Remote Debugging with the GNU GDB Debugger using Eclipse

MA35D1|MA35D0|MA35H0|NUC970|NUC980

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Introduction

- The Eclipse Public License is designed to be a business-friendly free software license, and features weaker copyleft provisions than licenses such as the GNU General Public License (GPL).

Installing Eclipse

- Download ***Eclipse Installer 2023-12 R*** from the site https://www.eclipse.org/downloads/packages
- Extract the package ***eclipse-inst-jre-linux64.tar.gz***

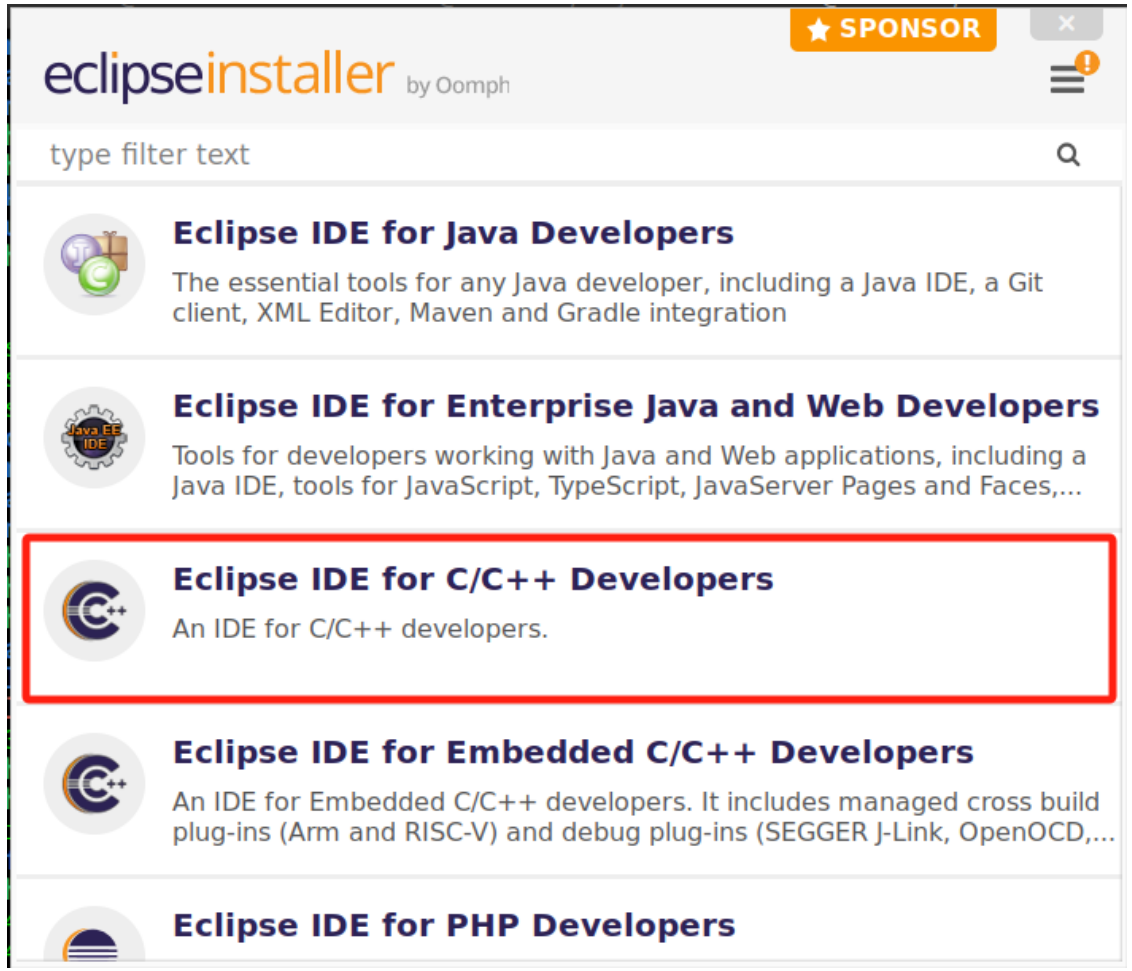
  $ tar -xf eclipse-inst-jre-linux64.tar.gz 2> /dev/null
- Execute the installer ***eclipse-installer***

