



arm

# Workshop

2. Setup develop environment

Document Location : <http://bitly.kr/Yv9v>

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# **1. Arm IoT Ecosystem**

**→ 2. Setup develop environment**

**3. Peripheral IPs control practice**

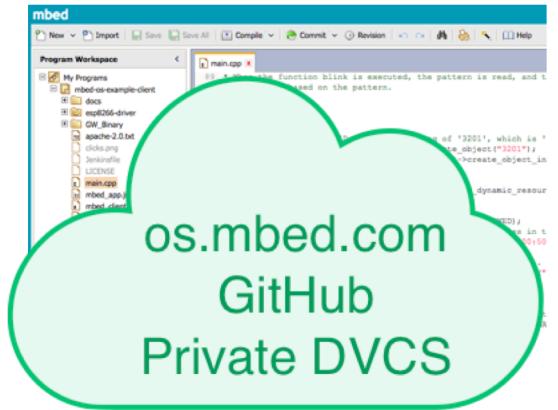
**4. Connecting your platform to Pelion**

**5. Remote FW update of your device**

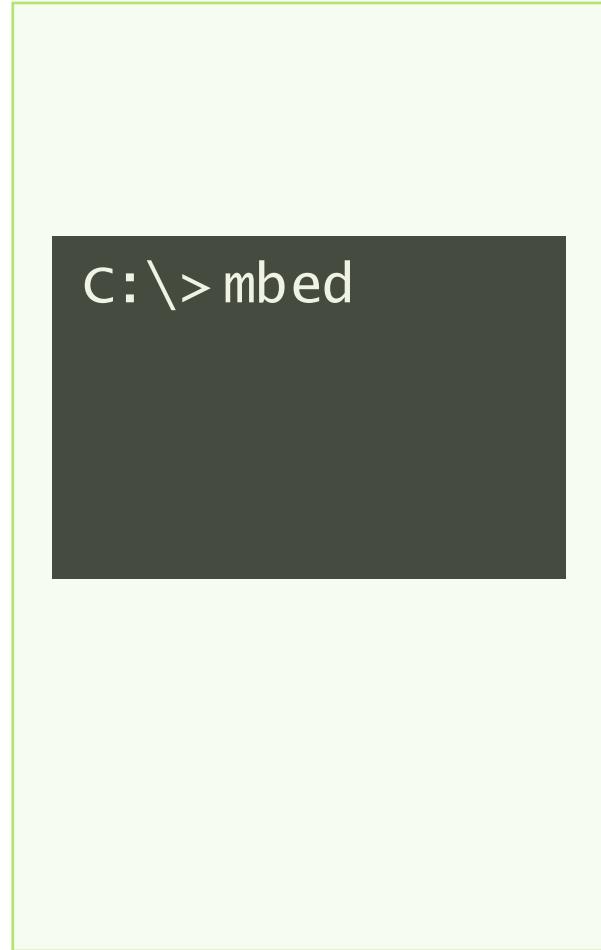
# #2 Setup Develop environment

<https://os.mbed.com/docs/v5.9/tools/index.html>

# Three development environments



Online Compiler



Mbed CLI



Offline Compiler

# Auto install

- For Windows
  - <https://os.mbed.com/docs/latest/tools/installing-with-the-windows-installer.html>
- For Mac OS
  - <https://os.mbed.com/docs/latest/tools/installing-with-the-mac-os-x-installer.html>
- For Linux
  1. Install Virtual box
    - <https://www.virtualbox.org/>
  2. VB image download, mount image to VB
    - [https://drive.google.com/open?id=1KXn5wO2McQZcn6KcJGYU4gaFwwrBBG\\_J](https://drive.google.com/open?id=1KXn5wO2McQZcn6KcJGYU4gaFwwrBBG_J)
    - User & Password : mbed2017
    - This VB image are included all tools for Mbed compile.

