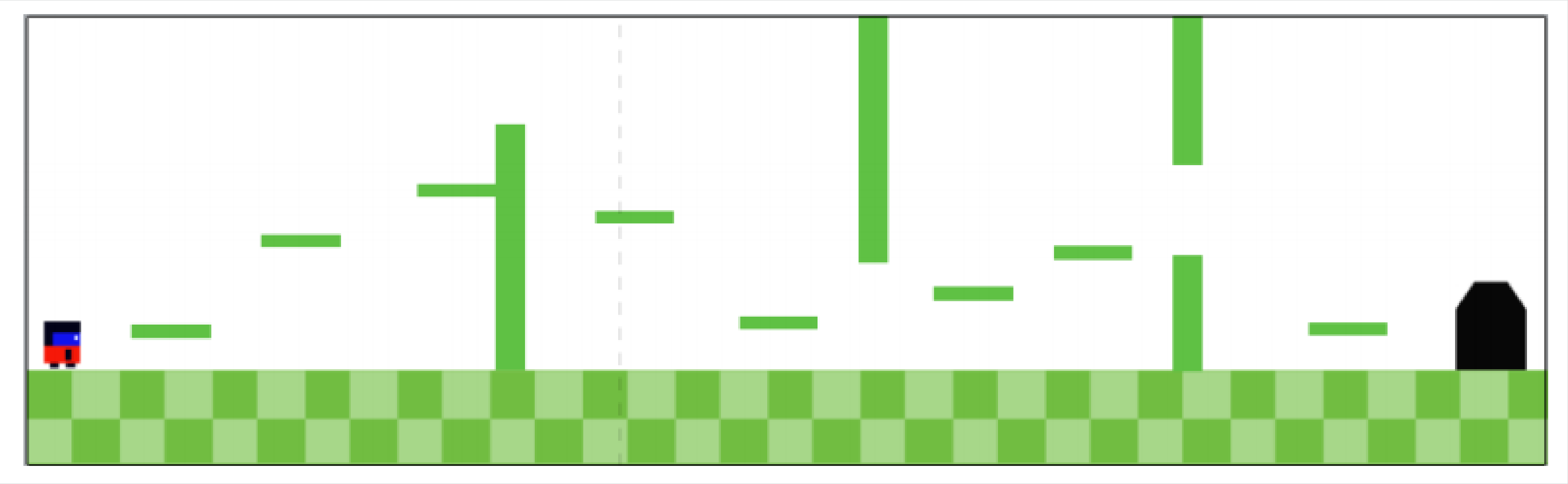
Name	Type
Platform	Platform

Agora vamos criar mais alguns objetos do tipo Solid, para serem plataformas do nosso jogo.

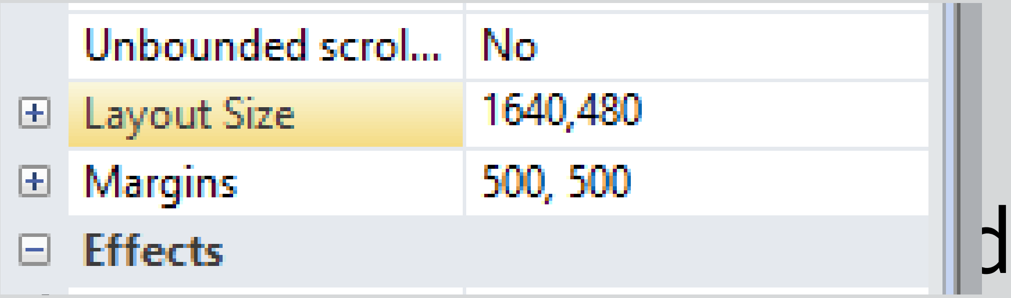


Vamos praticar

- Adicione mais uma Sprite no jogo e desenhe as plataformas desejadas.
- Adicione o comportamento de Solid também a esse objeto.
- Mantenha a tecla Ctrl pressionada e replique esse objeto pelo ecrã.
- Execute o seu jogo e veja que o personagem consegue escalar pelos objetos.



