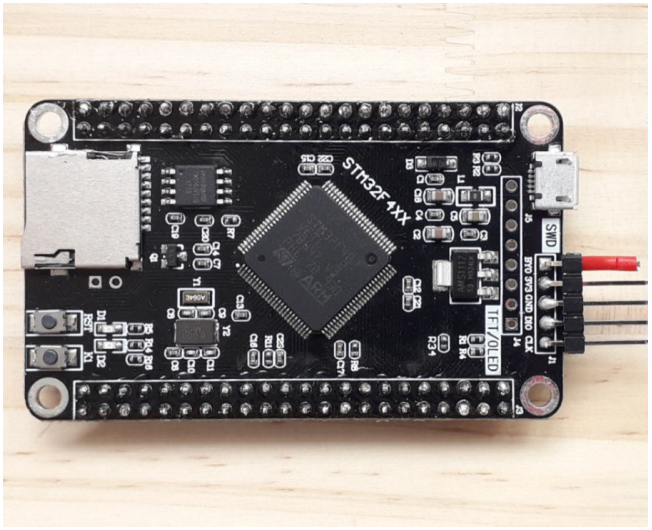
Prework prework.pdf

2022-06-20 G.S, Jee

Prework 0 BOM

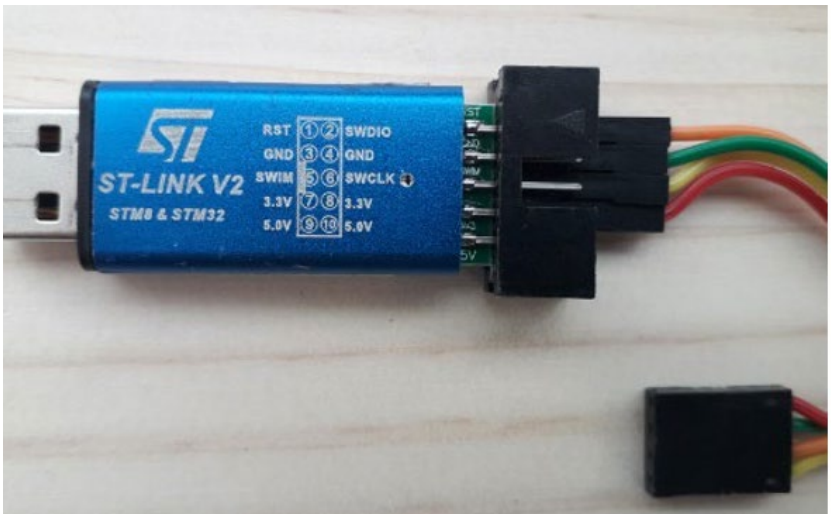
Prework 1 Making stm32F407VET Breakout



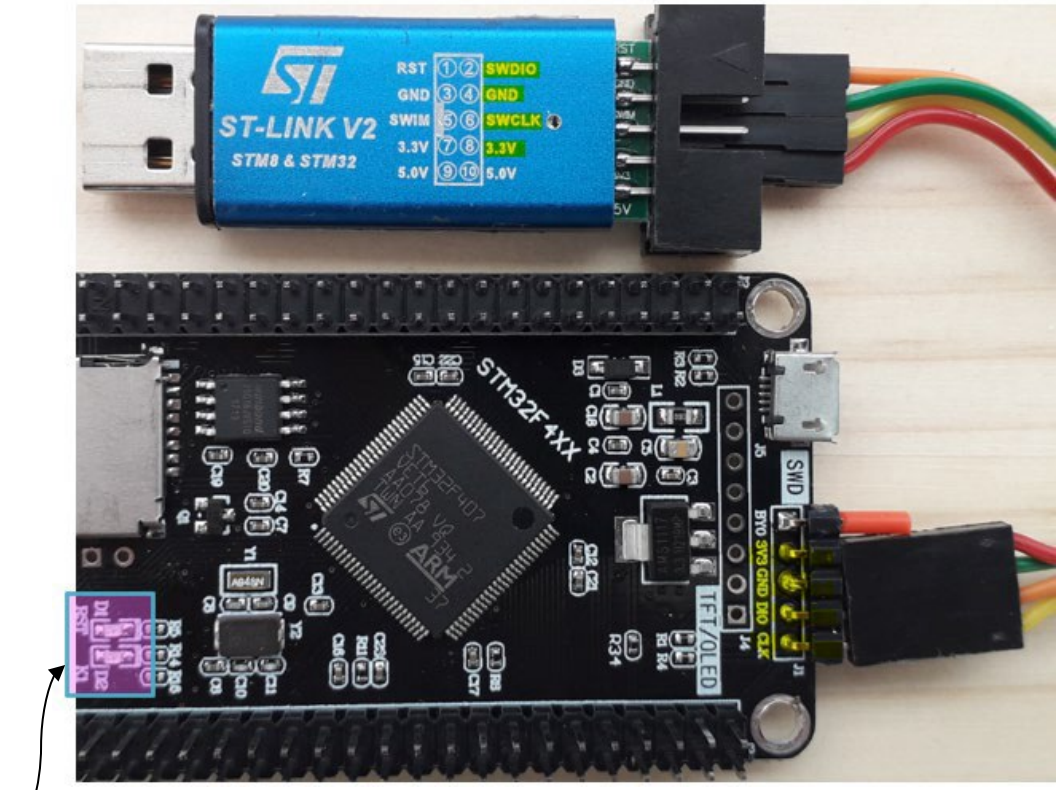
Prework 2 Upload Test

2-1. st-Link V2 Settings

SWIM | SWD?
SWIM is for stm8. The board for embedding we use is stm32, so we connect it to SWD. If you purchase the st-Link V2, the jumper wire also comes with it.



