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Reference Guide

octostudio.org

Contents

About

OctoStudio is a free mobile coding app that lets you create animations, games and other interactive projects using photos, drawings, and sounds from the world around you. OctoStudio is developed by the Lifelong Kindergarten group, the MIT Media Lab team that created the Scratch coding language.

This reference guide provides additional background on the OctoStudio app for those interested in learning more. If you are new to OctoStudio, please take a look at our Learning Resources, listed below. This guide includes a complete list of coding blocks and tips about other features. We hope this guide can be a useful source of supplementary material as you create or help others creating projects with OctoStudio.

The best way to learn OctoStudio is by exploring and tinkering

Learning Resources in the OctoStudio App

The OctoStudio app contains several learning resources.

Project Editor

💡 **Ideas to Try:** Explore cool features in OctoStudio and incorporate sample blocks of code.

Explore Page

▶️ **Getting Started video:** Shows basic steps for creating a project.

🔀 **Sample Projects:** Try a variety of sample projects and customize them.

❓ If you have any further questions, please see the Support section of our website at **octostudio.org**

Editor

Stage
Where your creations come to life

Selected Sprite

Sprite Menu
Displays all your sprites

Tools for editing selected sprite

Coding Area
Drag in and snap together blocks to code your sprites

Blocks Palette
All blocks used to code your projects are found here

Motion

move   jump   turn   go to

Tools and buttons

Share

Ideas to Try

Maximize Stage

Home

Full screen

Add sprite

Add backdrop

Stop

Add sound

Play

when

jump 50

Clean up coding area

Undo

Zoom out

Zoom in

Redo

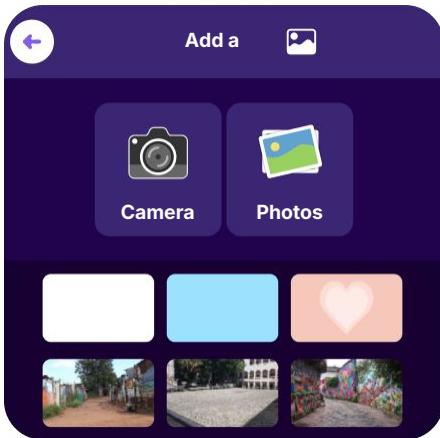Motion

move   jump   turn   go to
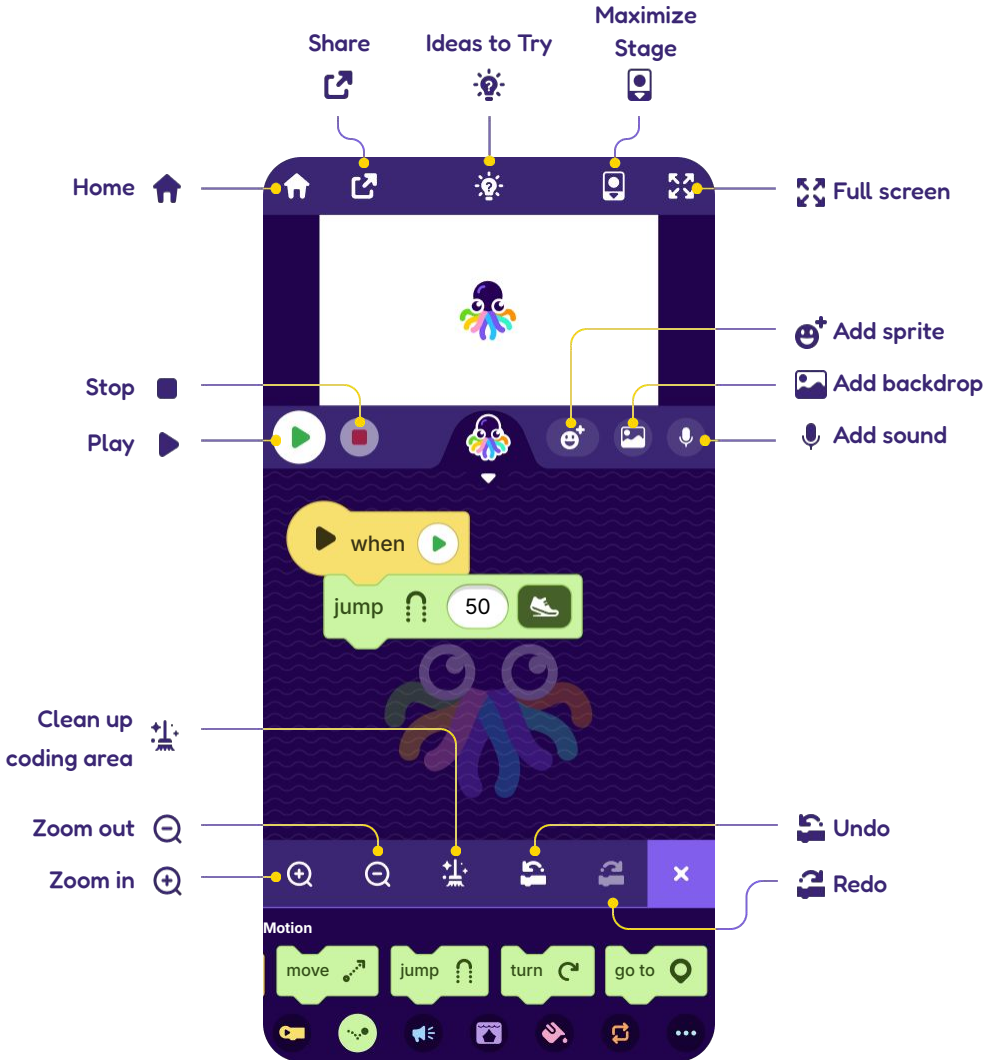
Backdrops

The **Stage** is 320 units wide and 180 units high, forming an x-y grid. The sprite will automatically be positioned in the center (160, 90).

Add a **backdrop** by taking a picture or choosing from the library!

Options

📷 Take a picture

🖼 Choose from your photo album

Backdrop Library
Choose from our collection of backdrops, including some photos from our global partners!
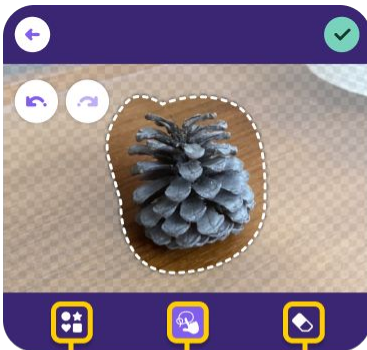
Sprites

Start with a **sprite**! A sprite is any character, object, or image that you want to bring to life.

Create a sprite

There are four different ways to add a sprite: draw in the paint editor, take or choose a photo, or choose from the emoji library.
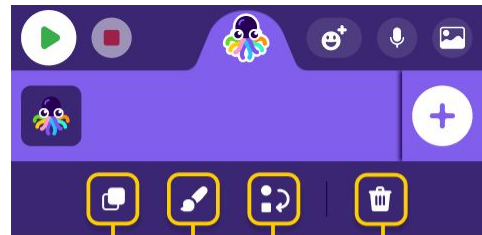
Add a sprite

Paint **Camera** **Photos**
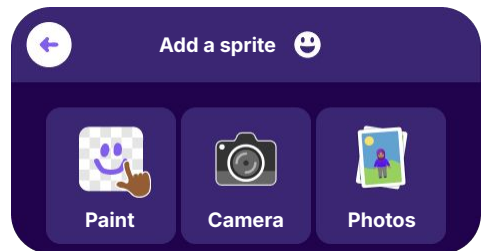
Adding a photo sprite

