TECHNOLOGY IN ACTION™

Practical GameMaker Projects

Build Games with GameMaker Studio 2

—

Ben Tyers

Apress®

Practical GameMaker Projects

Build Games with GameMaker Studio 2

Ben Tyers

Apress®

Practical GameMaker Projects: Build Games with GameMaker Studio 2

Ben Tyers
Worthing, West Sussex, United Kingdom

ISBN-13 (pbk): 978-1-4842-3744-1 ISBN-13 (electronic): 978-1-4842-3745-8
https://doi.org/10.1007/978-1-4842-3745-8

Library of Congress Control Number: 2018950019

Managing Director, Apress Media LLC: Welmoed Spahr
Acquisitions Editor: Steve Anglin
Development Editor: Matthew Moodie
Coordinating Editor: Mark Powers

Cover designed by eStudioCalamar

Cover image designed by Freepik (www.freepik.com)

Distributed to the book trade worldwide by Springer Science+Business Media New York, 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax (201) 348-4505, e-mail orders-ny@springer-sbm.com, or visit www.springeronline.com. Apress Media, LLC is a California LLC and the sole member (owner) is Springer Science + Business Media Finance Inc (SSBM Finance Inc). SSBM Finance Inc is a **Delaware** corporation.

For information on translations, please e-mail editorial@apress.com; for reprint, paperback, or audio rights, please email bookpermissions@springernature.com.

Apress titles may be purchased in bulk for academic, corporate, or promotional use. eBook versions and licenses are also available for most titles. For more information, reference our Print and eBook Bulk Sales web page at www.apress.com/bulk-sales.

Any source code or other supplementary material referenced by the author in this book is available to readers on GitHub via the book's product page, located at www.apress.com/9781484237441. For more detailed information, please visit www.apress.com/source-code.

Printed on acid-free paper

Table of Contents

About the Author

Ben Tyers is a freelance programmer and technical writer by day and a sci-fi horror novel writer by night. He made his first computer game way back in 1984 on a ZX Spectrum 48K computer when he was eight years old. His passion for creation has continued since then. He holds a number of computer-related qualifications. When relaxing, Ben has an infatuation for old-school horror and sci-fi films, particularly 1960s B movies.

About the Technical Reviewer

Dickson Law is a GameMaker hobbyist, commentator, and extension developer with six years of community experience. In his spare time, he enjoys writing general-purpose libraries, tools, and articles covering basic techniques for GameMaker Studio. As a web programmer, his main areas of interest include integration with server-side scripting and API design. He lives in Toronto, Canada.

Acknowledgments

Spot the Difference Backgrounds: Natalie Hubbert
Spot the Difference Clock: 123rf.com

Snake Beep Sound: Greencouch/FreeSound.org
Snake Double Beep Sound: InspectorJ Freesound.org
Snake GameOver Voice: (c) Ben Tyers/Monty Lewis Sauerwein
Snake Music: Eric Matyas/www.soundimage.org
Snake Sprites: nido/GraphicRiver.ent
Snake Background: antkevyv/123rf.com

Match Three Sweets: oglsdl/OpenGameArt.org
Match Three Star: Ecrivain/OpenGameArt.org

Dart Dartboard: VectorPortal.com
Dart Font: Darrell Flood
Dart Background: Prasong Takham/123rf.com
Dart Dart: pngtree.com
Dart Voices: (c) Ben Tyers/Monty Lewis Sauerwein
Dart Thud Sounds: Dane S Casperson/FreeSound.org

Quiz Images: Medals Julien/OpenGameArt.org

Rock, Paper, Scissors Images: Komain Techanadt/123rf.com
Rock, Paper, Scissors Audio: (c) Ben Tyers/Monty Lewis Sauerwein

Jet Pack Backgrounds: GameBuildingTools.com
Jet Pack Birds: Bevouliin.com/OpenGameArt.org
Jet Pack Player: Bevouliin.com/OpenGameArt.org
Jet Pack UFO: UFO Carlos Alface/OpenGameArt.org
Jet Pack Bullet: Napoleon/OpenGameArt.org
Jet Pack Explosion: J-Robot/OpenGameArt.org
Jet Pack Voices: (c) Ben Tyers/Monty Lewis Sauerwein
Jet Pack Music and Sound Effects: Eric Matyas/SoundImage.org

Platform Game Ladder and Platforms: Kenney.nl
Platform Game Player Sprite: Spyros Kontis
Platform Game Audio: Eric Matyas/SoundImage.org

Bomber Player Sprites: Spyros Kontis
Bomber Sprites: Kenney.nl
Bomber Fruit: keith carnage/OpenGamrArt.org
Bomber Bomb Sprite: truezipp/OpenGameArt.org
Bomber Explosion: Ben Tyers
Bomber Game Audio: Eric Matyas/SoundImage.org

Tower Defense Towers and Missiles: Kenney.nl
Tower Defense Arrow: IgnasD/OpenGameArt.org
Tower Defense Smoke: KnoblePersona/OpenGameArt.org
Tower Defense Explosion: samoliver/OpenGameArt.org
Tower Defense Blood: PWL/OpenGameArt.org
Tower Defense Heart: cdgramos/OpenGameArt.org
Tower Defense Missile: Napoleon/OpenGameArt.org
Tower Defense Coin: galangpiliang/OpenGameArt.org

Introduction

Thank you for purchasing my book!

This book offers step-by-step instructions for making 10 mini games. Each chapter covers a different game.

The games have been chosen to introduce you to some of the features of the integrated development environment (IDE) and GameMaker Language (GML). It is strongly suggested that you create these games in the order that they are presented in this book. Each game assumes you have studied and understood the content and concepts of the previous chapter(s).

By the end of this book you will have a sound knowledge of the fundamentals of GameMaker Studio 2. You will have the skills needed to start making your own games and possibly the start of a career in the game-making industry.

Resources for this book can be accessed via the **Download Source Code** button located at www.apress.com/978484237441.

CHAPTER 1

Spot the Difference

In this chapter, you will make a basic Spot the Difference game. The coding is quite simple, and it's a great way to start exploring the IDE. All of the images used in the game are available in the Resources folder that you downloaded. This project uses a background image and instances of an object to mark where the differences are, plus a control object for keeping track of the player's progress.

The aim of this game is for the player to find all of the differences between two images before time runs out.

When you start GMS2, you will be presented with the start screen shown in Figure 1-1.

