GigaDevice Semiconductor Inc.

GD32 MCU Windows 环境 Eclipse 开发环境搭建教程

应用笔记

AN068

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1. 简介

本文介绍了如何搭建GD32 Eclipse开发环境。适用于所有GD32 MCU系列。

2. 开发环境准备

- 操作系统：WIN7 / WIN10 64-bit OS
- IDE: Eclipse IDE for GNU ARM & RISC-V C/C++ Developers
- 交叉编译链：arm-none-eabi-gcc / riscv-none-embed-gcc
- 编译工具：GNU MCU Eclipse build tools
- GDB服务器：OpenOCD / J-Link GDB Server

3. 工具安装说明

3.1. 交叉编译链安装

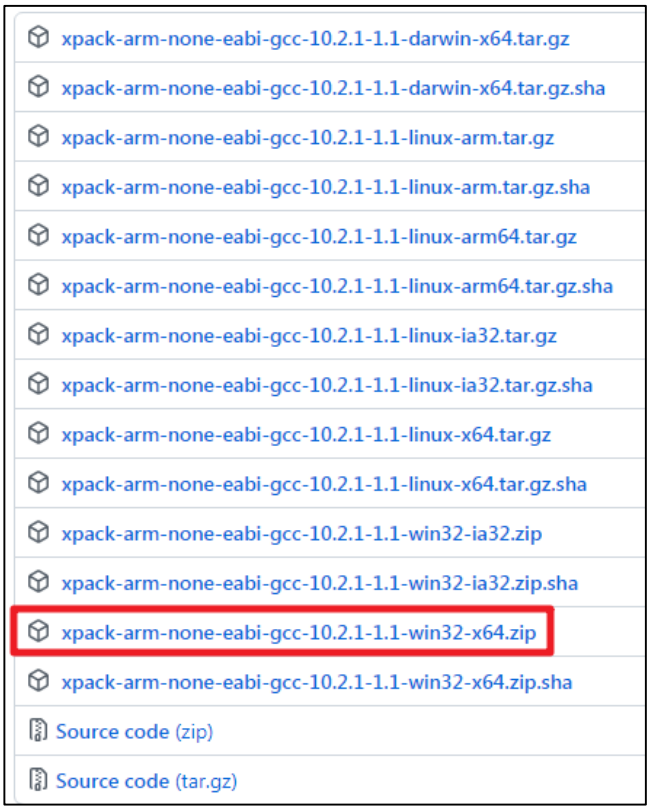
3.1.1. ARM 交叉编译链安装

- **Download the xpack-arm-none-eabi-gcc-10.2.1-1.1-win32-x64.zip**

访问*https://github.com/xpack-dev-tools/arm-none-eabi-gcc-xpack/releases/*可选择下载不同版本的ARM交叉编译链。

本文中，选择下载xpack-arm-none-eabi-gcc-10.2.1-1.1-win32-x64.zip，下载地址：*https://github.com/xpack-dev-tools/arm-none-eabi-gcc-xpack/tags*

图 3-1. 下载 ARM 交叉编译链



3.1.2. RISCV 交叉编译链安装

- **Download the xpack-riscv-none-embed-gcc-10.1.0-1.1-win32-x64.zip**

访问*https://xpack.github.io/riscv-none-embed-gcc/releases/*可选择下载不同版本的RISC-V交叉编译链。

本文中，选择下载xpack-riscv-none-embed-gcc-10.1.0-1.1-win32-x64.zip，下载地址：

https://github.com/xpack-dev-tools/riscv-none-embed-gcc-xpack/releases/tag/v10.1.0-1.1/

