

MYD-LD25X QT Application Note



File status: [] Draft [√]Release	FILE ID:	MYIR-MYD-LD25X-SW-AN01-EN-6.1.82
	VERSION:	V1.0[Doc]
	AUTHOR:	MSW0407
	RELEASE:	2024-09-15
	UPDATED:	2024-09-10



Revision History

VERSION	AUTHOR	PARTICIPANT	DATE	DESCRIPTION
V1.0[Doc]	MSW0407	MSW0041	2024-09-15	Official Release



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1. Overview

Qt is a cross-platform graphical application development framework suitable for devices and platforms of various sizes, offering multiple versions for users to choose from. The MYD-LD25X series development board utilizes Qt version 5.15.13 for application development. During the Qt application development process, it is recommended to use the Qt Creator integrated development environment to develop Qt applications on Linux, while automatically cross-compiling for the ARM architecture of the development board.

This chapter uses the SDK tools built with Yocto as the cross-compilation toolchain, combined with Qt Creator to rapidly develop graphical applications.

2. Hardware Resources

- MYD-LD25X Development Board

3. Software Resources

- ubuntu 20.04 64bit
- qt-opensource-linux-x64-5.15.run Series Installation Packages
- Cross-compilation toolchain installation script
myir-image-full-openstlinux-weston-myd-ld25x-x86_64-toolchain-4.2.4-snapshot.
sh(Path:03-Tools/Complie Toolchain)
- MXAPP.tar.gz(PATH:04-sources/MXAPP/)

4. Environment Preparation

A Ubuntu desktop system is required; all subsequent operations will be carried out on the Ubuntu 20.04 64-bit version. Please install the desktop system on your own.

● Installing the Cross-Compilation Toolchain

Enter the installed Ubuntu desktop system, copy the cross-compilation toolchain installation script

myir-image-full-openstlinux-weston-myd-ld25x-x86_64-toolchain-4.2.4-snapshot.sh to the system, and then run the following command:

```
myir@ubuntu:~$ ./myir-image-full-openstlinux-weston-myd-ld25x-x86_64-toolchain-4.2.4-snapshot.sh
```

Here we choose to install it to the default path, so that the cross-compilation toolchain for gcc and g++ will be located in the directory */opt/st/myd-ld25x/4.2.4-snapshot*, making it convenient for future configuration.

5. Installing Qt 5.15

Here, we need to download the installation package qt-opensource-linux-x64-5.15.run, it includes Qt Creator. However, the Qt official website no longer provides offline installation packages for versions below Qt 5.15, so please find the resources on your own for installation.

● Installing Required Libraries for Qt

Before installing Qt Creator, you need to configure the host environment. Please install the following resource packages:

```
myir@ubuntu:~$ sudo apt-get update
myir@ubuntu:~$ sudo apt install --reinstall libxcb-xinerama0
myir@ubuntu:~$ sudo apt install cmake build-essential libgl1-mesa-dev libglu1-mesa-dev freeglut3-dev cmake
```

● Place the installation package in Ubuntu and run it.

```
myir@ubuntu:~$ ./qt-opensource-linux-x64-5.15.run
```

● Installing Qt

1) Enter your Qt account and password. If you haven't registered yet, you will need to register first. Then, click "Next."

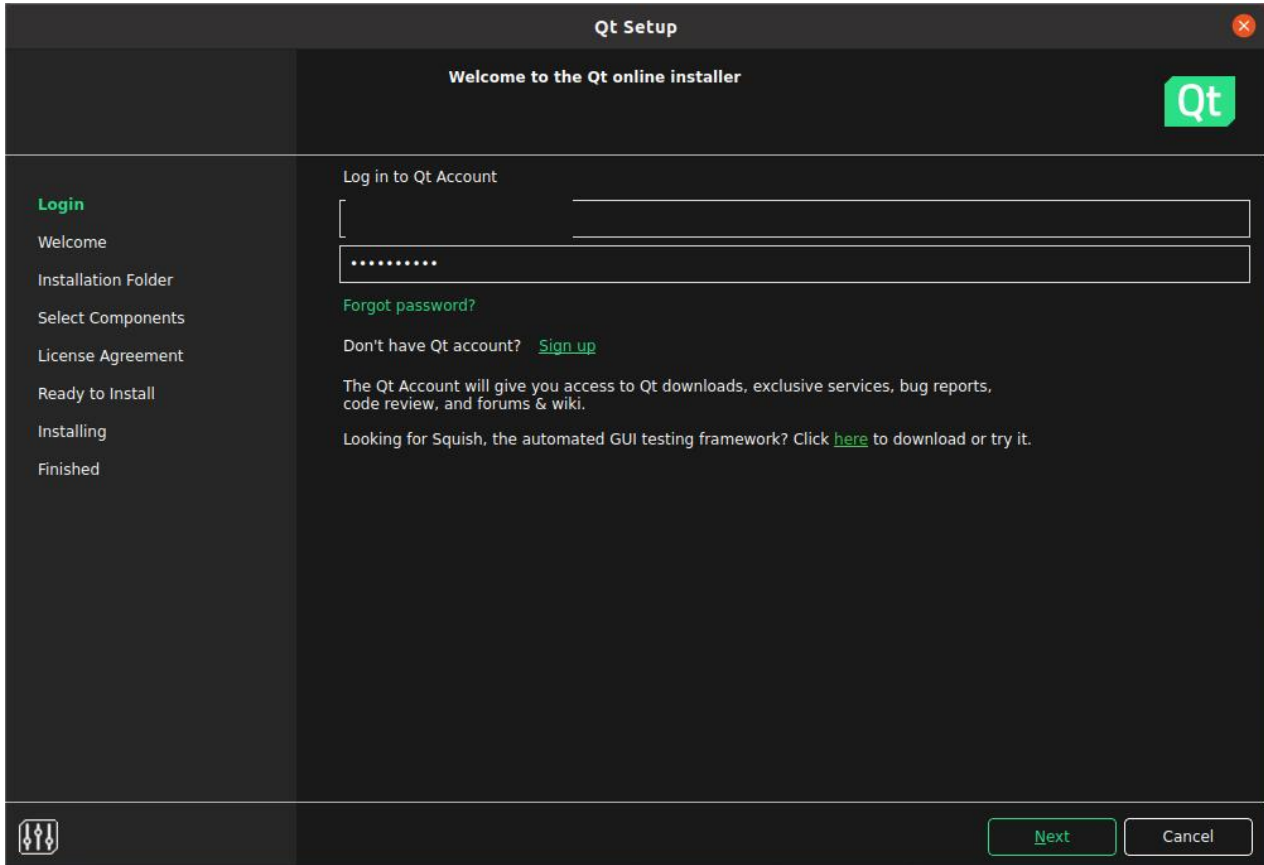


Figure 5-1. Enter Username and Password

2) Check the two items below, and then click "Next."

