

# Hacking USB - USB Pico Ducky



Documentation & Guide

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# 1 App

## 1.1 What is the USB Pico Ducky

The USB Pico Ducky is a Hacking USB. The physical device is a Raspberry Pi Pico. A Hacking USB is a device that fools a computer into thinking it is an external input device such as a keyboard, this means that the computer is fooled into thinking that the user is typing while the usb is the one inputting keystrokes. Ask yourself, what can I do using an input device (e.g. Keyboard)? Whatever you can do using an inputer peripheral, you can do using USB Pico Ducky. If you want to, as mentioned in section 4.3, you can turn the hacking mode off and program the Raspberry Pi Pico as a normal microcontroller.

This Application is an IDE (Integrated Development Environment) for Duckyscript. Duckyscript is a simple scripting language made by the company Hak5, originally known for the USB Rubber Ducky, which costs around \$130 CAD (plus tax & fees). Even though the USB Rubber Ducky is more than double the price, the USB Rubber Ducky doesn't come with an IDE while the USB Pico Ducky does.

This might seem too good to be true. but, there is one main difference, it's that only Duckyscript 1.0 is supported on a USB Pico Ducky while USB Rubber Ducky supports Duckyscript 3.0. This will not affect most users because Duckyscript 3.0 just provides extra keywords but the possibilities are just as endless without them.


## 1.2 payloads



**Payloads** are a file written in duckyscript. Payloads basically have instructions given to the USB so that the USB knows what keystrokes to input.

A hacking USB only supports one mode at a time, it can either execute a payload when connected to a device, or it can be in setup mode where you upload the payload (more details can be found in section 2.1),

## 1.3 Saving & Editing

There are 3 methods of saving the program you wrote:

1. You can save anytime by using the **CTRL+S** shortcut.
2. Go to top left corner View/Edit button on the top toolbar: *View* or *Edit* → *Save*
3. Click the Save () Button on the editor toolbar (right below the Edit/View menu)

1. To edit the code, first select a file (.dd) on the side filebar on the left side. If you want to, select the file from a different directory using the load button ()
2. If you successfully selected the duckyscript file, you will be able to view the file contents in the codebox (the place where you type in the code). Now modify/type/paste in the duckyscript 1.0 code of your choice and save it using the steps specified above.
3. Once saved, you can upload it onto the USB Pico Ducky but first, make sure that the USB Pico Ducky is selected then make sure that you selected the target device's Language and OS (Operating System) on the editor toolbar (default: windows—us), if the device isn't plugged in, you may not modify the selected target device's language and OS (Operating System). If it's your first time using or if you changed the name of the USB Pico Ducky, you will need to re-select the path of the USB Pico Ducky (e.g. /computer/Devices/USB Pico Ducky).
4. Now you can click the upload button () while USB Pico Ducky is still plugged in to upload the payload to the microcontroller. More information about uploading payloads can be found in section 2.1

## 1.4 Shortcuts

There are 9 shortcuts.

Here is what they are and what they do:

- Text Editor Commands
  - ❖ CTRL+SHIFT+W: Select a white theme
  - ❖ CTRL+SHIFT+B: Select a black theme
  - ❖ CTRL+SHIFT+T: Select a custom theme
- Text Editor Commands
  - ❖ CTRL+C: copy selected text
  - ❖ CTRL+V: paste copied text
  - ❖ CTRL+X: cut copied text
  - ❖ CTRL+Q: exit, if the code is modified, will ask to save

❖ CTRL+S: save the modified code

❖ CTRL+S: save the modified code

## 1.5 Cosmetics

*The custom colors you can pick are for*

1. **Background:** Background of the IDE

2. **Comment:** Colors of comment. Line after `REM`  
`[REM]`

3. **Starting keywords:** keywords that generally start a line of duckyscript code  
`[DELAY STRING PRINT DEFAULT_DELAY DEFAULTDELAY`  
`LED REPEAT IMPORT`