  $ cd eclipse-installer

  $ ./eclipse-inst

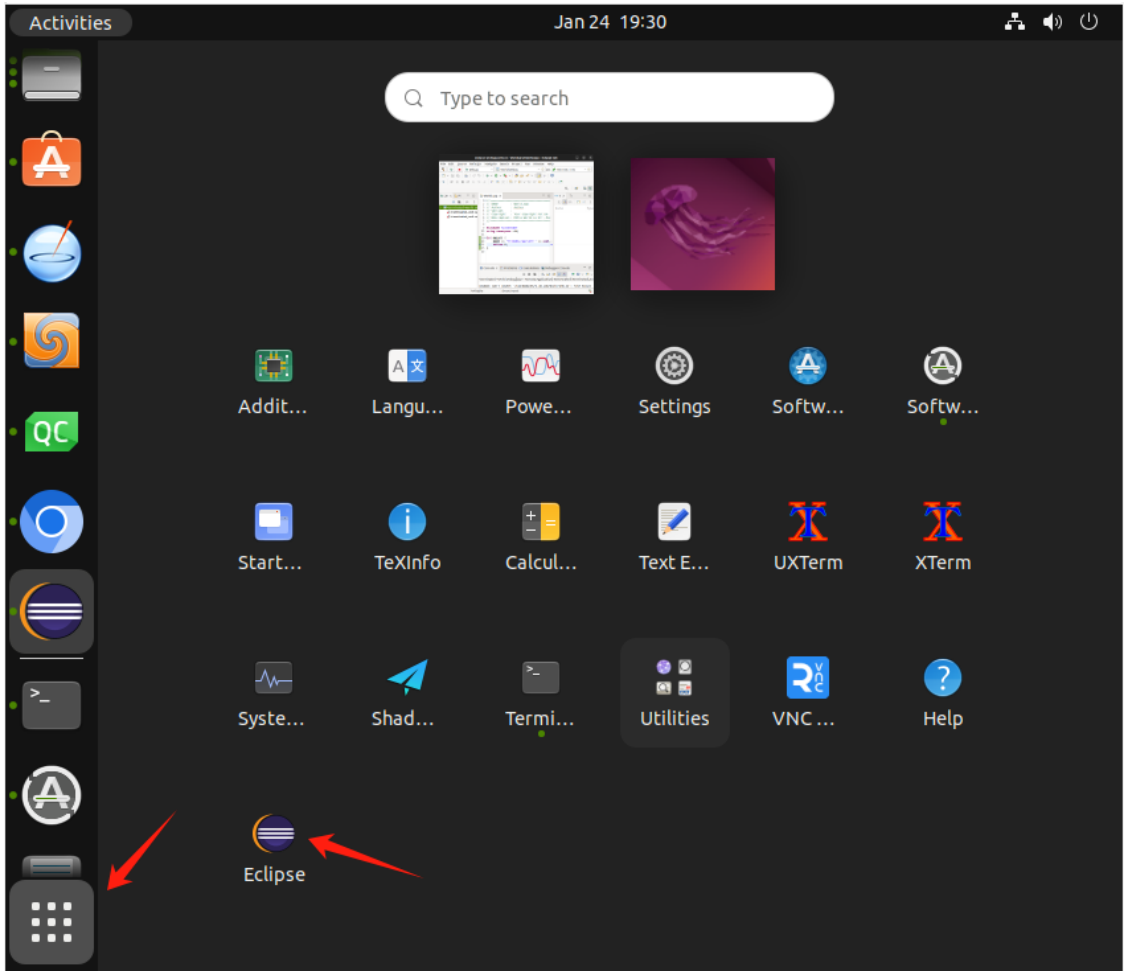
Installing Eclipse

- Choose the ***Eclipse IDE for C/C++ Developers***



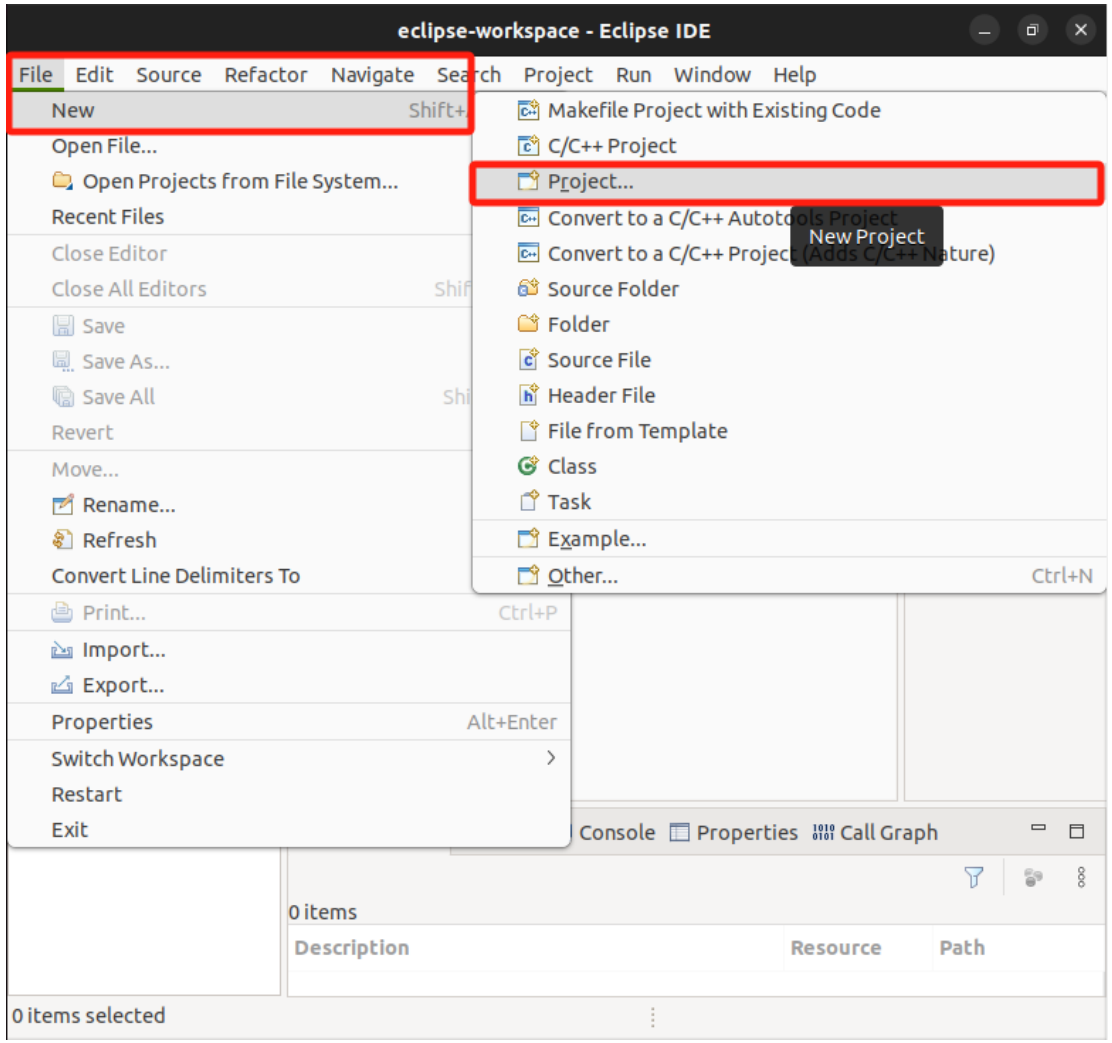
Launching Eclipse

- From Application Launcher, find the Eclipse and run it.



