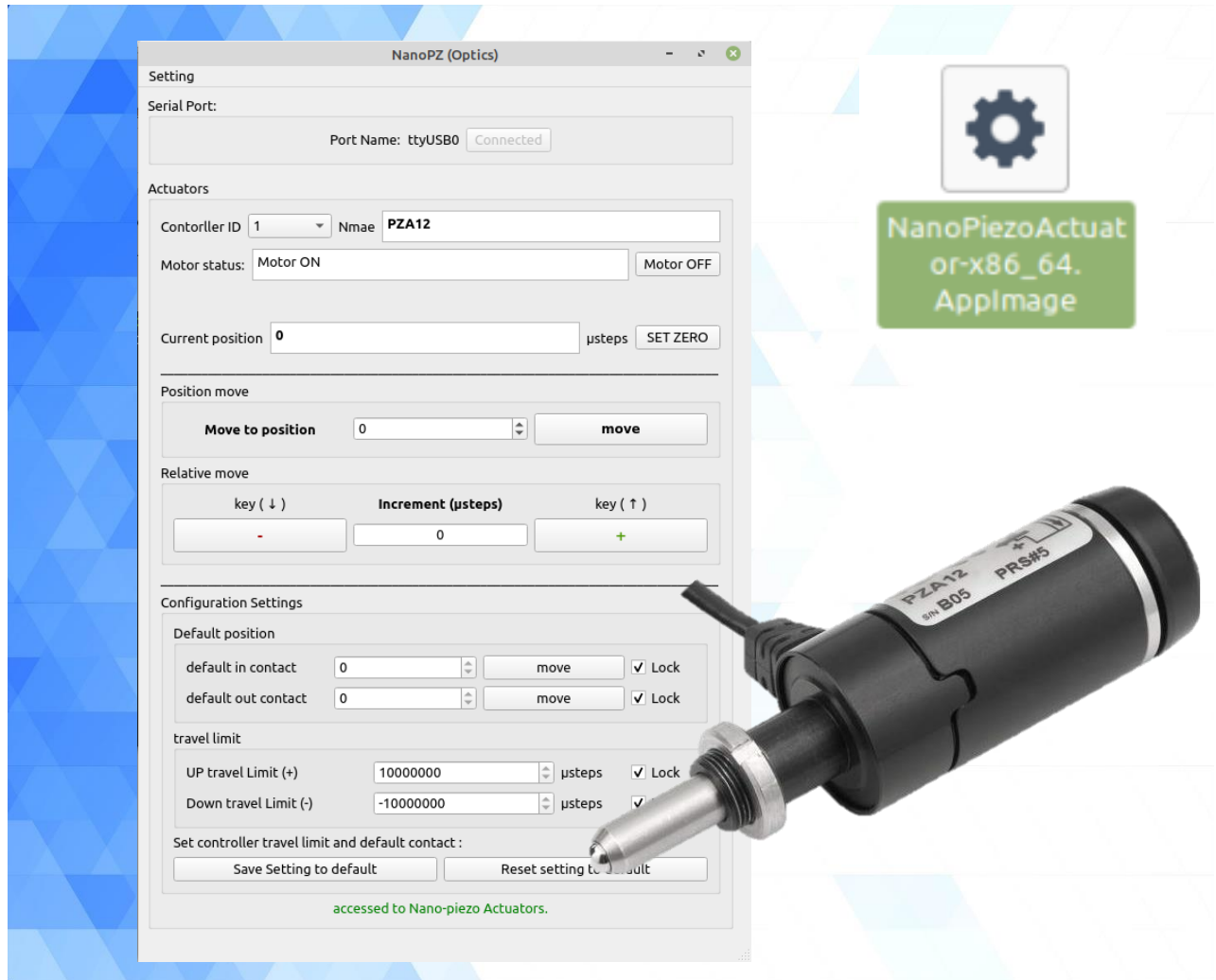# NanoPZ Software

Software Actuator Control
EvWaCo Project
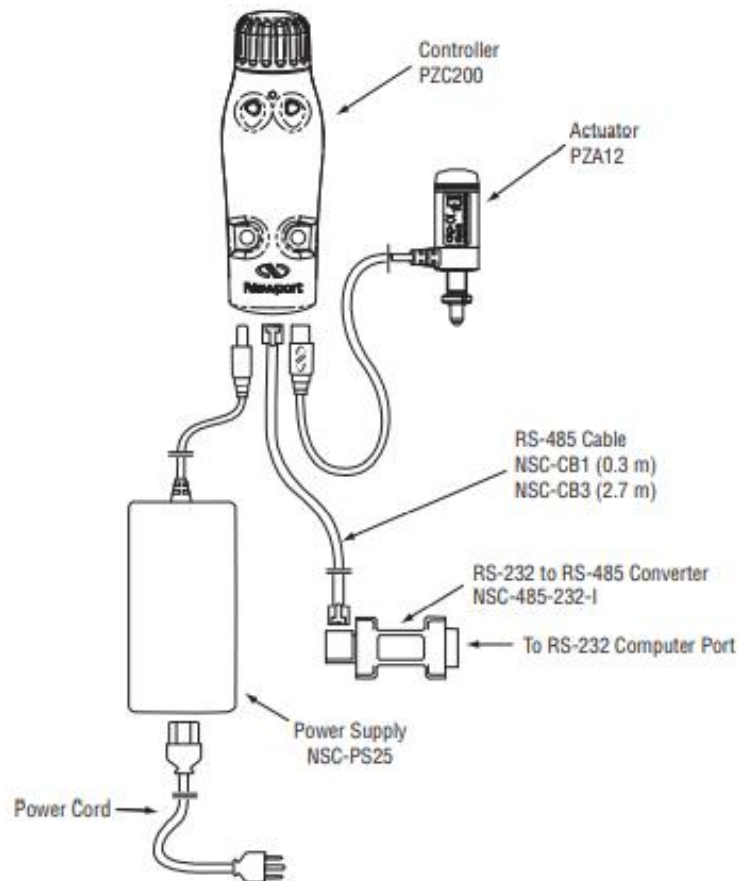
Getting Started

Setup NanoPZ System

The NanoPZ system components Installation connections follow the image below and your PC (Understand NanoPz)

Connections 1 Controller, 1 Supply and Computer Control.