B. Tyers, *Practical GameMaker Projects*, https://doi.org/10.1007/978-1-4842-3745-8_1

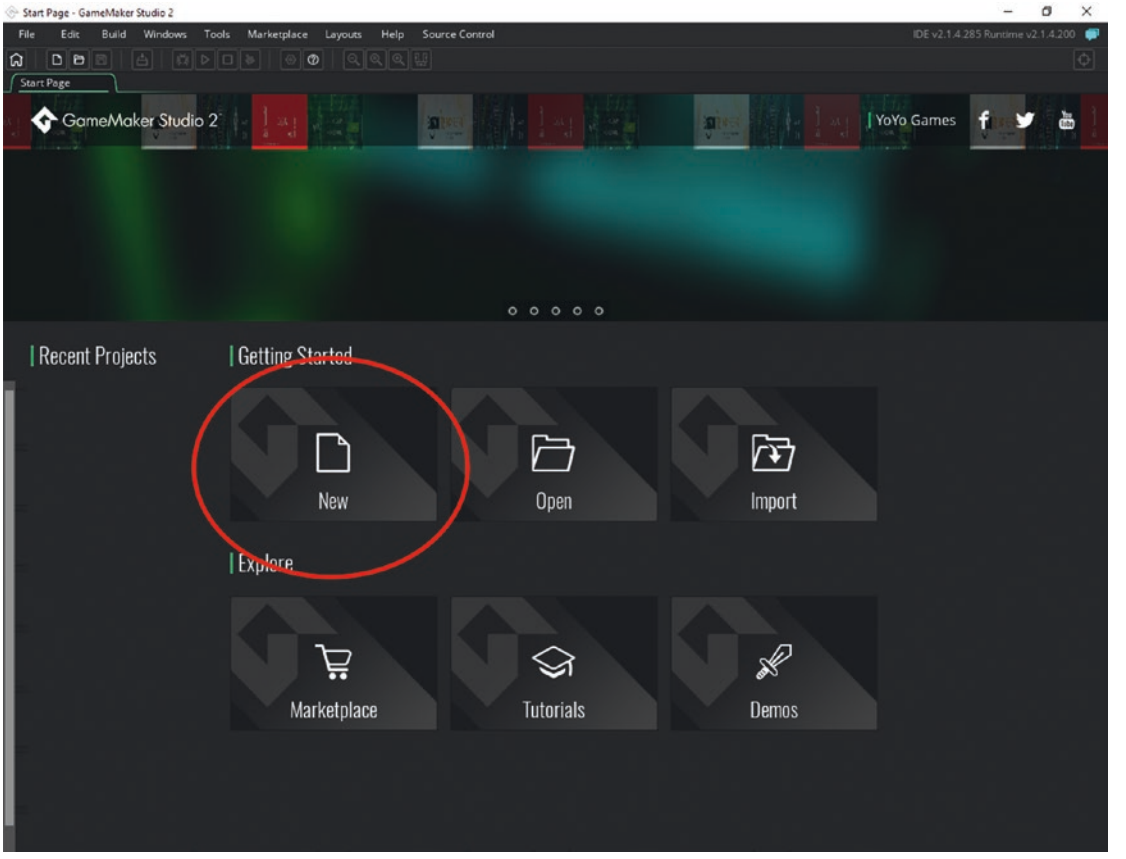

Figure 1-1. *The Start screen*

Click New, as shown in Figure 1-1, and then select GameMaker Language, as shown in Figure 1-2.

Figure 1-2. *Starting a GameMaker Language project*

Next, give the project a name, for example **spot**, as shown in Figure 1-3.

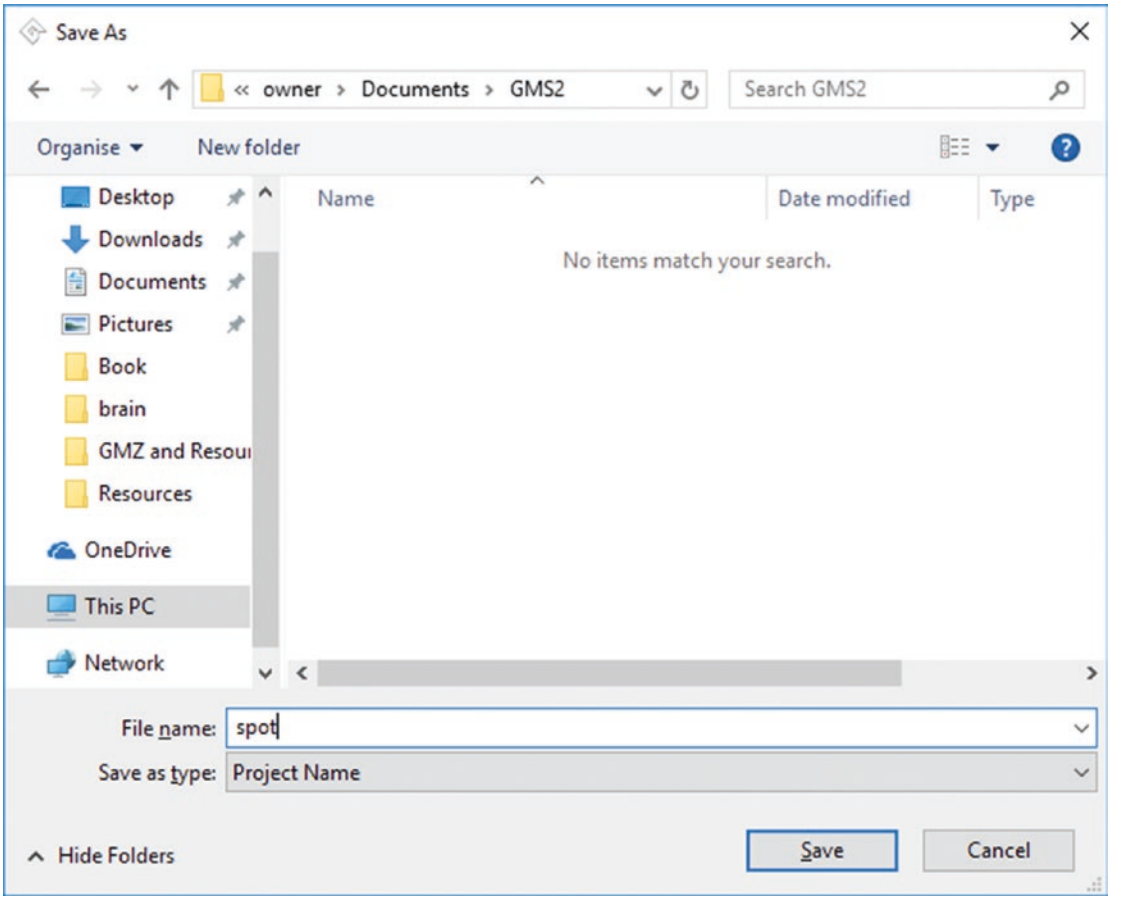

Figure 1-3. *Setting a name for a project*

You will be presented with a screen like the one shown in Figure 1-4.