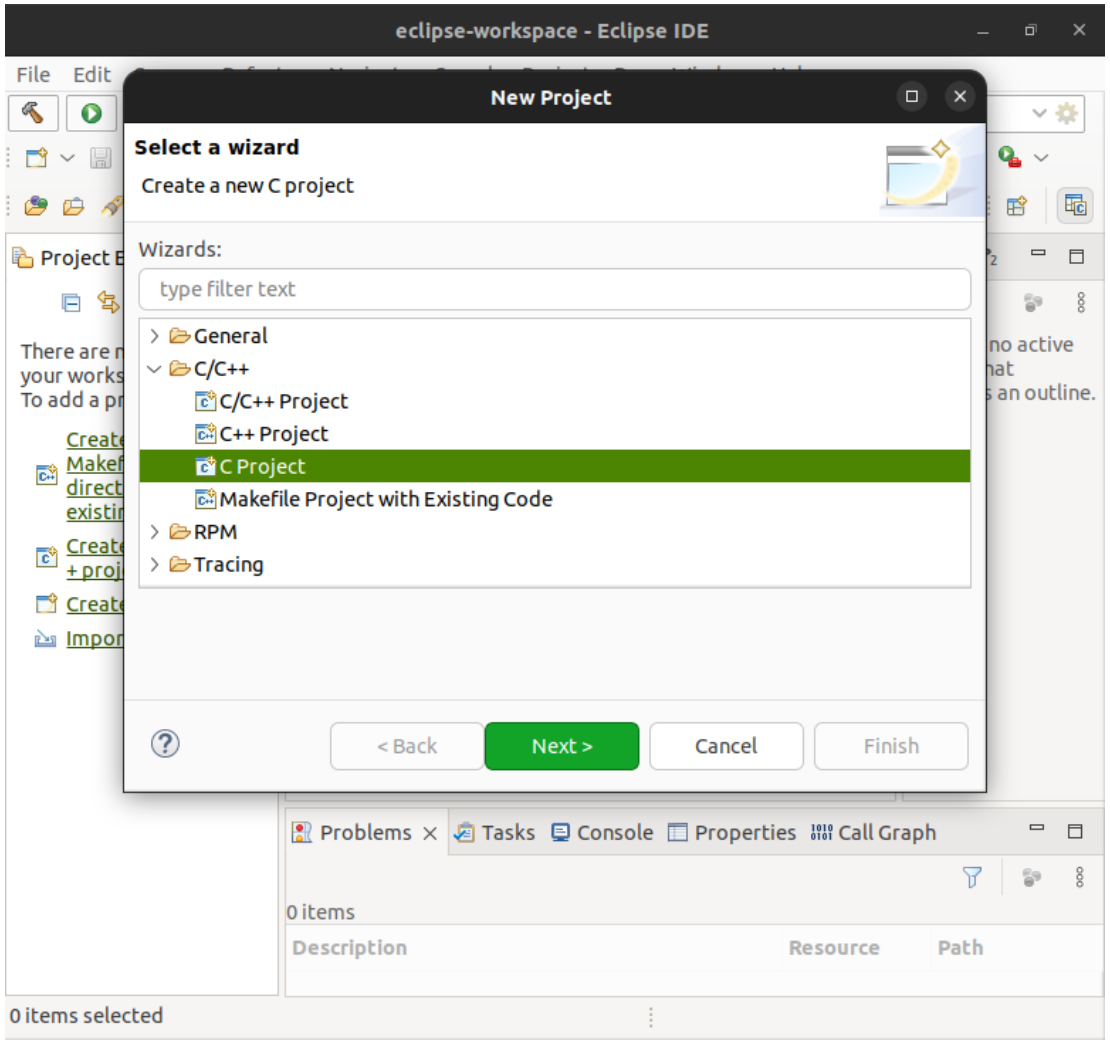
Creating Project

- Create a ***New Project*** from ***File*** menu
  →File →New →Project



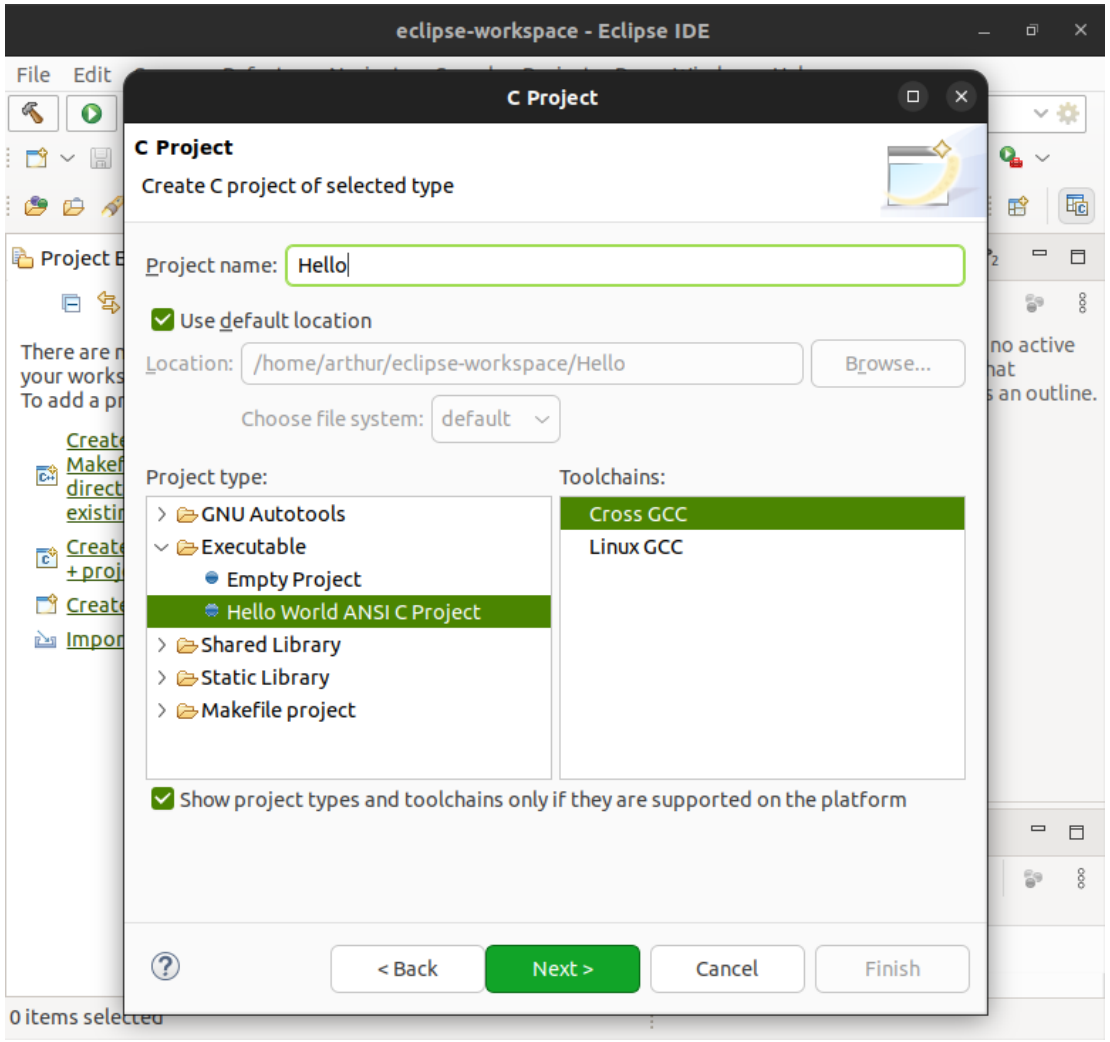
Creating Project

- Choose the ***C Project***
- Then click the ***Next*** to forward



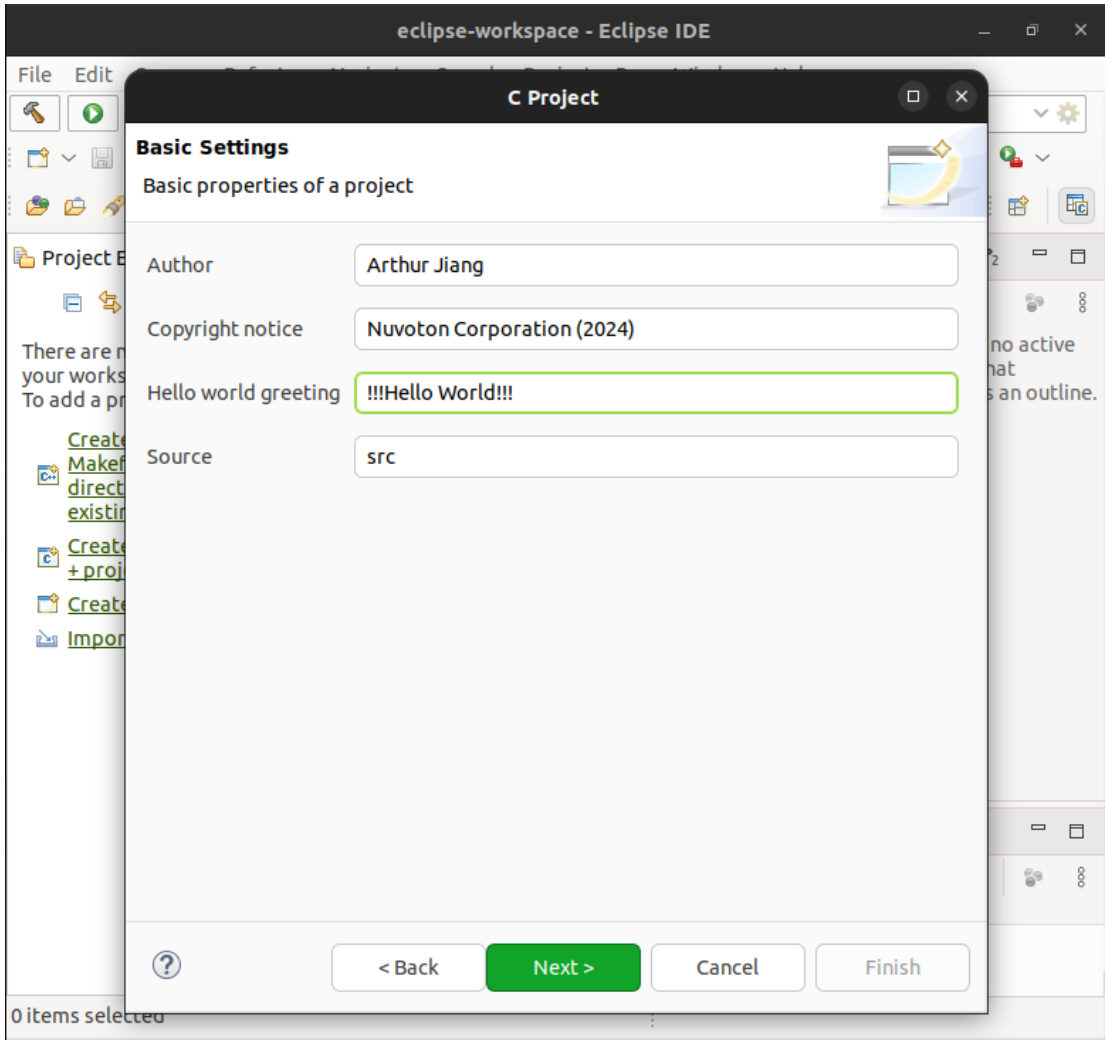
Creating Project

- Give a name ***Hello*** to the new project
- Choose the ***Project type*** to ***Executable***
- Select ***Toolchains*** as ***Cross GCC***
- Click the ***Next*** to proceed



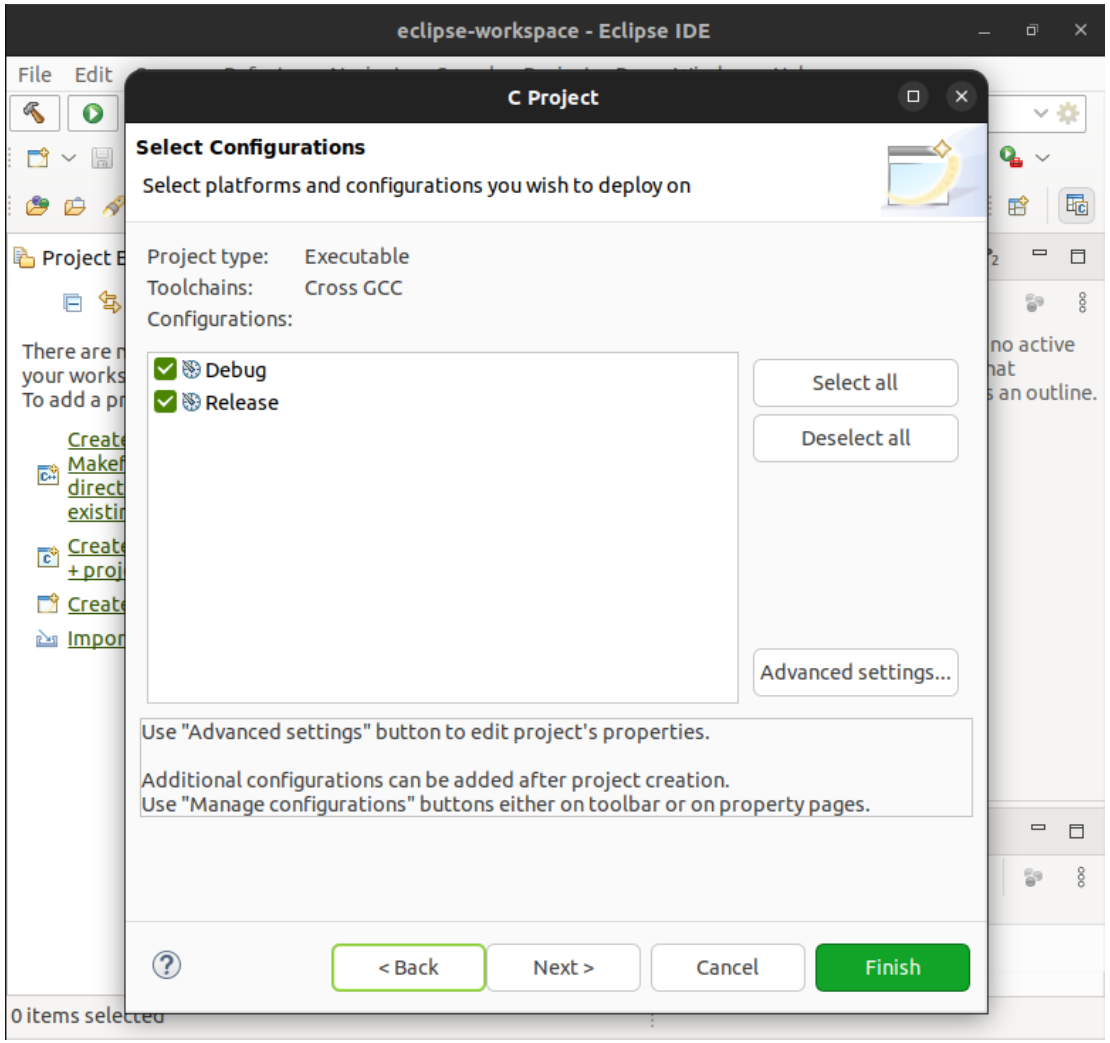
Creating Project

- Fill the ***Basic Settings*** with author, copyright notice and greeting.