Sprite options in editor

Duplicate
Create a copy of your sprite
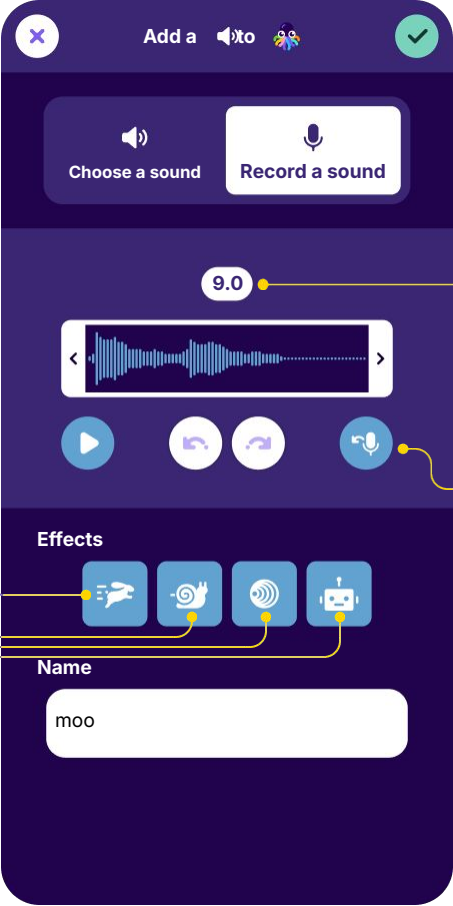
Replace
Replace your current sprite image

Trace and **crop** your image

Crop your photo into **shapes**: a circle, heart, square, or star

Erase from the area you have traced

Edit
Personalize and draw on your sprite

Delete
Remove sprite from the project

Sounds

Record your own sounds or select one from the sound library to use in your OctoStudio projects.

Effects

Speed up 🐰
Make your recording faster

Slow down 🐌
Make your recording slower

Echo 🔊
Adds an echo effect to your recording

Robot 🤖
Adds a robotic effect to your recording

Add a 🔊to 🐙

Choose a sound **Record a sound**

9.0

Effects

Name

moo

Recording Length
Displays length of recording in seconds

Replace
Re-record current recording
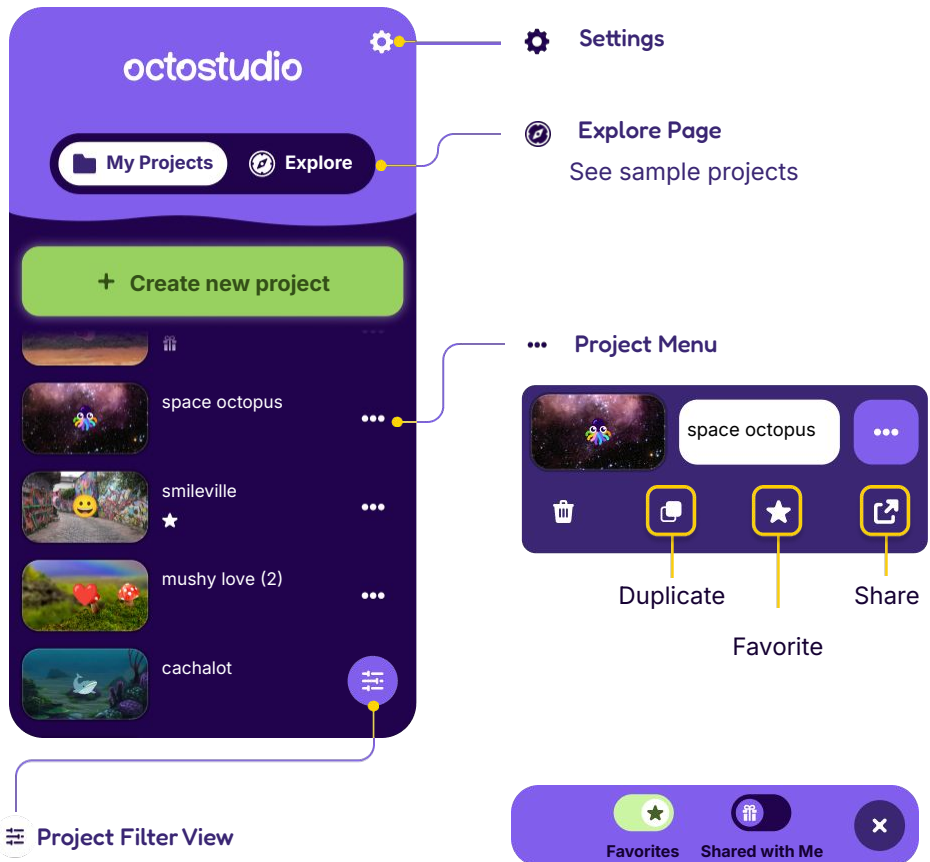
Select a section of the recording by dragging the two arrows on either side of the recording box. All effects will only be applied to the selected section. If you want to crop your video to the selected length, press ✂ **Crop**

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Home screen

All your projects are listed in the home screen. You can also go to Settings and the Explore page from the home screen.