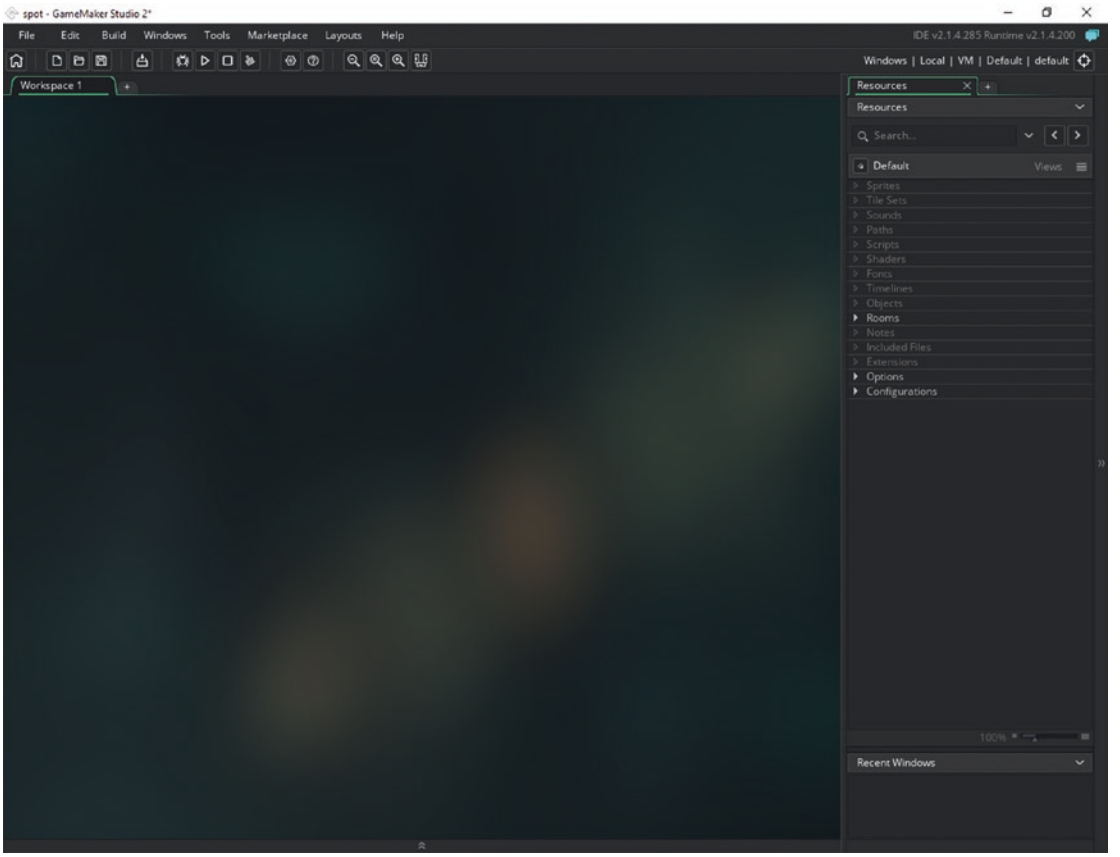

Figure 1-4. *The initial start screen*

This may look a little daunting at first, but don't worry; after you have completed the first five chapters of this book, you will be comfortable enough to find your way around this screen. If the Resources tab is not shown on the right of the window, you can click Windows in the top menu and then Resources.

This game of Spot the Difference uses four images, so load them now. In the Resources tab, right-click Sprites and then Create Sprite, as shown in Figure 1-5.

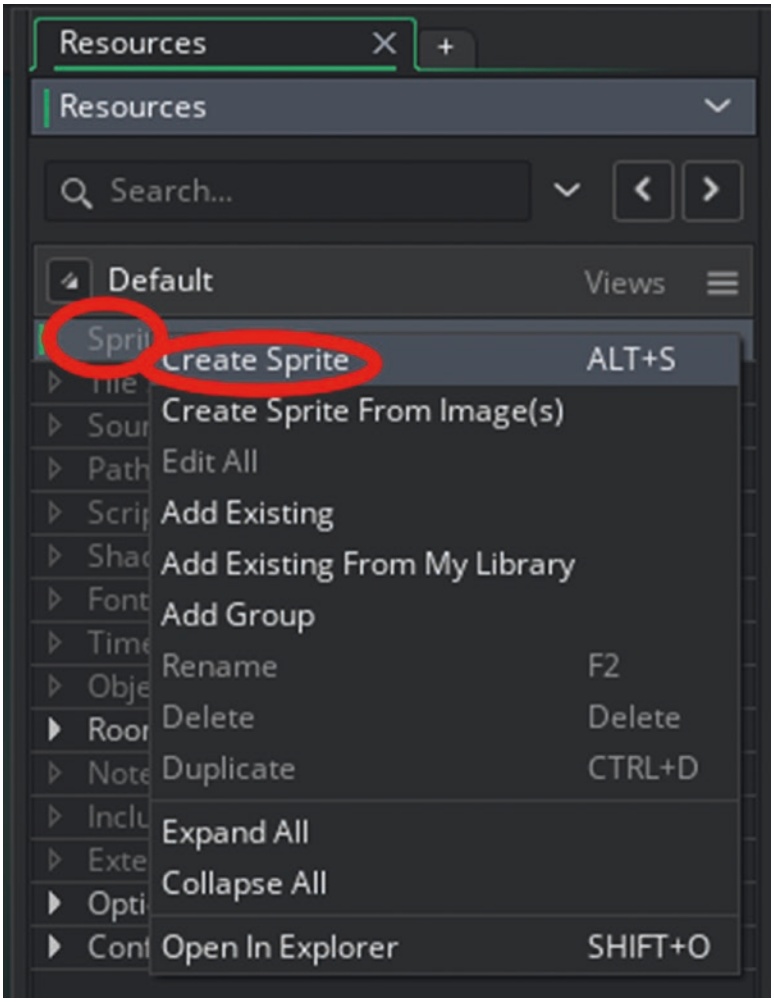

Figure 1-5. *Creating a new sprite*

Next, name the sprite **bg_1** and click Import, as shown in Figure 1-6.

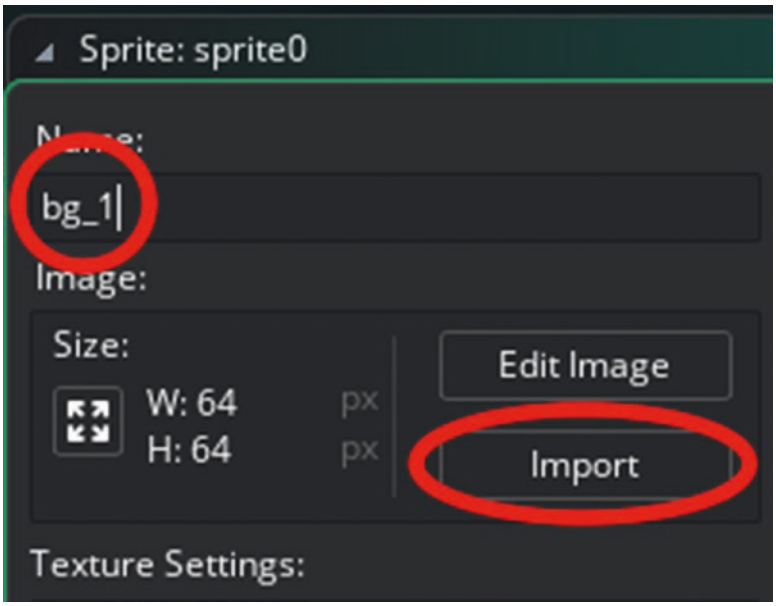

Figure 1-6. *Naming the sprite and importing it*

Navigate to the Resources folder and load in **Spot_Level_1**, as shown in Figure 1-7.