Creating Project

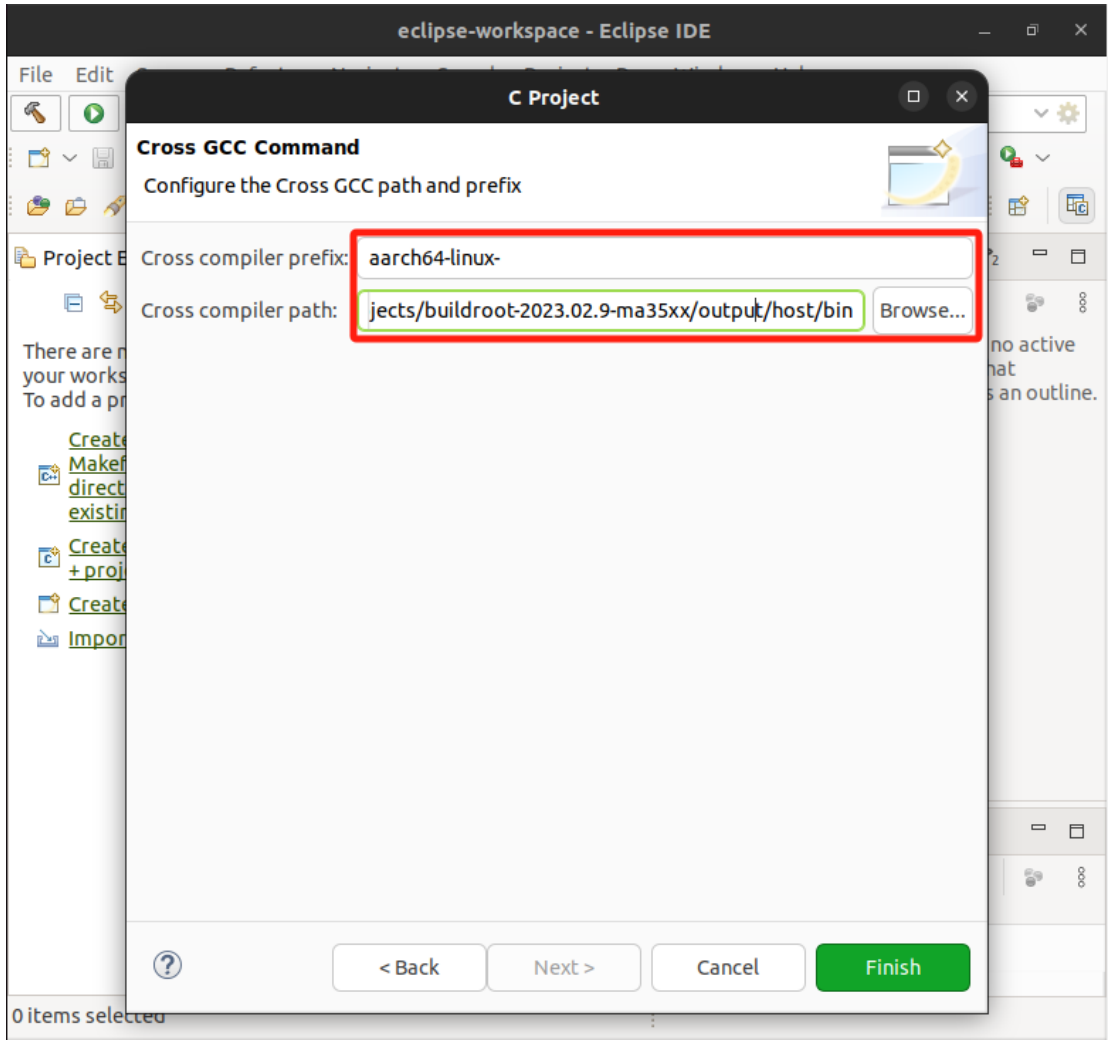
- Select both configurations ***Debug*** and ***Release***



Creating Project

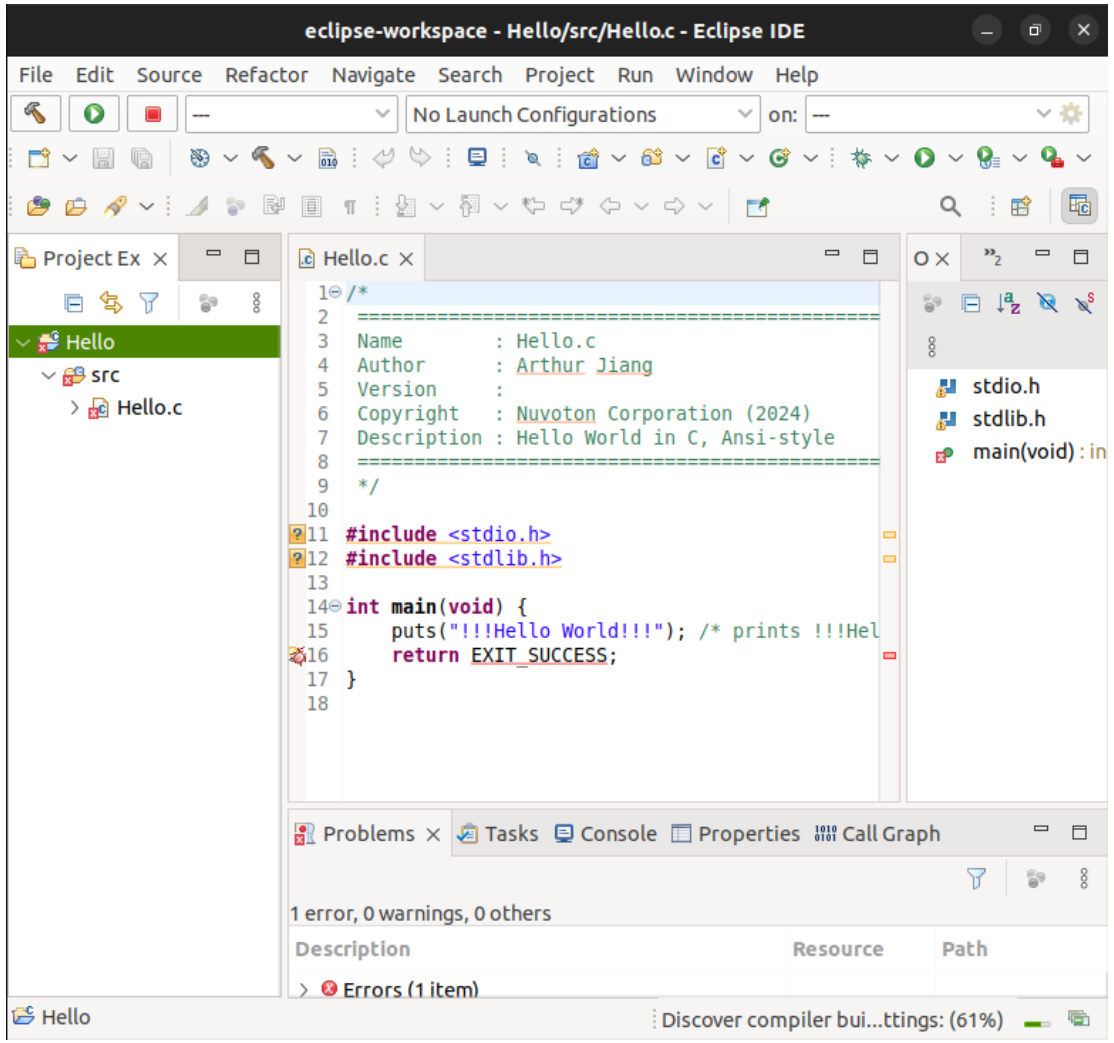
- Fill **Cross Compiler Prefix** with *aarch64-linux-*
- Fill **Cross Compiler Path** with *${BR2_DIR}/output/host/bin*

NOTE: **${BR2_DIR}** is the root directory of Buildroot. Do not use environment variable ${BR2_DIR} here, use the actual path of Buildroot instead.



