

The ultimate Json editing tutorial for Scratch blocks

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Scratch, is made mainly to make impressive games, animation, or art. But it also unintentionally lets us create blocks that are normally impossible to get in vanilla scratch, via Json editing. You can extract the project file and modify it to make hacked blocks to show them off. It can be switching inputs of blocks, gluing them, emptying them, and more! Some hacked blocks work, some don't. Some of them look normal, and some look weird. There is NO limit to the number of hacked blocks you can make, and they're theoretically infinite! So what are you waiting for? Start making them now!!!

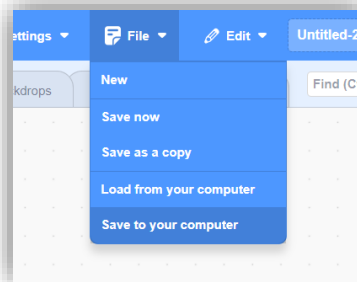
(Hacking blocks have nothing to do with hacking)



Accessing the project's Json file

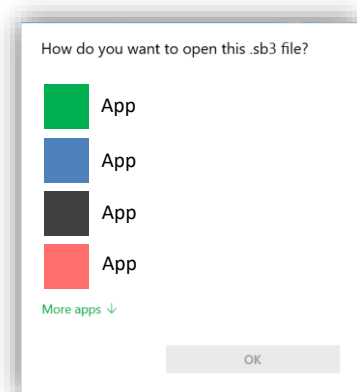
The first step of Json editing any block is to access the Json file of the project itself. Here's how to do that. Remember that for Windows, you only have to set the default app to open .sb3 files once.

- Go to "file" → "Save to your computer" and save your project somewhere on your computer.

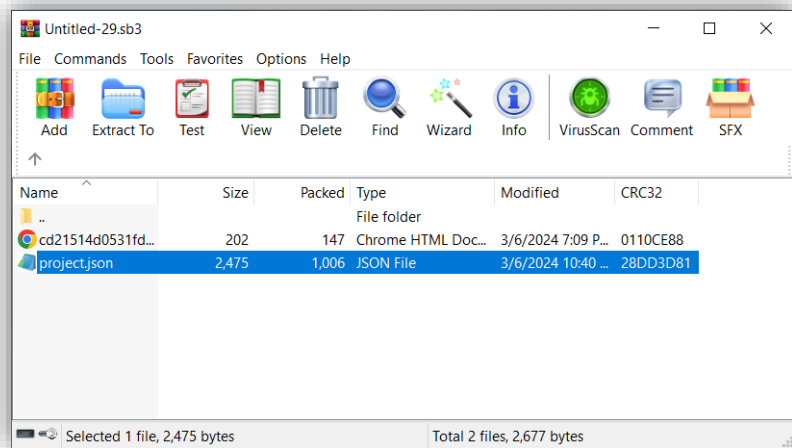


Windows, WinRAR, Microsoft notepad

- Double click the exported file.
- This dialogue should pop up. Click "More apps" → "Look for another app on this PC" and choose C:\Program Files\WinRAR\WinRAR.exe



- Remember to check "Always use this app to open .sb3 files" and Click OK. Any .sb3 file now opens with WinRAR.
- Double-click the file named "project.json". If it gives you a pop-up similar to the previous one, choose "notepad".



Any other OS


- Change exported file's format from `.sb3` to `.zip`
- Extract the newly created `.zip` file (You can use online guides on the internet).
- Open the file named “project.json” using your text editor.

Types of hacking blocks



There are multiple types of hacking blocks. Here's a list of them:

- **Changing the text in a dropdown menu**
- **Switching inputs**
- **Gluing inputs**
- **Gluing stack blocks**
- **Making dropdown menus draggable**
- **Putting blocks inside a define block**
- **Making “my Blocks” without definitions**
- **Putting blocked text in writable inputs**

Some notes before you start

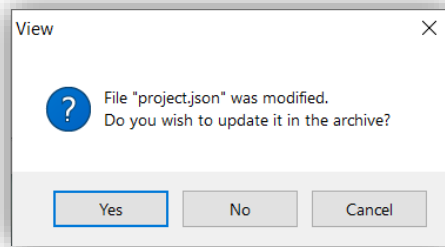
- It's recommended that you “hack” blocks in a completely empty project to avoid confusion. After you're done making the block, you can backpack it and place it in other projects.
- Each block in Scratch has an opcode. For example,  has the opcode, `event_whenflagclicked`. A list of block opcodes can be found [here](#).



- Each block in your project has a completely unique code. A block code has random characters in it. For example, a  might have the code, `R9u1XRYmWW6S/ZL2JZZ|` and another  might have the code, `1#fmO) Jk=x/Azh9/phPb`.
- In Notepad, Go to “Format” and Enable “Word Warp” for easier editing. (Windows only)
- After Json editing, press Ctrl + S to save, then close your text editor.

Windows

WinRAR should give you a pop-up like this. Click “Yes” and close WinRAR.



Any other OS

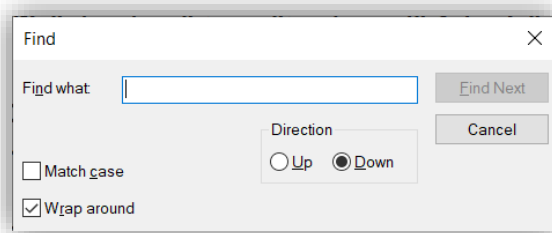
Compress the file to a zip format.

Now close WinRAR and go back to Scratch. “File” → “Load from your computer” and load back your project.