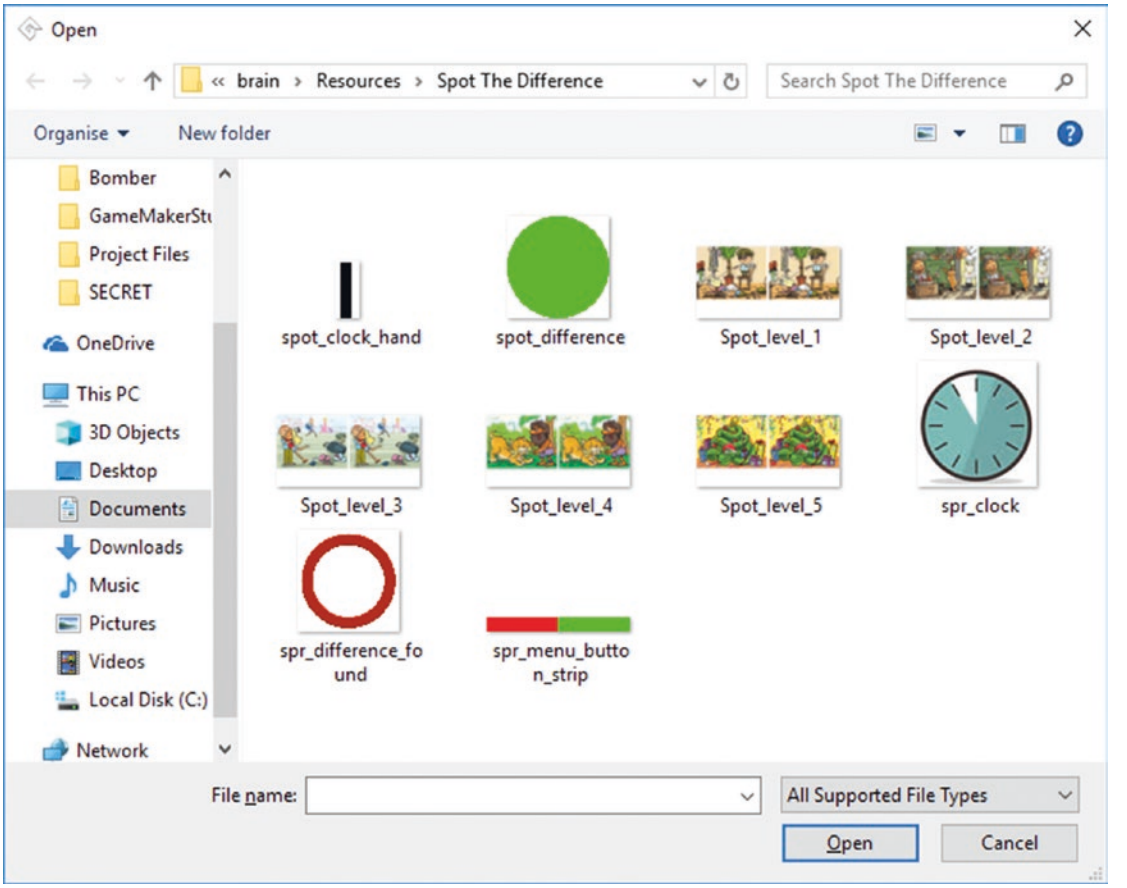

Figure 1-7. *Loading in a sprite*

When the dialog pops up, click Yes, as shown in Figure 1-8. You can also check the "Don't show the message again" box, also shown in Figure 1-8.

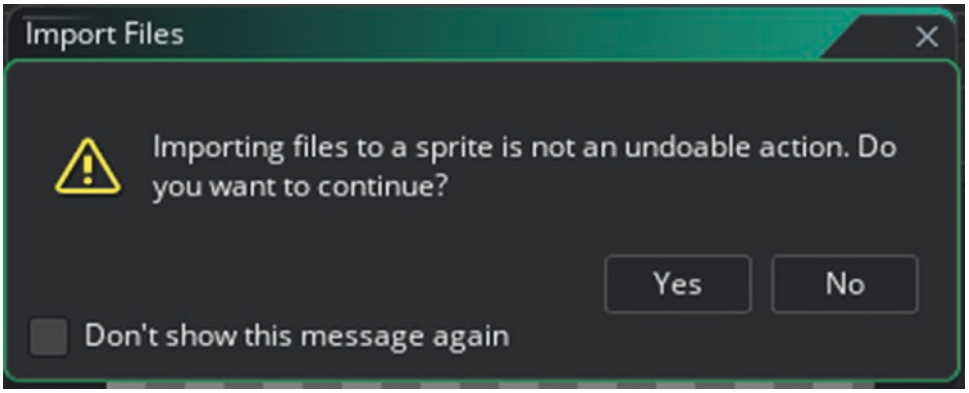

Figure 1-8. *Dialog pop-up*

Your screen will look something like Figure 1-9.

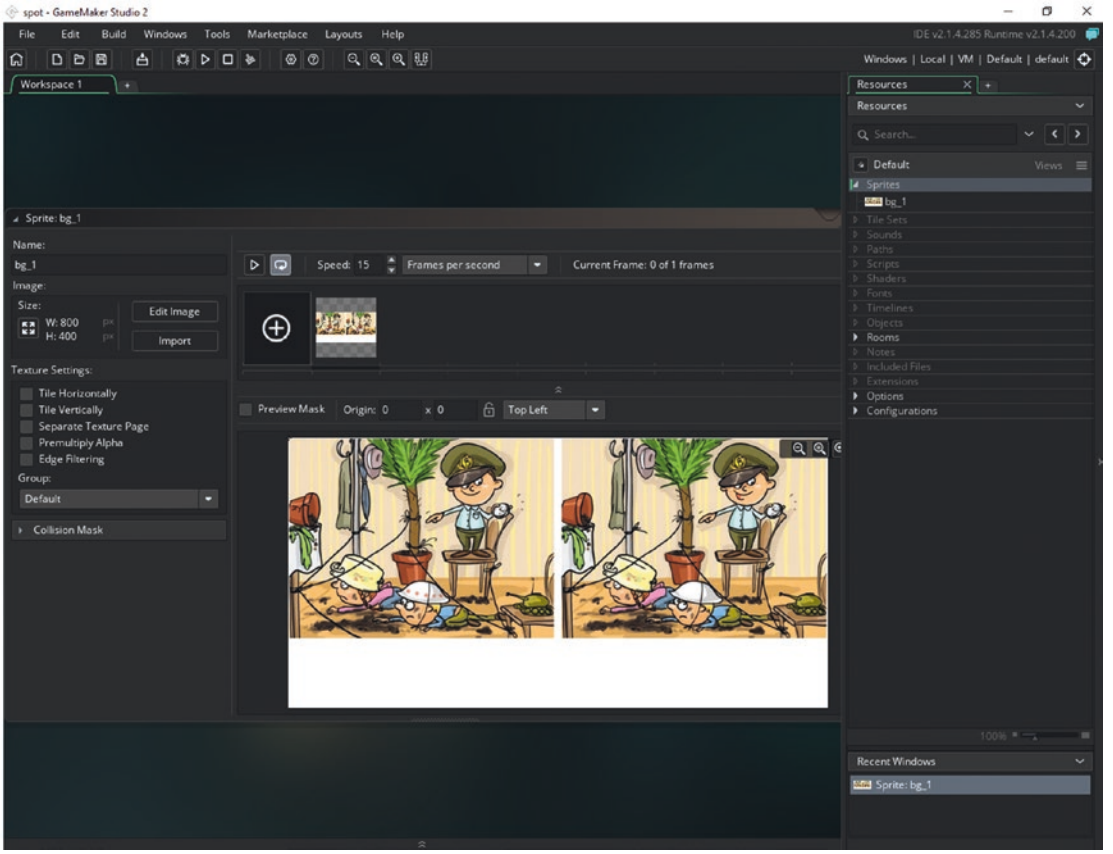

Figure 1-9. *A sprite loaded in*

Now, save and close this window. There are a few ways to do this. The first is to drag the window title with the left mouse button held down and then click the X. The second is to hold down the middle mouse button in an empty area and drag the workspace contents so you can see the close X box, as shown in Figure 1-10, and click it.