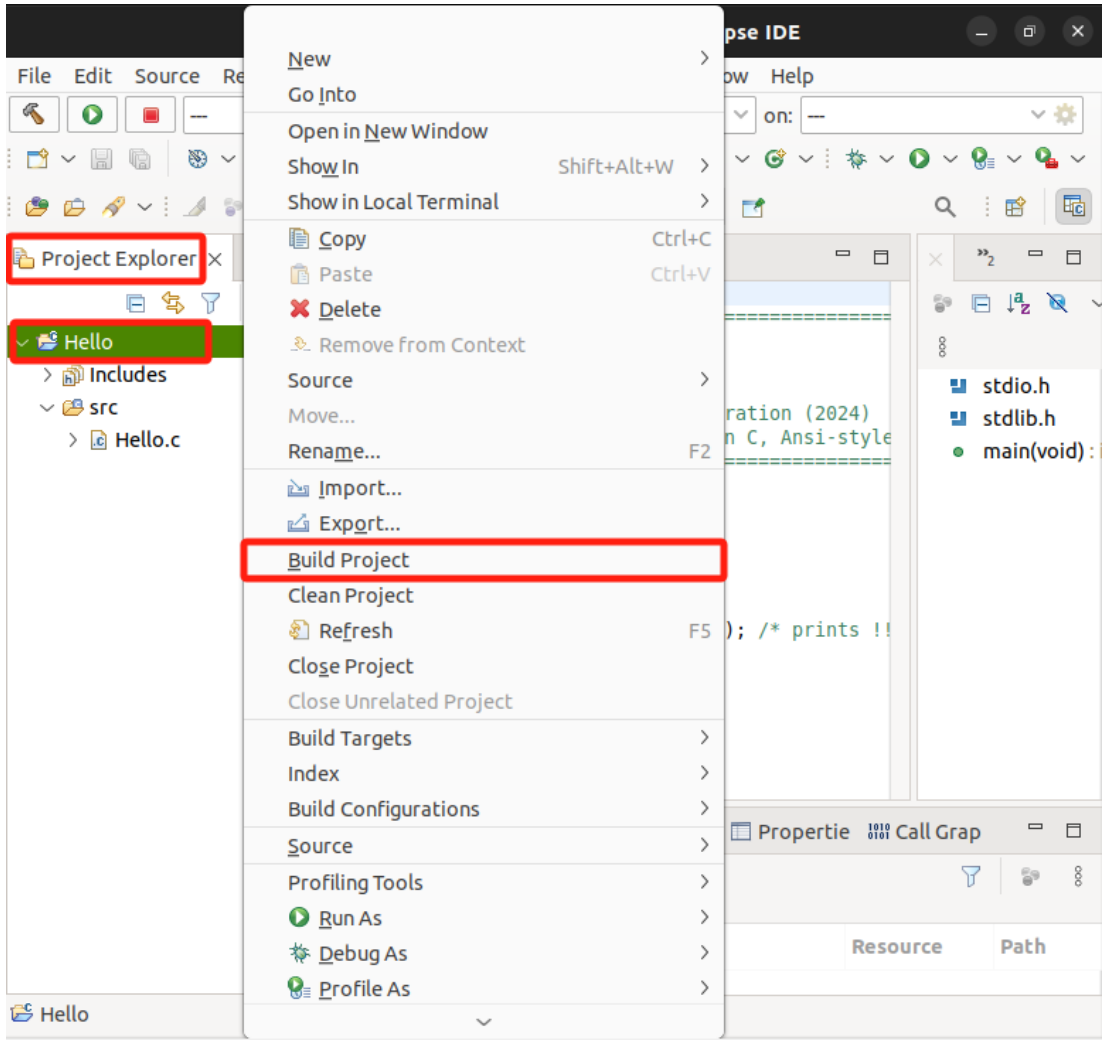
Building Project

- Before debugging the remote target, project must be built in ***Debug*** mode.



Building Project

- Browse the **Project Explorer**, select the project, right click to pop up the context menu, choose **Build Project** to build ***Debug*** executable target.



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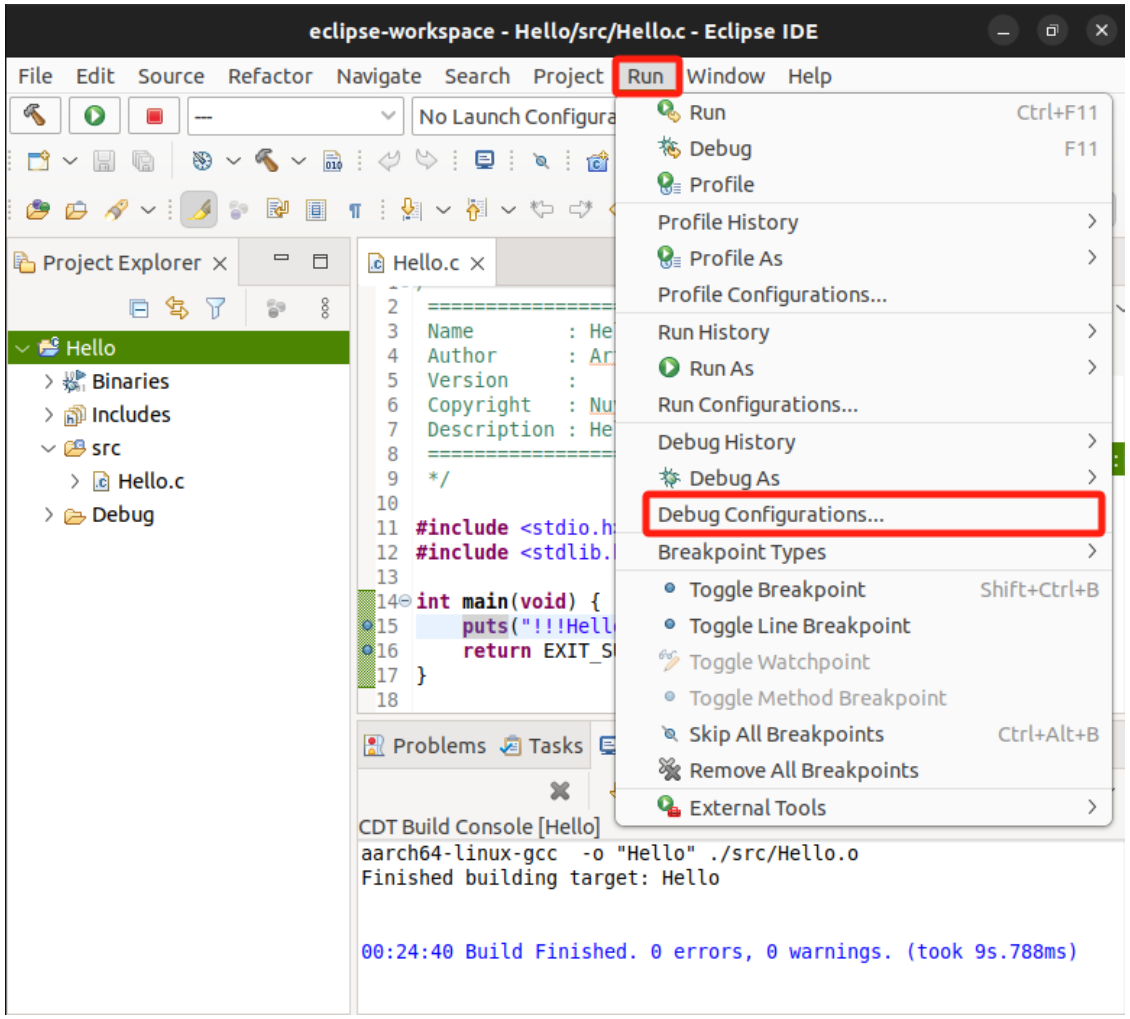
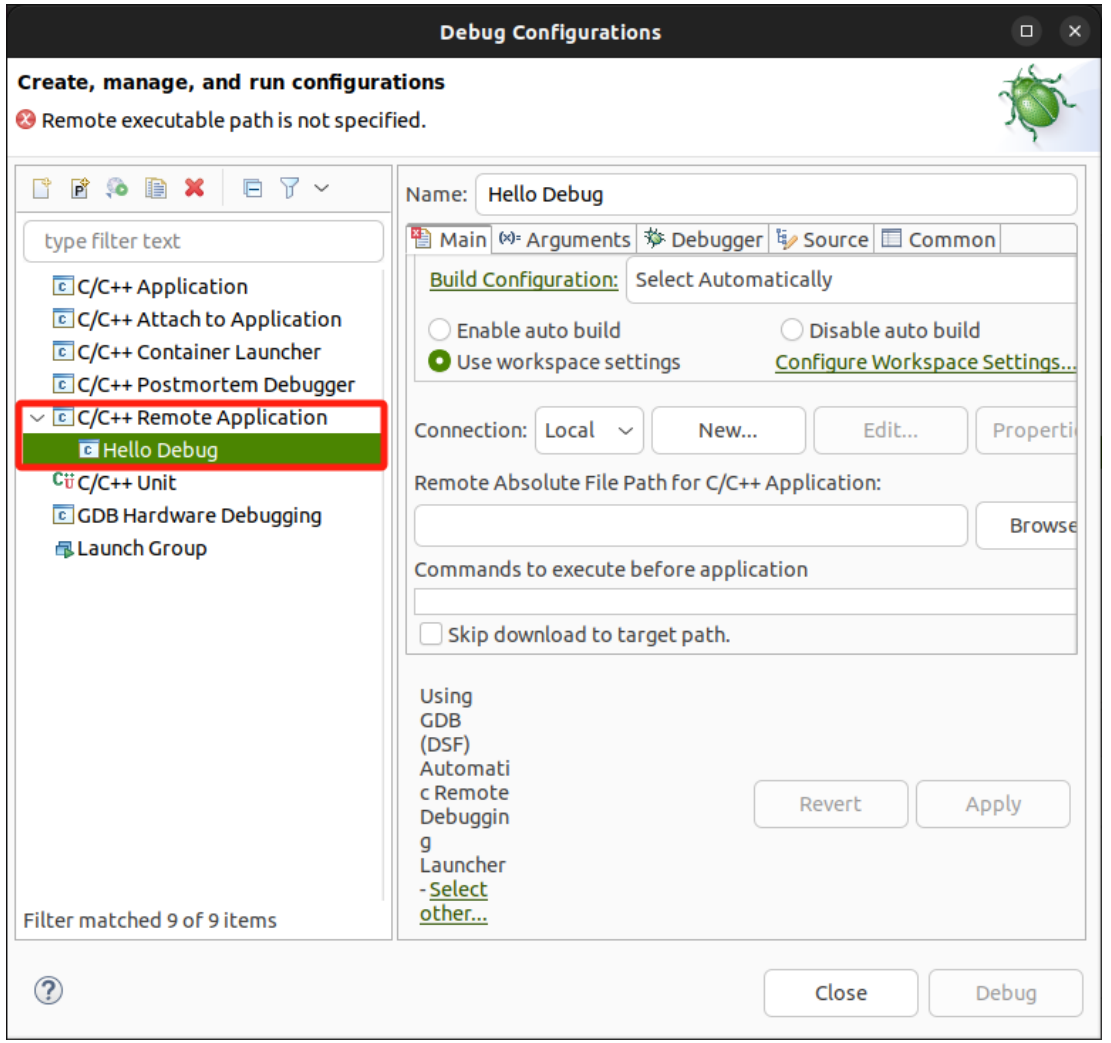
Configuring Debug