Utility Software

Overview

The NanoPZ utility software provides computer access to the most commonly used PZC200 controller functions, including changing controller configuration, monitoring status, and issuing move commands. This program is NanoPiezoActuator Program.zip

NanoPZ software Actuator Control.

NanoPz Software Installation (For User)

The utility program allows computer control of most features available in the PZC200 controller. It is designed to run on a Pentium-class PC on Linux Mint 20.2 Uma.
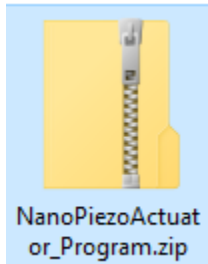
Download the NanoPiezoActuator_Program.zip file And extract the file then make sure permission by NanoPiezoActuator-x86_64.AppImage right-clicking and selecting properties checked "Allow executing file as program"
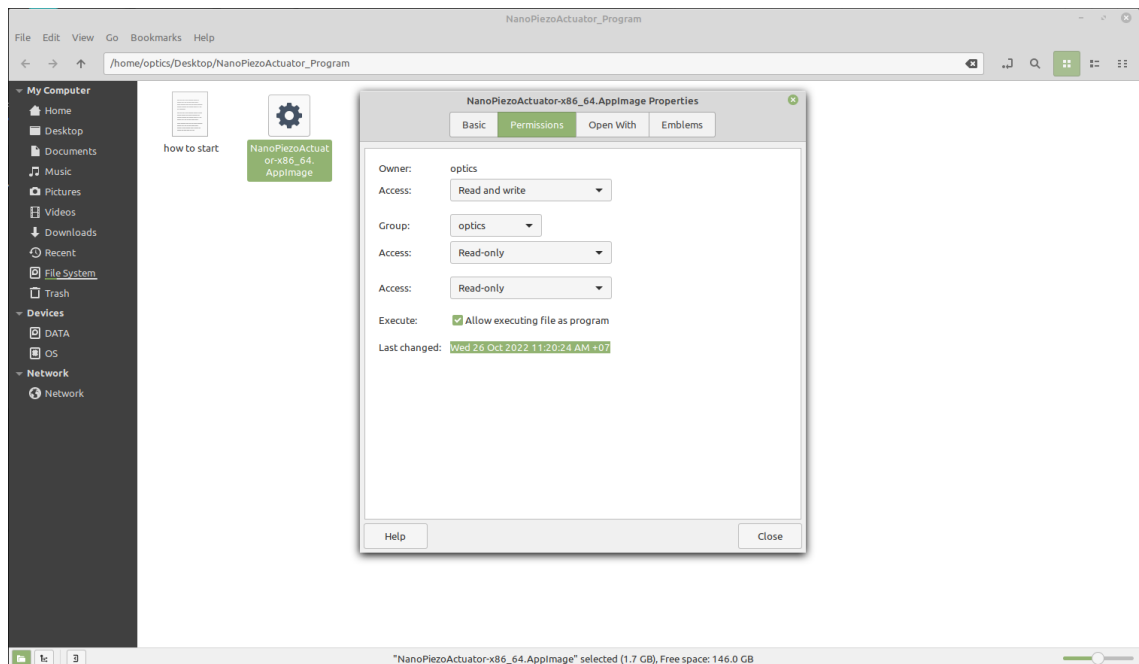
Make sure permission "NanoPiezoActuator-x86_64.AppImage".

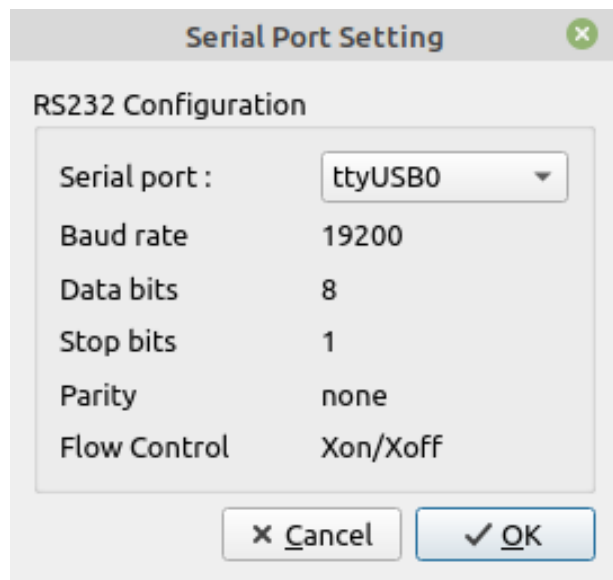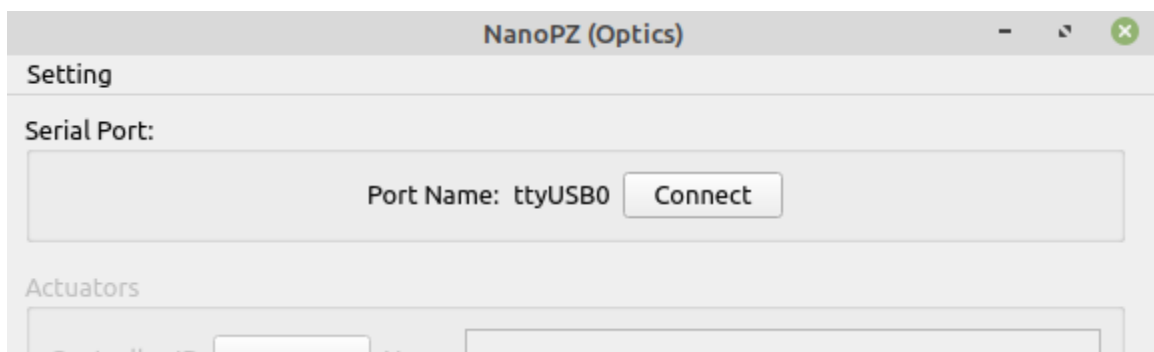After installation is complete, open the NanoPZ Utility by double-clicking on the newly created icon (shown to the left) on your desktop, The Set Communication Port window will open. Enter the Serial Port to which the controller is selected, such as ttyUSB0, and press the OK button. Then Click "Connect" for connect NanoPZ.

