



# **Fleming College**

## **IoT Scanner by ASA**

### **Guide and User Manual**

Thanks for using our IoT Scanner!

Before running the scan, please take a few minutes to read the user manual.

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# 1- Getting started

## 1.1 Requirements

You need to have either a Raspberry Pi handed by us OR a setup.sh file That you can download from Dropbox. ([Link is Below at 2.1](#)).

- If you get the Raspberry Pi from us, all you need to do is to connect the Raspberry Pi to the Wi-Fi.
  - o On the upper right corner CLICK the Wi-Fi symbol > Choose your Wi-Fi network > Type your Wi-Fi password.
  - o You will see a file called “setup.sh” on your Desktop that is ready to run. DOUBLE CLICK the file > Execute OR Execute in Terminal.
- If you have your own Raspberry Pi, you can skip a few steps and go to ([3.1](#)).

## 1.2 The Raspberry Pi

In order to use the Raspberry Pi computer, you need the following accessories:

- A power adapter (included).
- SD Card (included and configured).
- A computer monitor, or television. Most should work as a display for the Raspberry Pi, but for best results, you should use a display with HDMI input. You’ll also need an appropriate display cable, to connect your monitor to your Raspberry Pi.
- A computer keyboard and mouse

- Any standard USB keyboard and mouse will work with your Raspberry Pi.
- Wireless keyboards and mice will work if already paired.

[Raspberry Pi Documentation - Getting Started](#)

### 1.3 Connecting the SD Card

Raspberry Pi computers use a micro-SD card, except for very early models which use a full-sized SD card. This card (64GB) will be included and configured for users, so they don't have to install an operating system.

### 1.4 Connecting the Display

Your Raspberry Pi has an HDMI port which you can connect directly to a monitor or TV with an HDMI cable. This is the easiest solution; some modern monitors and TVs have HDMI ports, some do not, but there are other options. (We will include the HDMI cable with the Raspberry Pi).

### 1.5 Connecting the Keyboard and the Mouse

You will be receiving a Raspberry Pi 4 Model B that has 2x USB 3.0 AND 2x USB 2.0 ports. Connect your keyboard and mouse to two of them.

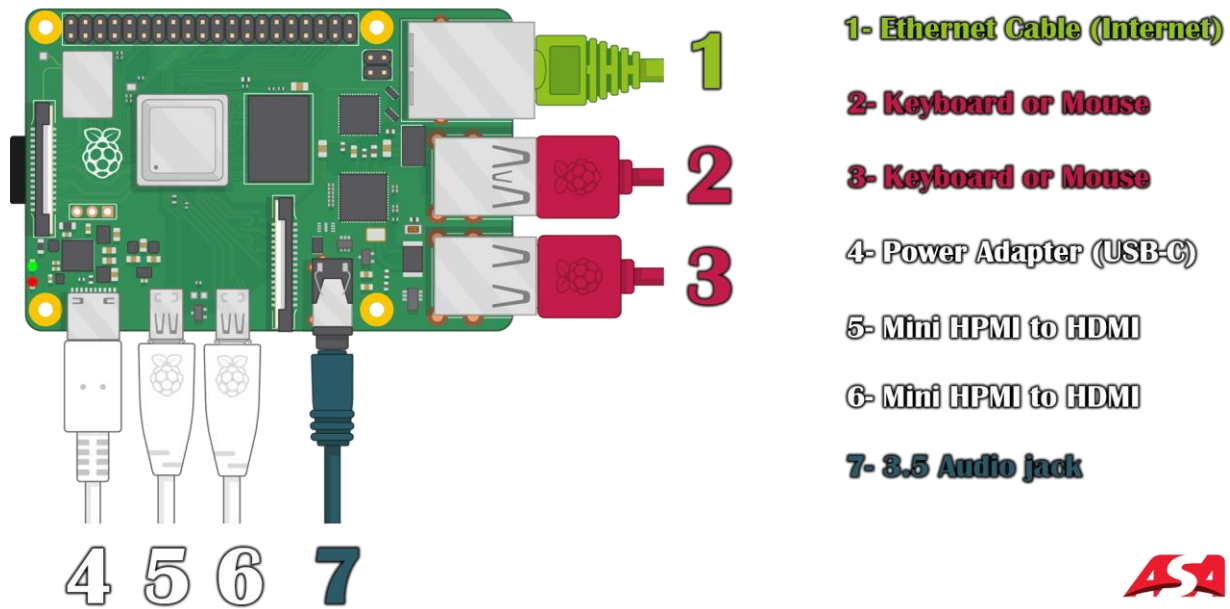


Figure 1: Picture from <https://www.raspberrypi.com/software/> Edited by ASA team

## 1.6 Power On the Raspberry Pi

After connecting the accessories, connect the power supply and the Raspberry Pi will start automatically (There is no POWER ON/OFF on the Raspberry Pi). Then, you will be logged in to the machine and directed to the Desktop.