objetivo

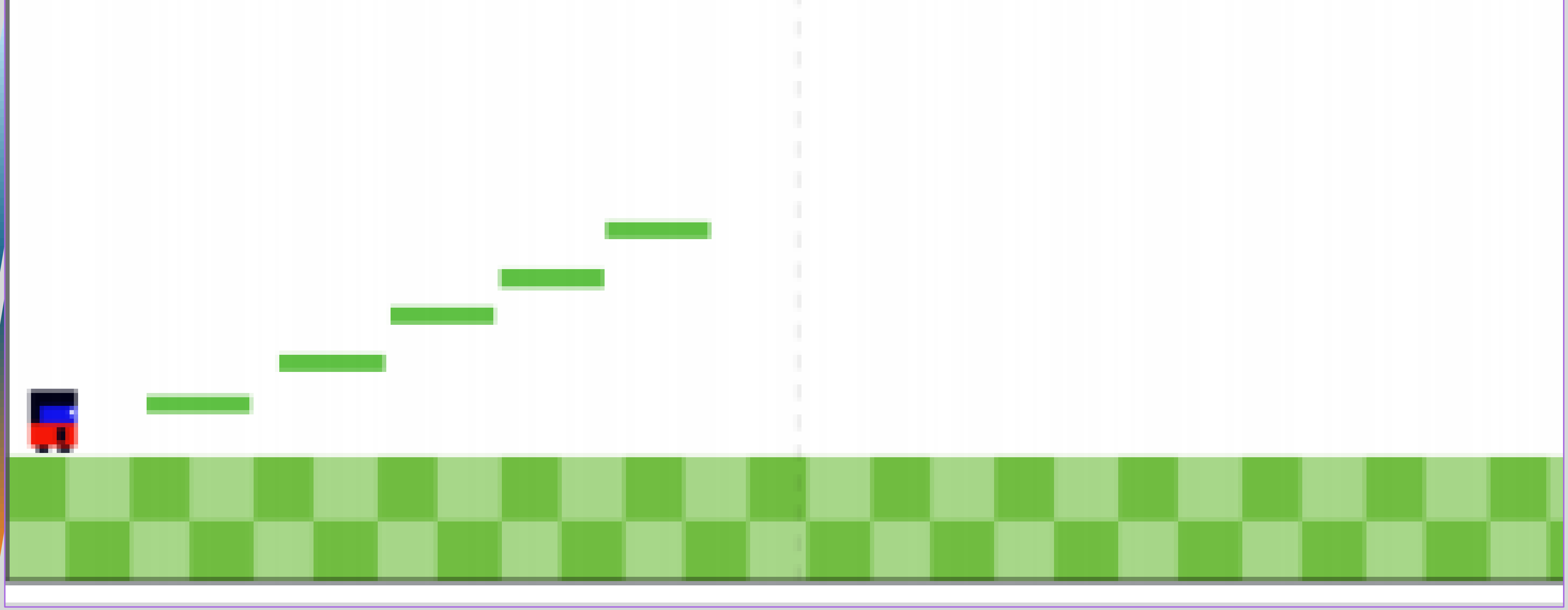


Unbounded scrol...	No
⊞ Layout Size	1640,480
⊞ Margins	500, 500
⊟ Effects	

Temos

do jogo para 1640 por 480

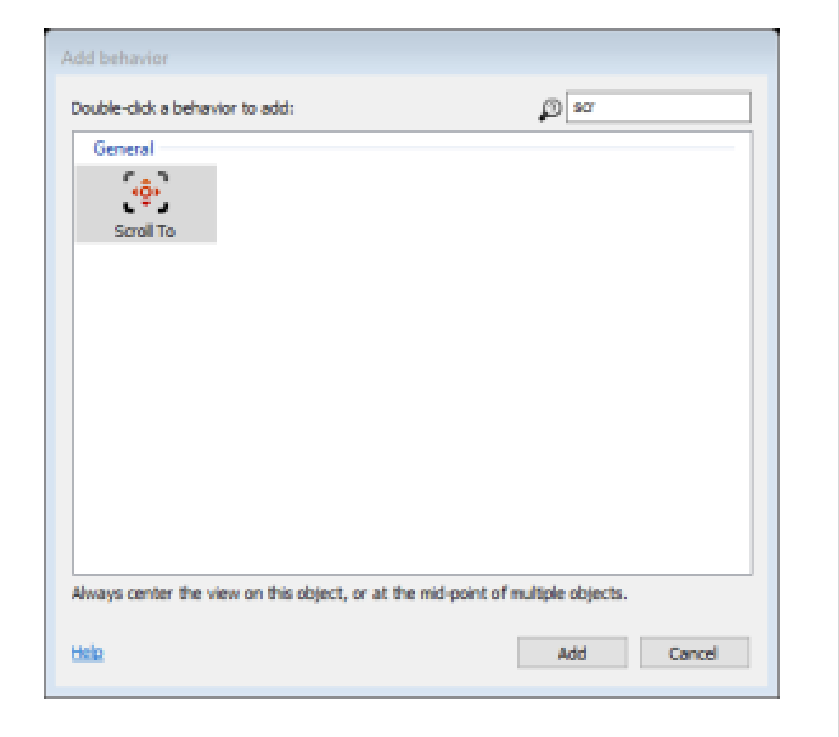
Temos que expandir também o plano de fundo