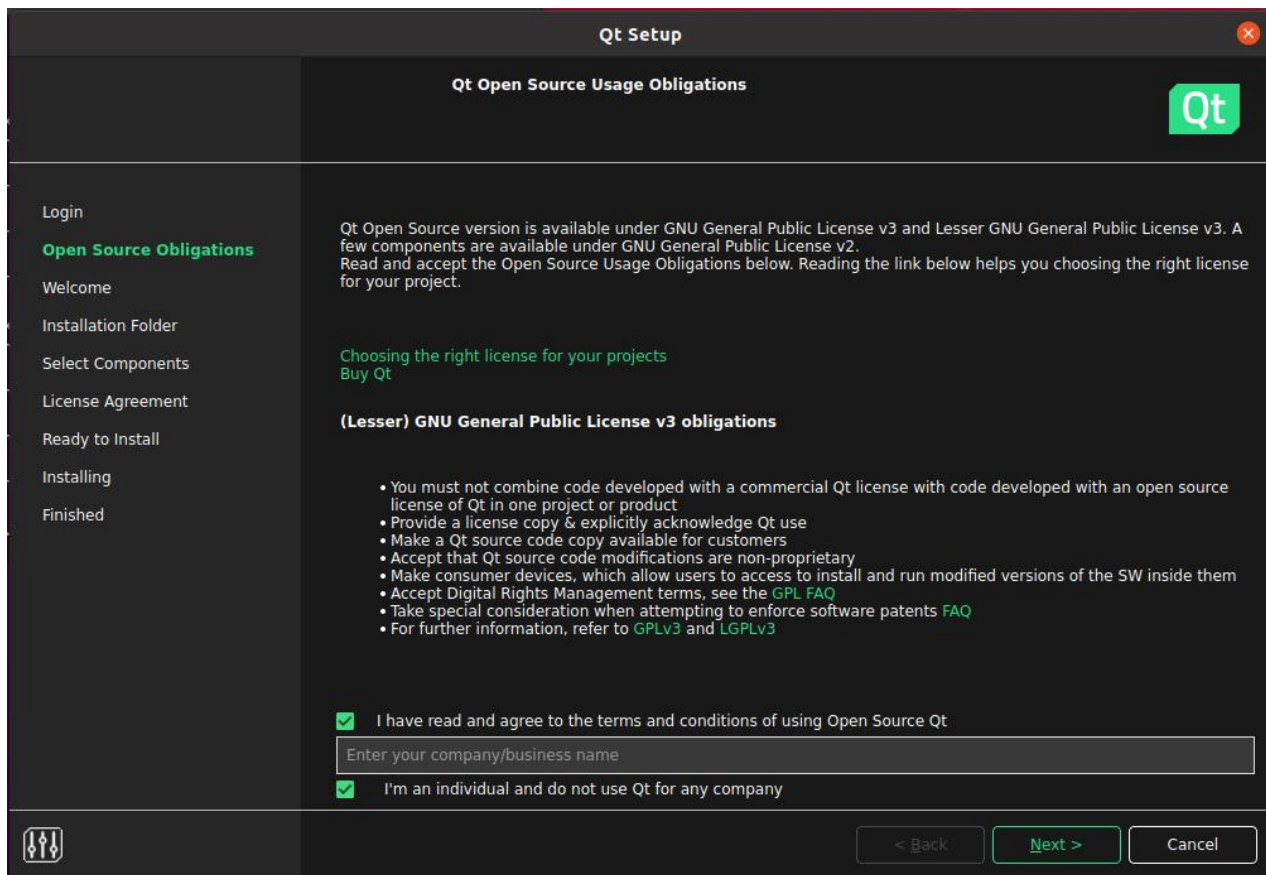


Figure 5-2. Agree to the terms and conditions.

3) Select 'Reject' to send a message, and then click 'Next.'

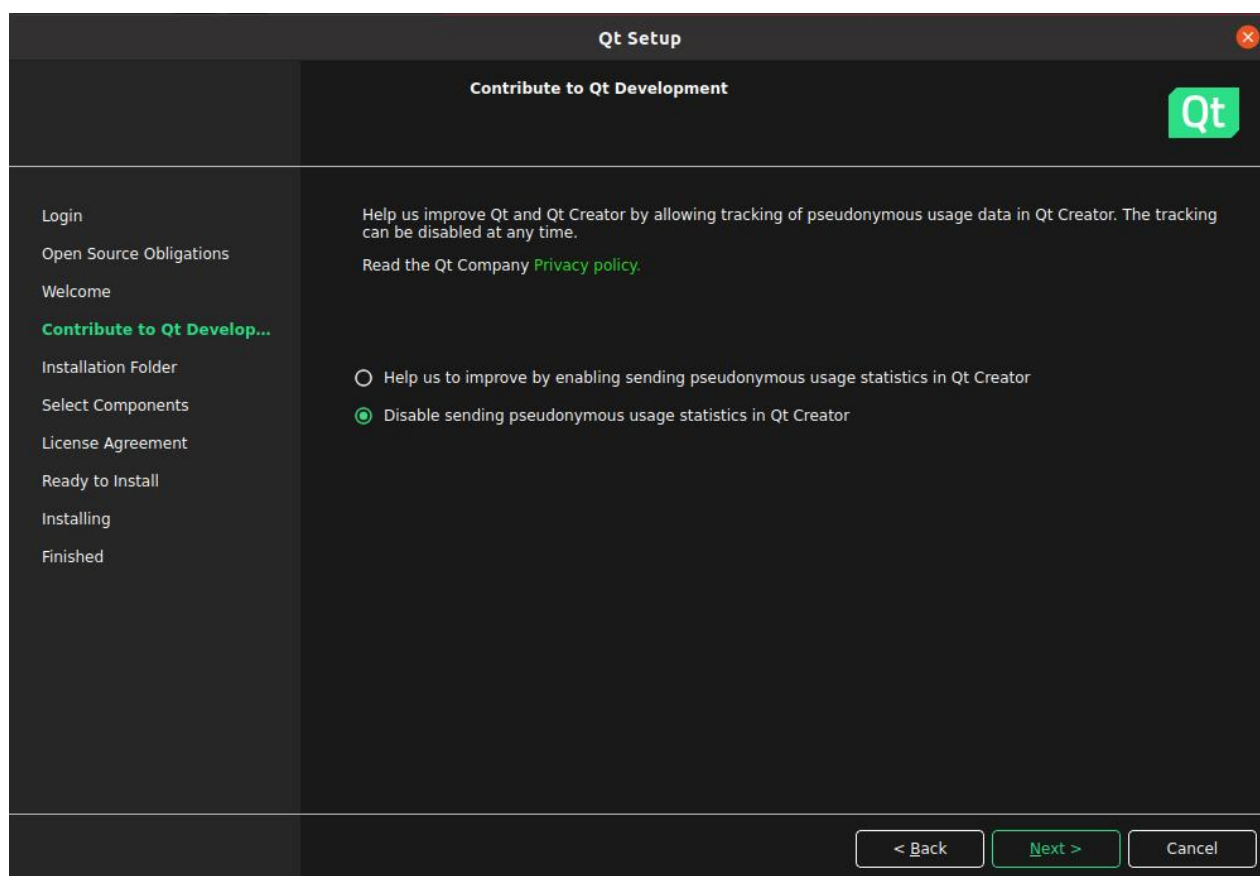


Figure 5-3. Click the 'Reject' option.

4) Select 'Install Components,' and then click 'Next.'

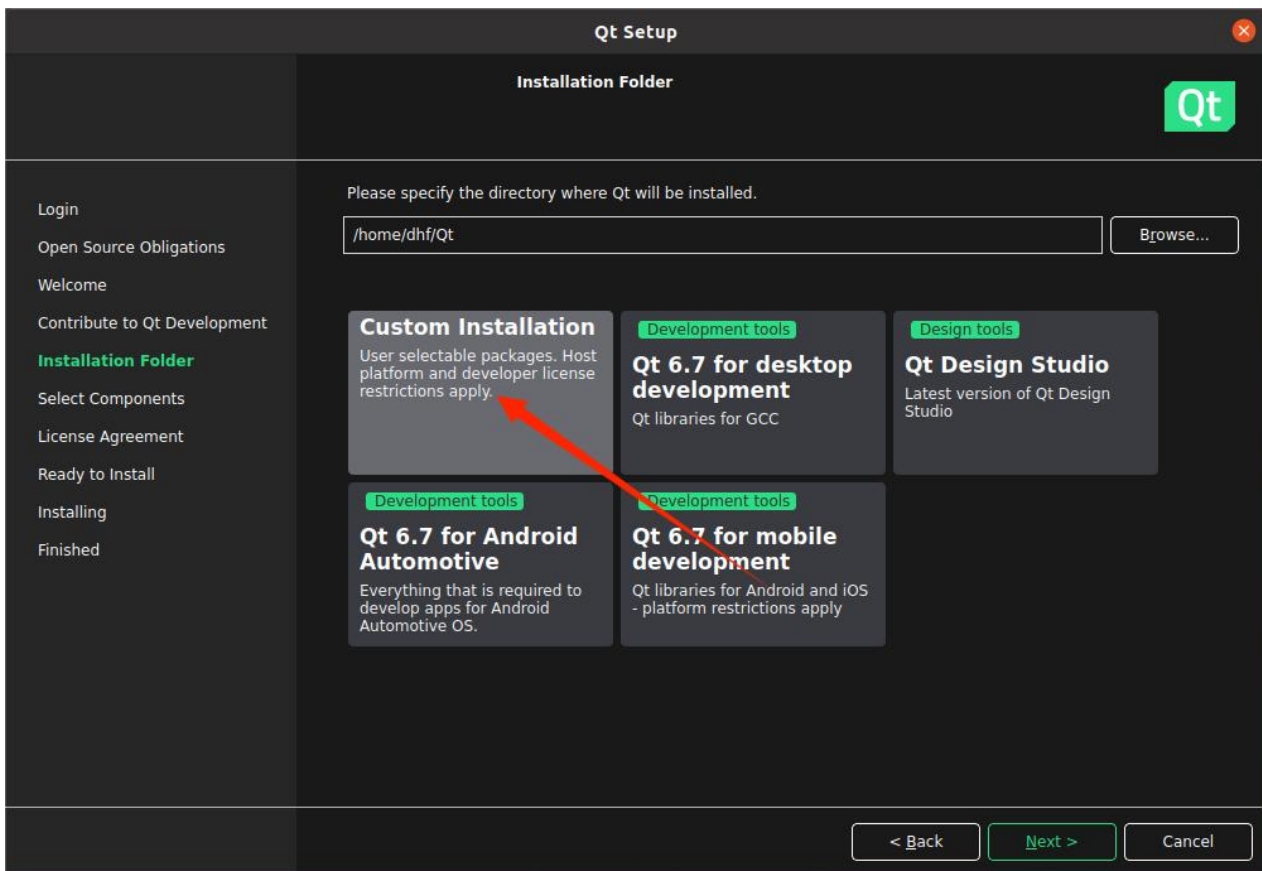


Figure 5-4. Select the 'Install Components' option.