Changing the text in a dropdown menu

Example:  to 

First, place the block you want to modify inside the project. Remember the text in the dropdown. It's recommended that it's not just one character. After opening the Json file, Use the shortcut Ctrl + F to open the find tab.



Now write the text you remembered (In our example, “space”). make sure to check the options as I did in the image. Keep pressing “Find Next” until you find your text in between “” s. Now replace the selected text with your desired text (In our example, “LOL”)

Switching inputs

Example: (A) + (B) =

NOTE: Only inputs like can be swapped. You can't swap inputs.

After placing blocks A and B, in the project.json file, **Look for the opcode** of Block B. once you found it, keep going right till you reach "inputs". Here, different inputs of blocks are listed. For example, has

```
"inputs": { "CLONE_OPTION": [1, "!-L@Yzle{?%CeZayDAx6"] }
```

I have colored different parts of it for you.

: The text that tells you that you have reached the inputs section. It's the same for every block.







: The name of the input of the block. A block can have 0 – 3 inputs. It's different for different blocks in Scratch (Just like an **opcode**).

: The actual input. Either 1, 2, or 3, usually followed by a **block code**. This code ends ONLY when you reach `]]` or `],`.

Now, copy Block B's and replace Block A's with it




Gluing inputs


Example:  +  →  (We want to glue  (A) and  (A) to  (B) so that you can't drag them out and they all count as 1 block together.


Place block(s) A inside of block B and then, open the Json file. **Look for** block B's **opcode**. Now select it. Keep going right until you reach **"inputs"**. The rest should look like this:




```
"inputs": { "MESSAGE": [ 3, "~!mc!{nB!OF1+C?D +UE", [10, "Hello!"] ] }
```


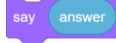


I have color-coded each part for you.

: The text that tells you that you have reached the inputs section. It's the same for every block.

: The name of the input of the block. A block can have 0 – 3 inputs. It's different for different blocks in Scratch (Just like an **opcode**)

: The code that tells us if the visible input is glued or not. 1 = glued, 2 = not glued, 3 = not glued.


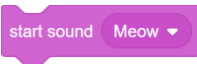

: The visible input of the block. For example, in ,  is the visible input. It's usually a block code.

: The hidden input of the block. For example, in , "Hello!" is covered by . note that some blocks like  don't have hidden inputs.

Simply remove . Then, Look for block B's opcode. Go right until you reach **"shadow": false**. Replace **false** with **true**.



Gluing stack blocks

Example:  (A) +  (B) =  (Glued)

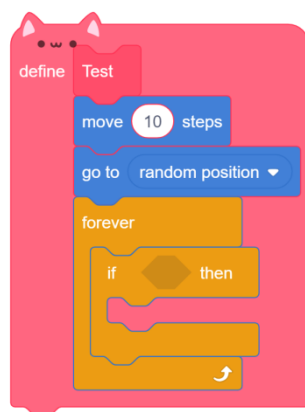
Place blocks A and B in your project and connect them like the picture above. In the Json, **look for** block B's **opcode**. Go right until you reach `"shadow": false`. Replace `false` with `true`. Remember that you can glue more than two stack blocks, but make sure to do this to every connected block except block A.

Making dropdown menus draggable

Place your block in your project. In Json, **look for** your block menu's **opcode**. Keep in mind that it has to be the menu, not the actual block. Go right until you reach `"shadow": true`. Set it from `true` to `false`. It's like **Gluing inputs**, but in reverse.

Putting blocks inside a define block

Example:





Place the blocks you want them to be in the define block and connect them. Then, **Glue** them. In Json Use **Ctrl + F** and put your top block's opcode (`move 10 steps` in our example) in the box. I have color-coded parts for you again.

```
.....":35},"?%KT60DUTC!g2%ZN[m2":{"opcode":"motion movesteps","  
next":"]xnKO%/c1.....
```

●: The text you found after using Ctrl + F

●: The **block code** (Copy this text)

After copying ●, Keep going right until you reach `"shadow":false`. Set `false` to `true`.

Use Ctrl + F again to find `procedures_definition`. Keep going right until you reach `"next":CODE`. Replace ● with the code you copied. You can also put it after `procedures_prototype`¹ Instead of the definition.

¹ This is the "hidden" block inside a define block.

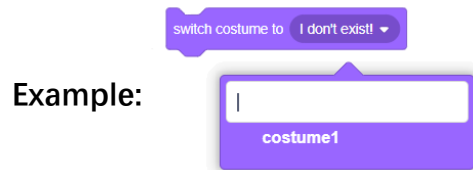


Hacking without Json editing

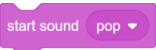

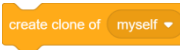
Some kinds of hacking blocks can be reproduced without directly modifying the Json file.

Alternative way to **change text in an input**

Note: This method only works for some blocks.




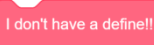


Create a Costume named “I don’t exist” or whatever you want. Place your block and choose that costume. Then, delete that costume.

Other working blocks:   

Instead of costume, use: (sound) (sprite) (sprite)

Creating “my blocks” without definitions

Examples:    

For stack blocks, make your definition, then drag the created “my block” out of the block palette. Click the define block with your mouse and press Delete or Backspace on your keyboard.

For reporters/booleans, create a “my block” with your desired reporters and booleans. After dragging them out of the definition, click the define block and press Delete or Backspace on your keyboard.



Putting blocked text in writable inputs

(like putting text in a move block)

Examples: , , and 

Write your desired text somewhere else. Then copy it using Ctrl + C and paste in your desired block (This method does not work with the direction and note picker, use **this** method instead for those textboxes).

Cool combinations and examples