- Click the **Run** item in menu bar
- Select the **Debug Configurations**



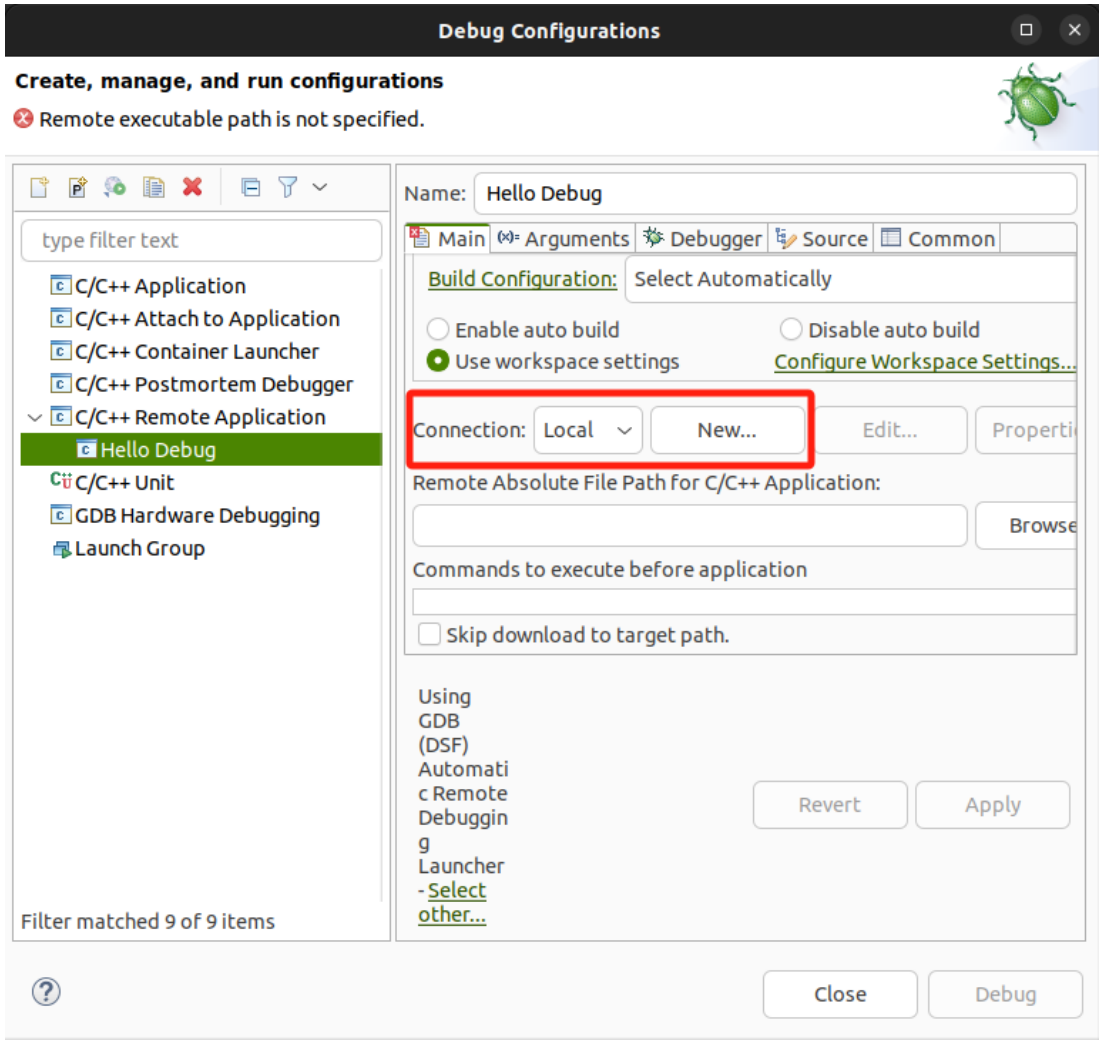
Configuring Debug

- Double click the **C/C++ Remote Application** to create a remote debugging configuration