# Manual install - For Windows

## 1. Install python

- <https://www.python.org/downloads>

## 2. Install Git

- <https://git-scm.com/download>

## 3. Install Mercurial

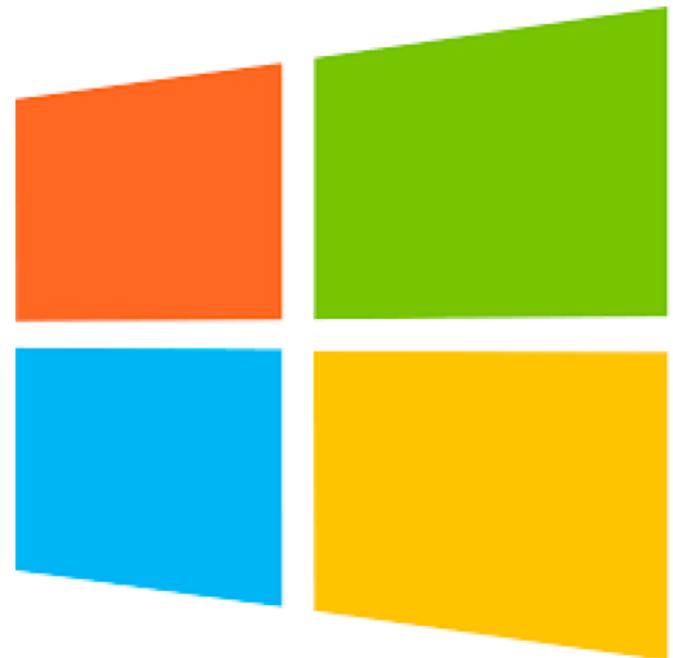
- <https://www.mercurial-scm.org>

## 4. Install GCC(GNU Compiler Collection)

- <https://launchpad.net/gcc-arm-embedded>

## 5. Install Mbed CLI

- <https://os.mbed.com/blog/entry/windows-installer-for-mbed-cli/>



# Manual install - For Linux #1

## 1. Install Virtual box

- <https://www.virtualbox.org/>

## 2. Install Ubuntu

- [Optional] <https://www.ubuntu.com/download/desktop>
- [Optional] <https://www.osboxes.org/virtualbox-images/>