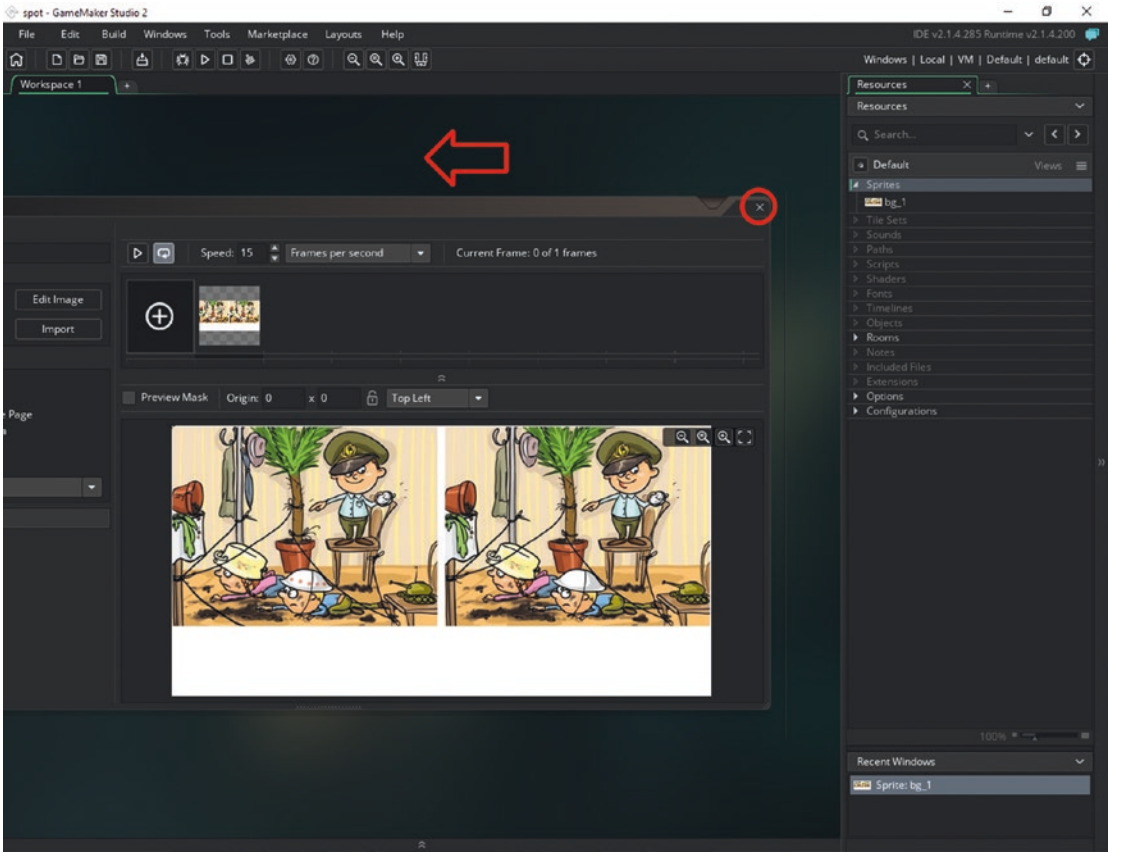

Figure 1-10. *One method of closing a window*

You can also right-click the window bar and select Close, as shown in Figure 1-11.

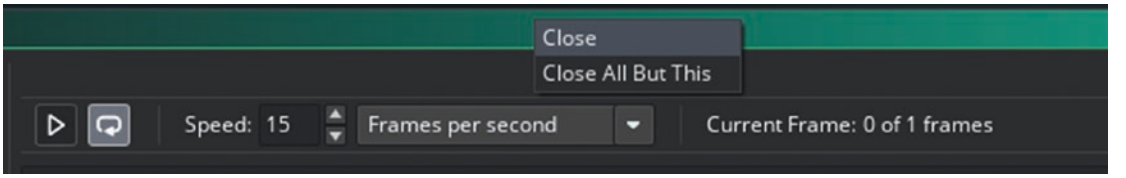

Figure 1-11. *The other method of closing a window*

Now, create a new sprite named **bg_2** and load in another resource so it looks like Figure 1-12.

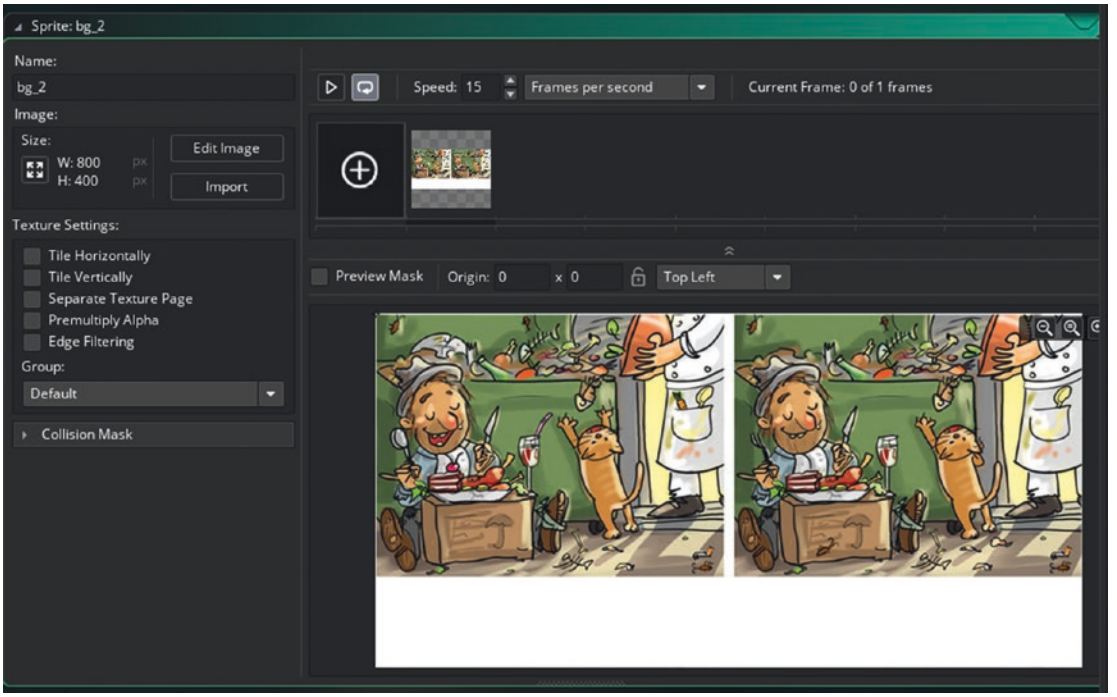

Figure 1-12. *The bg_2 setup*

Next, create a sprite named **`spr_menu_button`** and load it in. This sprite is a little different. Set the name of the sprite and click Edit Image, as shown in Figure 1-13.