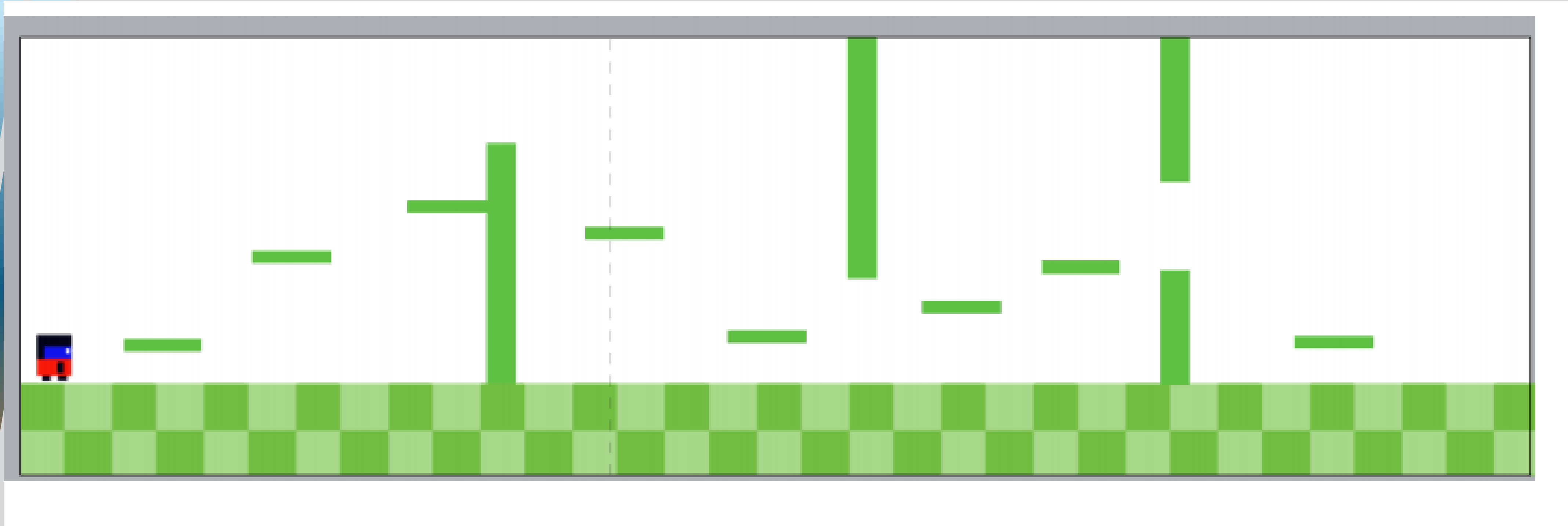
Execute o seu jogo e vê que o personagem sai do ecrã

