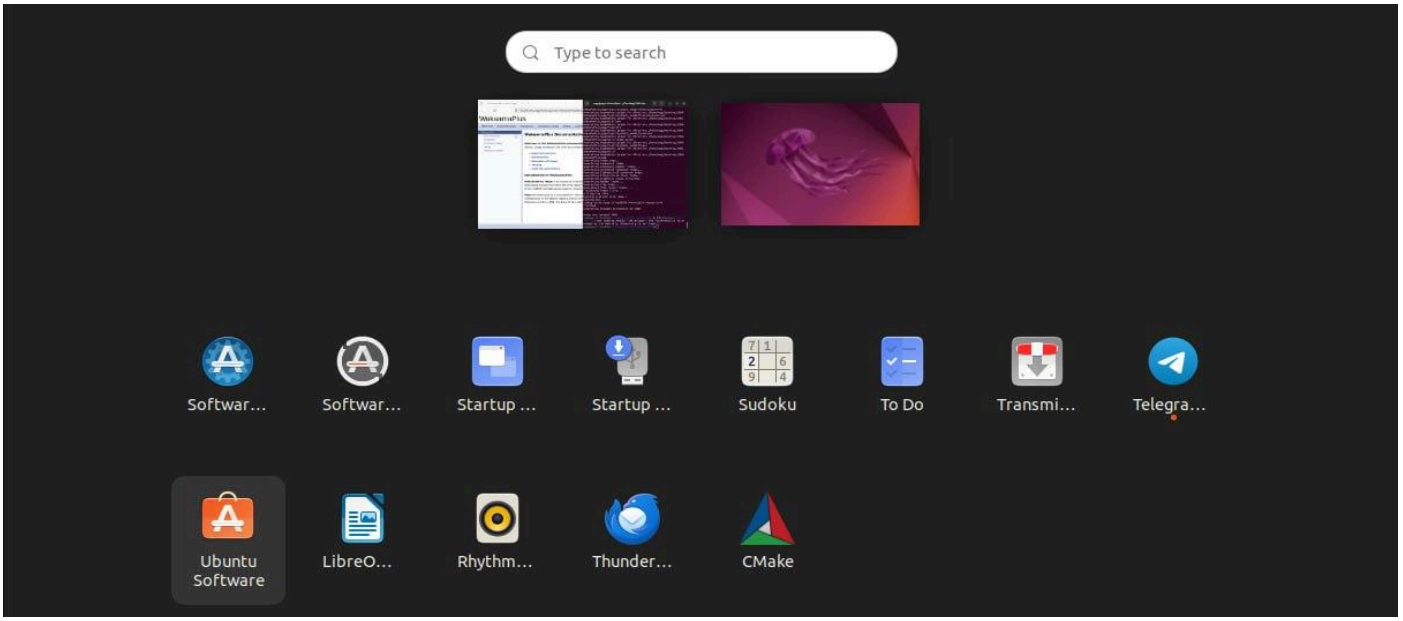
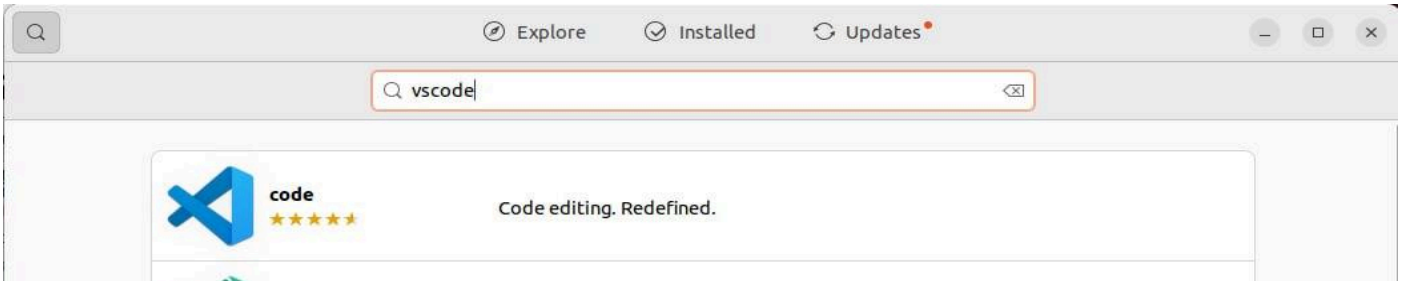
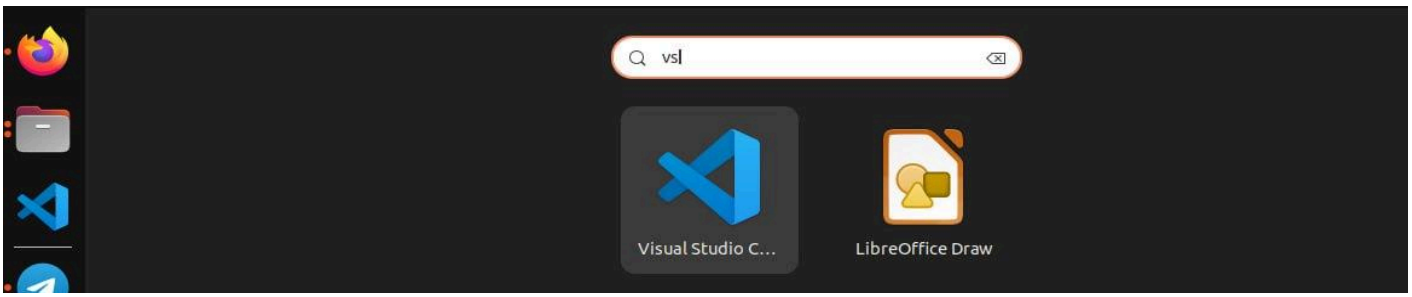
First build