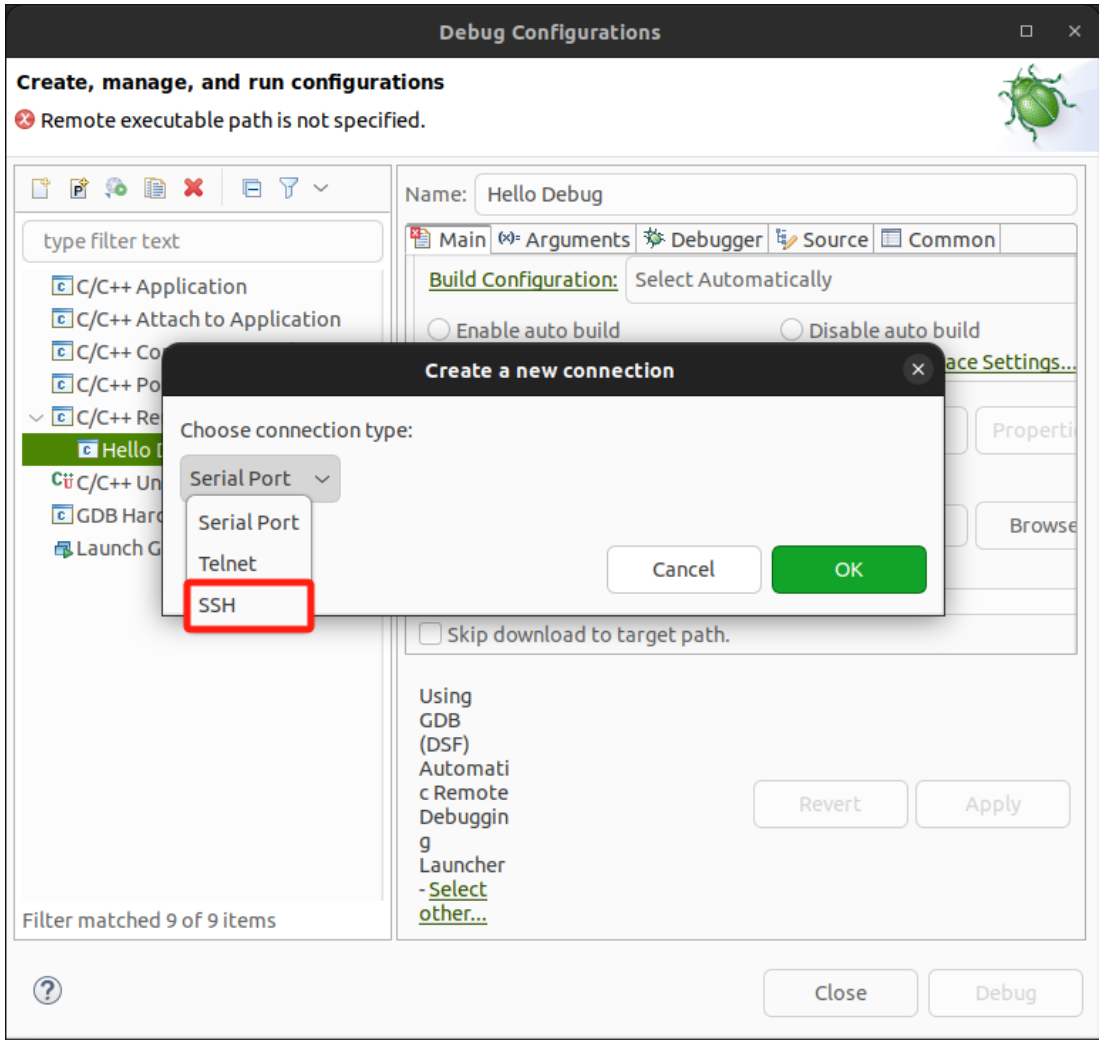
Configuring Debug

- Click the **New** button to create a SSH connection



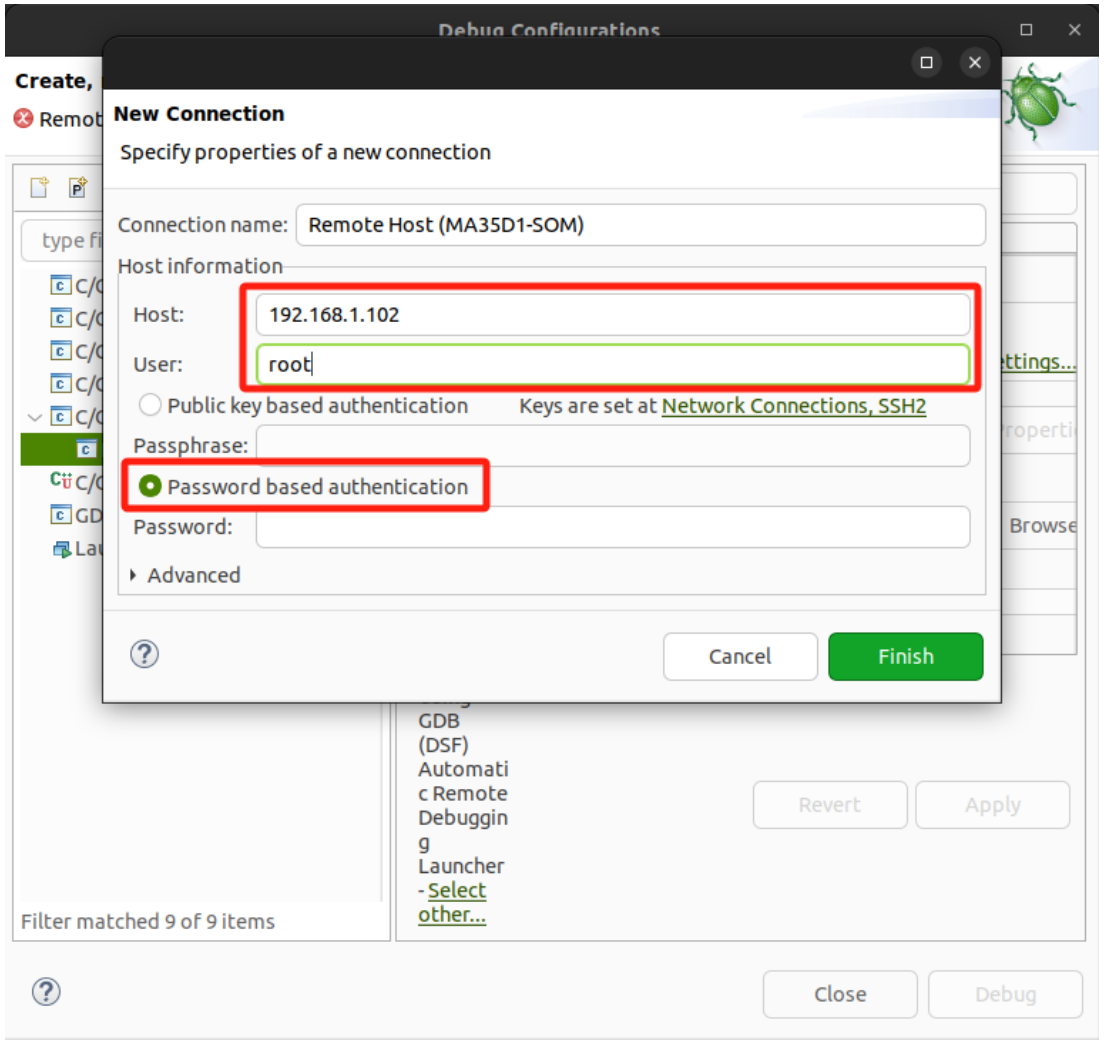
Configuring Debug

- Choose the connection type: **SSH**



Configuring Debug

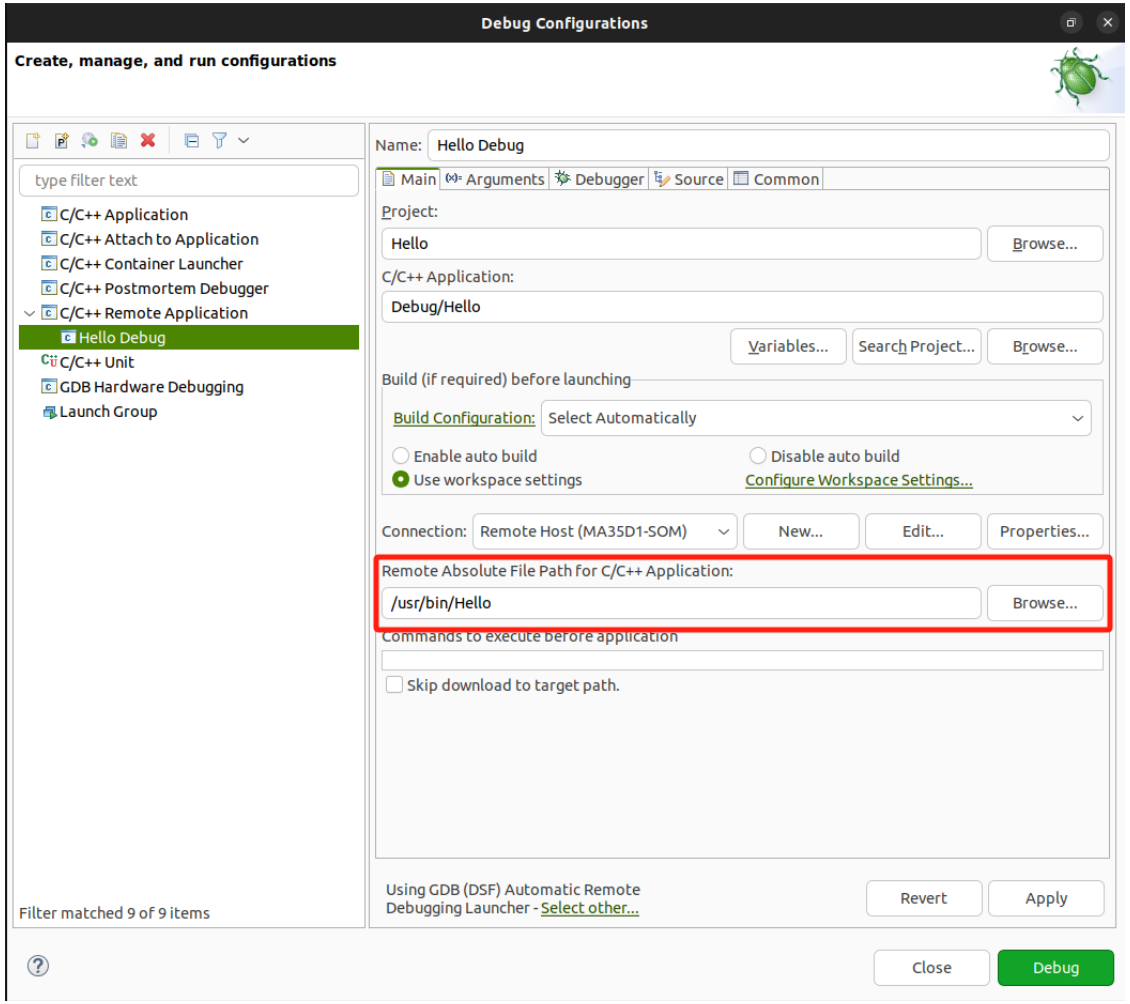
- Fill **Host** with actual IP address (*192.168.1.102*) of remote target board
- Fill the **User** with *root*
- Choose the **Password based authentication**
- Name the Connection to *Remote Host (MA35D1-SOM)*



Configuring Debug

- Click Browse to set **Remote Absolute File Path for C/C++ Application**.

  NOTE: This can test whether the *SSH connection* is lost.