5)"First, check 'Archive' at location ①, then click 'Filter' at location ②, and wait for it to complete."

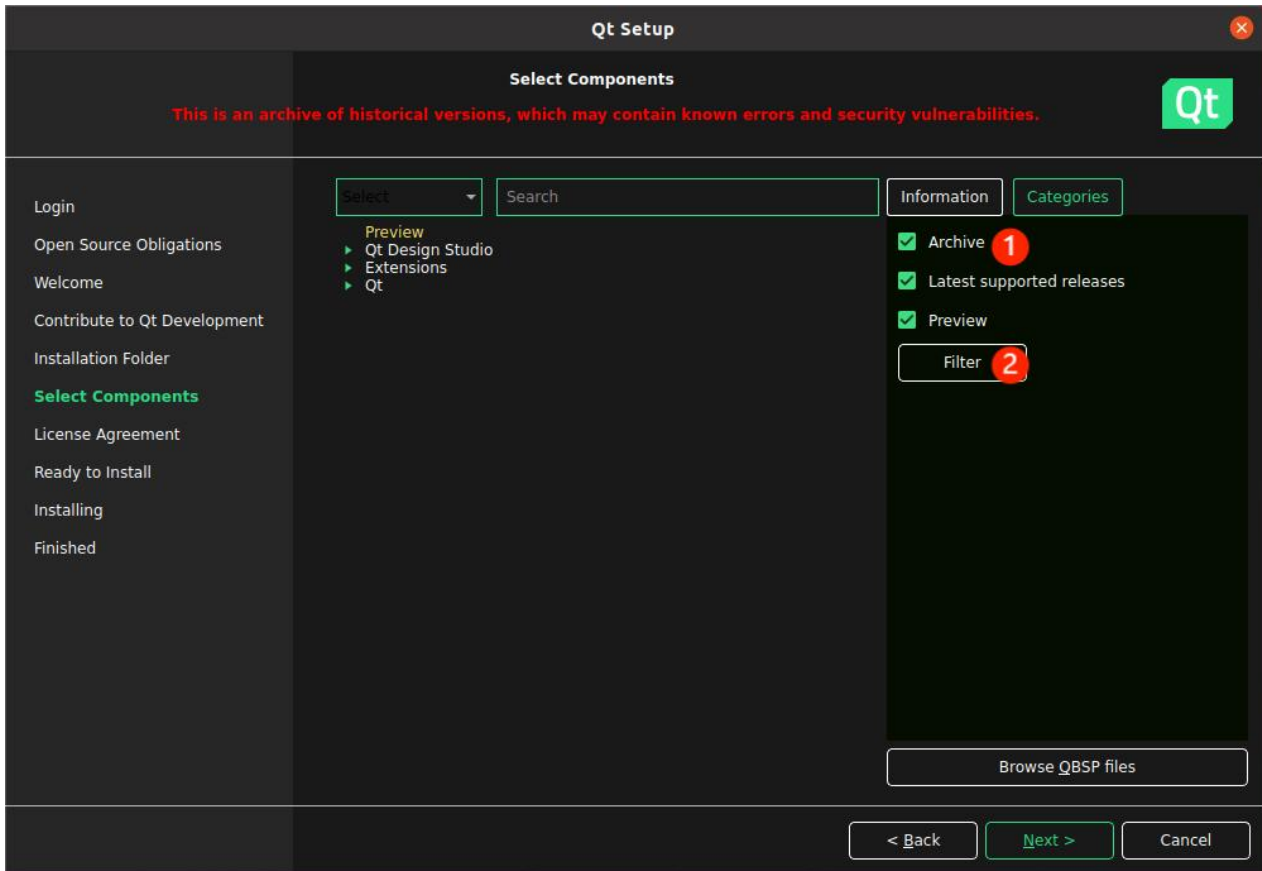


Figure 5-5. Configure Installation Options

6)After configuration is complete, check '5.15.2,' and then click 'Next.'

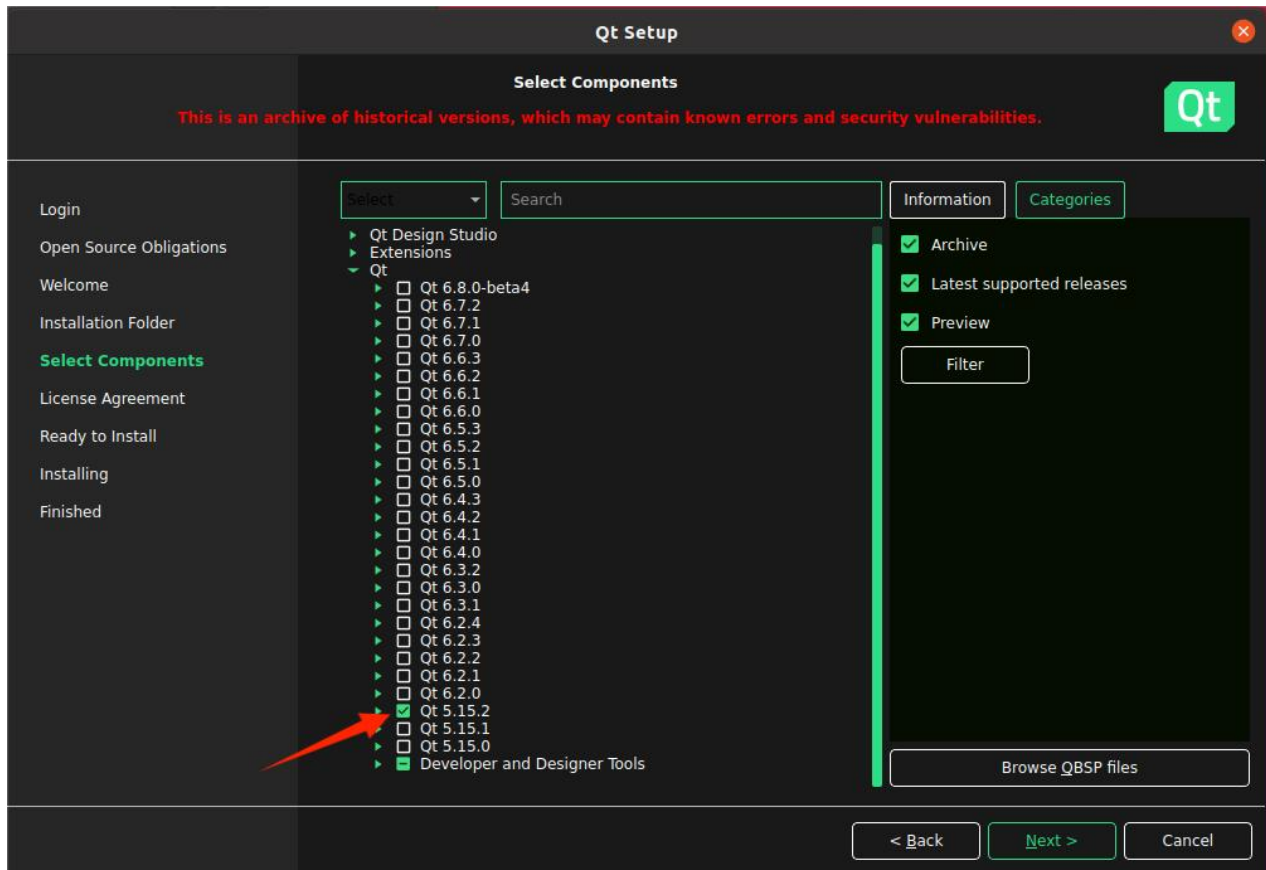


Figure 5-6. Installation Completed

7) Click 'Install' and wait for the installation to succeed.