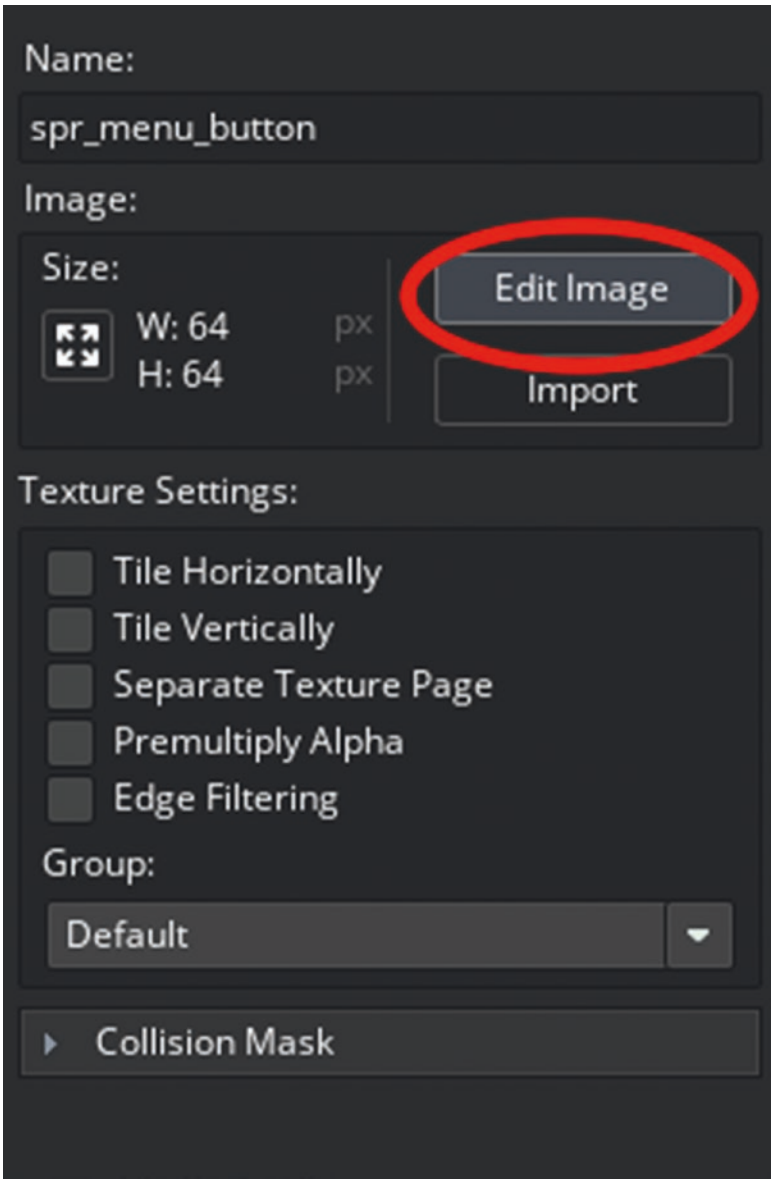

Figure 1-13. *Editing an image*

Click Image ➤ Import Strip Image. Select **`spr_menu_button_strip`**, as shown in Figure 1-14.

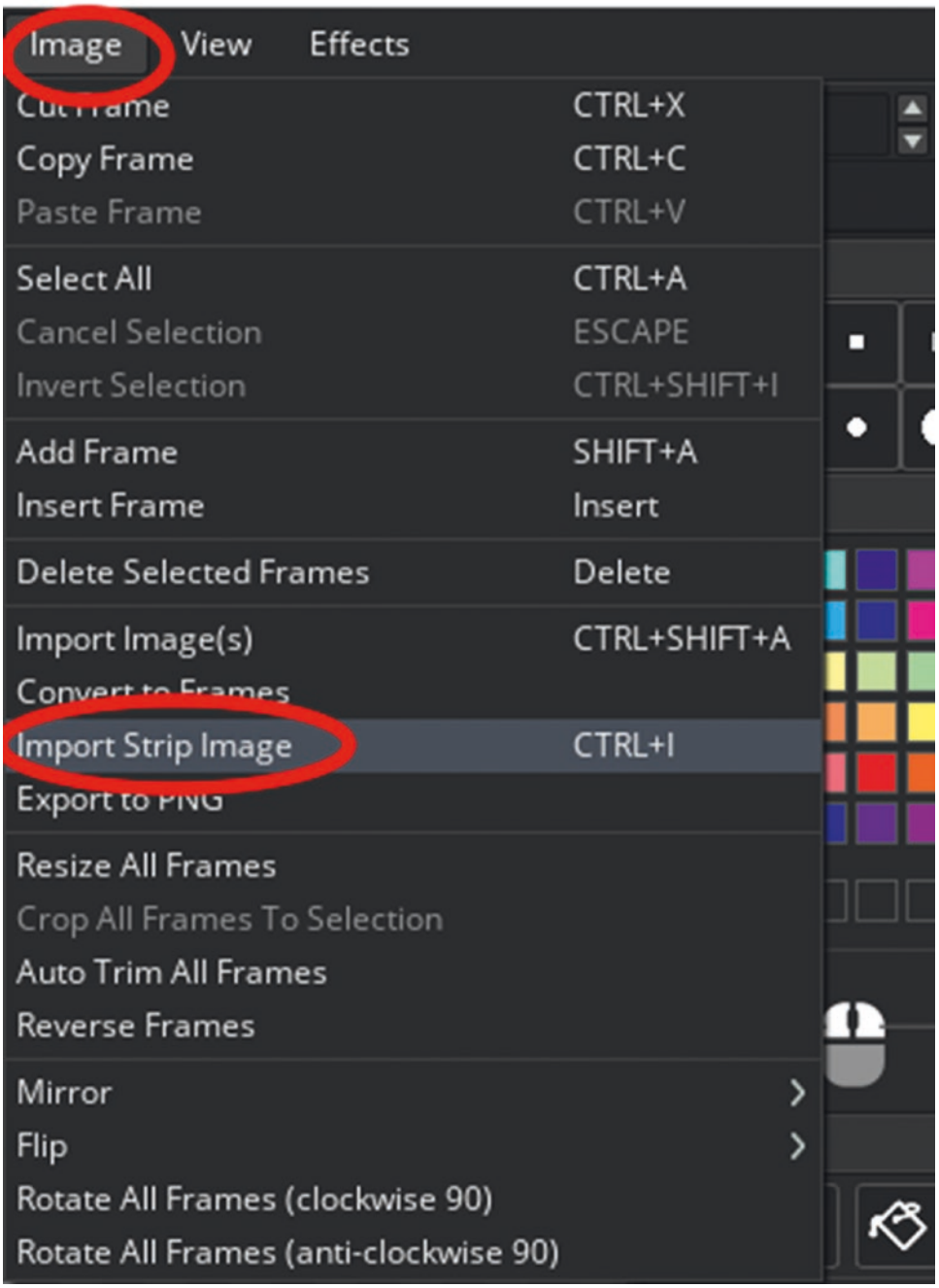

Figure 1-14. *Importing a strip image*

Set the number of frames and frames per row to 2, the frame width to 275, and the frame height to 55, as shown in Figure 1-15.