Camara acompanha a personagem

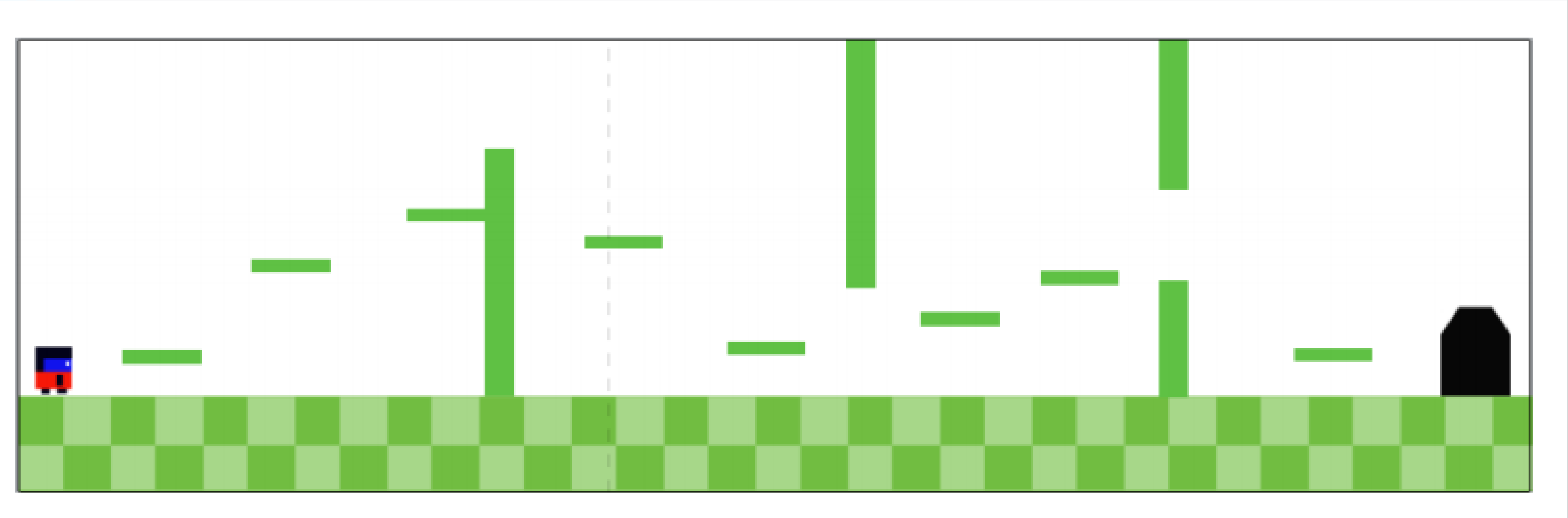
- O personagem consegue andar pelo cenário, mas a camara não o acompanha.
- Para que isso aconteça, adicione ao seu personagem o comportamento de Scroll To


Add behavior
Double-click a behavior to add:
scr
General
Scroll To
Help
Add
Cancel

Always center the view on this object, or at the mid-point of multiple objects.



Adicione mais elementos do tipo Solid ao seu jogo, com o objetivo de agregar dificuldade.



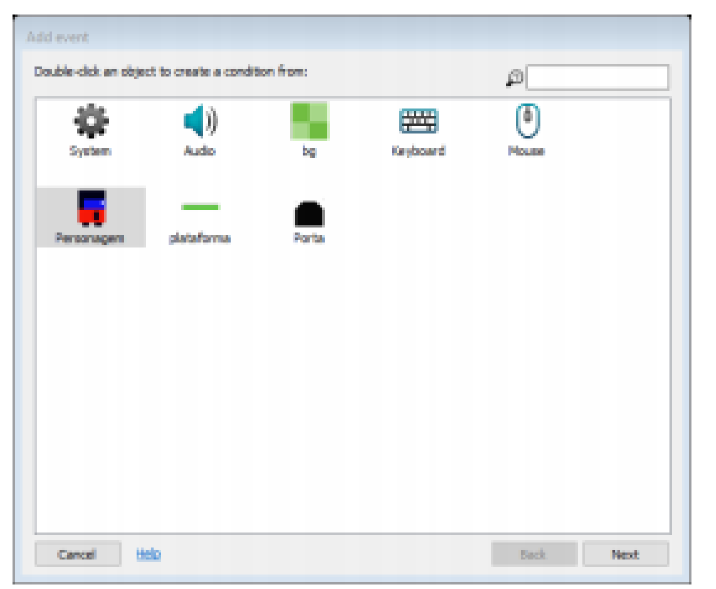
Adicione um elemento para indicar o fim do nível, quando o personagem o atingír.