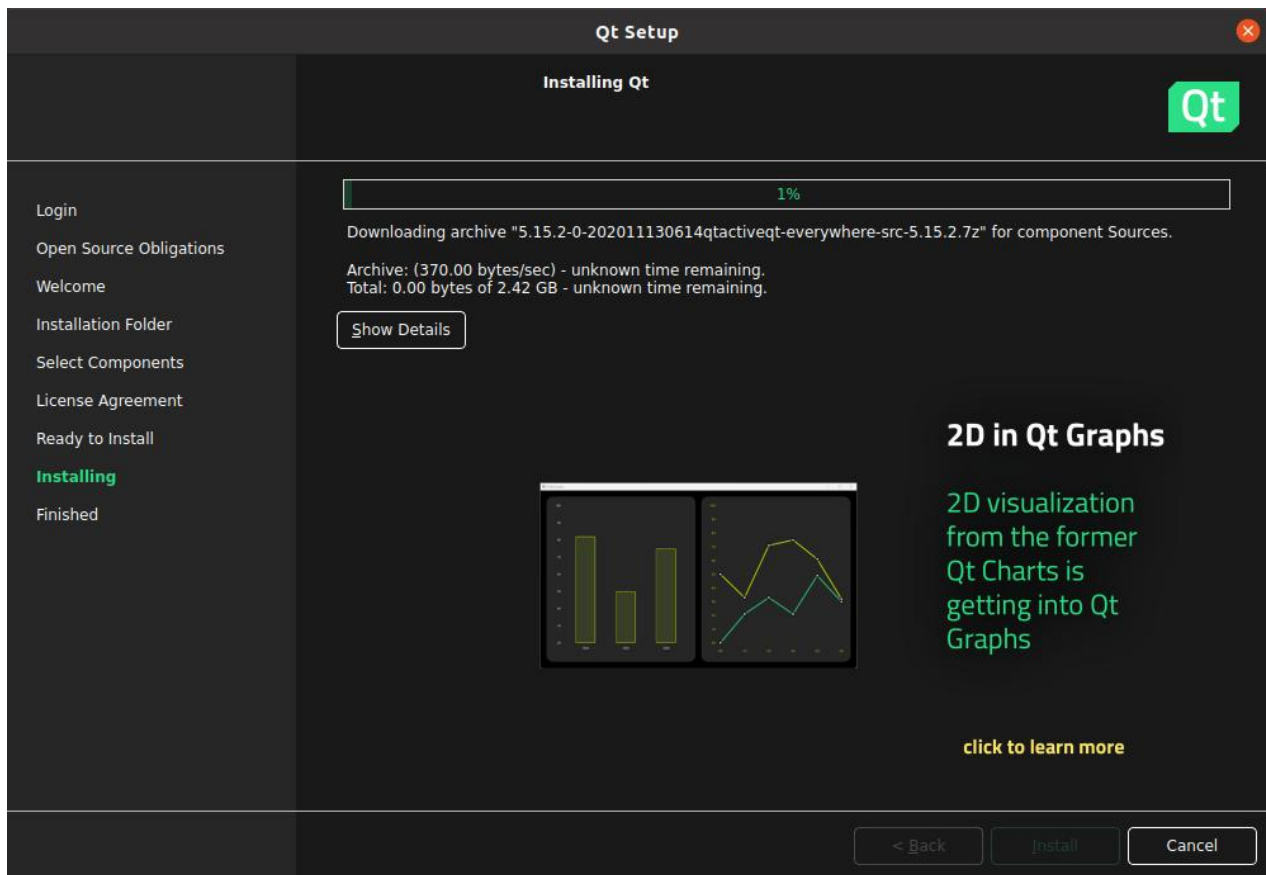


Figure 5-7. Waiting for Installation Success

8) Once installation is successful, click 'Finish.'

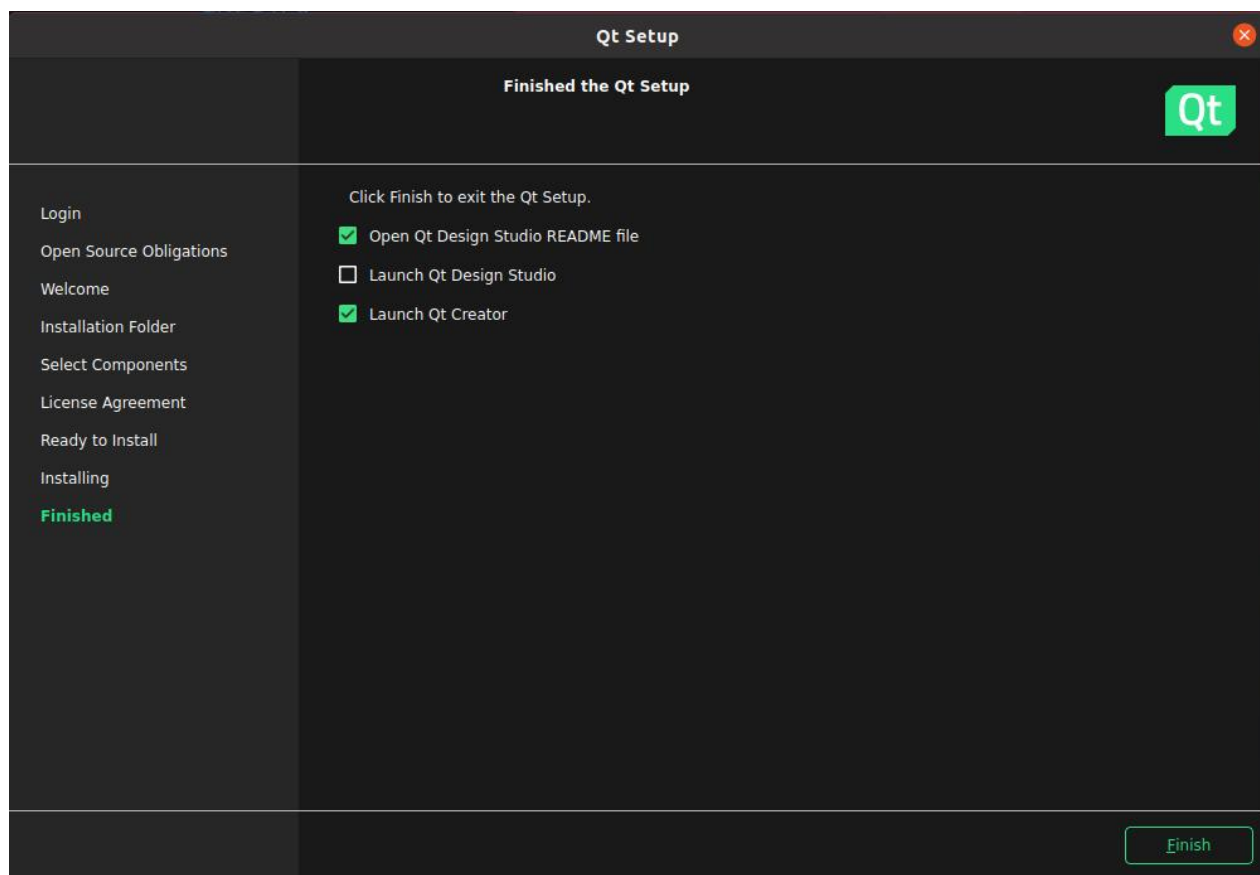


Figure 5-8. Waiting for Installation Success

6. Configuring the Cross-Compilation Environment

- 1) Navigate to the Tools/QtCreator/bin folder within the Qt installation directory, and then execute the `./qtcreator` command to start Qt Creator.
- 2) Once in Qt Creator, select Edit->Preference to access the configuration interface.