## 1.7 Running the Setup file

After powering on the machine, you will see our setup file on the desktop. Don't run it yet. You can skip a few steps and go directly to (2.3).

## 2- Step-by-Step instructions

You can either watch the video to see how it's done OR follow the instructions below.

Video Link: <https://youtu.be/6sr7vAXrZN4>

NOTE: If you face issues with running the setup file, we recommend you restart/reboot your

Raspberry Pi.

### 2.1 setup.sh file

The user needs to have our file "setup.sh". When running this file for the first time, it will install the latest system update (update the packages), Python3, Python-pip3, and some Python modules required to complete the scan and run our app. The modules include Tkinter (used for the GUI), Bluetooth (to scan for Bluetooth devices), and nvdlib (to get info about vulnerabilities and CVEs from the NVD Library).

You can download the file from the following link:

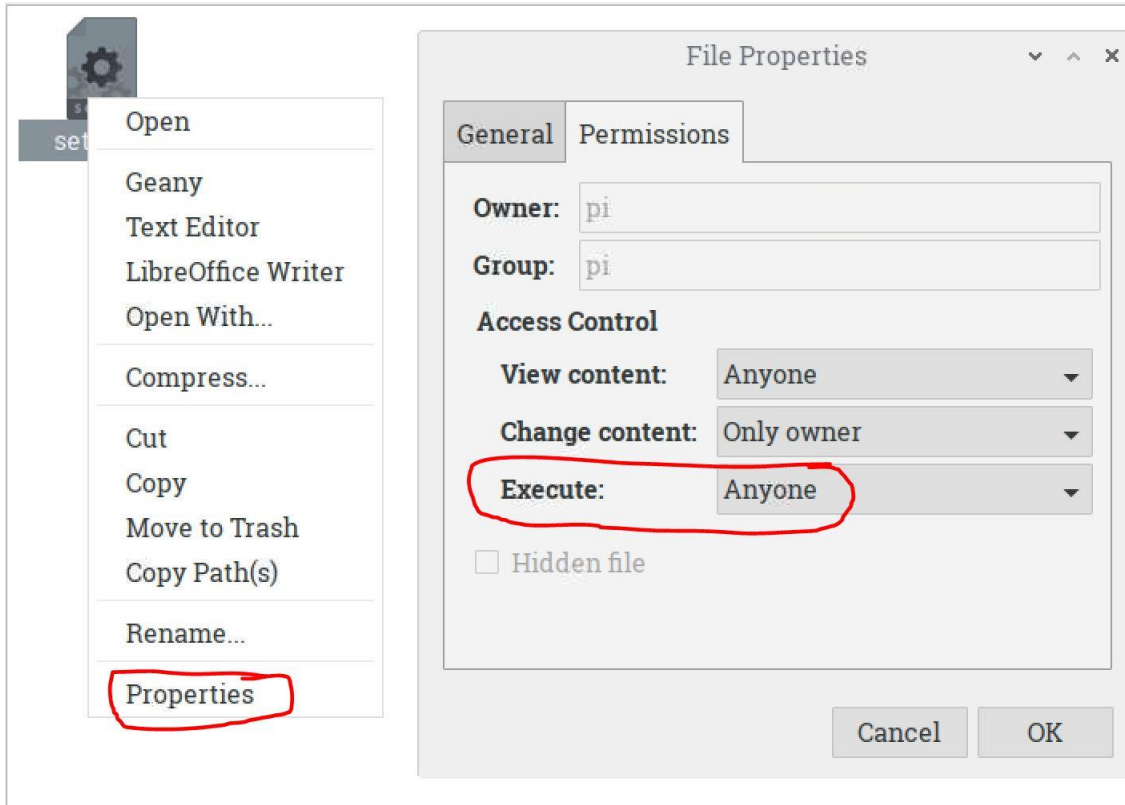
<https://www.dropbox.com/s/2kilsloe52vm8xp/setup.sh?dl=0>