- Download Visual Studio Code (https://code.visualstudio.com/download) from the official site or install it from Ubuntu Software.



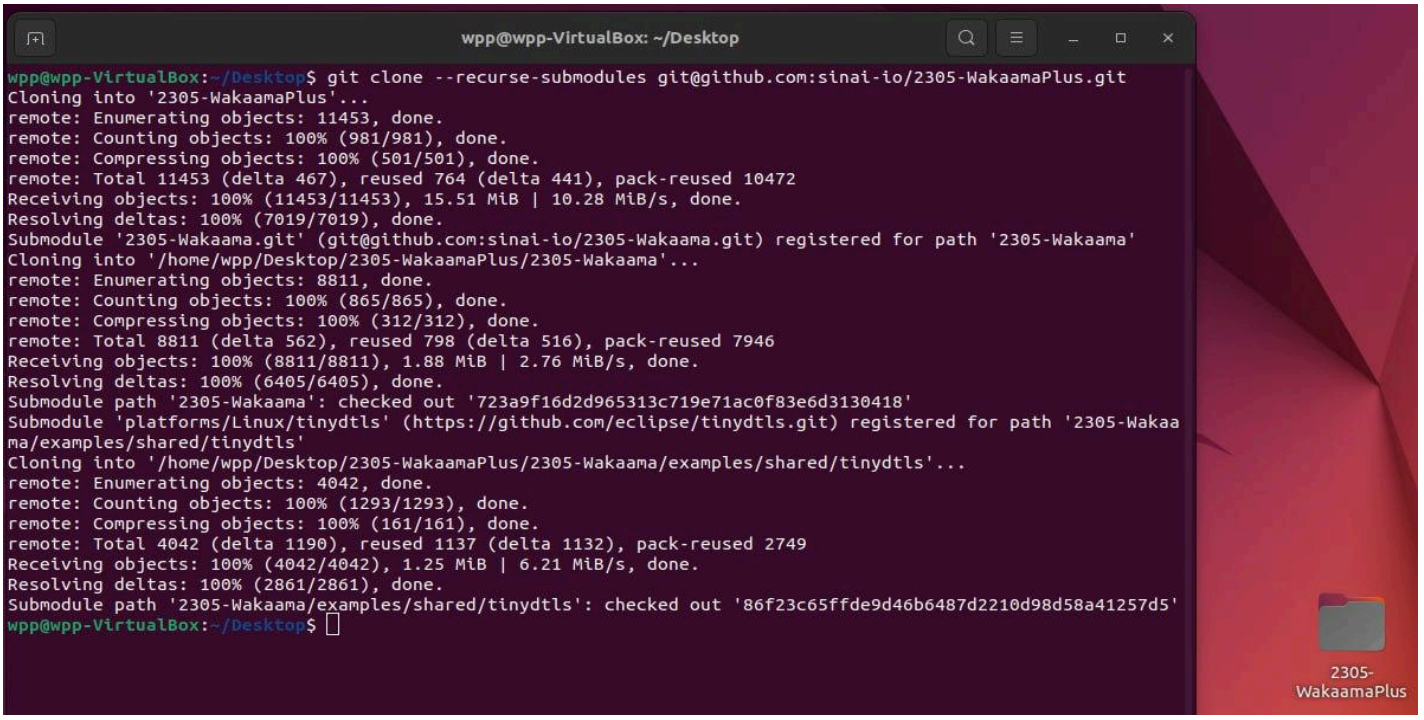




**You can use other IDE or use CLI for building and running.*

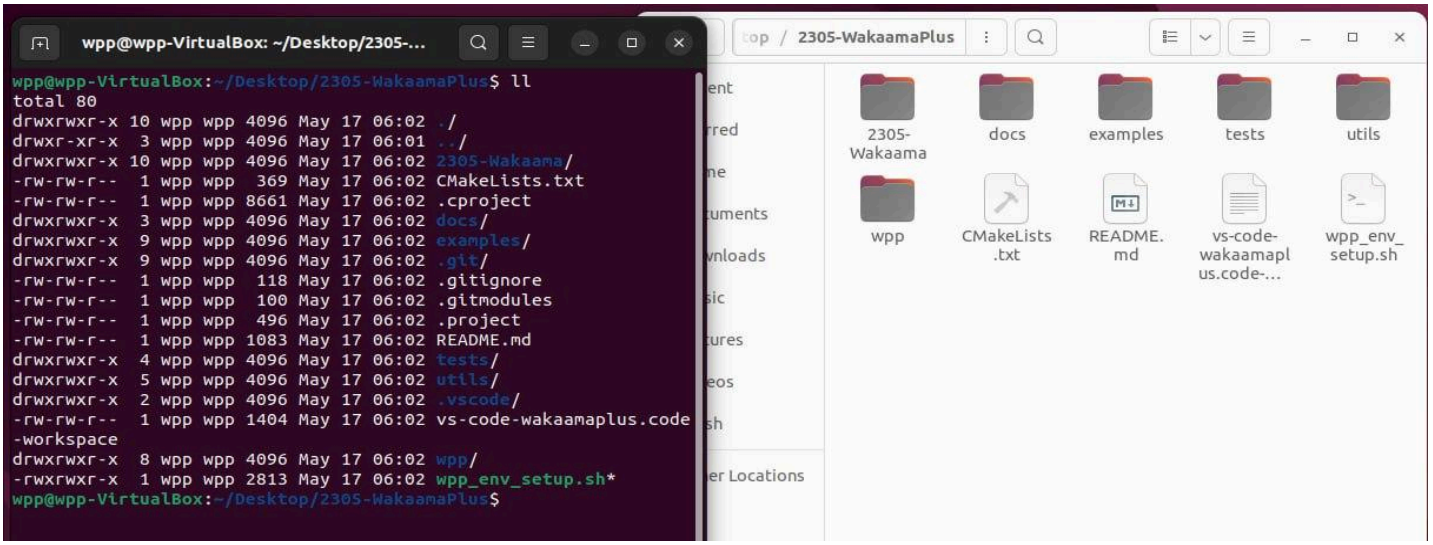
- Download the repository.

```
git clone --recurse-submodules git@github.com:sinai-io/2305-WakaamaPlus.git
```