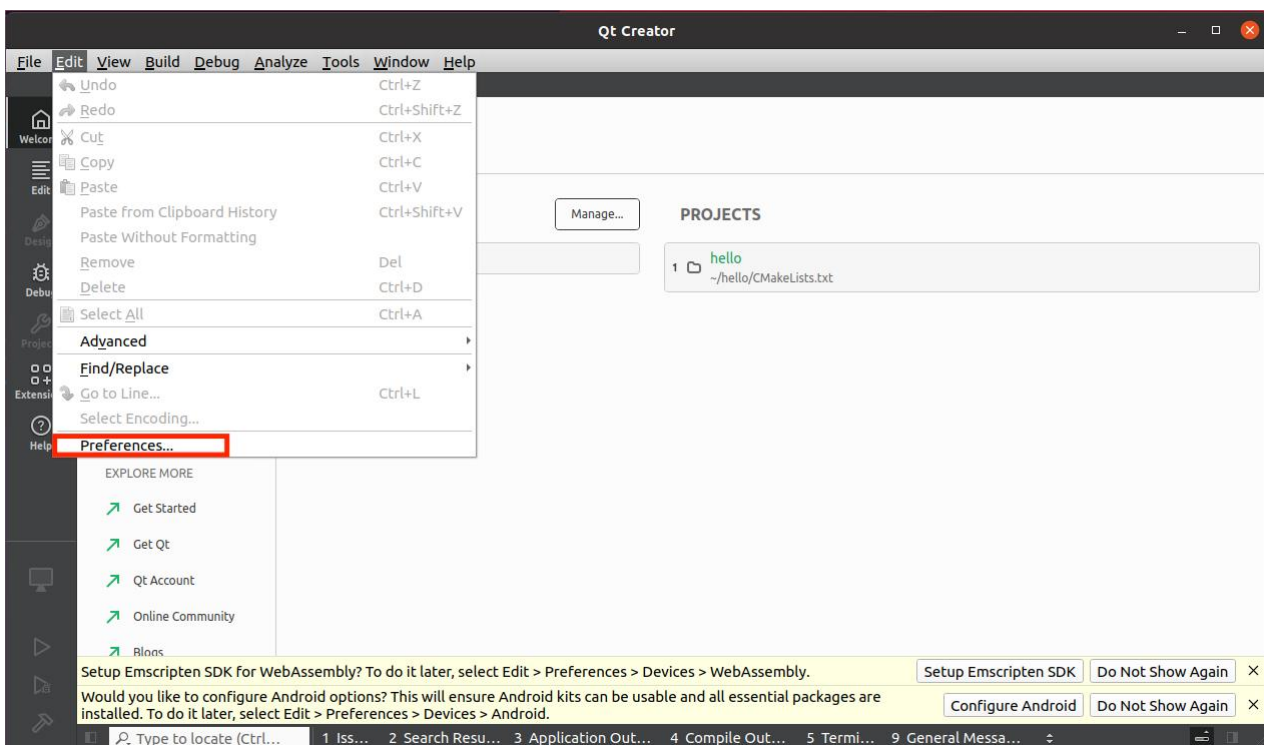


Figure 6-1. Enter Configuration Interface

3) Select Compilers to configure the GCC and G++ toolchain.

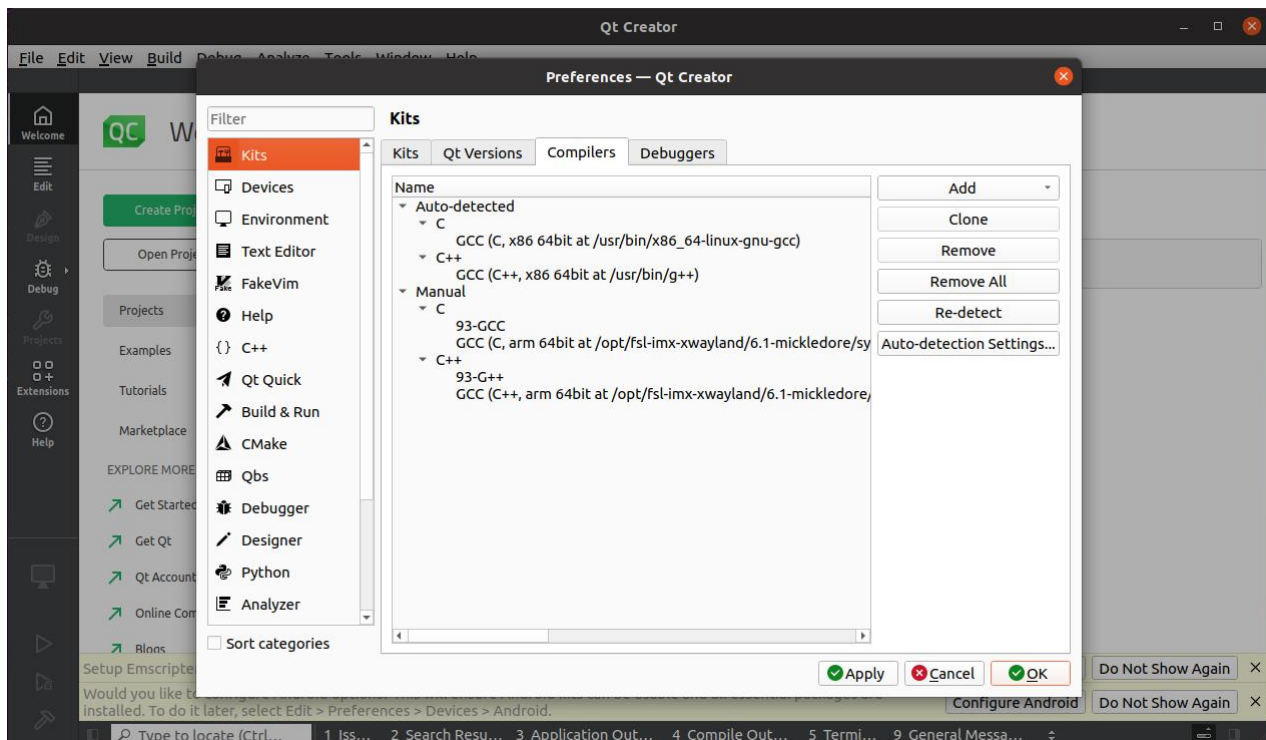


Figure 6-2. Compilers Configuration Interface

4) Select 'Add' on the right side -> 'GCC' -> 'C' and 'Add' -> 'GCC' -> 'G++' to add a custom GCC and G++ toolchain. Rename the newly added GCC toolchain to 'LD25X' and choose `/opt/st/myd-ld25x/4.2.4-snapshot/sysroots/x86_64-ostl_sdk-linux/usr/bin/aarch64-ostl-linux/aarch64-ostl-linux-gcc`. Rename the newly added G++ toolchain to 'LD25X-G++' and choose `/opt/st/myd-ld25x/4.2.4-snapshot/sysroots/x86_64-ostl_sdk-linux/usr/bin/aarch64-ostl-linux/aarch64-ostl-linux-g++`. After completing these configurations, click 'Apply' to apply the changes.