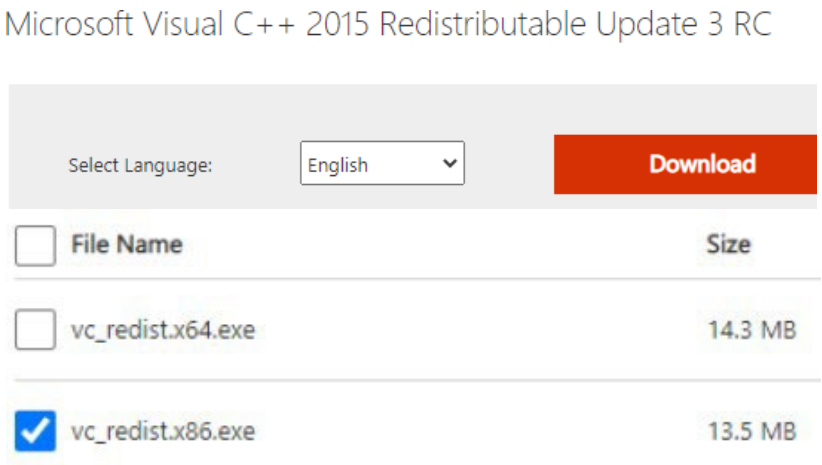
2-2. stm32F407VET6 & st-Link V2 Connection



If only one LED is on, OK!

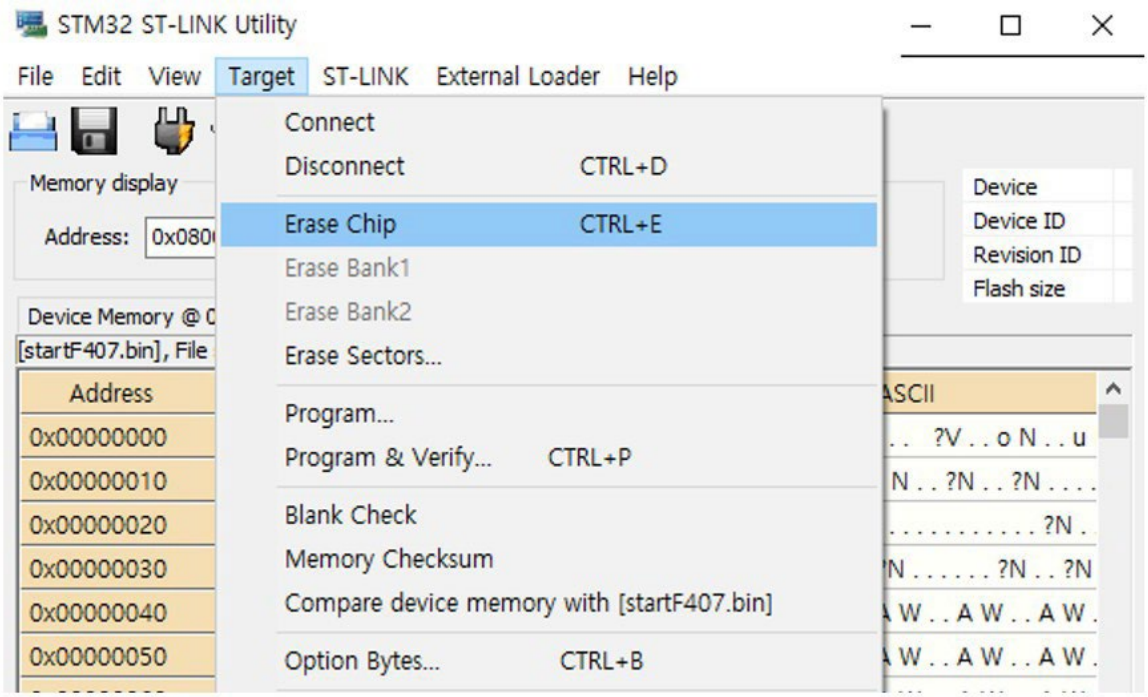
2-3. [st-Link Utility] Install

If you have problems with the DLL file, please install Microsoft Visual C++ 2015 Redistributable Update (~ 2018 also possible). Be sure to install it for 32-bit! Perhaps st-LINK Utility is 32-bit S/W.



2-4. Initializing stm32F407VET6 board, using the st-Link utility

[Target] - [Erase Chip]:

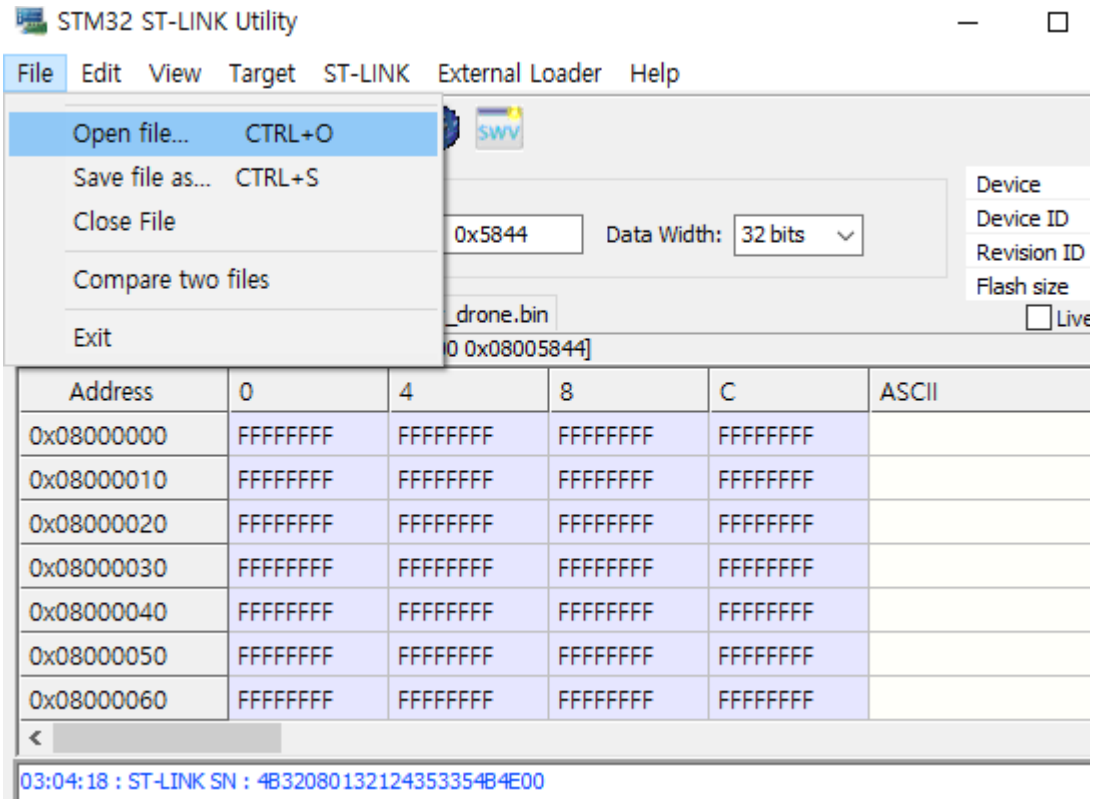


stm32F407VET Flash memory initialized:

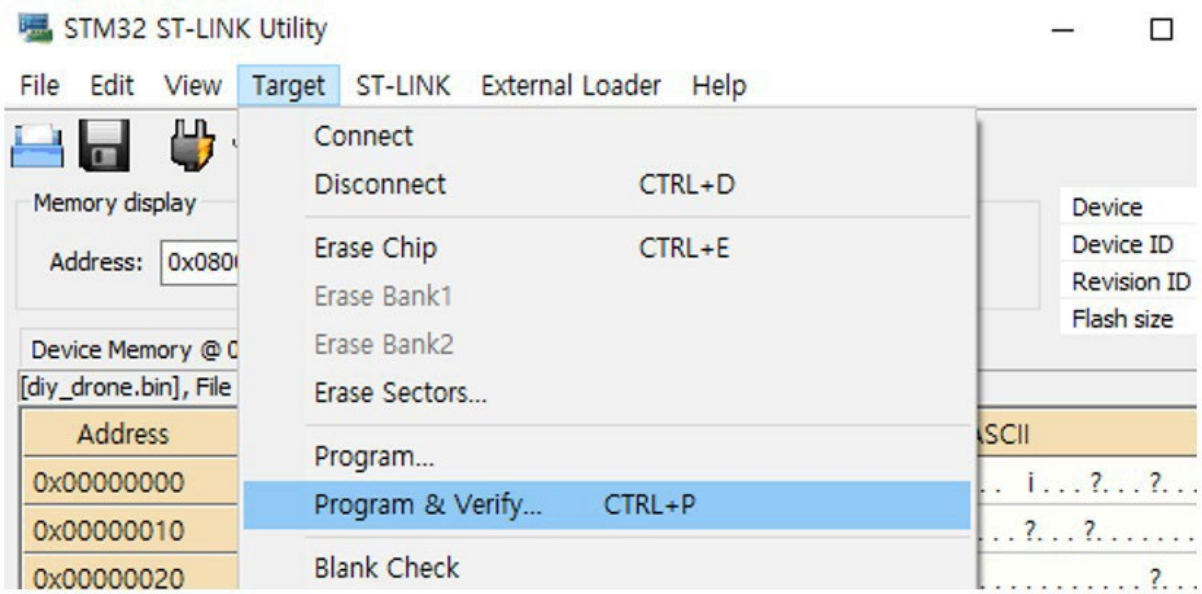
Address	0	4	8	C
0x08000000	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000010	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000020	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000030	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000040	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000050	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000060	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000070	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF
0x08000080	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF

2-5. Upload

① Select the firmware (Hex | Bin file) to upload.



② [Target] - [Program & Verify]



Prework 3 stm32CubeIDE Install

(In June 2022) The current version is 1.9.0. Download and install it according to your OS.