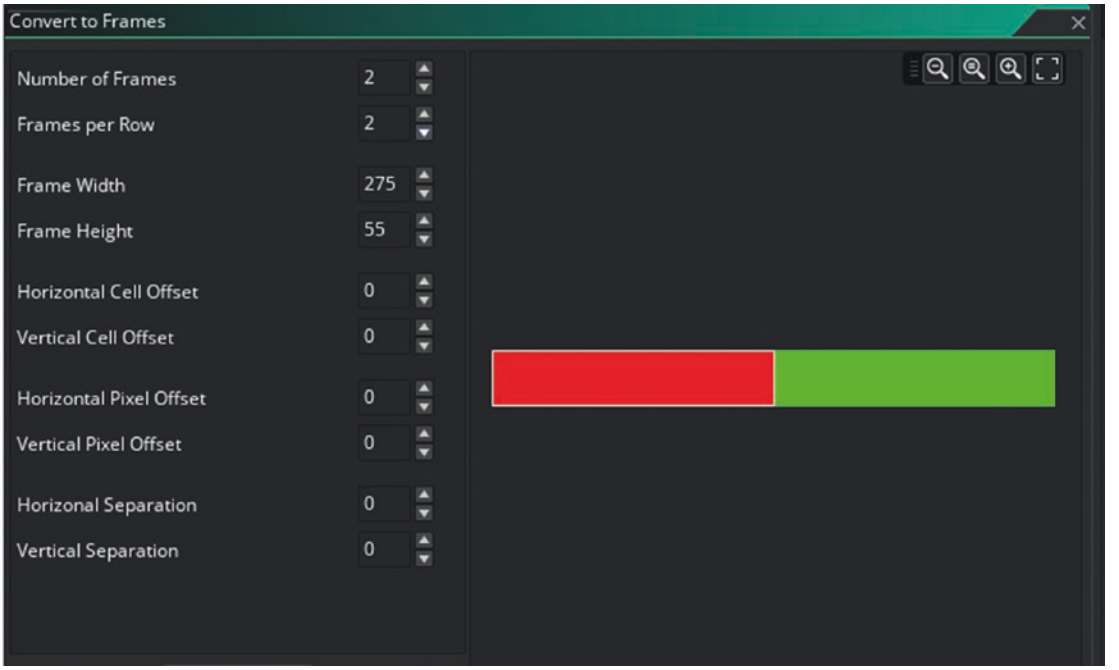

Figure 1-15. *Settings for the sprite strip*

Next, click Convert. You can close this window by clicking the X shown in Figure 1-16.

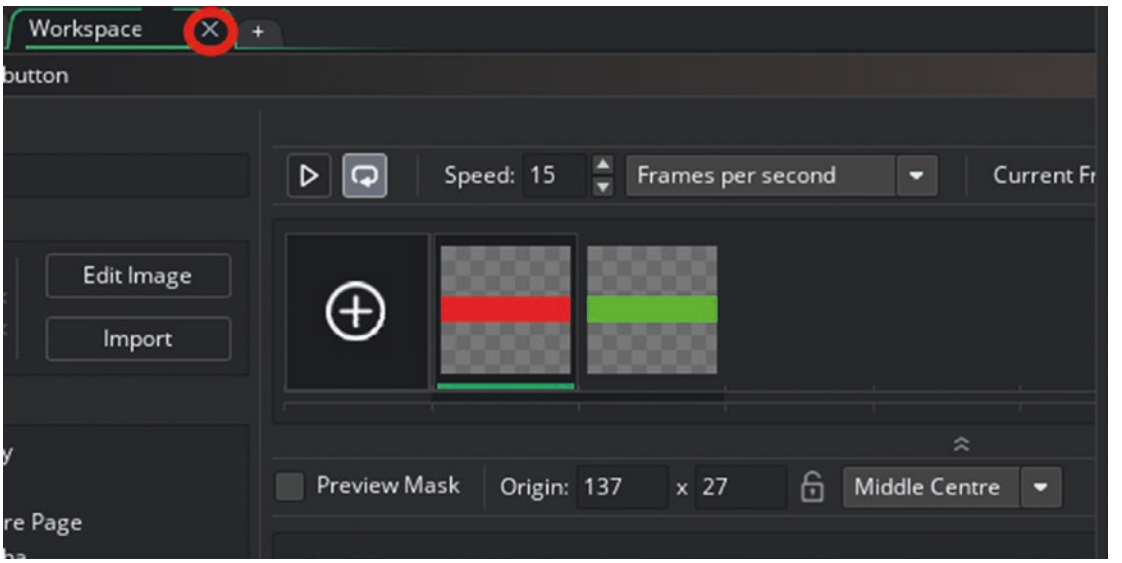

Figure 1-16. *Closing the sprite editor*

The final thing to set up for this sprite is the origin. The sprite origin is the place where the image is anchored when it is placed into a room. Set this as middle center, as shown in Figure 1-17.

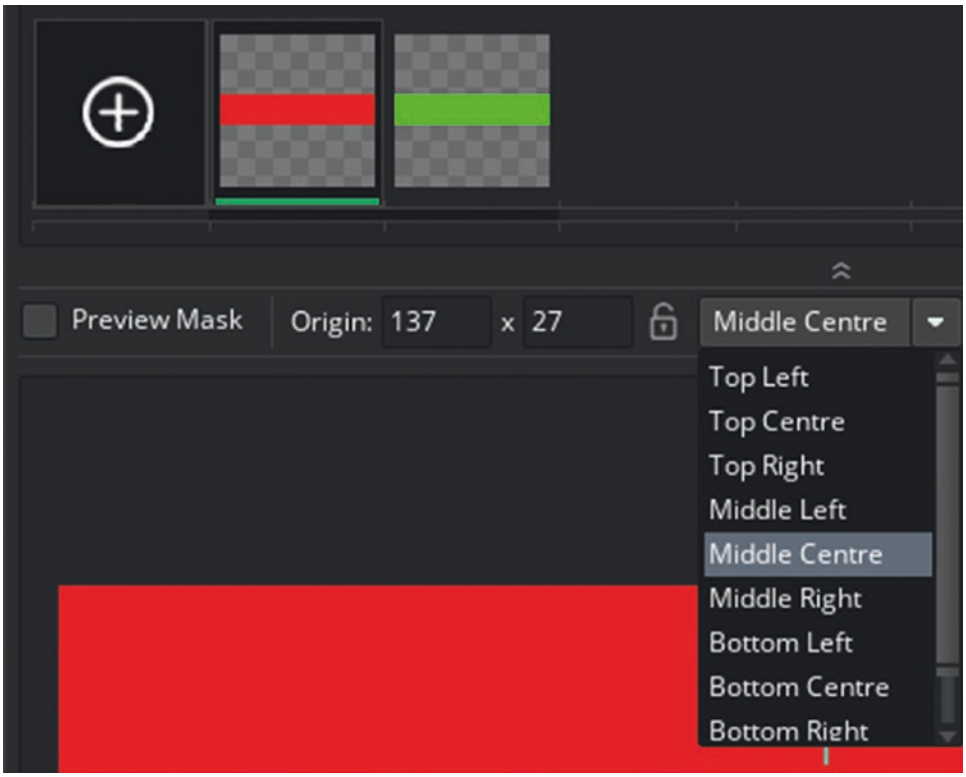

Figure 1-17. *Setting the sprite origin as middle center*

You can now close this window.