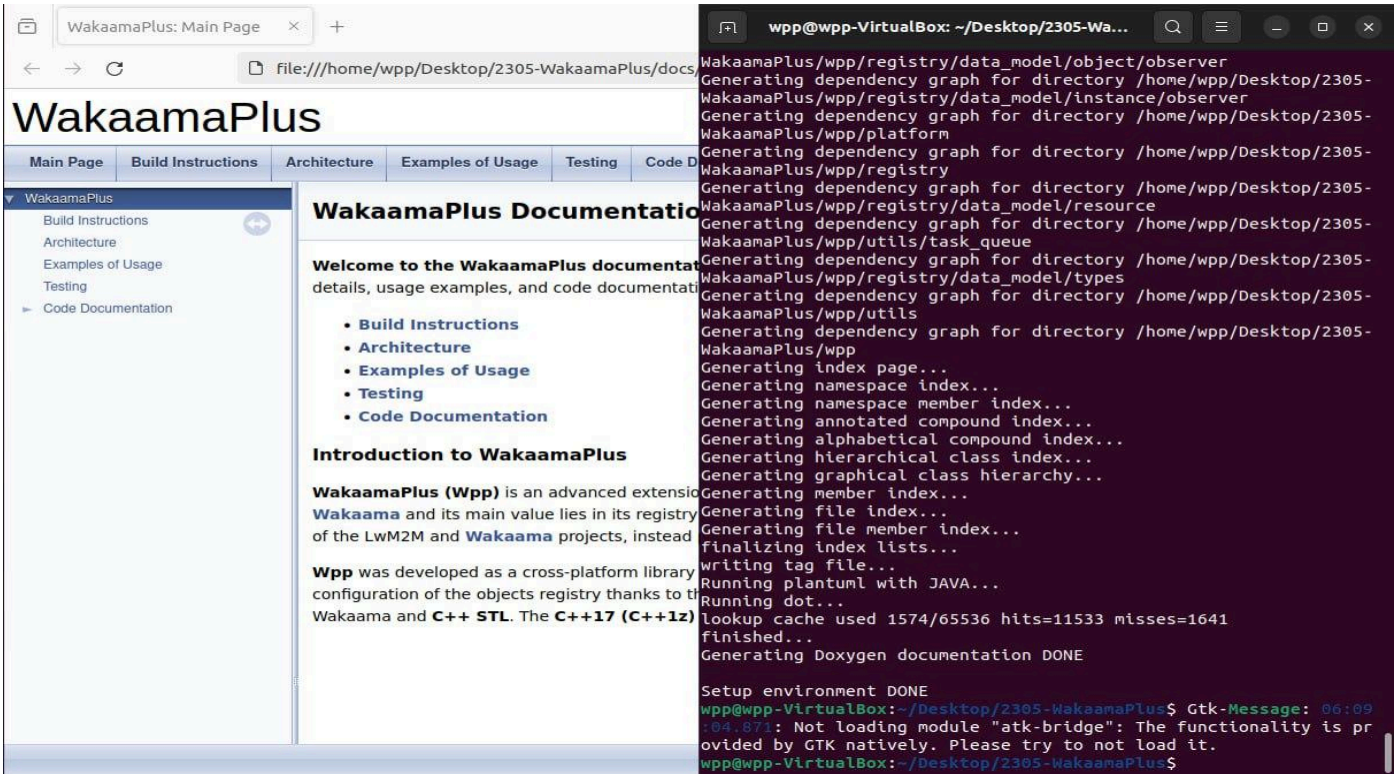
- Go to the **2305-WakaamaPlus** folder.

```
cd ./2305-WakaamaPlus
```



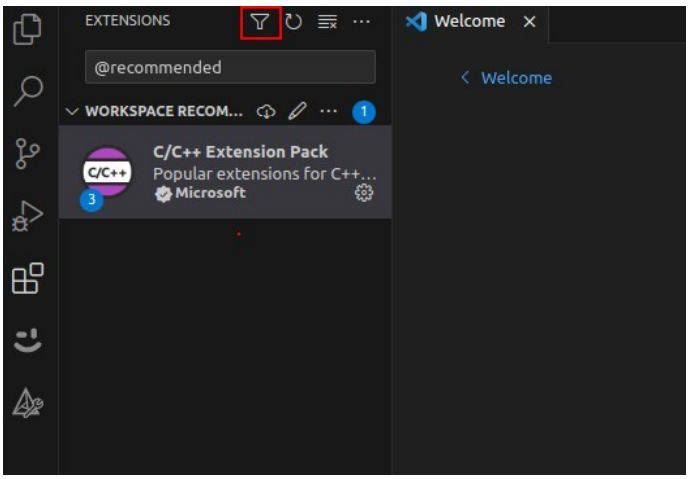
- Run the `wpp_env_setup.sh` script to install the necessary utilities. Use sudo permission to run the script. After successfully downloading, installing, and completing the installation process, the script generates documentation about the WPP library using Doxygen and automatically opens a web page to view the documentation.