### 2.2 Changing the permissions

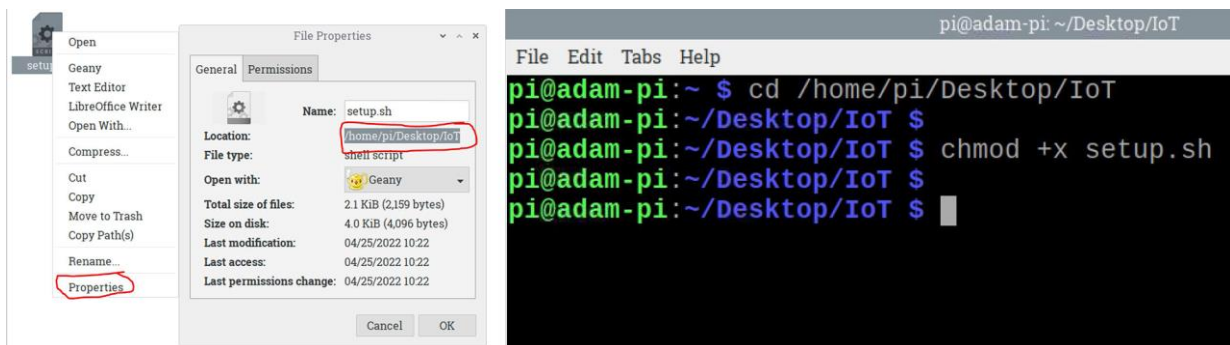
After downloading the setup.sh file, you will need to change the "Execute permissions" to anyone so you can run the file in your machine.

There are two ways to change the permissions (The first way is much easier):

- 1- Right Click the file (setup.sh) > Properties > Go to Permissions tab > Change "Execute" to "Anyone". As shown on the next picture:



- 2- Right Click the file (setup.sh) > Properties > Under General > Copy the location of the file (path) > On the top left corner or down left corner > Click your Raspberry Pi logo > Choose "Accessories" > Terminal > Type without brackets (cd AND\_THEN\_PASTE\_THE\_COPIED\_LOCATION) > Hit Enter
- > Now type without brackets (chmod +x setup.sh) > Hit Enter



To run the Terminal, Click the Raspberry Pi symbol at the upper left corner > Accessories > Terminal

## 2.3 Running the setup.sh file

You can either watch the video to see how it's done OR follow the instructions below.

Video Link: <https://youtu.be/6sr7vAXrZN4>

Now, you can run the setup file.

Double click the setup.sh file and then choose either Execute OR Execute in Terminal.

## 2.4 Scanning results

After running the setup.sh file, if you choose “Execute in Terminal”, you will see that the scan is started, and it will show your connected devices with their IP and Mac Addresses. Wait for a few minutes till the GUI starts.