Next, create two sprites named **`spr_face`** and **`spr_difference`** and set the origin to middle center for both. The sprites needed for this are in the Resources folder. You should now be able to do this without screenshots.

Next, create a couple of fonts to use for drawing. You can create a new font by right-clicking Fonts in the Resources tree, as shown in Figure 1-18. Create two fonts. One is **`font_info`**, which is Arial size 12, and the other is **`font_hud`**, which is Arial size 19. These fonts can then be set to draw text in whatever font style and size you have set.

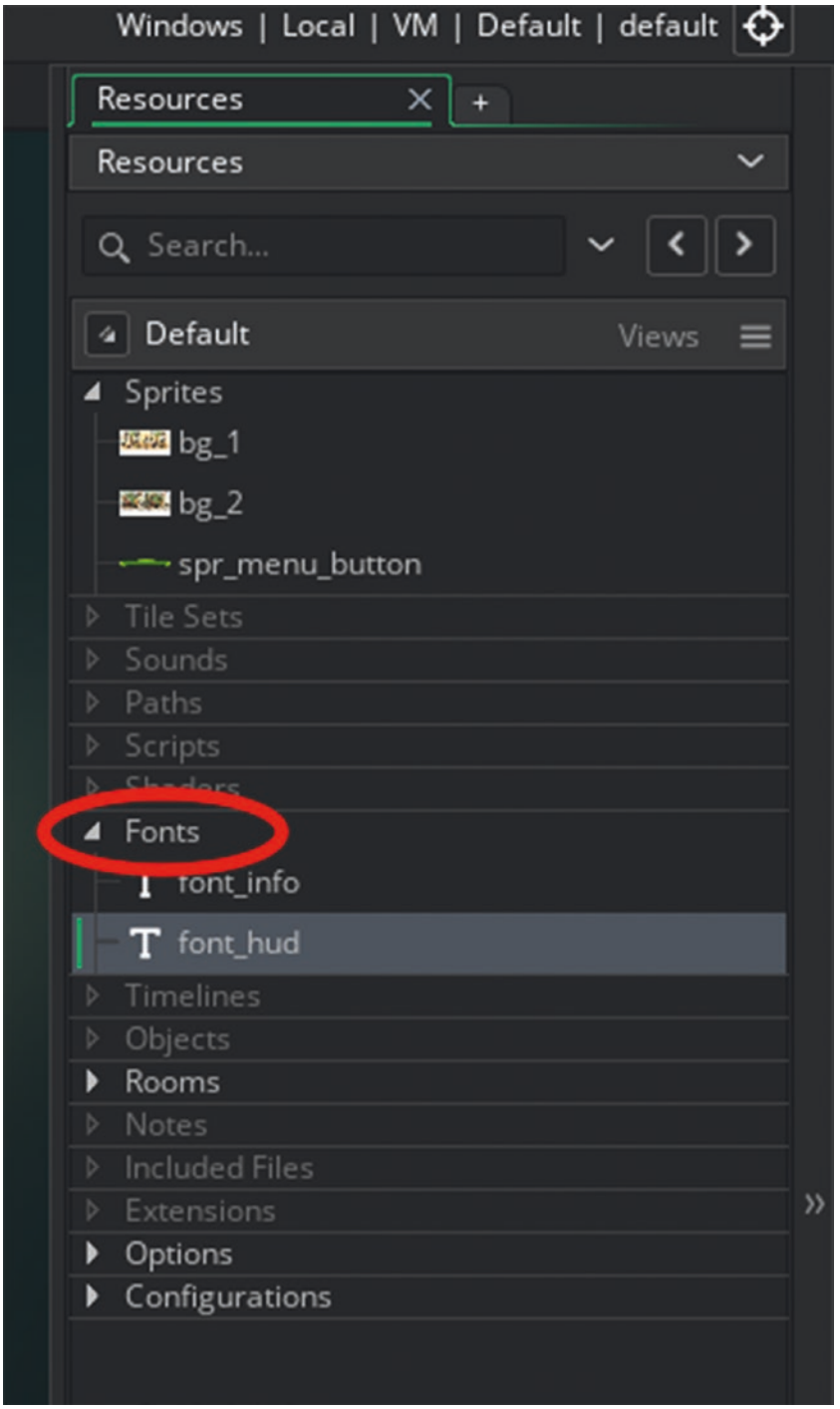

Figure 1-18. *Creating a new font*

In this game, you save the player's progress in something called an INI file. These files allow for easy saving and loading of data. This data is generally loaded at the start of the game. You will create an object to load any data.

First, you need to create an object. Right-click on Objects in the Resources tree and create a new object named **`obj_splash`**, as shown in Figure 1-19.

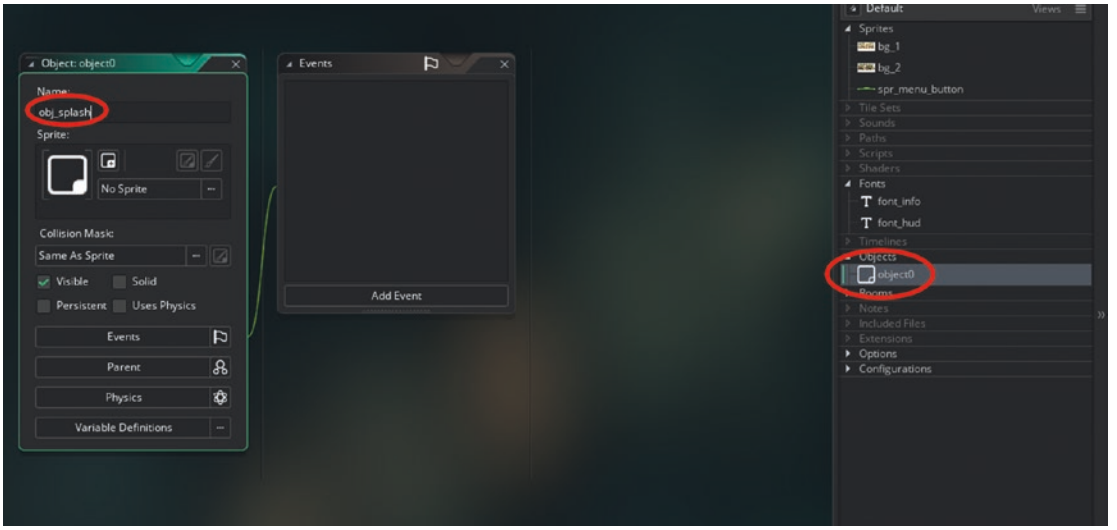

Figure 1-19. *Creating and naming an object*