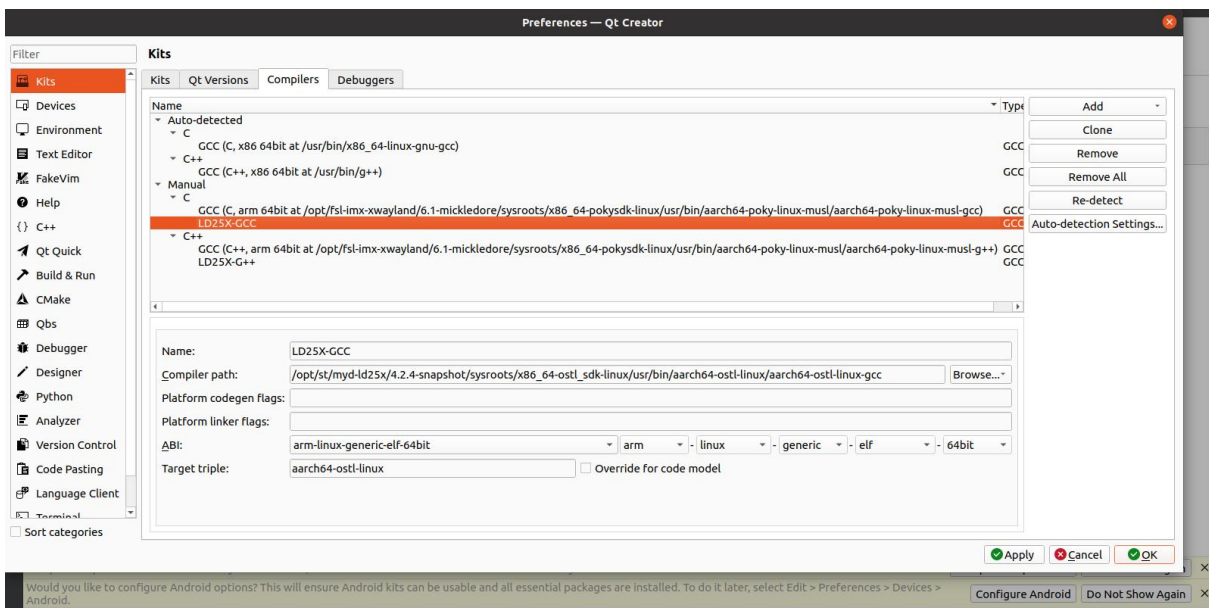


Figure 6-3. Configure GCC Toolchain

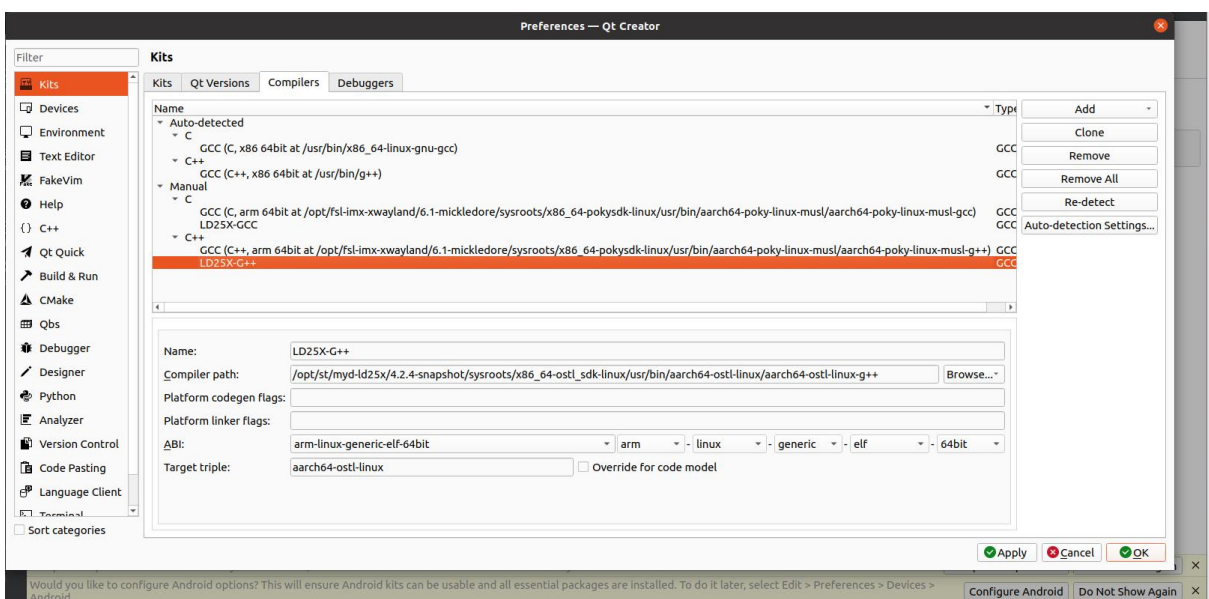


Figure 6-4. Configure G++ Toolchain

5)"Select 'Debugger' and configure 'GDB.' Click 'Add' on the right side to add a custom GDB configuration. Rename this GDB configuration to 'LD25X-GDB' and choose the path ``/opt/st/myd-ld25x/4.2.4-snapshot/sysroots/x86_64-ostl_sdk-linux/usr/bin/aarch64-ostl-linux/aarch64-ostl-linux-gdb``. After completing the configuration, click 'Apply' to apply the changes."

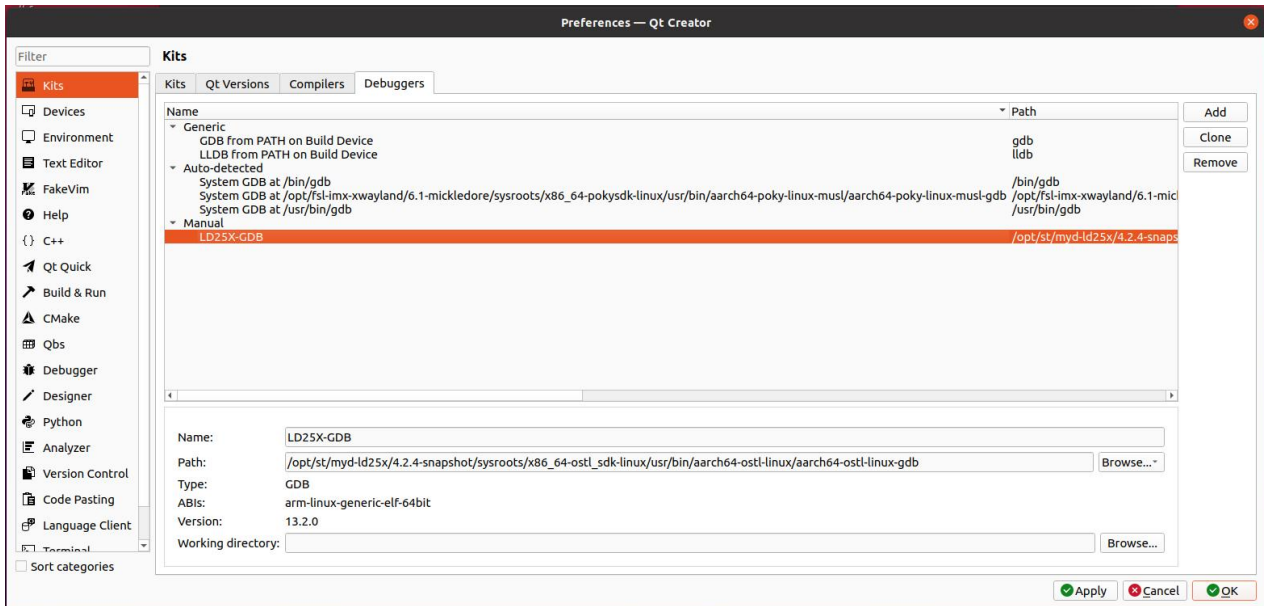


Figure 6-5. Configure GDB

6) Select 'Qt Versions' and configure 'QMake.' Click 'Add' and choose the path ``/opt/st/myd-ld25x/4.2.4-snapshot/sysroots/x86_64-ostl_sdk-linux/usr/bin/qmake``. After completing the configuration, click 'Apply' to apply the changes.

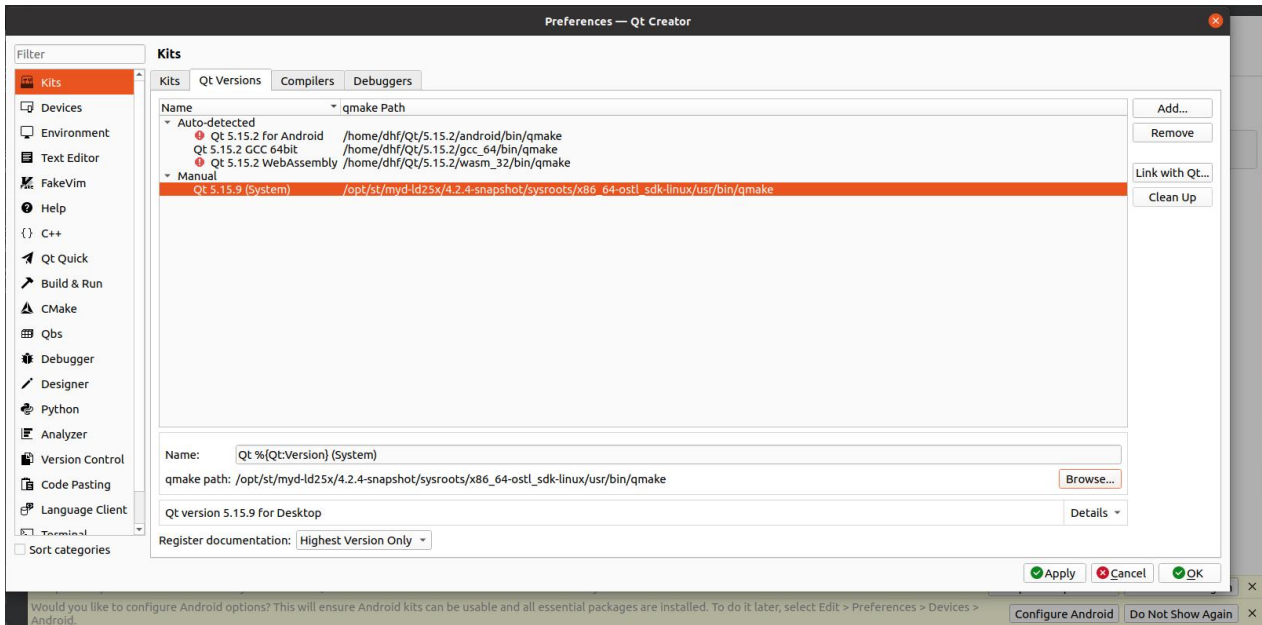


Figure 6-6. Configure QMAKE

7) Select 'Kits' to configure the cross-compilation toolchain. Click 'Add' on the right to add a custom Kit configuration. Rename it to 'LD25X-KIT,' and set the Compiler, Debugger, and Qt Versions to the previously configured items. Click 'Apply' to apply the changes. If no warnings or errors appear, the toolchain configuration is complete.