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Set Communication Serial Port Screen.

Connect Serial Port Screen.

Working with the Main Screen

After connected, the Main Screen of the *NanoPZ (optics)* software appears:

Main NanoPZ (Optics) Software Screen.

- **Controller ID:**

  Field shows the bus address of the controller. You can select a different controller by typing in a different number or by selecting from the list.

- **Name:**

  Field shows the Actuator name for the current select Controller ID.

- **Motor Status**

  Field shows the Actuator motor status for the current select Controller ID.

- **Motor ON/Motor OFF**

  To enable any motion, you must turn the Motor ON. When you don't want to do any further motion on that actuator, you might want to turn the motor OFF.

- **Current Position**

  Field shows the current Position of Actuator for the current select Controller ID.

- **Set Zero**

  Sets the current position to zero. This function is useful for instance for referencing the actuator with respect to its software limits.

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- **Move to Position**

  Provides field with positions in micro-steps for move position Actuator to the position value of "Move to position".

- **Relative Move**

  Provides field with positions in micro-steps. Press on the corresponding "-" or "+" button and the actuator will make that relative move in the positive ("+") or negative ("-") direction from its current position. So, you can control it with the Key "Up" = "+" button and "Down" = "-" button on Keyboard.

- **Default in Contact**

  Sets the value of the positive software for users to remember the default position in contact.

- **Default out Contact**

  Sets the value of the positive software for users to remember the default position out contact.

- **UP Travel Limit (+)**

  Sets the value of the positive software limit, or right allowed range of travel. This value must be greater than 0.

- **Down Travel Limit (-)**

  Sets the value of the negative software limit, or left allowed range of travel. This value must be less than 0.

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- **Save Setting to Default**

  Press to save any setup changes into setting the "Actuator_Config.ini" file.

  Save value default setting:
  - Default in Contact
  - Default out Contact
  - UP Travel Limit (+)
  - Down Travel Limit (-)

- **Reset Setting to Default**

  Press to reset any setup changes from setting the "Actuator_Config.ini" file.
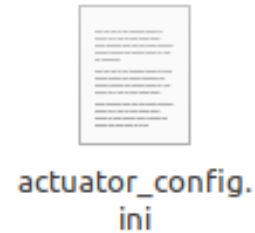
  Reset value default setting:
  - Default in Contact
  - Default out Contact
  - UP Travel Limit (+)
  - Down Travel Limit (-)

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File Storage Value

The "Actuator_Config.ini" file will be auto-created after closed NanoPZ (optics) Program and storage of any value of each Controller.

Value Storage:

- Controller ID
- Controller Name
- Current UP Travel Limit
- Current Down Travel Limit
- Current Position
- Default in Contact
- Default out Contact
- Default Setting Current Limit left
- Default Setting Current Limit right
- Default Setting default in contact
- Default Setting default out contact


actuator_config. ini

The "Actuator_Config.ini" file Screen.

NanoPz Software Installation (For Developer)

Source Code for a developer to develop and implement NanoPZ (optics) program with The QT Creator for updated features and user interface design.
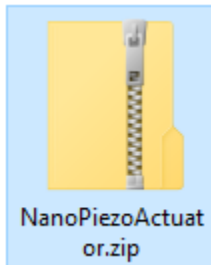

Download NanoPZ (Optics) Source Code NanoPiezoActuator.zip file from GitHub and extract the file for ready source code development with QT Creator.
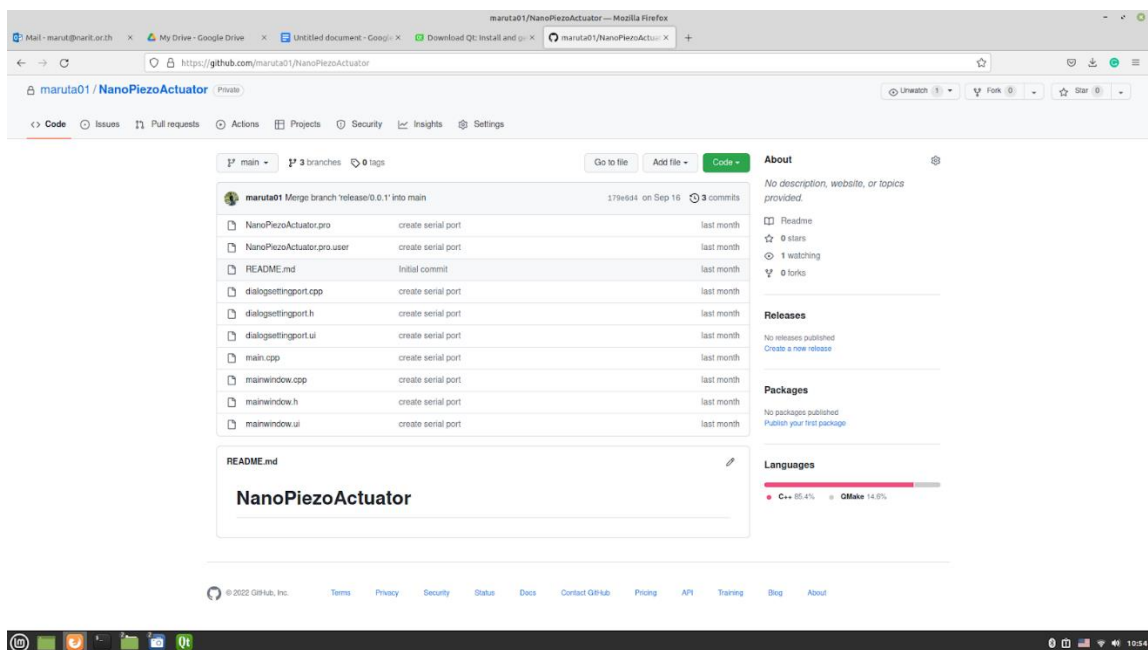
The "NanoPiezoActuator.zip" GitHub Screen.