Novo nível

- Para criar um novo nivel, devemos adicionar um novo layout ao nosso projeto.
- Como será parecido com a primeiro, vamos duplicar o Layout existente.
    - Para isso, clique com o botão direito sobre o layout, e selecione a opção Duplicate.
    - Renomei os Layouts para nivel_1 e nivel_2.

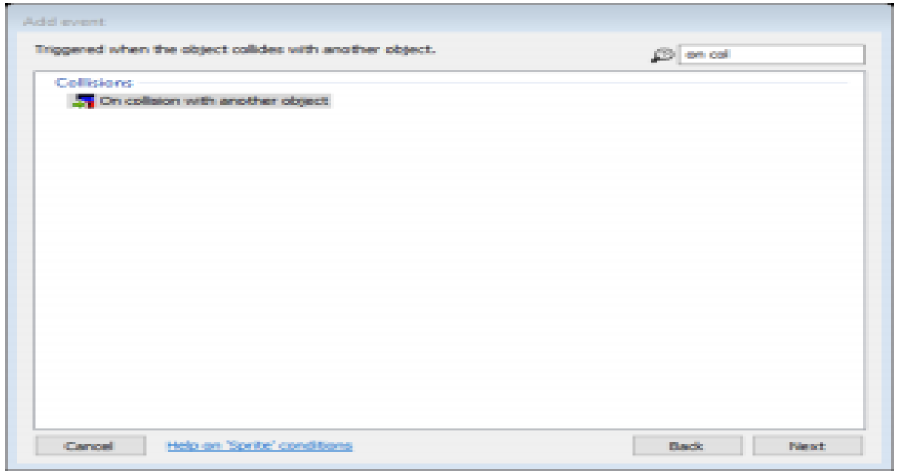
Mudar de nível

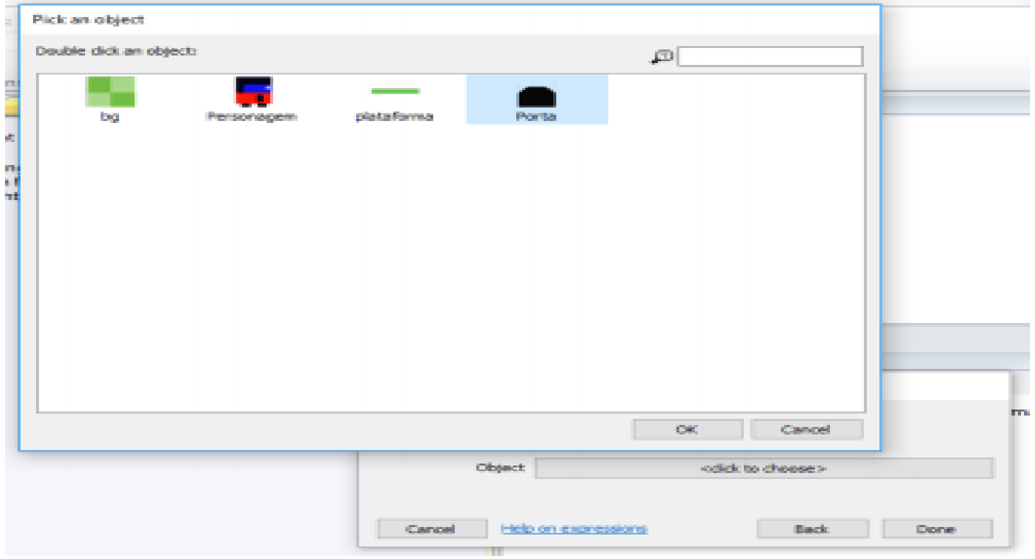
- No Layout do nível 1. vamos adicionar um evento para que o personagem ao atingir a porta passe para a fase seguinte.
- Altere o nome da event sheet 1 para nivel_1_eventos, de forma a facilitar a organização.
- Vamos adicionar um novo evento, tendo como base o objeto do Personagem.