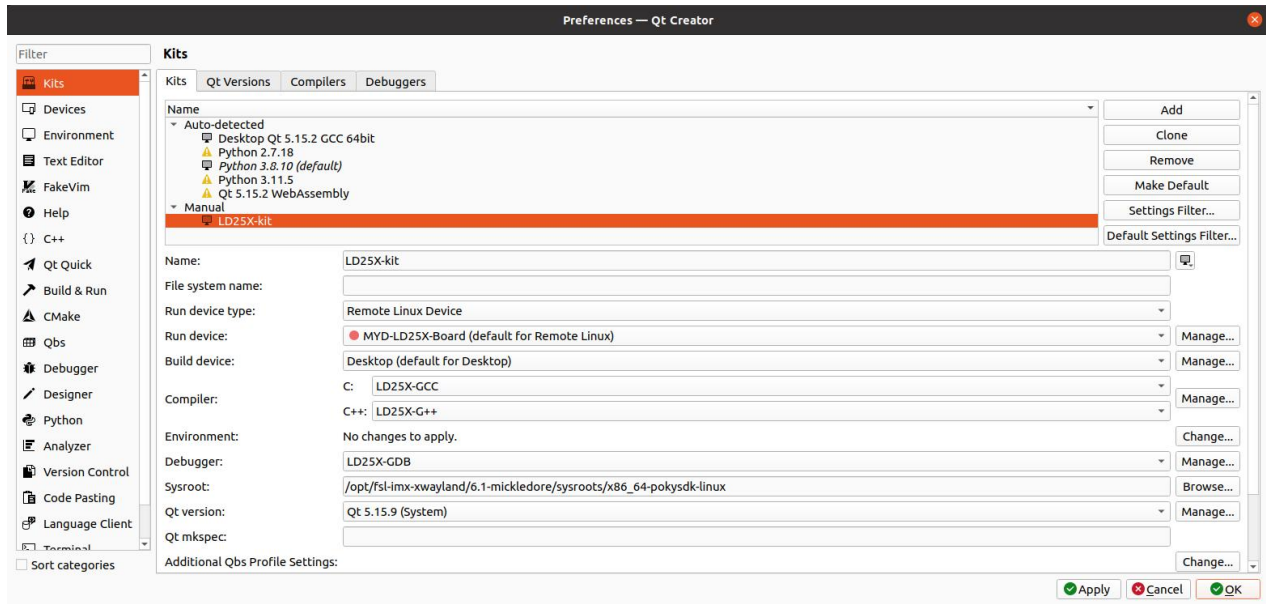


Figure 6-7. Configure Kit

8) Copy MXAPP.tar.gz to a working directory in Ubuntu and extract the source code. Configure it with the appropriate toolchain. From the menu bar, select 'File' -> 'Open File or Project,' then browse to the 'MXAPP2' directory in the working directory and choose the mxapp2.pro file. Click 'Open.' Once the project is opened, select the 'Projects' icon in the left menu to switch to the manage kits interface. Under the 'Build & Run' tab, select the 'LD25X-KIT' option to use its configuration for building the application. Then, right-click on 'mxapp2' and click 'Build.'

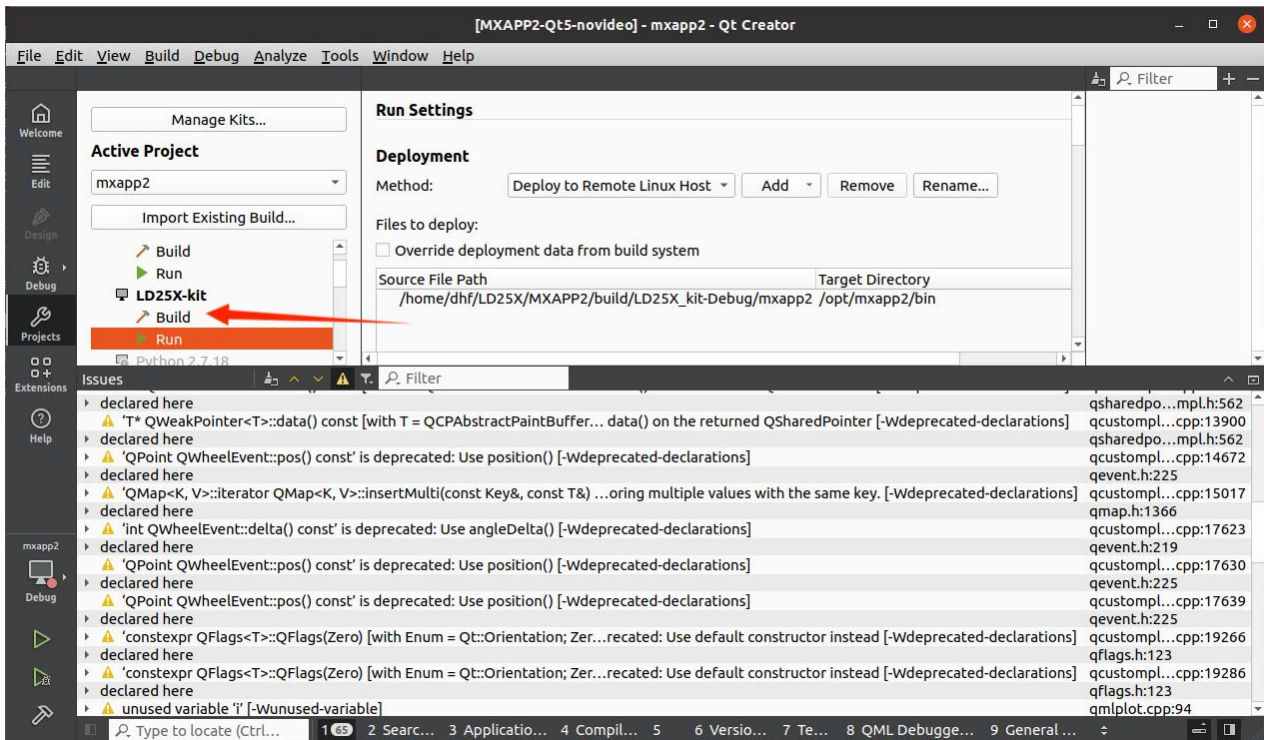


Figure 6-8. Select LD25X-KIT for Compilation

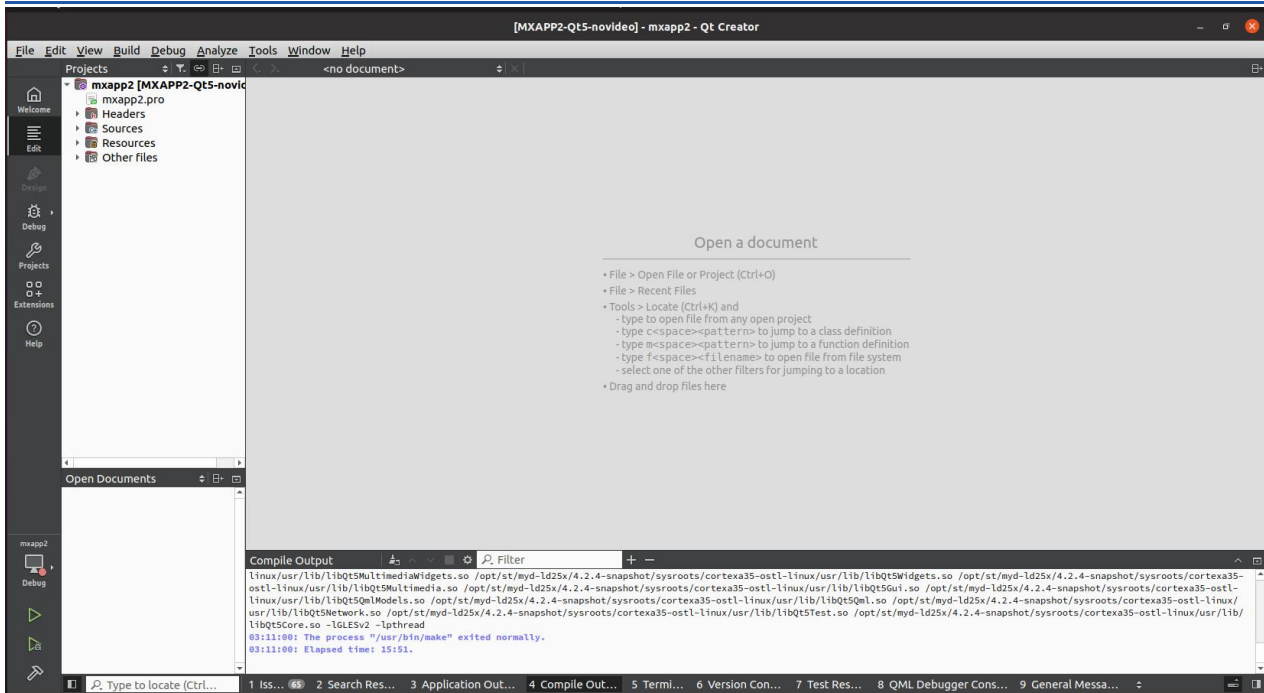


Figure 6-9. Compilation complete

After building the mxapp project in QtCreator, the compiled binary files will be stored in the specified directory. Copy the mxapp file to the development board and run it.