QT Creator

[Qt Creator](#) is a cross-platform integrated development environment (IDE) built for the maximum developer experience. Qt Creator runs on Windows, Linux, and macOS desktop operating systems and allows developers to create software across desktop, mobile, and embedded platforms.
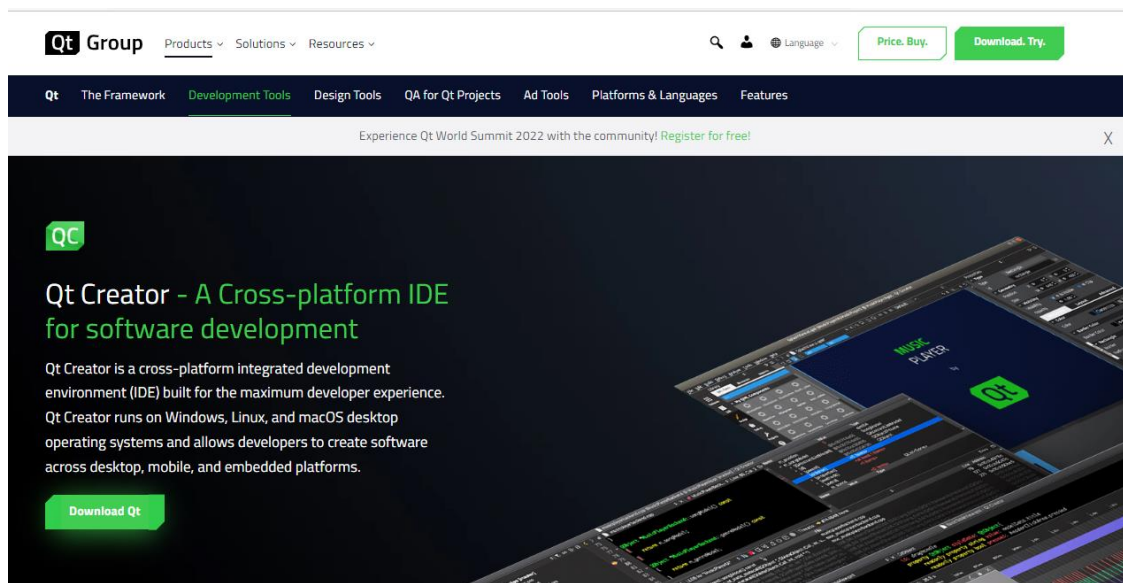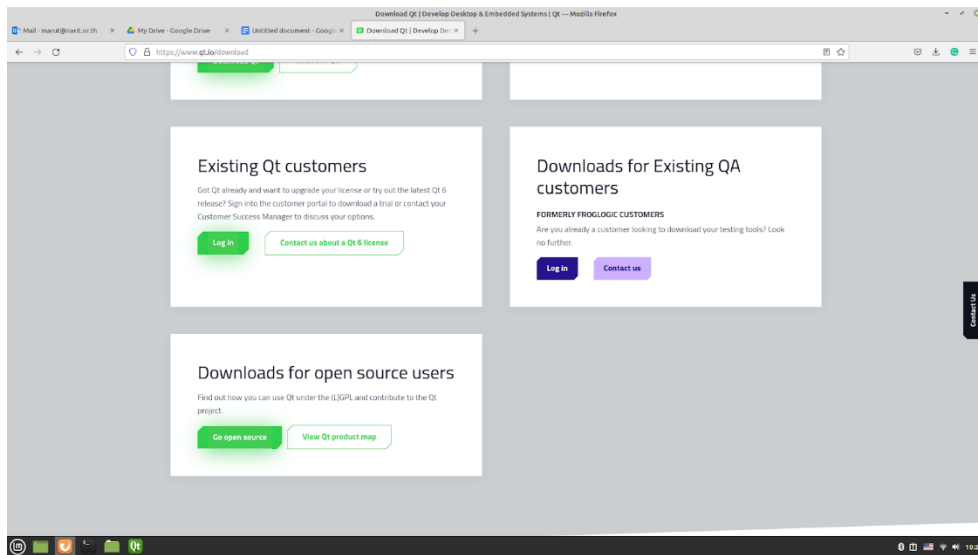
QT Creator website Screen.