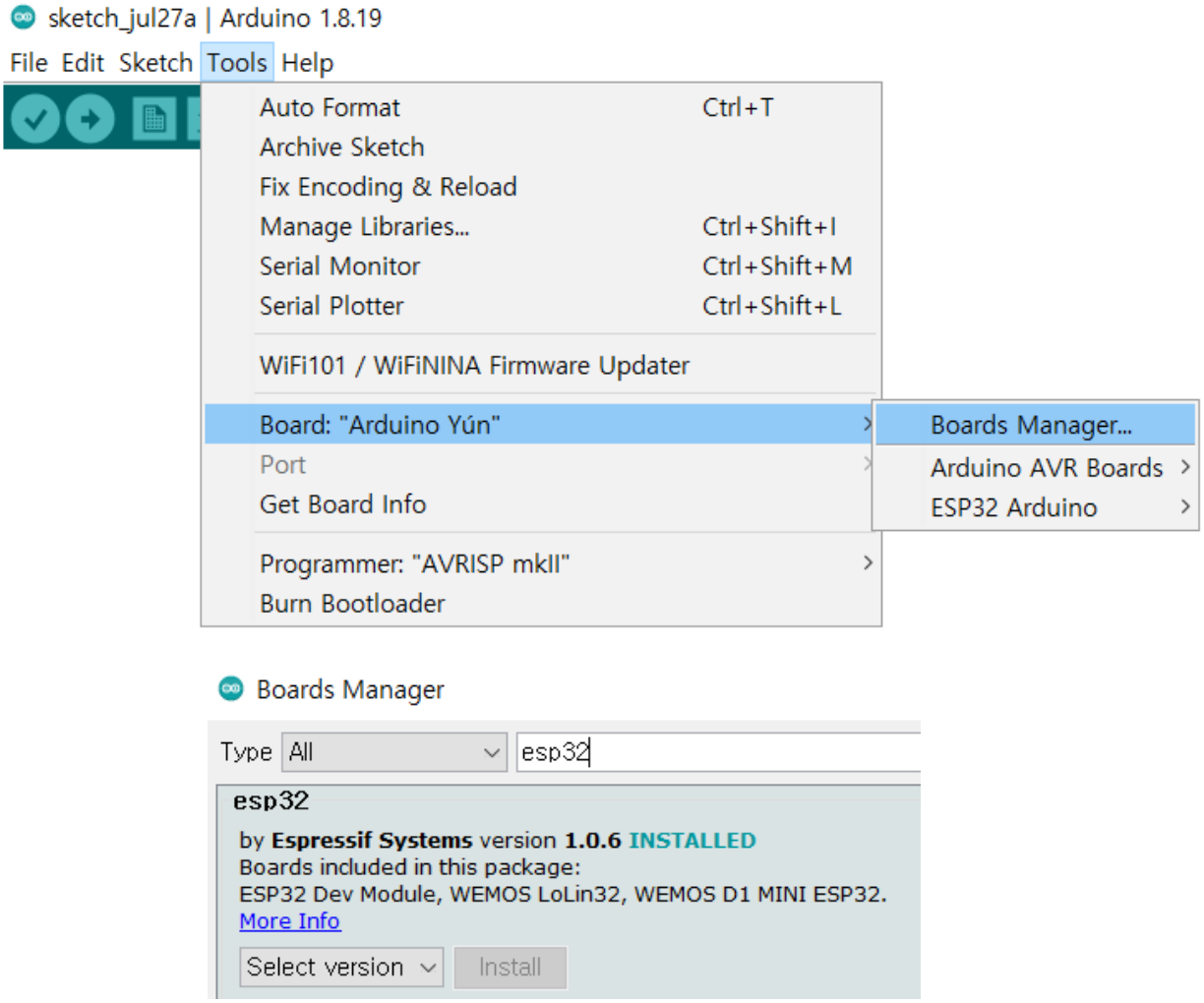
Prework 4 Arduino Install

4-1. Adding the Library for Esp32

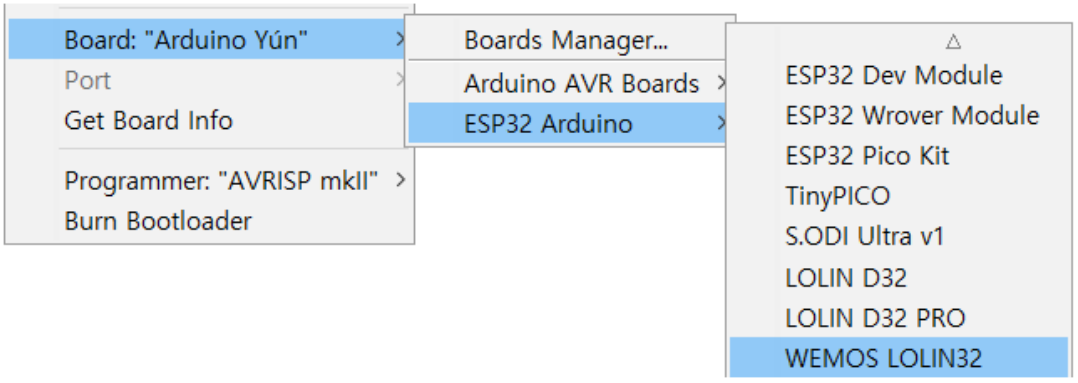
① Open the Arduino IDE, copy the following line to [Preferences] - [Additional Board Manager URLs] and click [OK].

- https://dl.espressif.com/dl/package_esp32_index.json

② Go to [Tools] - [Board] - [Board Manager] and install esp32.



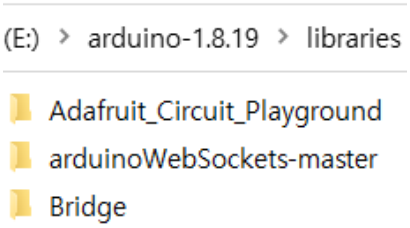
③ Go to [Tools] - [Board] - [ESP32 Arduino] and select **WEMOS LOLIN32.**



4-2. Adding the WebSocket Library for Esp32

https://github.com/Links2004/arduinoWebSockets

① After downloading, unzip it and put it in the [Library] folder of the Arduino.



You must restart the Arduino for the new library to take effect.

Prework 5 Android Studio

5-1. Androis Studio Install

Our version:

5-2. Obtaining an App Key to use Google Maps

We need Google Maps to implement multi-destination flights. To use Google Maps, we must have an App Key.

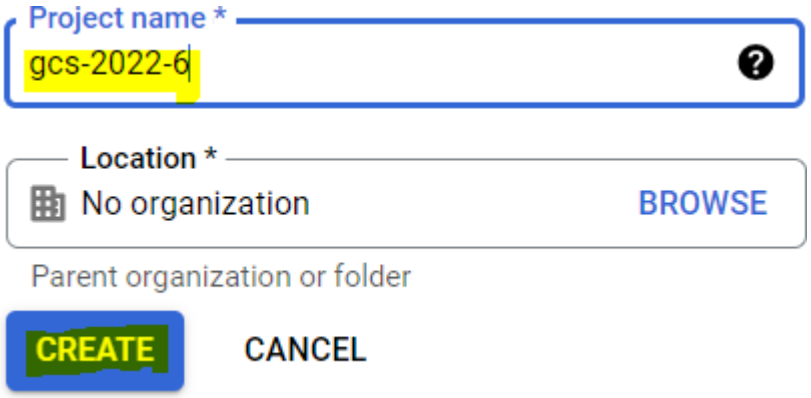
> Create a new project

① Go to the API-Key site to obtain API Key. A Google account is required.