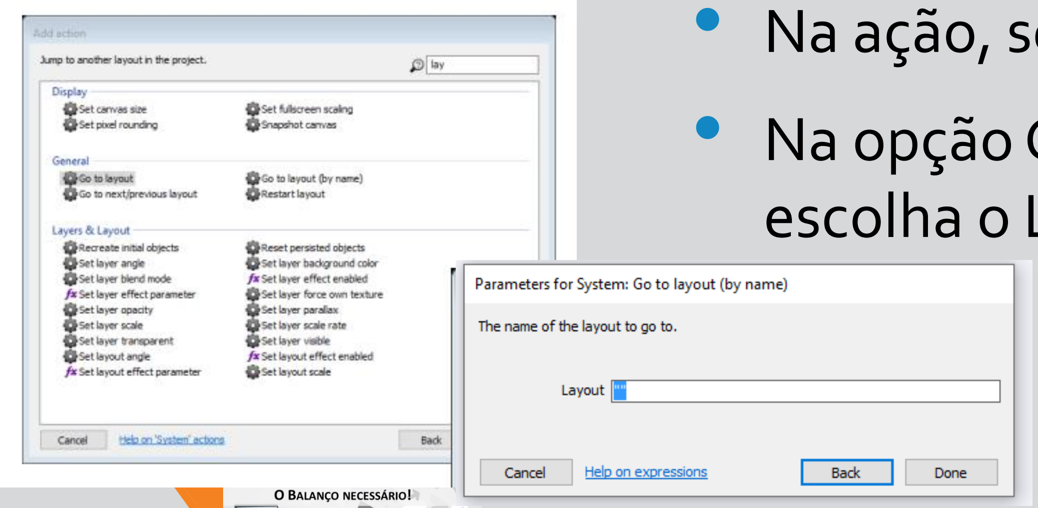
Double-click an object to create a condition from:

Add event
System
Audio
bg
Keyboard
Mouse
Personagem
plataforma
Porta
Cancel
Help
Back
Next


Add event
Triggered when the object collides with another object.
on coll
Collisions
On collision with another object
Cancel
Help on 'Sprite' conditions
Back
Next


Pick an object
Double click an object:
bg
Personagem
plataforma
Porta
OK
Cancel
Object: <click to choose>
Cancel
Help on expressions
Back
Done

- Selecione o evento "On colision with another object" e selecione o objeto da Porta.
- Na ação, selecione o elemento System
- Na opção General, selecione a opção "Go to Layout". E escolha o Layout nivel_2.


Add action
Jump to another layout in the project.
lay
Display
Set canvas size
Set pixel rounding
Set fullscreen scaling
Snapshot canvas
General
Go to layout
Go to next/previous layout
Go to layout (by name)
Restart layout
Layers & Layout
Recreate initial objects
Set layer angle
Set layer blend mode
Set layer effect parameter
Set layer opacity
Set layer scale
Set layer transparent
Set layout angle
Set layout effect parameter
Reset persisted objects
Set layer background color
Set layer effect enabled
Set layer force own texture
Set layer parallax
Set layer scale rate
Set layer visible
Set layout effect enabled
Set layout scale
Cancel
Help on 'System' actions
Back
Parameters for System: Go to layout (by name)

The name of the layout to go to.