QT Creator Installation
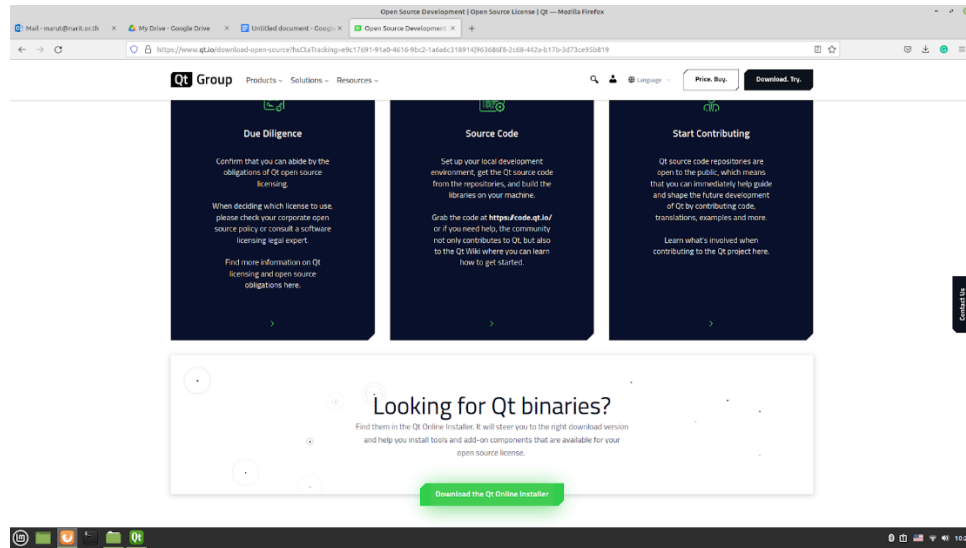
Install the QT Creator program to your PC because the actuator program wants to use QT Creator for developing.

Go to the website https://www.qt.io/download and select "Downloads for open source users" click "go open source"
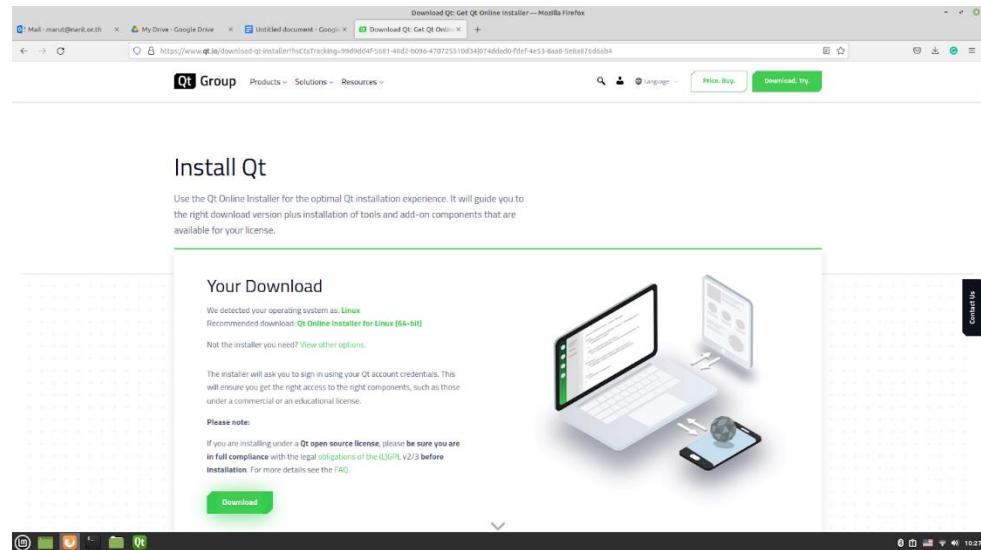

Downloads for open source users Screen.

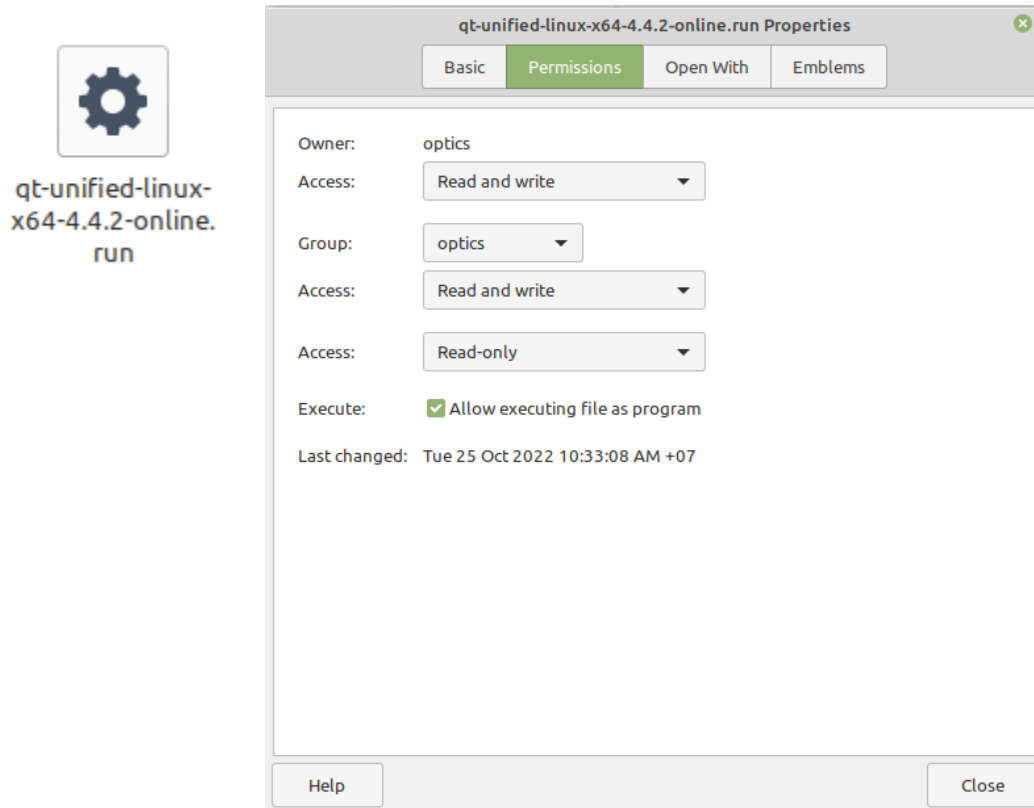Then click "Download the QT Online Installer" and Download.
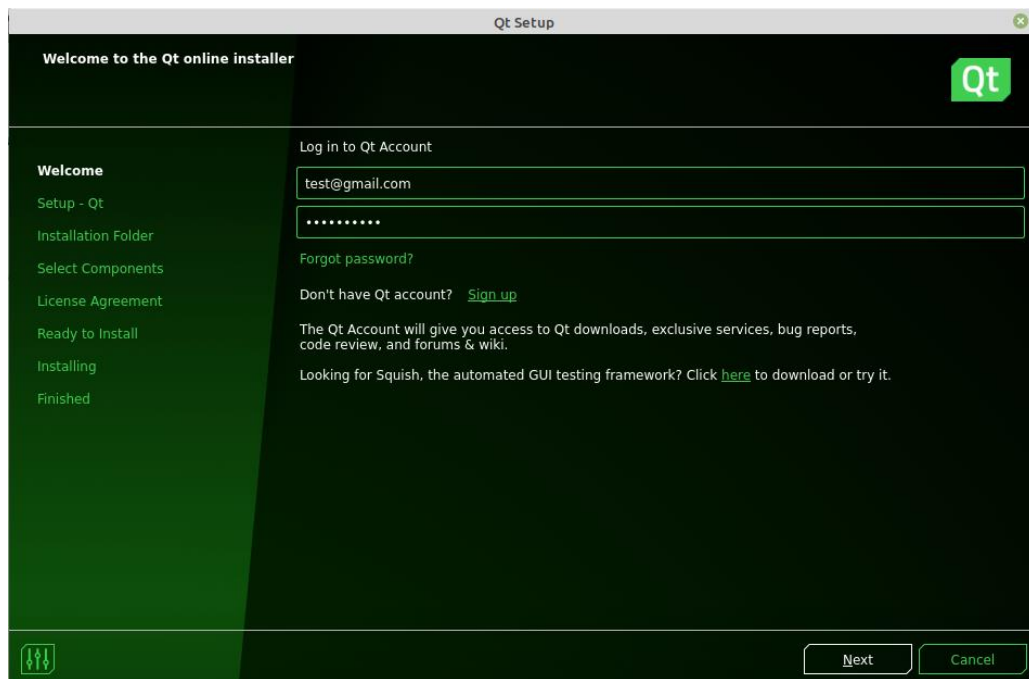