② Click the [Select a project].

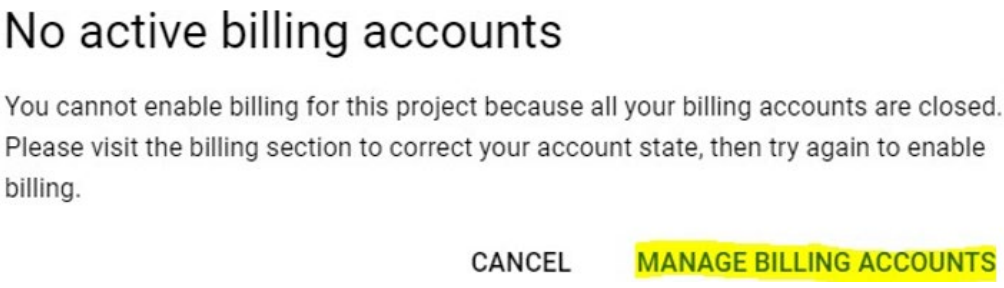
③ Click the [NEW PROJECT].

④ Enter a project name and click the CREATE button. Then a new project is created.



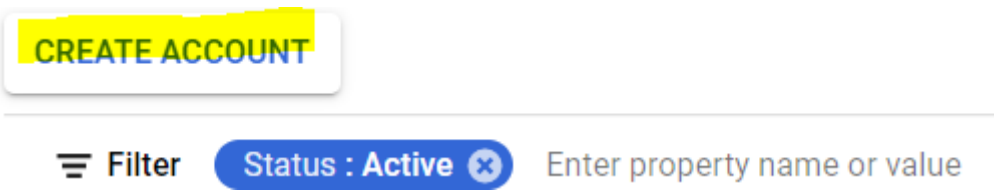
> Creating a withdrawal account (billing account)

① (When a new project is created) A window will pop up, asking you to create a new withdrawal account. Like below:

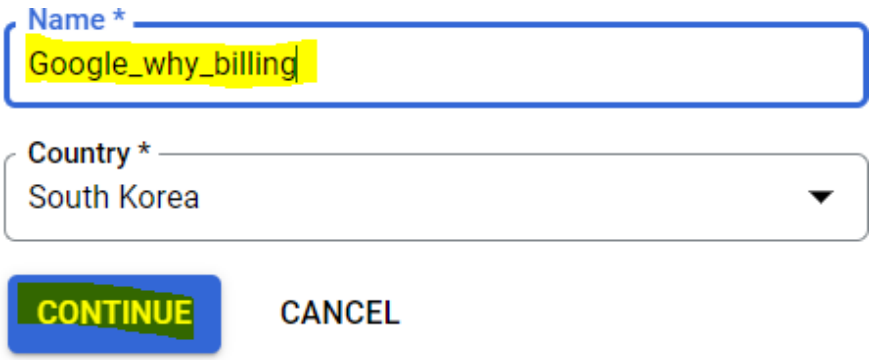


Google gives users $200 worth of free credits each month. After all, in the case of ordinary users, they can use it as it is without burdening the cost as before.

② Create a new withdrawal account.



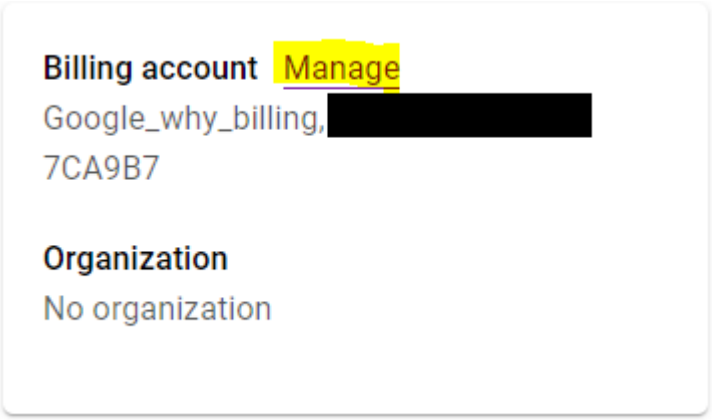
③ Enter the desired account name and proceed to [Next].



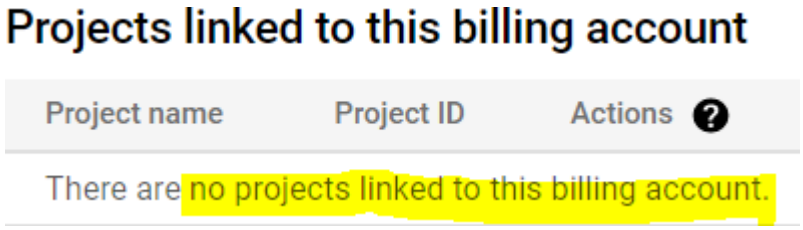
④ Check and finalize my billing account details.

At this time, you will also go through the card registration process (for withdrawal accounts), which we omitted here.