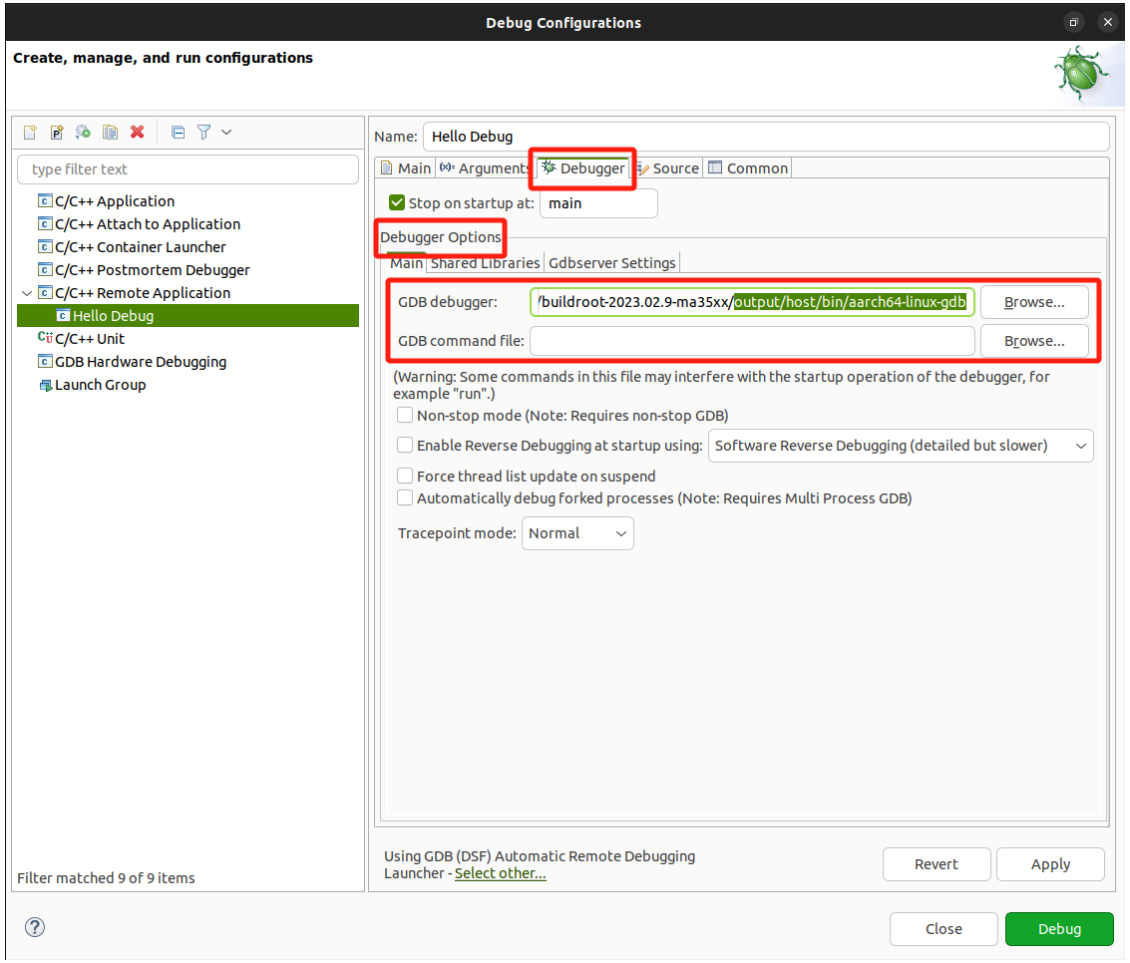


Configuring Debug

- In Tab page **Debugger**, under **Debugger Options**, set **GDB debugger** to *${BR2_DIR}/output/host/bin/aarch64-linux-gdb*

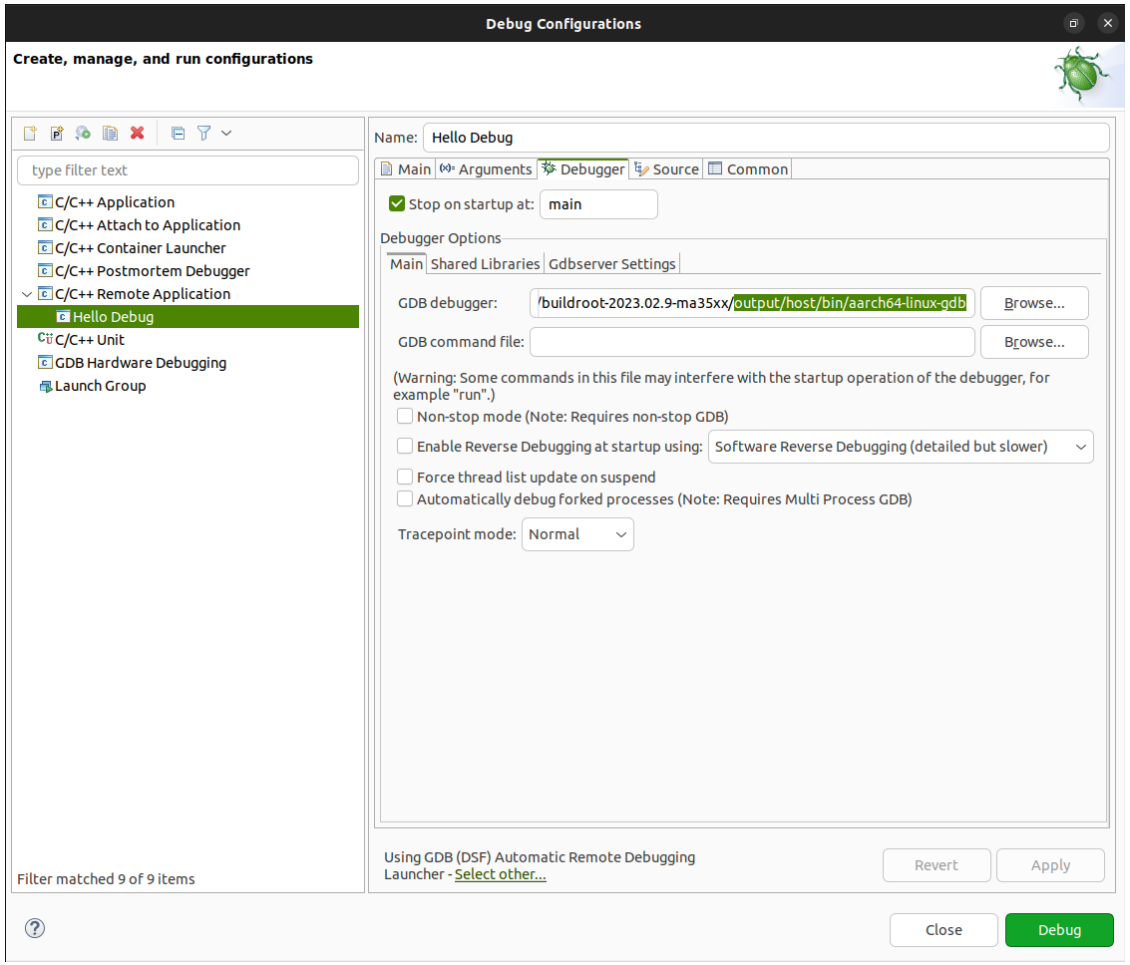
  NOTE: **${BR2_DIR}** is the root directory of Buildroot. Do not use ${BR2_DIR} here, use the actual path of Buildroot instead.

- Leave the **GDB command file** *blank*



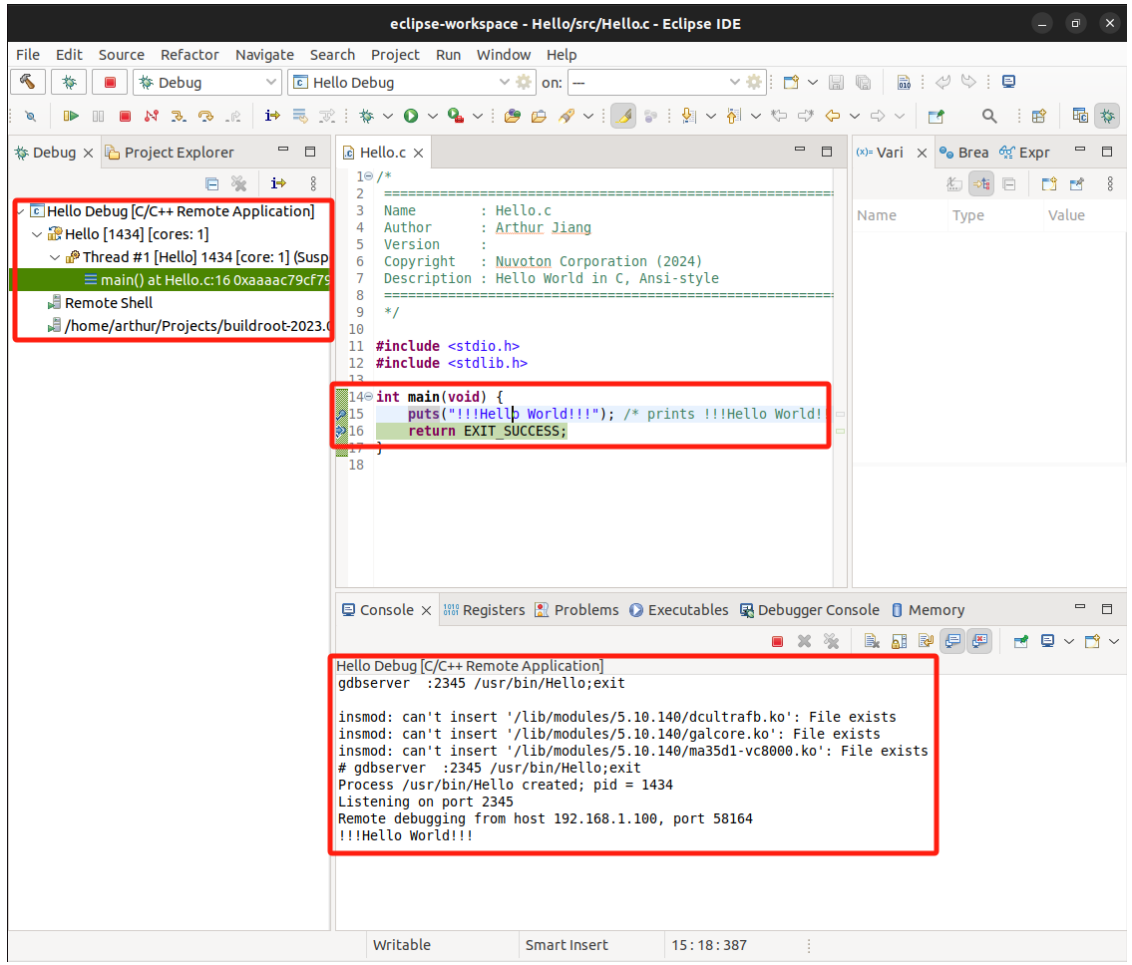
Beginning Debugging

- Click **Debug** to begin debugging



Debugging Target

- Double click a line of source code to toggle breakpoint



Joy of innovation

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谢谢

謝謝

Děkuji

Bedankt

Thank you

Kiitos

Merci

Danke

Grazie

ありがとう

감사합니다

Dziękujemy

Obrigado

Спасибо

Gracias

Teşekkür ederim

Cảm ơn