

Digispark

- Programming guide -

Digispark: A programmable (with C mainly) tiny dev board. Chip used is ATtiny85. It has roughly 6kB of memory. The size is almost same as a 1 Rupee coin. It can be programmed multiple times.

Softwares needed to program:

1. Duckyscript to Digispark/Arduino online converter ([here](#)).
2. Arduino IDE (Download for WINDOWS from [here](#)).
3. Digispark USB Driver (Download from [here](#) for programming).
4. Notepad or any text editor to write your code.

Wth is Rubber Ducky:

It is a penetration tester tool.

Basically it is a HID (Human Interface Device) used as a keyboard.

It can be programmed easily using script called Duckyscript.

It simulates a keyboard where the keys are pressed automatically very fast or a set speed.

So, if a task can be done using keyboard, it can be done using Rubber dcky, only faster!

Digispark can be used as Rubber ducky. But limited to **6kB** of storage for payloads (code).

Where Rubber ducky comes with a SD card slot.

So we need to optimize.

Watch video tutorial to set up Arduino application and Digispark driver here :

<https://www.youtube.com/watch?v=MmDBvgrYGZs>

Starting up Digispark for First time:

Step 1:

Download and install Arduino IDE.
Run application.

Step 2:

Go to File > Preferences
Find the box labelled as "Additional Boards Manager URLs"
Paste < http://digistump.com/package_digistump_index.json > into it
Click OK

Step 3:

In application main window, go to Tools > Board > Boards manager
Set "Type" to < Contributed >
The "Digistump AVR boards by Digistump" will be shown
Click Install
Let it install and done

Step 4:

Go to tools > Board
Navigate to "Digispark (default - 16.5 MHz)"
Select it

- **Arduino is now configured to program Digispark.**

Installing drivers:

Step 1:

Download Digistump Driver from here.
Unzip package in your desired location.

Step 2:

Open "Install Drivers.exe" to begin install.
Follow te installer to complete installation.

• You are now ready to program your Digispark.

It can mimic keypresses and delay between keypress.

How to write ducky script:

STRING command is to deliver a typing (auto-shift) list of characters

STRING abcde will be like pressing abcde on keyboard.

Special keys like enter, shift can be given using naming the key only. Combo keys can be done too.

ENTER will be like pressing enter on keyboard

CONTROL a will be like pressing ctrl key then a key on keyboard

Additional combos can be done

For complete but compact guide : go to

<https://github.com/hak5darren/USB-Rubber-Ducky/wiki/Duckyscript>

-thanks to hak5

Example:

```
REM // sample code to start notepad
GUI r
DELAY 1200
STRING notepad.exe
ENTER
```

REM is for comment

The above code will start notepad on windows pc.

First, it will press 'WINDOWS' (GUI) key and 'r' key to open run.

Then it will wait for 1200 miliseconds / 1.2 seconds.

Then it will type 'notepad.exe'.

Then it will press 'ENTER'.

The commands are written in CAPITAL .

All delays are in milisecond.

A detail description of keys and commands can be found [here](#).

To encode this above script (written in plaintext, in any text editor) we need a Ducky Encoder for Rubber Ducky.

However, for Digispark, we need that online converter I mentioned [here](#).

Creating payload:

1. To encode in Arduino compatible (C) code, simply paste the above script in the left side of the converter.
2. Select board type from above Arduino / Digispark.
3. Click on Compile.
You will be presented with a code written in C.
4. Now Start Arduino application / or switch to it if running already.
5. Go to file > new
6. Delete everything on the editor.
7. Paste the compiled code in arduino editor and **save** it.
DO NOT INSERT DIGISPARK NOW / DETACH IF ALREADY INSERTED.
8. Click “Verify” (The tick mark on top left) to verify.
9. Click “Upload” (The right arrow on top left) to ready the upload.
You will be given 60 seconds to insert Digispark to get the code uploaded to it. **Now insert the Digispark.**
10. Once uploaded, when it will say “Micronucleus done. Thank you!”, detach your Digispark.

- **Your Digispark is now ready to deliver that payload. Plug it in a USB port of a windows pc and watch it automate the keypressing sequence.**

Sample codes:

1.

```
REM // LOCK SCREEN AFTER 10 SECONDS  
DELAY 10000  
GUI l
```

2.

```
REM // THIS WILL START NOTEPAD AND TYPE HI IN IT  
DELAY 900  
GUI r  
STRING notepad.exe  
ENTER  
DELAY 1000  
STRING Hi
```

3.

Link to Happy B’day code with details: https://drive.google.com/file/d/0B_SsofzQ7WJMzNVQ3NWWVIBETjA/view?usp=sharing

Enjoy creating your own codes. Share it with fellow coders.