⚙️ **Settings**

🧭 **Explore Page**
See sample projects

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📁 My Projects   🧭 Explore

+ Create new project

space octopus   •••

••• **Project Menu**

space octopus   •••

🗑️   📋   ⭐   🔗

smileville
⭐

Duplicate   Share

Favorite

mushy love (2)   •••

cachalot   ⚙️

⭐ Favorites   🎁 Shared with Me   ✖️
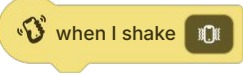
⚙️ **Project Filter View**

You can filter which projects are listed.
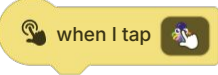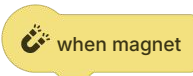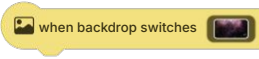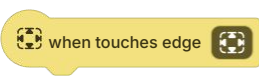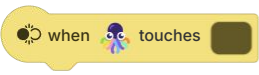
⭐ Favorites: Lists only projects you have favorited (with a star)

🎁 Shared with me: Lists only projects that were shared with you

Block categories
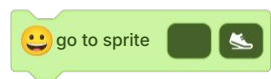
There are seven block categories in OctoStudio.

Name	Description
📹 **When to start?**	Place one of these blocks on top of each script of code to tell it when to run.
Motion	Tell your sprites how to move.
📢 **Words and Sounds**	Tell your sprite to play sounds, display text, and more.
🎭 **Scene**	Make visual changes such as resizing your sprites and changing the backdrop.
Colors and Light	Change the color of your sprite and other light settings.
🔁 **Control**	Controls the flow of your code.
••• **More Blocks**	Includes miscellaneous blocks such as variables, 'tilt', and custom blocks.
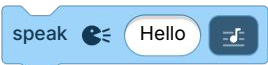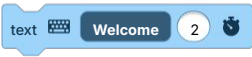
When to start?

Block	Description	Tips and Options
▶ when ▶	When the play button is tapped, runs the script below	
🤳 when I shake 📳	Starts the script when you shake the phone (or tablet)	Choose how much of a shake is needed to start: low 📳 medium 📳 high 📳
👆 when I tap 🎯	Starts the script when you tap on the selected sprite or other option	Choose to tap 👆 sprite 🖼️ backdrop 👆 anywhere
☄️ when magnet	Starts the script when a magnet is placed near the phone (or tablet)	See OctoStudio YouTube for examples. (Note: This feature may not be supported on some Android devices.)
🖼️ when backdrop switches 🌌	Starts the script when you set the Stage to the selected backdrop.	
📷 when touches edge 🎯	Starts the scripts when the sprite reaches selected edge of the Stage	Only starts if the sprite reaches the edge from **inside** the Stage (not when the sprite wraps to the other side).
☄️ when 🐙 touches ⬛	Starts the script when the current sprite touches the selected sprite	Choose a sprite to detect. At least two sprites are needed for this block to run.

Motion

Block	Description	Tips and Options
move `50` `○··→` 👟	Moves the sprite in a direction a specified amount.	Pick direction with arrow, set speed as 👞 slow 👟 medium 👟fast ⚡ instant
jump ∏ `50` 👟	Makes a sprite go up and down	Type larger number for higher jumps, negative for jumping downward.
turn `45` ↻ 👟	Rotates the sprite a certain number of degrees	Type in an angle from 1 to 360. Set direction to ↻clockwise ↺counterclockwise 🎲 random
go to 📍 👟	Tells a sprite where to go on the Stage	Pick a destination by tapping ◯ . You can drag the sprite in the window, type in numbers, or use random 🎲
😀go to sprite ⬛ 👟	Makes this sprite go to the position of another sprite	This sprite will go to the **rotation point** of the other sprite. (You can move a sprite's rotation point in the paint editor.)
set direction ⚡ →	Sets the direction a sprite is facing	This block will flip a sprite. Use turn block for full rotation. 359 | 0 180 | 179
forward 👣 `50` 👟	Moves forward in the current direction	