ID/PW : osboxes.org

## 3. Install Git

- `$ apt-git install git`

## 4. Install Mercurial

- `$ apt-get install mercurial`



# Manual install - For Linux #2

## 5. Install GCC(GNU Compiler Collection)

- \$ apt-get install mercurial

## 6. Install python-pip

- \$ apt-get install python-pip

## 7. Install Mbed CLI

- \$ pip install mbed-cli



# Manual install - For Mac #3

## 1. Install python

- `$ xcode-select --install`
- `$ brew install Python@2`

## 2. Install Git

- `$ brew install git`

## 3. Install Mercurial

- `$ brew install mercurial`

## 4. Install GCC(GNU Compiler Collection)

- `$ brew install gcc-arm-none-eabi`

## 5. Install Mbed CLI

- `$ pip install mbed-cli`



# Common

## 6. Setup SSH

A. Generator ssh-key : <https://help.github.com/articles/connecting-to-github-with-ssh/>

- `$ ssh-keygen -t rsa -b 4096 -C your_email@example.com`
- `$ ls -al ~/.ssh`

B. Register ssh-key github : <https://github.com/settings/keys>

- `$ cat id_rsa.pub`

C. `$ mbed config -G protocol ssh`

## 7. Setup Etc.

- `$ mbed config --list`
- `$ mbed config -G cache on`

# LED Blinky test

```
[daniel@ workshop]$ mbed import mbed-os-example-blinky
[mbed] Importing program "mbed-os-example-blinky" from "https://github.com/ARMmbed/mbed-os-example-blinky" at latest revision in the current branch
[mbed] Adding library "mbed-os" from "https://github.com/ARMmbed/mbed-os" at rev #f8b140f8d7cb
[daniel@ workshop]$ cd mbed-os-example-blinky/
.
..
.git          .mbed          main.cpp        mbed-os.lib
..             .gitignore      README.md       mbed-os         mbed_settings.py
[daniel@ mbed-os-example-blinky]$ mbed compile -t GCC_ARM -m NUCLEO_F429ZI
[Error] @,: Compiler version mismatch: Have 7.3.1; expected version >= 6.0.0 and < 7.0.0
Building project mbed-os-example-blinky (NUCLEO_F429ZI, GCC_ARM)
Scan: .
Scan: mbed
Scan: env
Scan: FEATURE_LWIP
Compile [ 0.1%]: mbed_tz_context.c
```

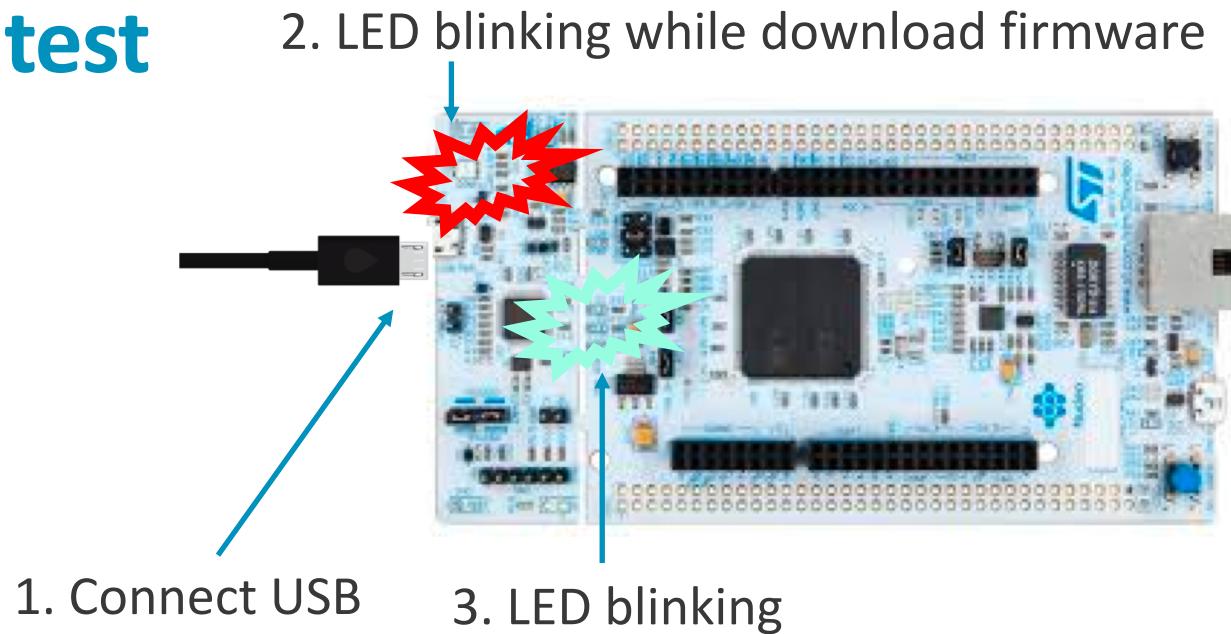
```
$ mbed import mbed-os-example-blinky
$ cd mbed-os-example-blinky
mbed-os-example-blinky]$ mbed compile -t GCC_ARM -m NUCLEO_F429ZI
```

... Wait complete compile. And if there is no problem... You can see the below messages.

```
| mbed-os/rtos    | 12376 | 168 | 6073 |
| mbed-os/targets | 10109 | 5   | 680  |
| Subtotals       | 285624| 3212| 27208 |
+-----+-----+-----+
Total Static RAM memory (data + bss): 30420 bytes
Total Flash memory (text + data): 288836 bytes

Image: ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin
[daniel@ mbed-os-example-blinky]$
```