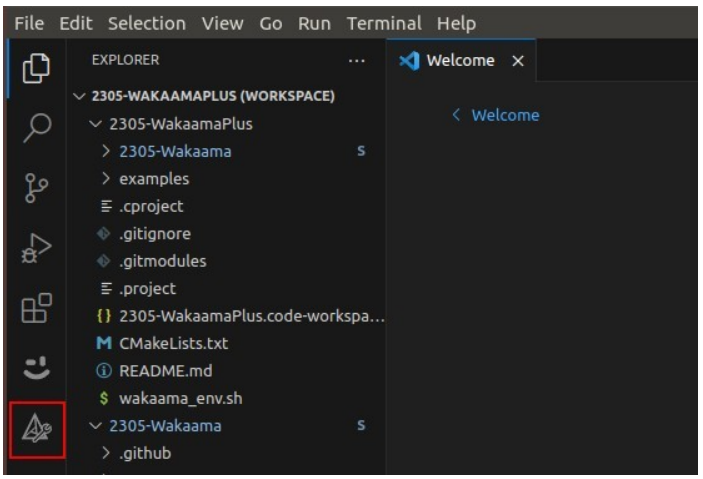
```
sudo bash wpp_env_setup.sh
```



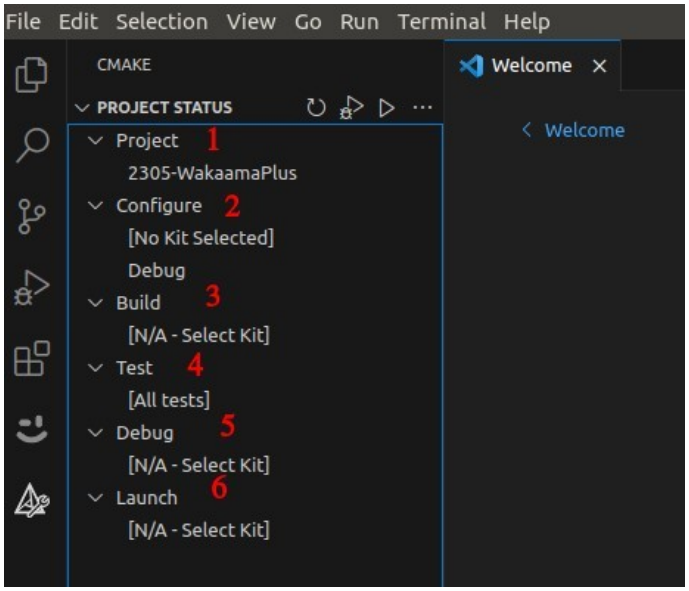
- Start **VSCode** and go to the open workspace set up for this project **File → Open Workspace from File**.
- In the opened window, specify the path to the file `vs-code-wakaamaplus.code-workspace` located in the **2305-WakaamaPlus** repository.
- After loading the workspace, go to Extensions (Ctrl+Shift+x), set Recommended (Text field: @recommended) in the extensions filter, and install all recommended extensions.

- Let’s move on to the **Cmake extension**, the open one contains the entire main interface of the CMake Tool extension.





- Before the first build of the projects, it is necessary to configure the Kit in both projects, for this you need to choose **Wpp Linux Kit** (but in general the compiler depends on the target platform) as a compiler for both projects. After the kit is installed, you can start the first building.