Words and Sounds

Block	Description	Tips and Options
play sound 🔊 chimes ▼ ▶❘	Plays a library or recorded sound	Tap to choose or record a sound. Select 'until done' ▶❘ if you want this sound to finish playing before the next block runs. Select 'and continue' ▶↳ if you want the sound to play at the same time as the next block.
buzz 📳 👆	Makes the phone vibrate	Only phones with haptic feedback will vibrate.
speak 🗣 Hello 🎵	Makes your sprite talk aloud	To change language pronunciation, change the language in OctoStudio settings.
say 💬 Hello for 2 ⏱	Displays words in a speech bubble	Type how many seconds you want the words to appear for.
text ⌨ Welcome 2 ⏱	Makes text appear on the Stage as a title or caption	Edit, resize, change color, and reposition text by tapping on the text. Each sprite can display one text box; use additional sprites for more text simultaneously.
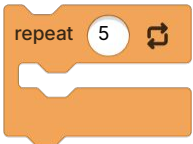
Scene

Block	Description	Tips and Options
set size ✏️ to (150) % 👟	Sets sprite's size to specified % of original size	
change size 📏 by (20) 👟	Changes sprite's size by specified amount	
hide 🚫 👟	Makes sprite disappear from the Stage	To hide a sprite at the start of a project, use hide with ⚡ . Hidden sprites do not interact with other sprites.
show 👁 (100) % ⚡	Makes sprite appear on the Stage	Change a sprite's transparency by entering a number below 100. At 0, the sprite is invisible but still interactive.
set backdrop 🖼 🌌	Sets backdrop to the selected backdrop	Choose a specific backdrop or previous 🔙 next 🔜 or random 🎲
layer 📚 🙂 in front ▾ 👥	Layers a sprite in front or behind of another sprite	Option to layer in front of or behind all sprites 👥

Colors and Light

Block	Description	Tips and Options
glow ✨ 🟡 👟	Creates a colorful glow around sprite	Choose the color of the glow.
flashlight 🔦 ☀️ on ▼	Turns your device's flashlight on or off	
set color 🖌️ 🙂 to 🔵	Sets sprite or backdrop to a certain color	Options: set color of sprite or backdrop. To reset, set color to 🚫
change color 🖌️ 🙂 by 20	Shifts the color of the sprite or backdrop	Will return to its original color every 360 units.
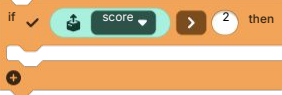
Control

Block	Description	Tips and Options
repeat 5 🔁	Runs the script inside a specified number of times	Snap blocks inside the "mouth" of the repeat or forever block.
forever ♾️	Runs the script inside over and over until the project stops	Example: forever ♾️ / play sound 🔊 cat ▼ ▶️ / move 50 •••› 👟

Control
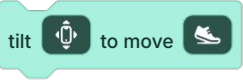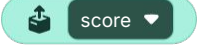
Block	Description	Tips and Options
if ✓ 🔼 score ▾ > 2 then ⊕	Checks once if a condition is true. If so, it runs the blocks inside.	To add an "else" to the block, tap ➕ once. For "else if" segment, tap➕ multiple times. You can insert a number, variable, or other reporter such as: 😀 x-position ▾
wait 1 ⏱	Waits a specified number of seconds before continuing	
wait until 👋 shake ▾ 📳	Waits until a sensor is detected, then continues to run the next block.	Options to wait until: shake 👋, tap 👆, or when a magnet 🧲 is near the phone
stop ■ all ▾	Stop scripts or sounds that are running	The options are to stop this script, all sounds, other scripts in this sprite, or all scripts in the project.
send 📧 message1 ▾ to all	Sends a message that all sprites can receive	Examples:
📩 when message1 ▾ received	Starts this script when the selected message is received	when ▶ send 📧 message1 ▾ to all 📩 when message1 ▾ received move 50 👟