# LED Blink test



## For Windows

```
mbed-os-example-blinky]$ copy ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin E:\
```

## For Linux

If you are using the Linux on virtualbox, have to change USB detect from Window(or Mac) to the Linux on virtual box

```
mbed-os-example-blinky]$ cp ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin /Media/mbed/NODE_F429ZI/
```

## For Mac

```
mbed-os-example-blinky]$ cp ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin /Volumes/NODE_F429ZI/
```

# Mbed – Online compile

<https://os.mbed.com/compiler/>

The screenshot shows the Mbed online compiler interface. The top navigation bar includes links for Secure, Compile, Mbed Cloud, Commit, Revision, Help, and a user profile for NUCLEO-L073RZ. The main area is titled "Workspace Management" and contains a "Manage your Program Workspace" section. This section lists programs in the "My Programs" workspace, including GPS\_U-blox\_NEO-6M\_Test\_Code, mbed-os-example-blink, mbed-os-example-client, mbed-os-example-lorawan, and mbed-os-example-wifi. A search bar and filter options are available. To the right, there is a "Workspace Details" panel for Daniel Lee, showing 5 total programs and a modified file named mbed\_app.json from 3 days ago. The bottom right corner features the Arm logo.

Secure | https://os.mbed.com/compiler/#nav:/; 1.10.14.0

**Mbed** 1.10.14.0

New Import Save Save All Compile Mbed Cloud Commit Revision Help NUCLEO-L073RZ

**Program Workspace**

**Workspace Management**

**Manage your Program Workspace**

Listing all programs in your Program Workspace

Type to filter the list ...  Match Case  Whole Word  Find

Name	Tags	Modified	Description
GPS_U-blox_NEO-6M_Test_Code	GPS LPC4330 Neo-6M u-blox	23 Jul 2018	Test code for GPS U-blox NEO-6M
mbed-os-example-blink		3 weeks, 3 days ago	
mbed-os-example-client		1 week, 1 day ago	
mbed-os-example-lorawan		3 days, 3 hours ago	
mbed-os-example-wifi		09 Jul 2018	

**Workspace Details**

**Daniel\_Lee**

Total Programs 5  
Modified 3 days, 3 hours ago

**Recently Modified**

mbed\_app.json 3 days, 3 hours ago

# Mbed – Simulator

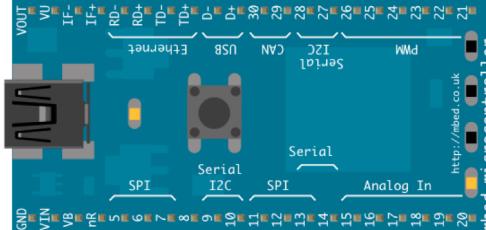
<http://ec2-52-211-146-247.eu-west-1.compute.amazonaws.com:7829/>

## Arm Mbed OS simulator

How to debug | GitHub project

Blinky + Load demo Run + Add component ↻

```
1 #include "mbed.h"
2 #include "C12832.h"
3
4 C12832 lcd(SPI_MOSI, SPI_SCK, SPI_MISO, p8, p11);
5
6 DigitalOut led(LED1);
7
8 int main() {
9     while (1) {
10         lcd.locate(0, 3);
11         lcd.printf("Hello from the simulator!");
12
13         led = !led;
14         printf("Blink! LED is now %d\n", led.read());
15
16         wait_ms(500);
17     }
18 }
```