Download the QT Online Installer Screen.

Download the QT Page Screen.

After downloaded qt-unified-linux-x64-4.4.2-online.run file then make sure permission by right-clicking and selecting properties checked "Allow executing file as program".
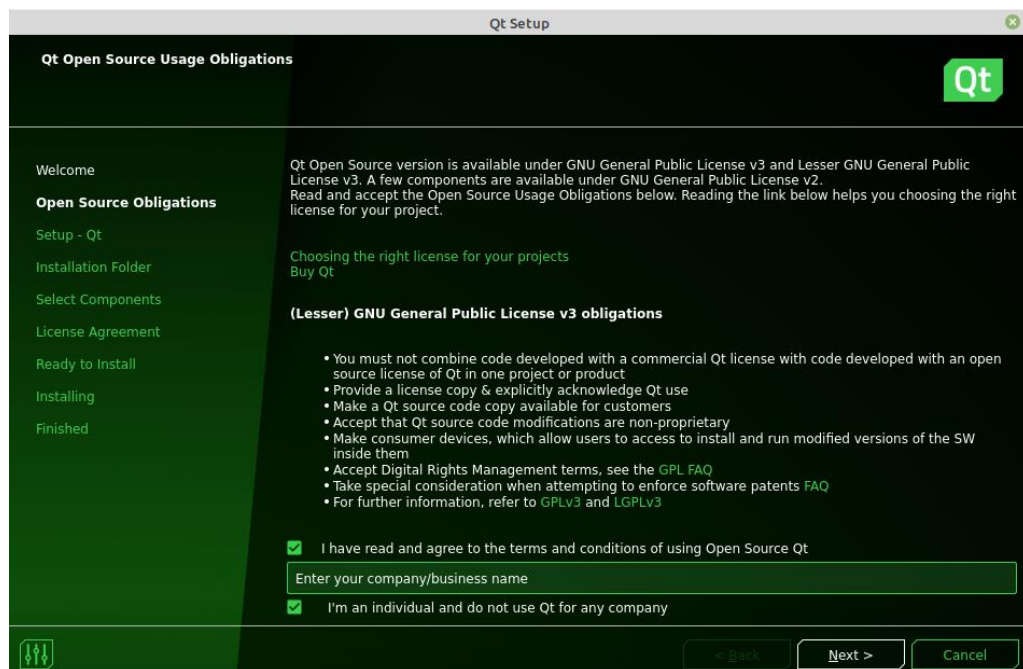

qt-unified-linux-x64-4.4.2-online.run make sure permission screen.

Open qt-unified-linux-x64-4.4.2-online.run for install then login
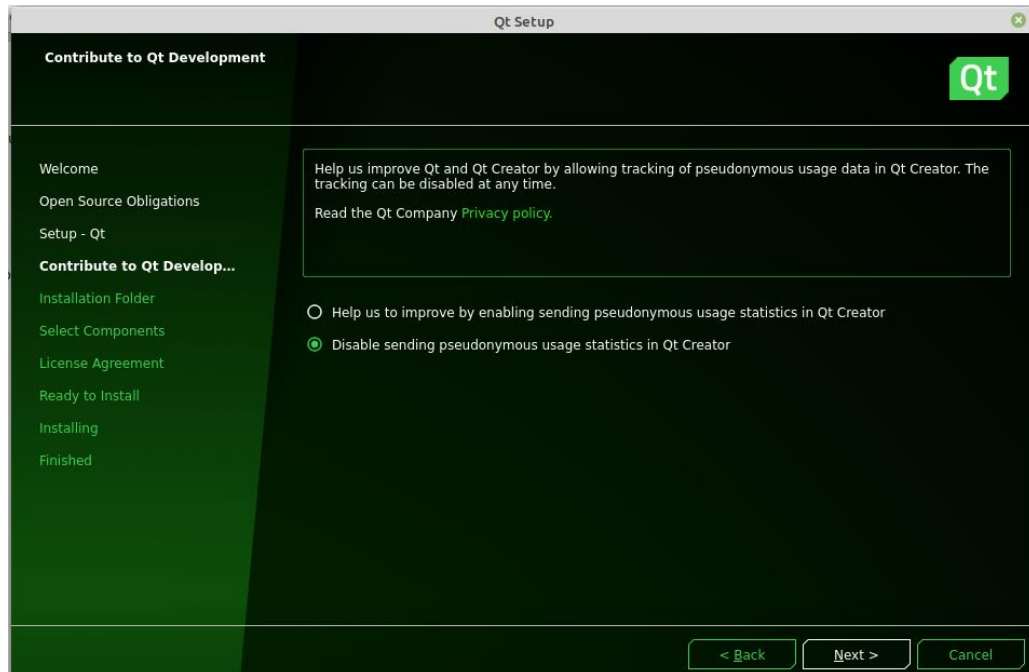QT Account and Next follow image step