Layout ""
Cancel
Help on expressions
Back
Done

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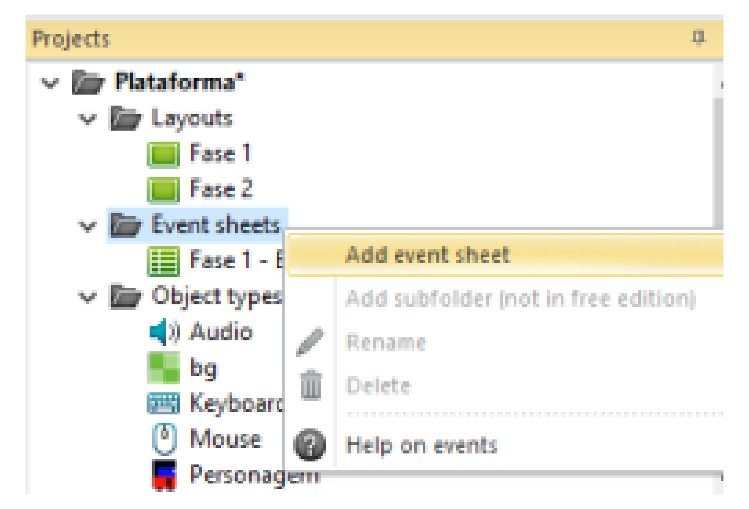
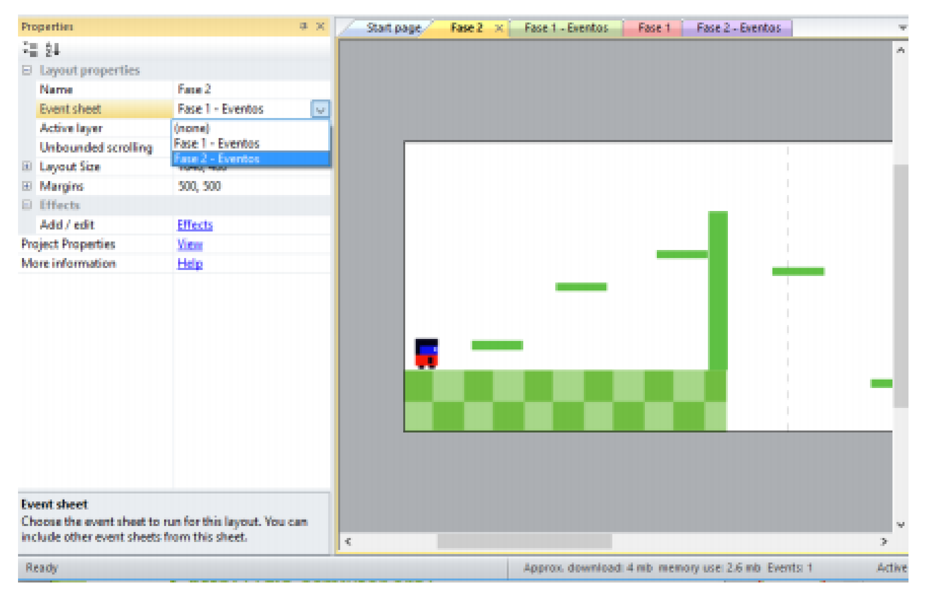
- Crie uma nova event sheet para o nível 2 e dalhe o nome nivel_2_Eventos

- Associe-a ao Layout do nível 2


Projects
Plataforma*
Layouts
Fase 1
Fase 2
Event sheets
Fase 1 - E
Object types
Audio
bg
Keyboard
Mouse
Personagem
Add event sheet
Add subfolder (not in free edition)
Rename
Delete
Help on events


Properties
Start page
Fase 2
Fase 1 - Eventos
Fase 1
Fase 2 - Eventos

Layout properties

Name	Fase 2
Event sheet	Fase 1 - Eventos
Active layer	
Unbounded scrolling	
Layout Size	
Margins	500, 500

(none)
Fase 1 - Eventos
Fase 2 - Eventos

Effects

Add / edit	Effects
Project Properties	View
More information	Help

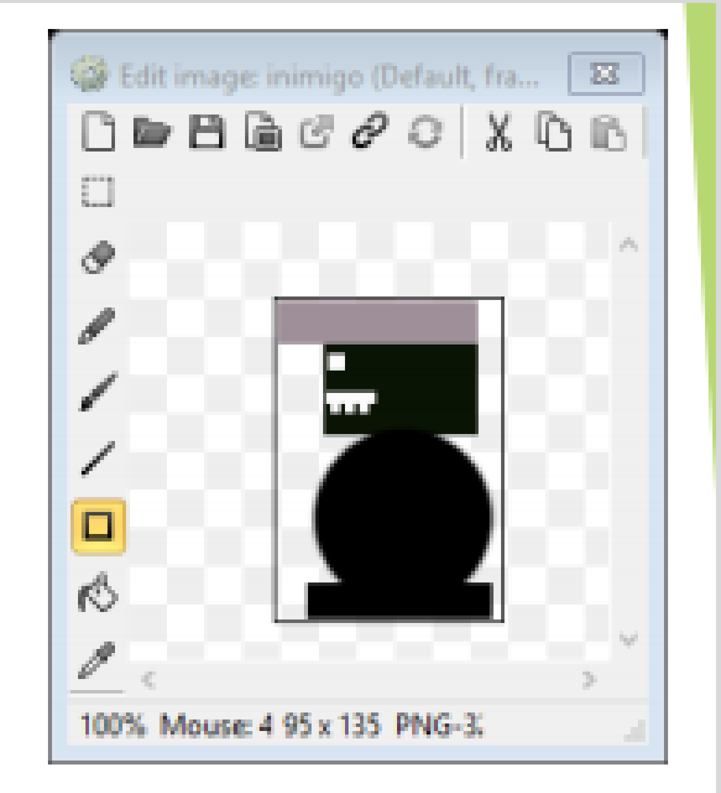
Event sheet
Choose the event sheet to run for this layout. You can include other event sheets from this sheet.