C12832 (p5, p6, p7) X

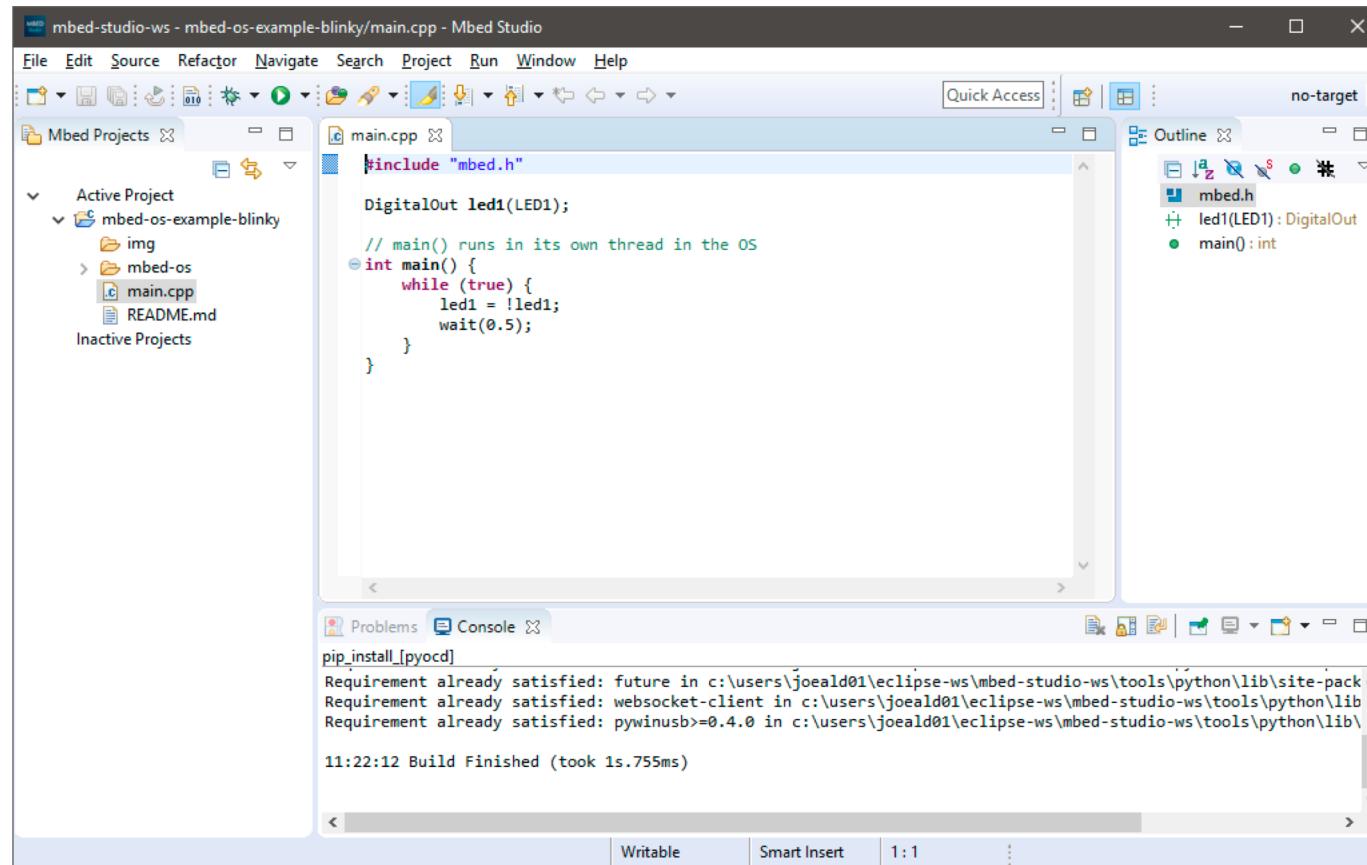
Hello from the simulator!

### Serial output

```
Blink! LED is now 1
Blink! LED is now 0
Blink! LED is now 1
Blink! LED is now 0
Blink! LED is now 1
```

# Mbed Studio – Alpha version \*\* Do not install yet\*\*

<https://os.mbed.com/docs/v5.9/tools/arm-mbed-studio.html>



Thank You!

Danke!

Merci!

谢谢!

ありがとう!

Gracias!

Kiitos!

감사합니다!

arm