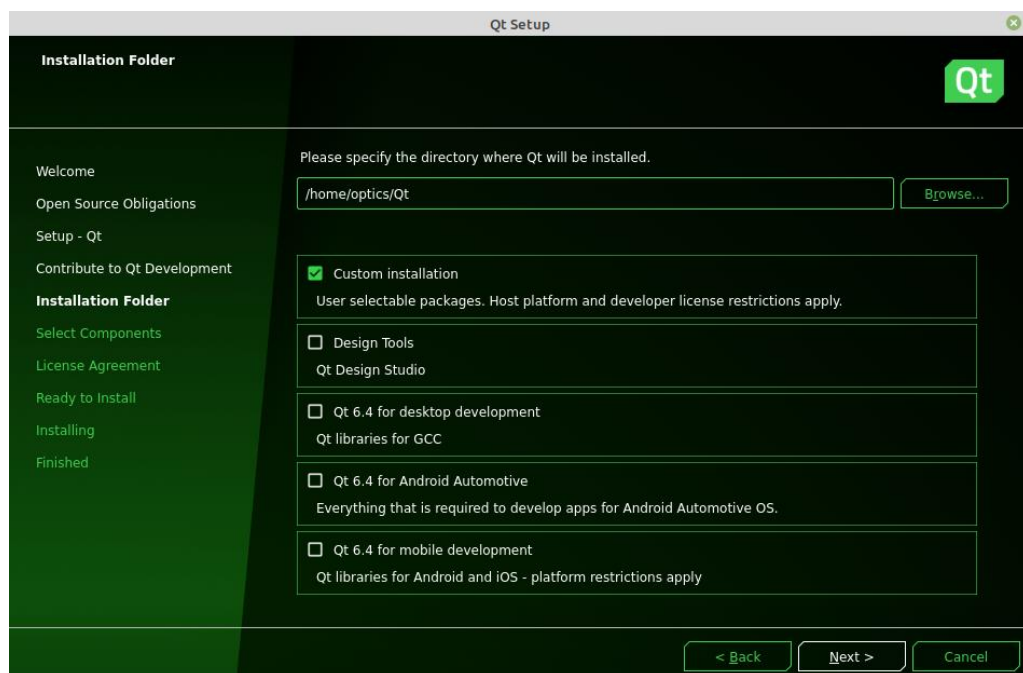Welcome to the QT online installer screen.
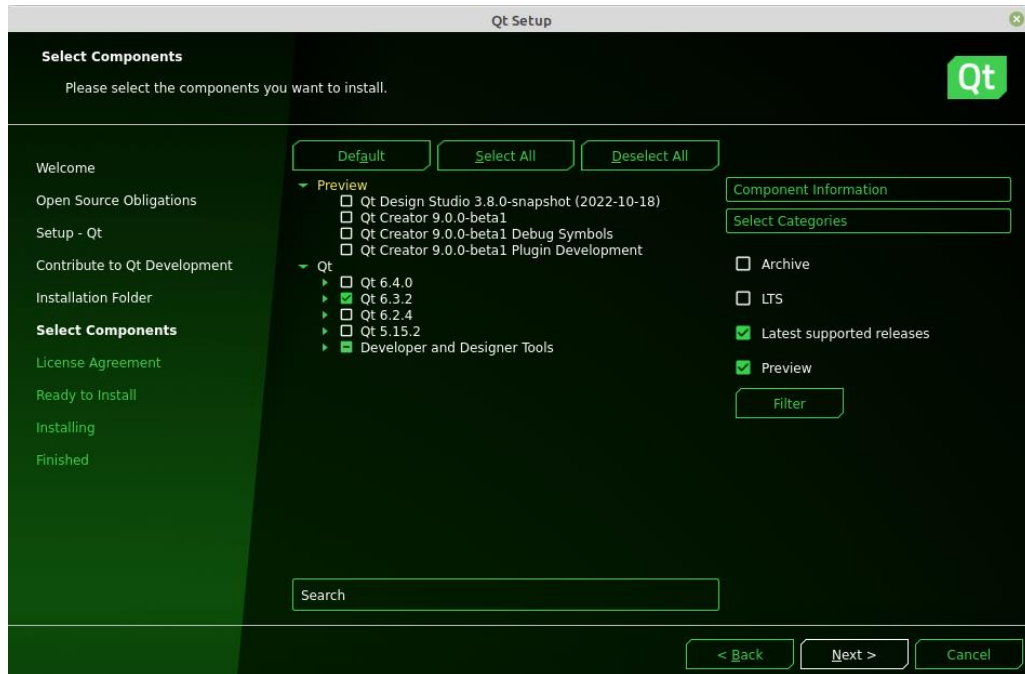

Qt Open Source Usage Obligations screen.