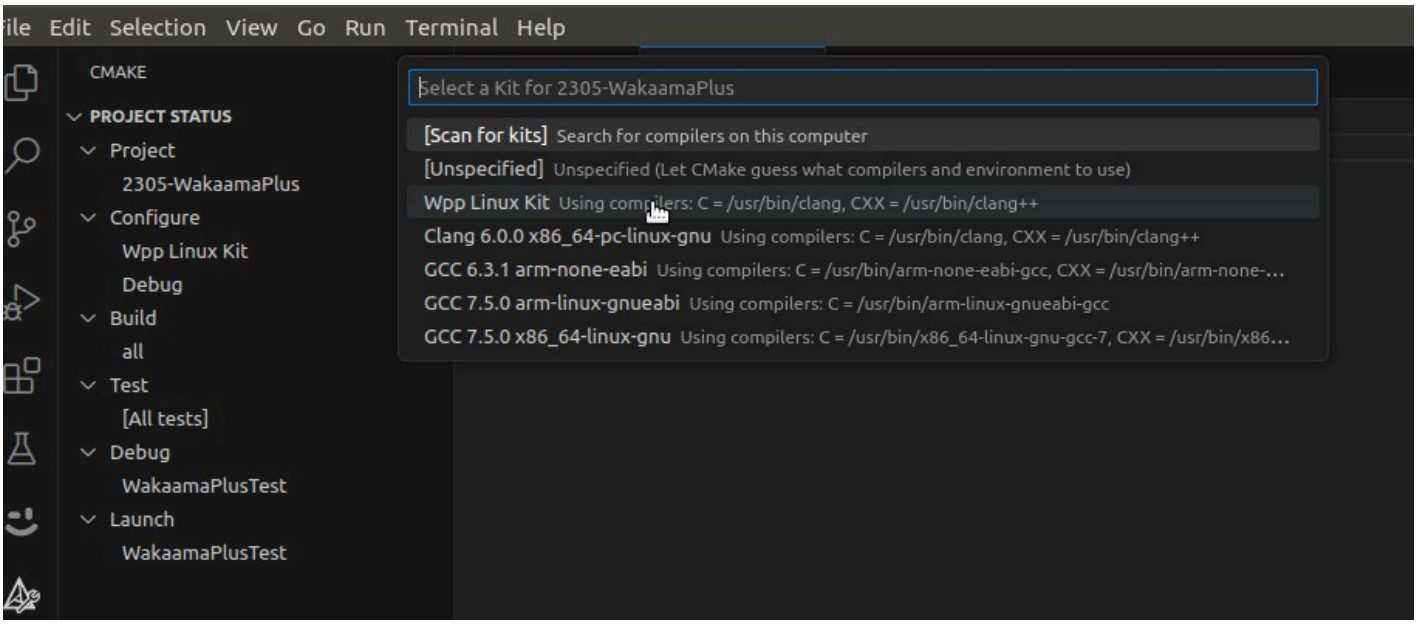


CMake Tool:

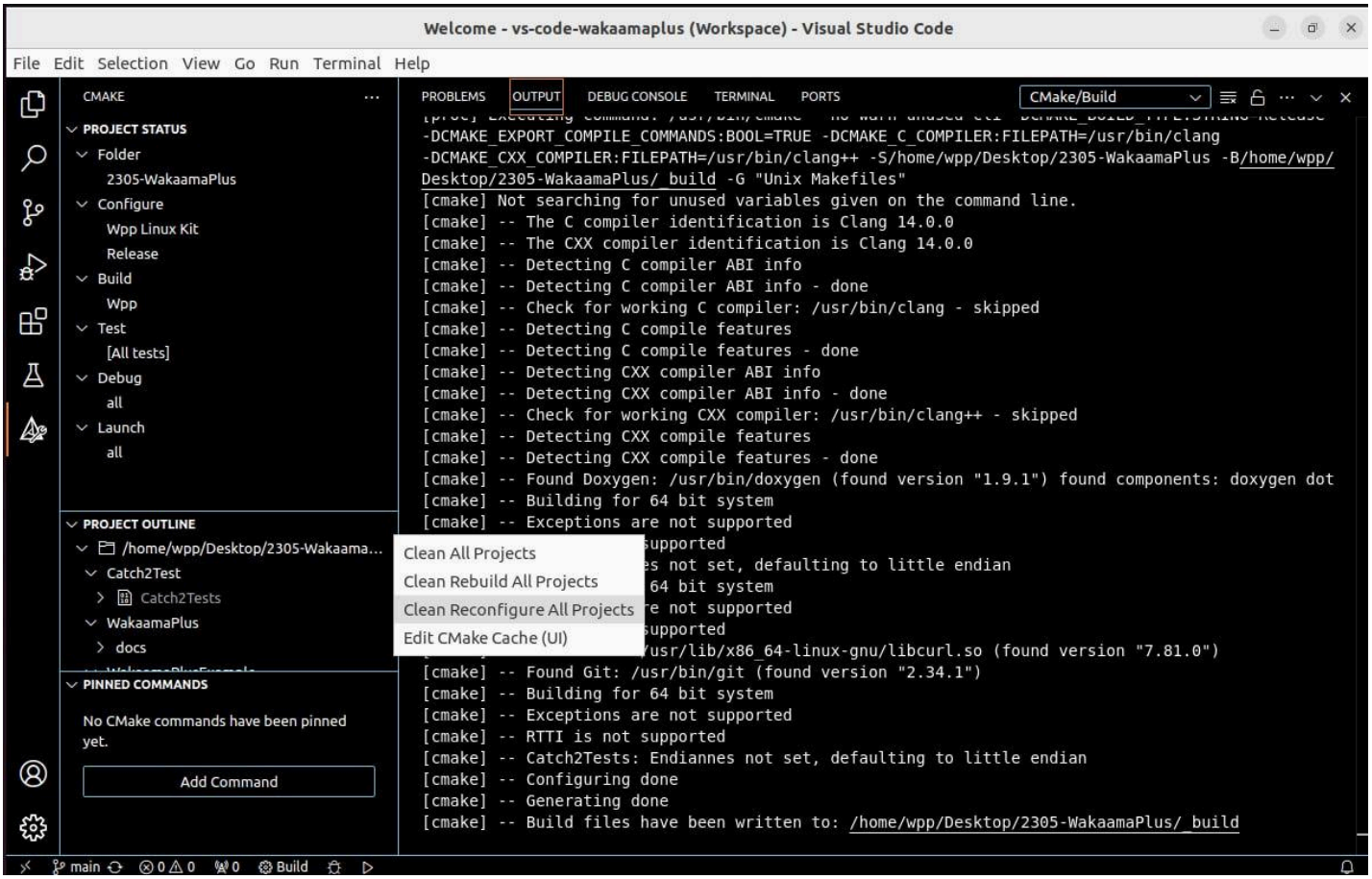
1 - allows you to select one of the projects in the workspace,
2 - allows you to select the tool kit (the compiler with which the project will be compiled) and the build variant (Release, Debug),
3 - allows you to set the target (all, or some specific variant),
4 - run the existing tests,
5 - start the debug for the selected file,
6 - start the execution of the selected file.