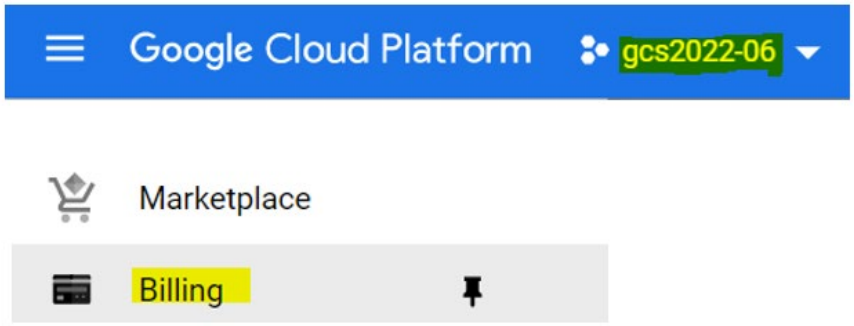
⑤ (In the new screen) Click Manage billing account.



⑥ There is no project linked to the billing account (withdrawal account). To use the Google Maps project, you need to connect your account.

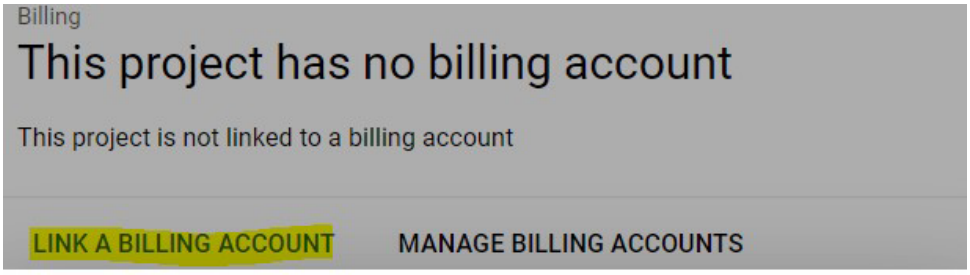


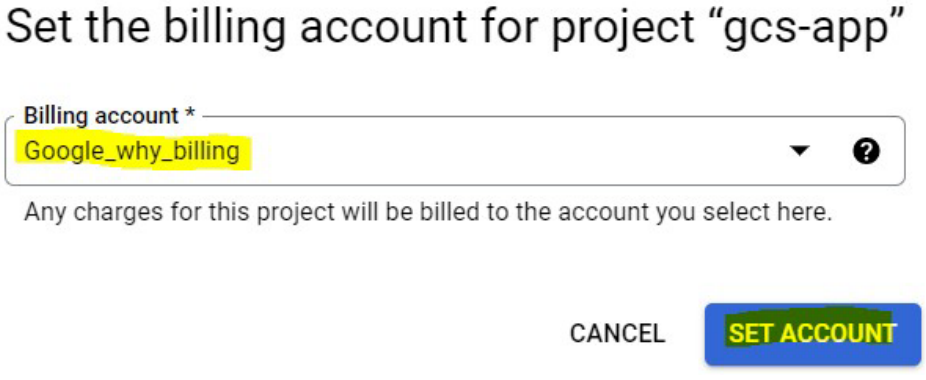
⑦ Select the project you created and click [Billing].



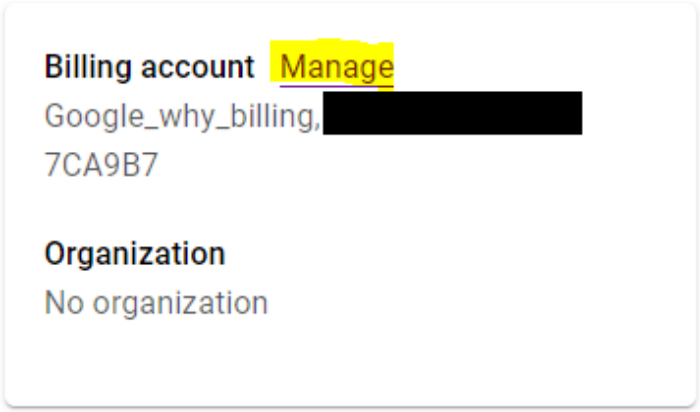
⑧ Link my card and the project.

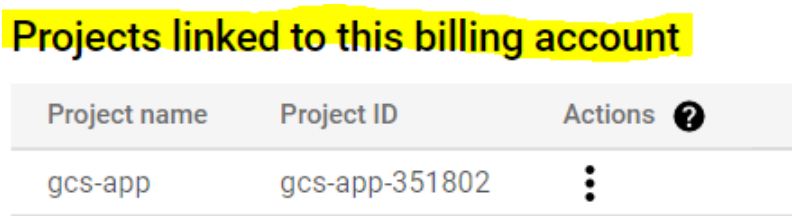
- LINK A BILLING ACCOUNT
- Select my Billing account
- SET ACCOUNT





⑨ If you click on Manage Billing Accounts, you will see the two are linked together.





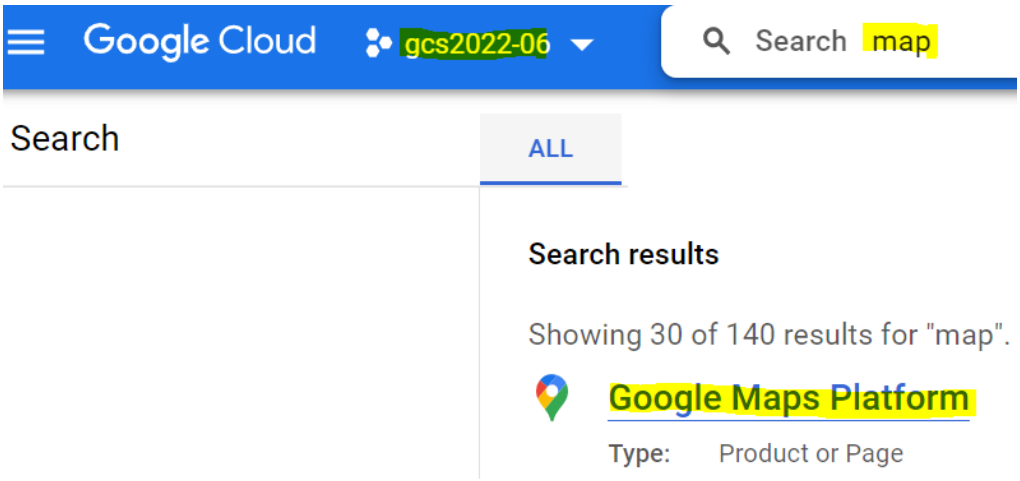
> Obtaining the App Key

Now that you have created a project and linked your account, Google must provide a password or certificate for you to use Google Maps. It's called App Key.