Contribute to Qt Development screen.
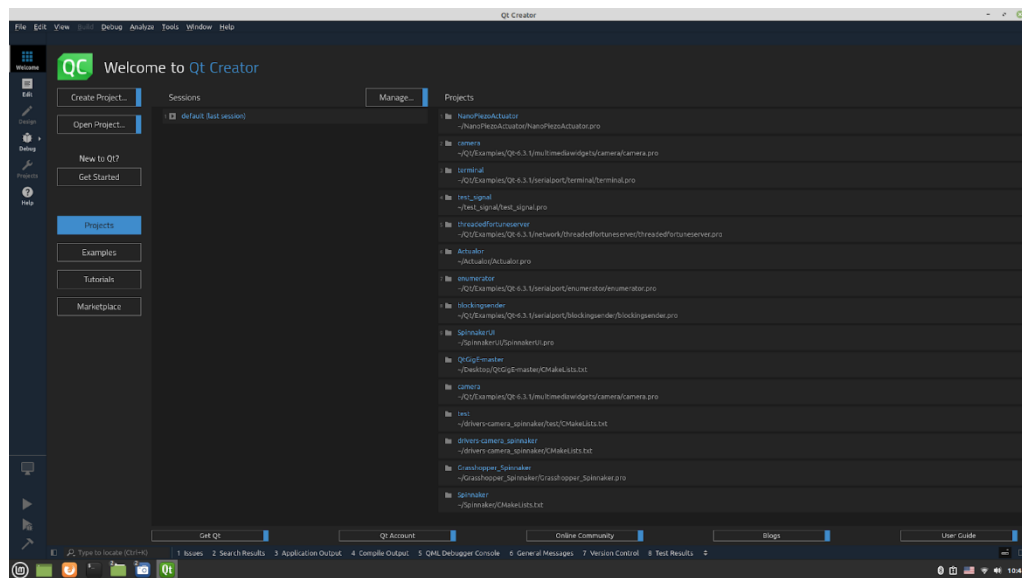
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Installation Folder screen.
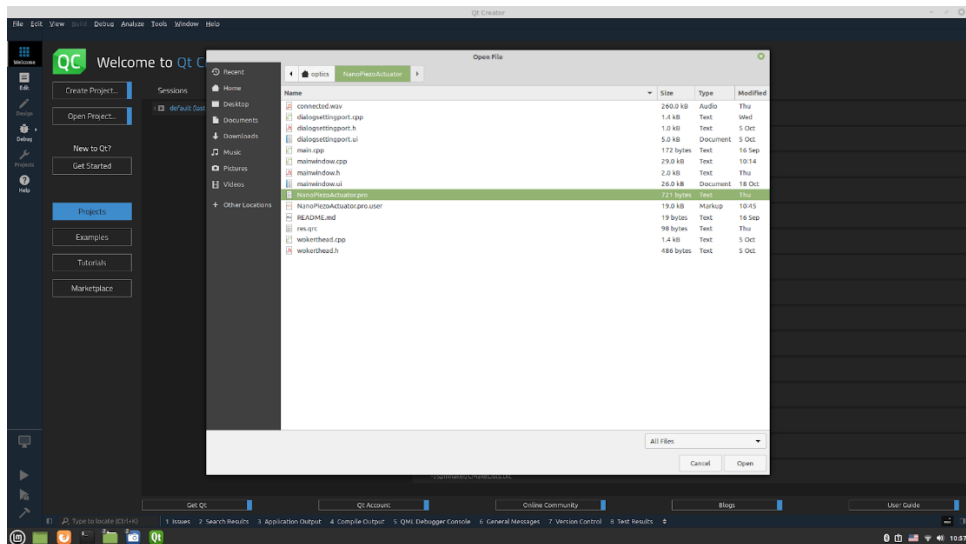
Select Components screen.

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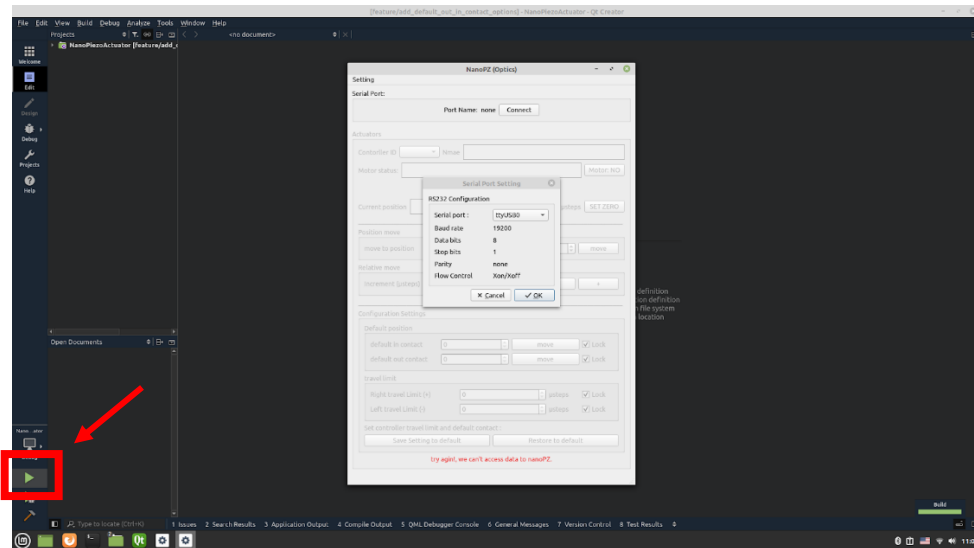After installing the finished open program QT Creator.

Qt Creator IDE screen.

Initialization NanoPz Project

After source code download already and extracted file
NanoPiezoActuator.zip, Open file with QT Creator go-to location
file, and open the file "NanoPiezoActuator.pro".

Open NanoPZ Project screen.

Then try run source code to start the program to play.

Started Project screen.

NanoPZ Software

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USER'S MANUAL
Software Actuator Control EvWaCo Project