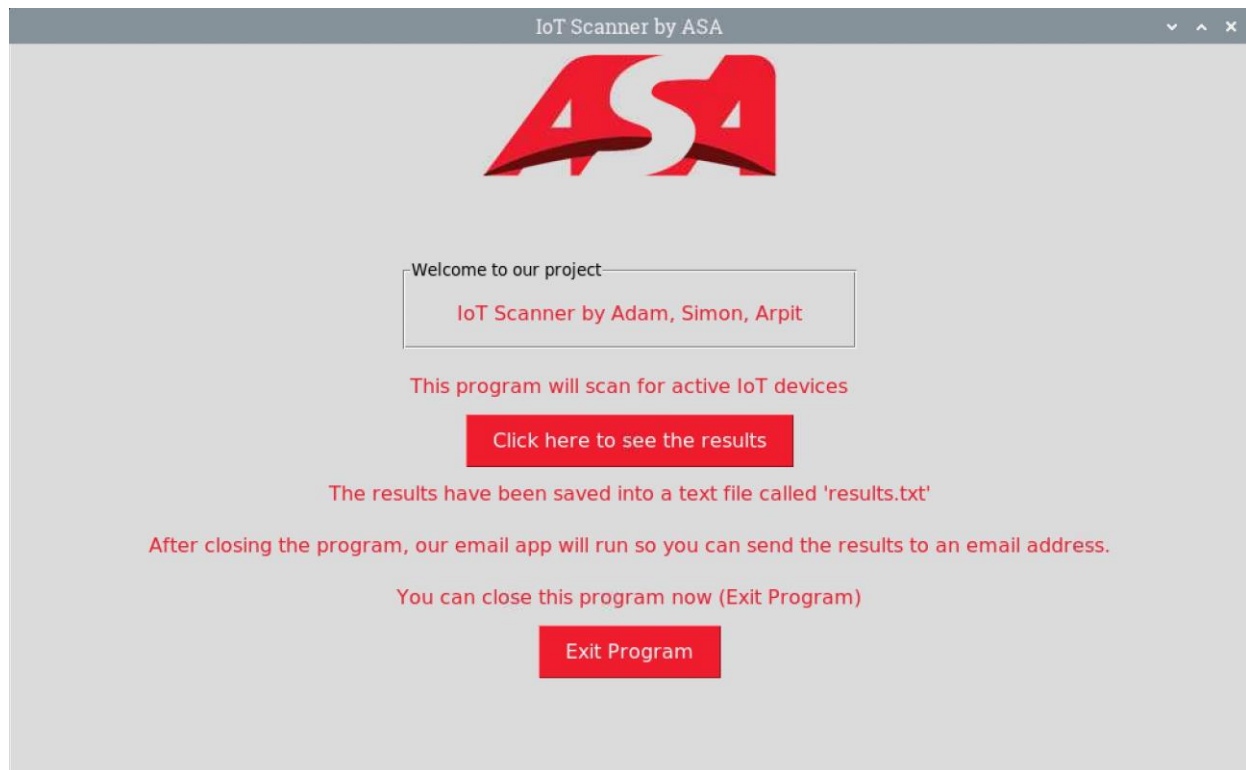
NOTE: It might take 5-10 minutes before the GUI starts.

## 2.5 The GUI app

When the completes, our GUI app will start. We’ve made it so simple, so the end users know how to use it.

You will see only 2 buttons on our GUI app. The first one is to see the scanning results in a good and an understandable format, and the second button is to exit the program.



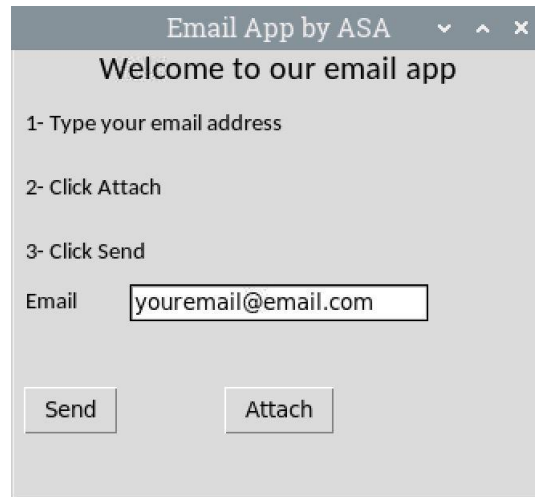


When you click “Click here to see the results”, a second window will open, so you can get full results. You can select all the results, copy them, and paste them in a text file. BUT we’ve made easier for the users. Our tool will save the results in two separate files. The first file named “rev.txt” that would contain a list of all the connected devices with their names, IP addresses, and Mac addresses, and the second file named “results.txt” which is the most important one. It would contain a list of all vulnerable devices with their product names and CVEs.

Now, you can close the program by clicking “Exit Program” button.

## 2.6 The Email App

When you close the program, our email app will start. You will get two windows.



- In the box, type your email address that you want to send the results to.
- Click on “Attach” – this will attach the results.txt file automatically.
- Click on “Send”.

## 2.7 Checking your results

Go to the email address that you sent the file to > Open the email you received from [asa.iot.scanner@gmail.com](mailto:asa.iot.scanner@gmail.com) > Click the attached file > The file "results.txt" contains all the vulnerabilities associated with your devices (CVEs).

You can copy one of these CVEs and search for them on Google or NATIONAL VULNERABILITY DATABASE (NVD) at <https://nvd.nist.gov/>

THE NATIONAL VULNERABILITY DATABASE contains a list of all CVEs. Each CVE includes Details/Description, Severity, Solutions, and more. You can follow the solutions to secure that device.