① Select the project name.

② Go to 'credentials.'

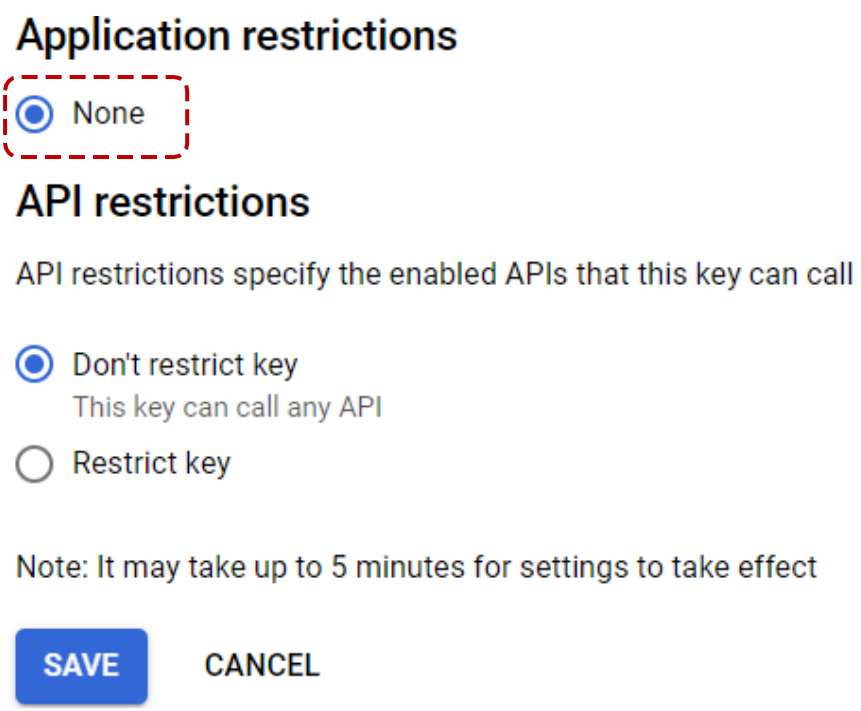
When it is not easy to find credentials, select your project, search for 'map' and click on Google Maps Platform.



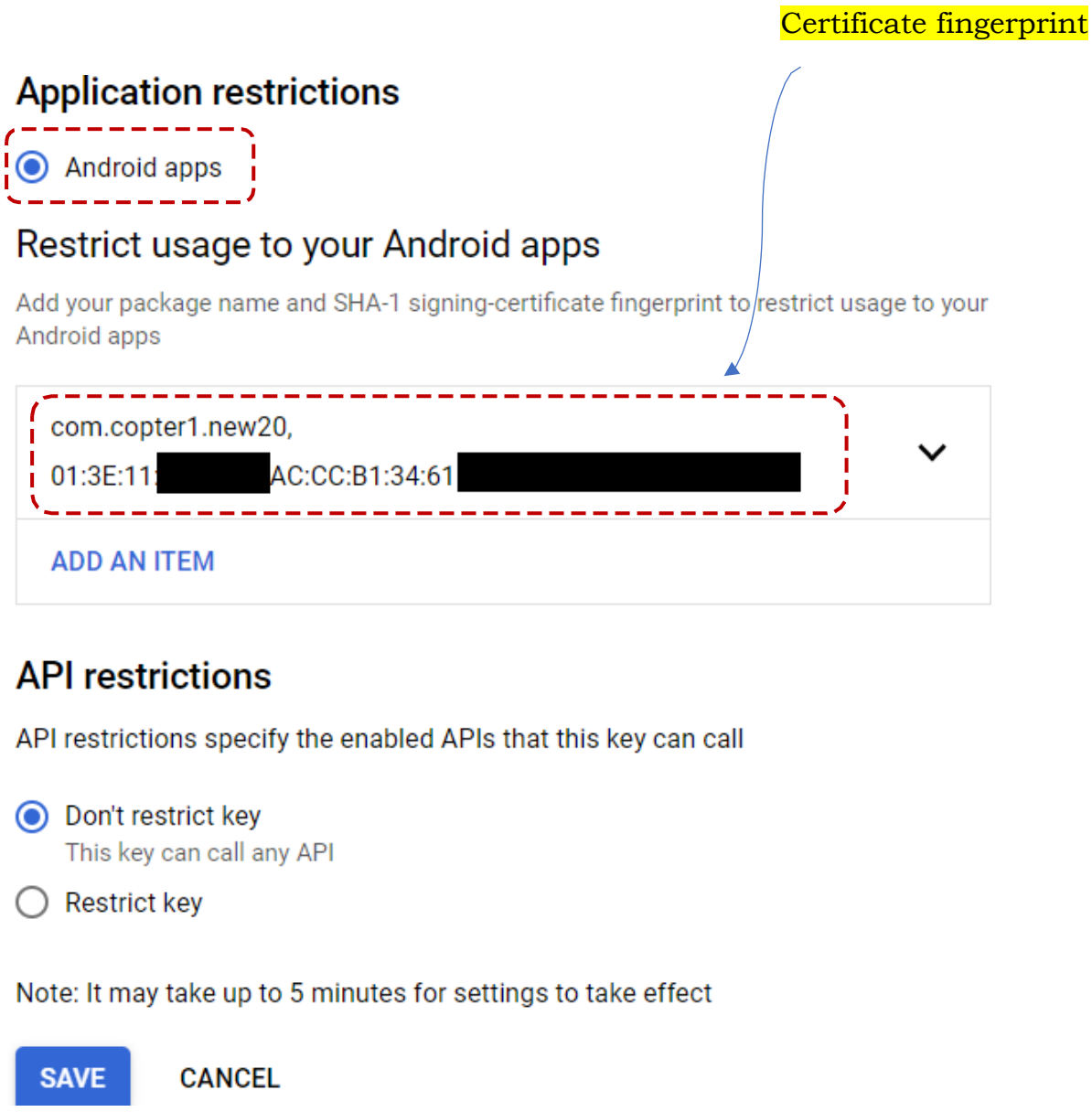
③ Determine whether the app is restricted or not, and create an app key.