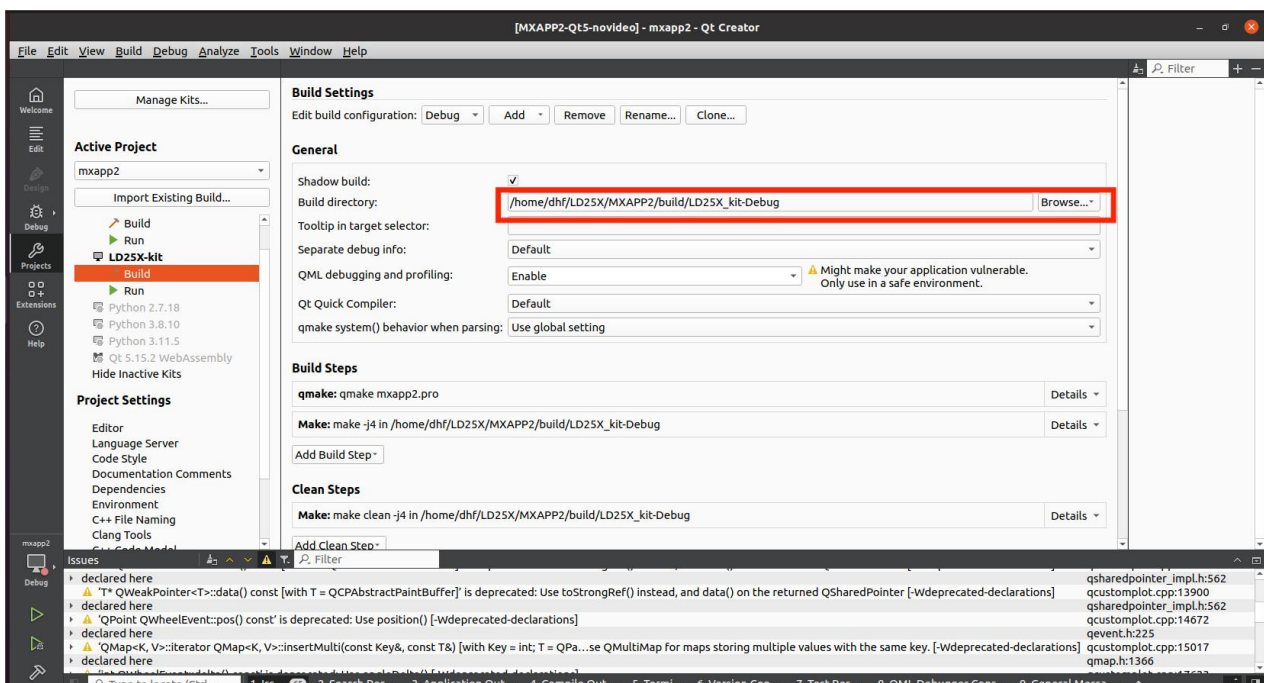


Figure 6-10. Save path



7. References

- **Ubuntu Desktop Download Address:**

<https://releases.ubuntu.com/20.04/>

- **QT Development Guide**

<https://www.qt.io/>

Appendix A

Warranty & Technical Support Services

MYIR Electronics Limited is a global provider of ARM hardware and software tools, design solutions for embedded applications. We support our customers in a wide range of services to accelerate your time to market.

MYIR is an ARM Connected Community Member and work closely with ARM and many semiconductor vendors. We sell products ranging from board level products such as development boards, single board computers and CPU modules to help with your evaluation, prototype, and system integration or creating your own applications. Our products are used widely in industrial control, medical devices, consumer electronic, telecommunication systems, Human Machine Interface (HMI) and more other embedded applications. MYIR has an experienced team and provides custom design services based on ARM processors to help customers make your idea a reality.

The contents below introduce to customers the warranty and technical support services provided by MYIR as well as the matters needing attention in using MYIR's products.

Service Guarantee

MYIR regards the product quality as the life of an enterprise. We strictly check and control the core board design, the procurement of components, production control, product testing, packaging, shipping and other aspects and strive to provide products with best quality to customers. We believe that only quality products and excellent services can ensure the long-term cooperation and mutual benefit.

Price

MYIR insists on providing customers with the most valuable products. We do not pursue excess profits which we think only for short-time cooperation. Instead, we hope to establish long-term cooperation and win-win business with customers. So we will offer reasonable prices in the hope of making the business greater with the customers together hand in hand.

Delivery Time

MYIR will always keep a certain stock for its regular products. If your order quantity is less than the amount of inventory, the delivery time would be within three days; if your order quantity is greater than the number of inventory, the delivery time would be always four to six weeks. If for any urgent delivery, we can negotiate with customer and try to supply the goods in advance.

Technical Support

MYIR has a professional technical support team. Customer can contact us by email (support@myirtech.com), we will try to reply you within 48 hours. For mass production and customized products, we will specify person to follow the case and ensure the smooth production.

After-sale Service

MYIR offers one year free technical support and after-sales maintenance service from the purchase date.

The service covers:

Technical support service

MYIR offers technical support for the hardware and software materials which have provided to customers;

- To help customers compile and run the source code we offer;
- To help customers solve problems occurred during operations if users follow the user manual documents;
- To judge whether the failure exists;
- To provide free software upgrading service.

However, the following situations are not included in the scope of our free technical support service:

- Hardware or software problems occurred during customers' own development;
- Problems occurred when customers compile or run the OS which is tailored by themselves;
- Problems occurred during customers' own applications development;
- Problems occurred during the modification of MYIR's software source code.

After-sales maintenance service

The products except LCD, which are not used properly, will take the twelve months free maintenance service since the purchase date. But following situations are not included in the scope of our free maintenance service:

- The warranty period is expired;
- The customer cannot provide proof-of-purchase or the product has no serial number;
- The customer has not followed the instruction of the manual which has caused the damage the product;
- Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
- Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which have caused the damage of the products or defects of appearance;
- Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;

- Due to unauthorized installation of the software, system or incorrect configuration or computer virus which has caused the damage of products.

Warm tips

1. MYIR does not supply maintenance service to LCD. We suggest the customer first check the LCD when receiving the goods. In case the LCD cannot run or no display, customer should contact MYIR within 7 business days from the moment get the goods.
2. Please do not use finger nails or hard sharp object to touch the surface of the LCD.
3. MYIR suggests user purchasing a piece of special wiper to wipe the LCD after long time use, please avoid clean the surface with fingers or hands to leave fingerprint.
4. Do not clean the surface of the screen with chemicals.
5. Please read through the product user manual before you using MYIR's products.
6. For any maintenance service, customers should communicate with MYIR to confirm the issue first. MYIR's support team will judge the failure to see if the goods need to be returned for repair service, we will issue you RMA number for return maintenance service after confirmation.

Maintenance period and charges

- MYIR will test the products within three days after receipt of the returned goods and inform customer the testing result. Then we will arrange shipment within one week for the repaired goods to the customer. For any special failure, we will negotiate with customers to confirm the maintenance period.
- For products within warranty period and caused by quality problem, MYIR offers free maintenance service; for products within warranty period but out of free maintenance service scope, MYIR provides maintenance service but shall charge some basic material cost; for products out of warranty period, MYIR provides maintenance service but shall charge some basic material cost and handling fee.

Shipping cost

During the warranty period, the shipping cost which delivered to MYIR should be responsible by user; MYIR will pay for the return shipping cost to users when the product is repaired. If the warranty period is expired, all the shipping cost will be responsible by users.

Products Life Cycle

MYIR will always select mainstream chips for our design, thus to ensure at least ten years continuous supply; if meeting some main chip stopping production, we will inform customers in time and assist customers with products updating and upgrading.

Value-added Services

1. MYIR provides services of driver development base on MYIR's products, like serial port, USB, Ethernet, LCD, etc.
2. MYIR provides the services of OS porting, BSP drivers' development, API software development, etc.
3. MYIR provides other products supporting services like power adapter, LCD panel, etc.
4. ODM/OEM services.

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