If you need to add a custom Kit or modify the list of available kits it can be done in file `vs- code-cmake-kits.json`, which describes available kits. Also when you select the needed kit in VS code, in addition to the Wpp Linux Kit you can see others available on the PC that can be

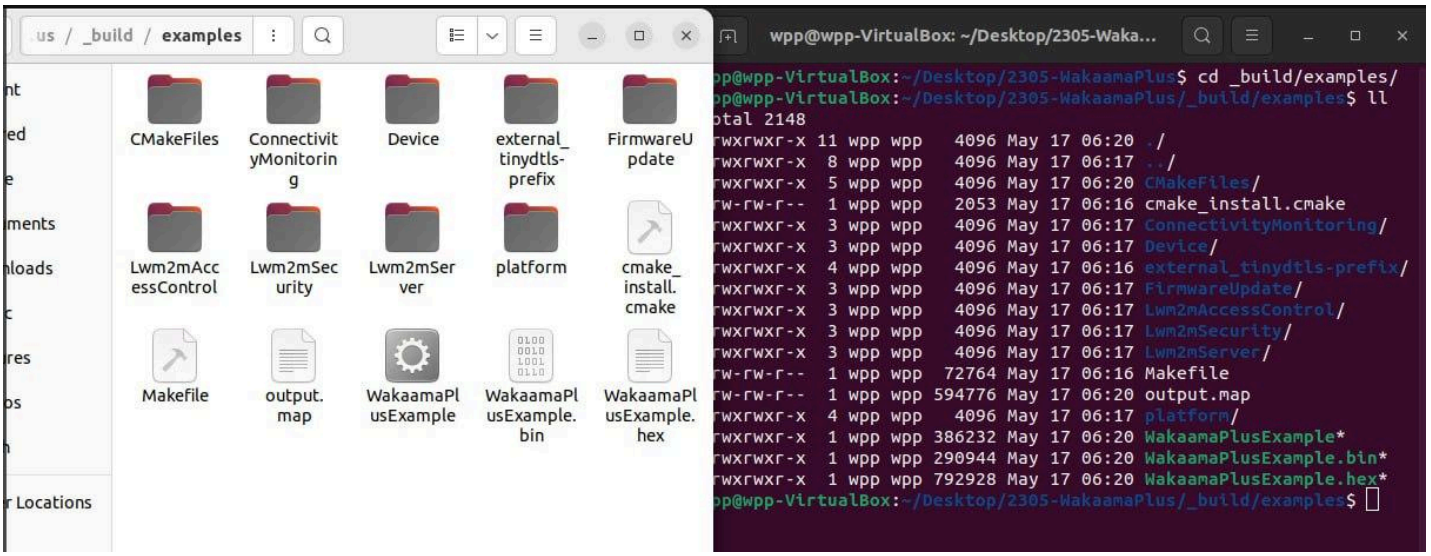
selected, if you need you can use them.