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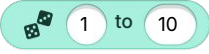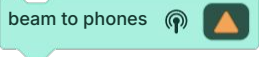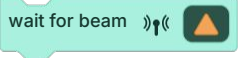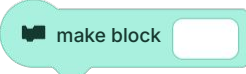
More Blocks

Block	Description	Tips and Options
tilt 📱 to move 👟	Tilt your phone to move the sprite	**Hold phone at desired angle before pressing play.** Works best in a forever block. Choose whether to move by tilting horizontally 📱 , vertically 📱 , or in all 📱 four directions.
tilt angle 📈 📱	Reports the angle your phone is being tilted in, either horizontal or vertical	The angle value that this block returns is scaled down to 1/4.
set variable 📦 score ▼ to 0	Sets the selected variable to a specified number	To create a new variable, tap +. Variable names cannot currently be deleted.
change variable 📦 score ▼ by 1	Changes the selected variable by a given amount	
display variable 📦 score ▼ 👁 on	Displays or hides variable monitor on the Stage	To hide the variable, choose 🚫 off. Variables default to being displayed on the Stage.
📤 score ▼	Returns the current number value of a variable	You can snap this block into any rounded slot inside another block.
😊 size ▼ ⓘ	Reports the size or other info about the sprite	Options to report a sprite's direction, size, x-position, or y-position.

More Blocks

| Block	Description	Tips and Options
`🎲 1 to 10`	Picks a random number within the specified range	
`○ + ○`	Performs a certain mathematical operation on two values.	Choose addition ✚ , subtraction ━ , multiplication ✖ , or division ➗ .
`beam to phones 📡 🔺`	Sends message via Bluetooth to other nearby devices using OctoStudio	Enable Bluetooth for this block to broadcast a message to all nearby devices using OctoStudio There are five different messages you can beam: 🔺 🟡 🟩 💙 💜 The range of the beam block is approximately 30 feet (10m).
`wait for beam 📶 🔺`	Runs script below when it receives specified beam message	
`🚩 make block ▢`	Create a custom block Name your block and then snap blocks below to define what your new block will do.	Custom blocks can make your code more organized. All custom blocks will appear in 'More Blocks' at the end of the blocks palette. Custom blocks are specific to a sprite.

Where to find Settings?

Look for the gear ⚙ in the upper right of the OctoStudio home screen

🌐 Languages

OctoStudio is offered in more than 20 languages. You can change languages anytime in Settings.

▮▰ Screen Layout

If you are using a tablet, you can choose **Portrait** or **Landscape** view. This is only available on tablets that have medium or large screens. Update your OctoStudio app for the latest version.
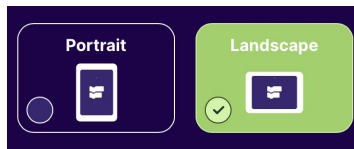
♿ Accessibility

To use OctoStudio with a **screen reader**, turn on the built-in screen reader on your device (**VoiceOver** in iOS and **TalkBack** in Android).

In OctoStudio Settings, you can also toggle on **Sound effects for code blocks**. This will make a sound play for any code block with visual output. (For example, you can hear a sound effect when you play the jump or glow block.)

👥 Interface Options

If you turn on **Show Screen Taps**, you will see a circle that shows the location of your fingers whenever you touch the screen. This is helpful when demonstrating how to use OctoStudio.

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Getting Started

If you want to see the Welcome screens every time you open the app, go to Settings and toggle the **Welcome screens** switch.

Starter cues are the animated hand icons that show the first steps for using OctoStudio. You can turn on Starter Cues in Settings anytime.

System Requirements

OctoStudio is compatible with both **Android** and **iOS**.

On an Android phone or tablet, you need version 8 or above.

On an iPhone or iPad, you need iOS version 15 or above.

OctoStudio is designed for mobile devices and is not yet supported on Chromebooks, laptops, or desktops.

Further Information

For more information, ideas, and technical support, please see our OctoStudio Support pages at **octostudio.org**