4. **Fkeys:** F-keys

`[F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12]`

5. **Shortcut keys:** starting keys for shortcuts

`[ALT CTRL CONTROL SHIFT SPACE ENTER BACKSPACE]`  
`TAB CAPSLOCK ESC ESCAPE`

6. **Arrows:** Arrowkeys

`[UP UPARROW DOWN DOWNARROW LEFT LEFTARROW]`  
`RIGHT RIGHTARROW`

7. **Windows:** Windows Button keywords

`[WINDOWS GUI]`

8. **Chars:** Colors of single characters

`[A B C D E F G H I J K L M N O P Q R S T U V W X Y Z]`

9. **Uncommon:** Uncommon keywords

`[APP MENU BREAK PAUSE DELETE END]`  
`HOME INSERT NUMLOCK PAGEUP PAGEDOWN`  
`PRINTSCREEN SCROLLLOCK`

10. **Numbers:** Base 10 numbers (numbers from 0-9)

`[0 1 2 3 4 5 6 7 8 9 10]`

11. **Text:** Non-keyword text

12. **Textbubble:** Background of text coding box (the background of the IDE code box)


13. **Background sidebar:** Background color of the file picking sidebar

14. **Color sidebar:** Color of the text of sidebar



### 1.5.1 Existing Themes

There are 2 already existing themes by default, Light and dark theme. You can access them by

*View*(left  button) → *Themes* → *White/Black*


**OR**

Or press **CTRL+ALT+B** for **DARK** Theme

and press **CTRL+ALT+W** for **LIGHT** Theme

### 1.5.2 Custom Themes

To select a custom theme, you can use the shortcut **CTRL+ALT+T** or you can press select it from the menu by hovering mouse on

*View*(left  button) → *Themes* → *Custom*

The custom colors are picked for the colors mentioned in section 1.5.

Here are the steps to make a **NEW** theme:

1. Click on **Input Theme Name** Button on the top middle (the button on the right) and type in the new name. Click **Ok**.
2. Click on the checkbox(es), select the ones you want to change to the same color, on the top menu, click the **RGB Color Picker** button on the middle. Now you can select the new color for the selected checkboxes.
3. Now click the **Save** Button on the left to save.

## 2 The USB

### 2.1 Uploading Payloads

First, write the duckyscript program, then save it as specified in section 1.3.

To upload payloads onto the USB Pico Ducky, click the upload button , which is right beside the Operating System Selector popup on the toolbar.

You can upload up to 2 files at a time. But only run one at a time.

In duckyscript, it is not possible to write a program that uses multiple files and this is also not necessary. You can add up to 2 payloads (e.g. payload.dd, payload1.dd) at a time. You can switch between the payloads using the white switch on the USB Pico Ducky

This is useful for when you need different payloads for different OSs. For example, you might want to have a Mac version and a Windows version of a password brute-forcing payload. This is useful for when you aren't sure

about the OS of the target computer. **Not even USB Rubber Ducky comes with this feature**

The valid payload names are: `payload.dd`, `payload1.dd`

## **2.2 Execute**

### **2.2.1 Before Execution**

Before Execution, first select the target device's OS, then language (in order). Currently Mac supports less languages than Windows does, therefore make sure to select device's OS first

### **2.2.2 Run Duckyscript Program**

To Execute a duckyscript program, insert the USB into a device while in attack mode. Turn on hack mode as specified in section

### **2.2.3 Run C/C++/Python Program**

To run a C/C++/Python (or any supported language) program. Please refer to section 4.3 to setup the microcontroller.

Since the USB Pico Ducky is a Raspberry Pi Pico MicroController, you can run a C/C++/Python program as you wish as long as the hacking mode is turned off. Please note that the IDE doesn't support these languages. Therefore use a different IDE or text editor of your choosing. The IDE only supports duckyscript.

## **3 Duckyscript Language**

Duckyscript language is a language used in hacking USBs. Hacking USBs pretend to be Peripheral devices such as keyboards. Duckyscript is a simple language that is used in certain microcontrollers to mimic keyboards.

### **3.1 Keywords**

All the keywords:

REM: Comment, comments are a line of code that describe what the code is about to do. They are ignored by the computer and are only for humans to view  
DELAY: Waits for a specified amount of milliseconds. This is useful because some commands take time to execute and you should use DELAY to wait for it to get executed  
STRING: Enter a text, if you were to input

something into a powershell/terminal/any textbox, you would type it after this keyword.