- ❶ Allows apps to be created and distributed on any computer.
- ❷ Allows apps to be created and distributed only on a specific computer.

❶ **No limit**


Application restrictions
None
API restrictions
API restrictions specify the enabled APIs that this key can call
Don't restrict key
This key can call any API
Restrict key
Note: It may take up to 5 minutes for settings to take effect
SAVE
CANCEL

❷ **Limited**



> Getting Certificate fingerprint (SHA1)

① Enter the API-Key site.

② Click [Credentials] – [Maps API Key].

③ [Debug certificate fingerprint] Copy the certificate fingerprint.

Debug certificate fingerprint

For Linux or macOS:

```
$ keytool -list -v -keystore ~/.android/debug.keystore -alias and
```

For Windows:

```
$ keytool -list -v -keystore "%USERPROFILE%\.android\debug.keystc
```

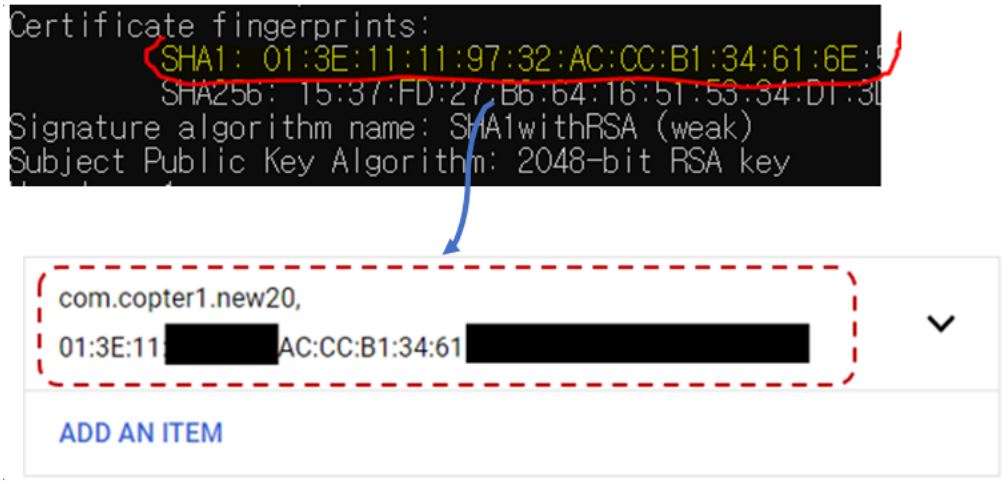
Copy to clipboard

④ Execute 'cmd' and move to the .android folder.

```
C:₩Users₩gyoos₩.android>
```

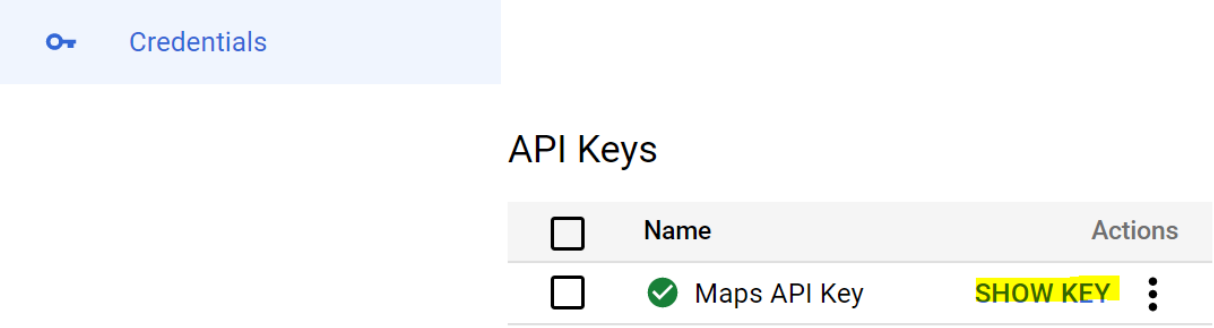
⑤ Paste the certificate fingerprint you copied to the clipboard and press Enter.

⑥ Copy SHA1 from the printed result and paste it into the App's certificate fingerprint.



> Applying App Key

① [Credentials] – [SHOW KEY] Copy App Key.



② [Android Studio] - [AndroidManifest.xml] Past App Key.

```
<meta-data
    android:name="com.google.android.geo.API_KEY"
    android:value="      " />
```

5-3. Making App in Android Studio

If you have restricted the use of the app to a specific PC, from now on, when creating a new app, you must use the 'package name used to restrict the app.'

- com.copter1.new20