Ready
Approx. download: 4 mb memory use: 2.6 mb Events: 1
Active

- Modifique o layout, aumentando a dificuldade, caracterizando a nova fase.
- Adicione inimigos
- Adicione armas

Adicionar inimigos

- Crie uma nova Sprite para representar seu inimigo no jogo.
- Adicione uma ação para que, quando o Personagem colidir com o inimigo, o Personagem seja destruído
  - Add Event □ Personagem □ On collision with another object □ inimigo
  - Add action □ Personagem □ Destroy.
- Adicione outra ação para que o jogo volte para o início do nível após a destruição do personagem. □Add action □ System □ Go to Layout □ nivel_2

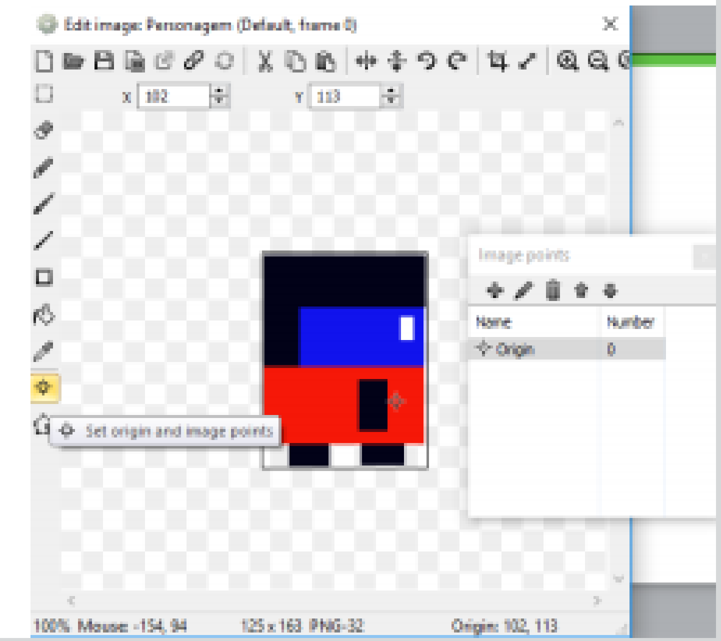

Edit image: inimigo (Default, fra...
100% Mouse: 4 95 x 135 PNG-3:

Adicione arma ao personagem

A personagem terá uma “arma” para poder destruir o inimigo.

- Adicione um novo Sprite para ser a “bala” a ser disparada pelo personagem.
- À bala, adicione o comportamento (behaviour) de Bullet.
- Adicione um objeto do tipo Keyboard ao seu jogo.
- Adicione o seguinte evento e açeõs:
  - Add Event ⍰ Keyboard ⍰ On key pressed ⍰ (e pressione a tecla espaço)
  - Add Action ⍰ System ⍰ Create object ⍰ bala ⍰ on Layer 1
  - Add Action ⍰ Personagem ⍰ Spawn another Object ⍰ bala

- Ao pressionar a tecla espaço, a personagem irá disparar balas.
- Se a posição de onde as balas saem for estranha podes posicioná-las para partir do centro do objeto,
    - Para isso, abre a edição da personagem, seleciona o componente Set origin and image points, e posicione-o no centro da personagem


Edit image: Personagem (Default, frame 0)
X 102
Y 113
Image points
Name
Number
Origin
0
Set origin and image points
100% Mouse: -154, 94
125 x 163 PNG-32
Origin: 102, 113

Destruindo o inimigo

Adcione um evento para que, quando a bala colidir com o inimigo, o inimigo seja destruído:

- Add event ⍰ bala ⍰ on collision with another object ⍰ inimigo
- Add action ⍰ inimigo ⍰ destroy
- ⍰Add action ⍰ bala ⍰ destroy