Here are some keyboard letters supported by All languages

<i>REM</i>	<i>DELAY</i>	<i>STRING</i>	<i>PRINT</i>	<i>DEFAULT_DELAY</i>	
<i>DEFAULTDELAY</i>	<i>LED</i>	<i>REPEAT</i>	<i>IMPORT</i>	<i>ENTER</i>	
<i>F1 – F12</i>	<i>ALT</i>	<i>CTRL</i>	<i>CONTROL</i>	<i>SHIFT</i>	<i>SPACE</i>
<i>BACKSPACE</i>	<i>ESC</i>	<i>ESCAPE</i>	<i>UP</i>	<i>UPARROW</i>	<i>DOWN</i>
<i>DOWNARROW</i>	<i>LEFT</i>	<i>LEFTARROW</i>	<i>RIGHT</i>	<i>RIGHTARROW</i>	
<i>WINDOWS</i>	<i>GUI</i>	<i>A – Z</i>	<i>APP</i>	<i>MENU</i>	
<i>DELETE</i>	<i>END</i>	<i>HOME</i>	<i>INSERT</i>	<i>NUMLOCK</i>	<i>PAGEUP</i>
<i>PAGEDOWN</i>	<i>PRINTSCREEN</i>	<i>SCROLLLOCK</i>	<i>BREAK</i>	<i>PAUSE</i>	

## 3.2 Tutorial

As you can see on section 3.1, all these keywords have to be capital. If you type it correctly, the keyword will change color on the IDE (only if it's used at the beginning of a line), this way you can now that you typed it correctly.

as you can see most of these keywords can be found on the keyboard. This is because everything else is just keyboard keys and the function of these keys depend on the OS (Operating System), the type and brand of the device.

Here are the duckyscript commands that aren't keyboard keys:

1. **REM**: stands for 'REMOVE', it's used for commenting code, here is an example:
2. **DELAY**:
3. **STRING**:
4. **REPEAT**:
5. **PRINT**:
6. **IMPORT**:
7. **DEFAULTDELAY & DEFAULT\_DELAY**:
8. **LED**:

Keyboard keys are used for typing, and shortcuts.

Payload examples can be found in section 3.3.

## 3.3 Examples

### 3.3.1 Comment

```
1 REM this is a comment
```

Figure 1: Comment Example

- 3.3.2 Delay**
- 3.3.3 STRING**
- 3.3.4 REPEAT**
- 3.3.5 PRINT**
- 3.3.6 IMPORT**
- 3.3.7 DEFAULTDELAY & DEFAULT\_DELAY**
- 3.3.8 LED**


## **4 Setup**

### **4.1 Reset**

#### **4.1.1 When to Reset USB**

Resetting the USB turns hacking mode off. More information can be found in section 4.3. You can also reset back to the USB Pico Ducky (hacking mode) as specified in more detail in section 4.2.

#### **4.1.2 How to Reset USB**

You can reset the USB at any time, all it takes is the click of a simple button in the Duckyscript IDE (on the toolbar). The button is . This button is at the most right on the toolbar. After clicking this button, a popup window will come up. Click the button on the middle (Select USB Pico Ducky Path), then select the path of your USB pico ducky. Now Another button will popup, if you entered the correct path, select the new button (Enable/Disable hacking mode) on the popup.

### **4.2 Hack Mode On**

#### **4.2.1 Duckyscript Language**

### **4.3 Hack Mode Off**

When the USB Pico Ducky hack mode is turned off, you can use the micro-controller using C/C++/MicroPython (resources in section 4.3.1).

### 4.3.1 C/C++/MicroPython Language

Here are some helpful links on setting up C/C++/Python for a Raspberry Pi Pico

#### **Windows Tutorials:**

1. [C Language](#)
2. [C++ Language](#)
3. [MicroPython Language](#)

#### **Mac/Linux Tutorials:**

1. C Language:
  - [Tutorial in Linux](#)
  - [Tutorial in Mac](#)
2. C++ Language:
  - [Tutorial in Linux](#)
  - [Tutorial in Mac](#)
3. MicroPython Language:
  - [Tutorial in Linux](#)
  - [Tutorial in Mac](#)

#### ***Other Helpful Sources:***

- [MicroPython Tutorial](#)
- [Raspberry Pi Pico Documentation for C/C++](#)

### 4.3.2 Upload

The Duckyscript IDE doesn't have C/C++ support at this time. To use C/C++ on the USB Pico Ducky. First, reset the USB as mentioned in section 4.1.2, then use a different IDE/texteditor to write a C/C++ program. You can reserach for more information in section 4.3.1.