- Make `Clean Reconfigure All Projects` to check the correct setup environment for the build project. In the OUTPUT window, you see Configuring done and Generating done if the setup is correct.



- Run `Build` with target `WakamaPlusExample` to create an executable file for the client that connects to the server. After the successful build, you can find the executable file `./2305-WakaamaPlus/_build/examples/WakamaPlusExample`



- Run `WakamaPlusExample` and check if the client connects to the server correctly or not.

```
wpp@wpp-VirtualBox: ~/Desktop/2305-WakaamaPlus/_build/examples
wpp@wpp-VirtualBox:~/Desktop/2305-WakaamaPlus/_build/examples$ ./WakaamaPlusExample

---- Creating requiered components ----
Connection: socket id 3

---- Creating WppClient ----
WppClient name: SinaiTestLwm2mPSK
[wpp:WppClient] [create():35] [DEBUG] Creating WppClient instance with info: endpoint->SinaiTestLwm2mPSK, msisdn->, altPath->
[wpp:WppRegistry] [WppRegistry():8] [DEBUG] Creating registry instance
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 3
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 1
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 0
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 4
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 2
[wpp:Object] [Object():6] [DEBUG] Creating object with ID -> 5

---- Initialization wpp Server ----
[wpp:Object] [createInstance():75] [DEBUG] Creating instance 1:0
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=1, instID=0, resID=0, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=1, instID=0, resID=7, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=1, instID=0, resID=1, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=1, instID=0, resID=6, resInstID=65535

---- Initialization wpp Security ----
[wpp:Object] [createInstance():75] [DEBUG] Creating instance 0:0
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=2, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=3, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=5, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=1, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=0, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=0, instID=0, resID=10, resInstID=65535

---- Initialization wpp Device ----
[wpp:Object] [createInstance():75] [DEBUG] Creating instance 3:0
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=3, instID=0, resID=4, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=3, instID=0, resID=11, resInstID=0
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=3, instID=0, resID=16, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=3, instID=0, resID=0, resInstID=65535
[wpp:Instance] [notifyServerResChanged():43] [DEBUG] Notify value changed: objID=3, instID=0, resID=1, resInstID=65535
```

- For change server link. Open file `./2305-WakaamaPlus/examples/objects.cpp` and change the URL from `coap://friendly-tech.com:` to custom. Rebuild the project and run the executable file for the client.

```
/home/vd/Desktop/2305-WakaamaPlus/examples/objects.cpp
    #else
        string url = "coap://friendly-tech.com:";
        #if DTLS_WITH_PSK
            url += "5684";
            string pskId = "SINAI_TEST_DEV_ID";
            security->set<INT_T>(Lwm2mSecurity::SECURITY_MODE_2, LWM2M_S
            security->set(Lwm2mSecurity::PUBLIC_KEY_OR_IDENTITY_3, OPAQU
            security->set(Lwm2mSecurity::SECRET_KEY_5, OPAQUE_T {0x00, 0
        #elif DTLS_WITH_RPK
            url += "5684";
            security->set<INT_T>(Lwm2mSecurity::SECURITY_MODE_2, LWM2M_S
            security->set(Lwm2mSecurity::PUBLIC_KEY_OR_IDENTITY_3, OPAQU
            security->set(Lwm2mSecurity::SECRET_KEY_5, OPAQUE_T {0x92, 0
        #else
            url += "5683";
            security->set<INT_T>(Lwm2mSecurity::SECURITY_MODE_2, LWM2M_S
        #endif
        security->set<BOOL_T>(Lwm2mSecurity::BOOTSTRAP_SERVER_1, false);
    #endif
```