图 3-2. 下载 RISC-V 交叉编译链-1

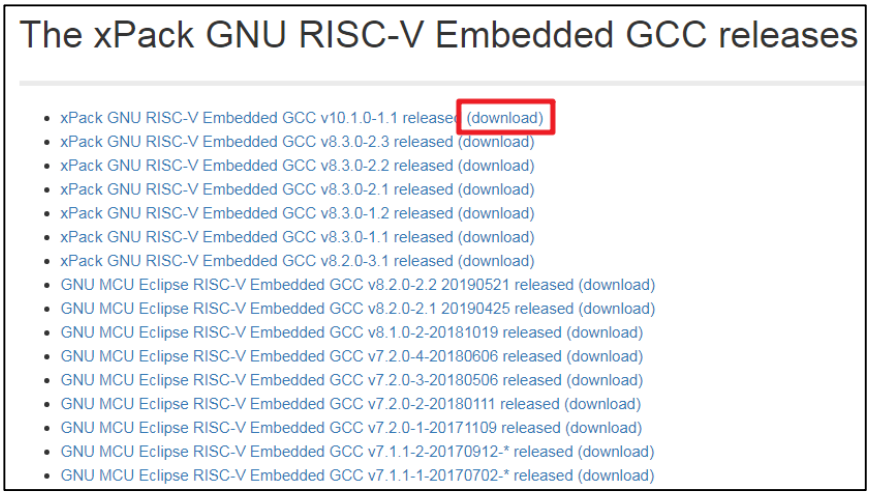
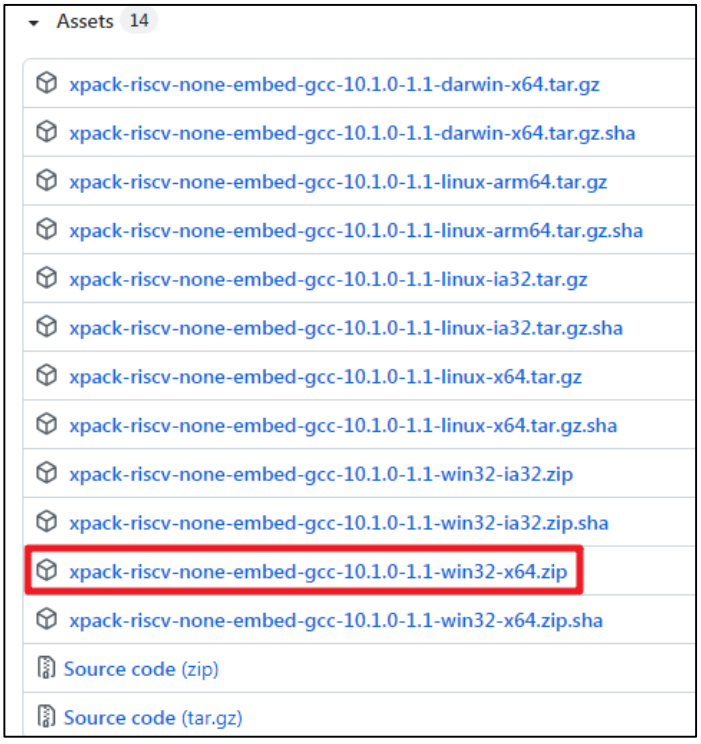


图 3-3. 下载 RISC-V 交叉编译链-2



3.2. Build 工具安装

- **Download the xpack-windows-build-tools-4.2.1.2-win32-x64.zip**

访问https://xpack.github.io/windows-build-tools/releases/可选择下载不同版本的编译工具。

本文中，选择下载 xpack-windows-build-tools-4.2.1.2-win32-x64.zip，下载地址：*https://github.com/xpack-dev-tools/windows-build-tools-xpack/releases/tag/v4.2.1-2/*

图 3-4. 下载 Build Tools-1

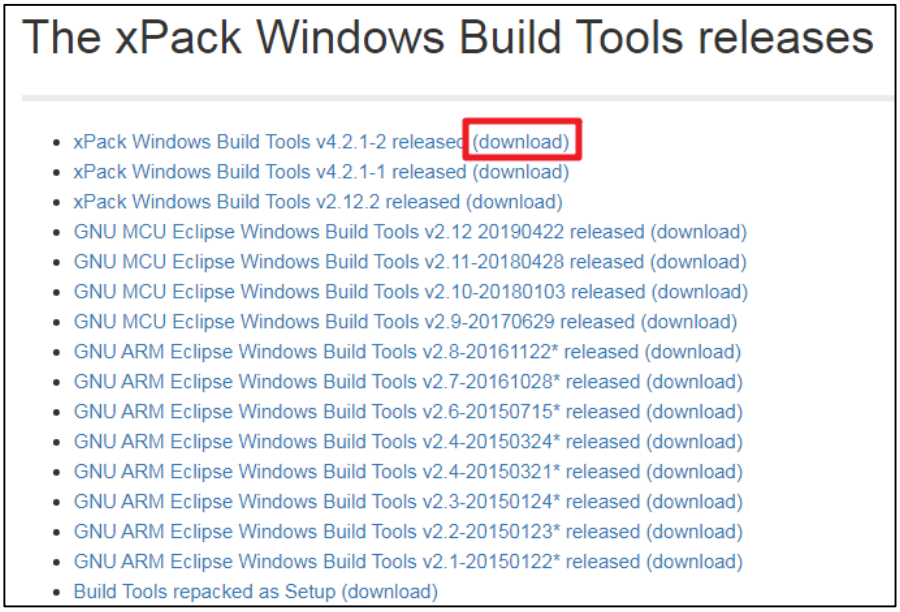
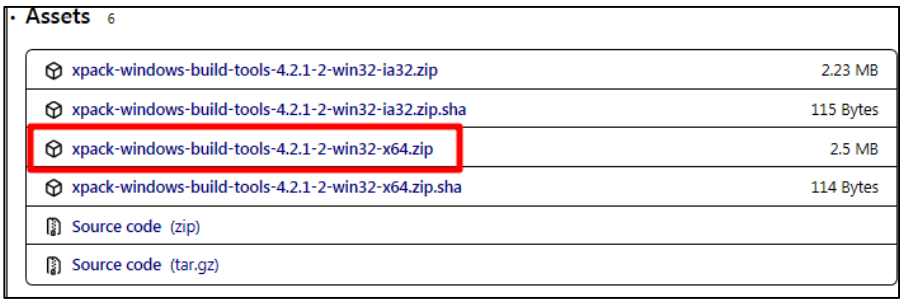


图 3-5. 下载 Build Tools-2



3.3. Eclipse IDE 安装

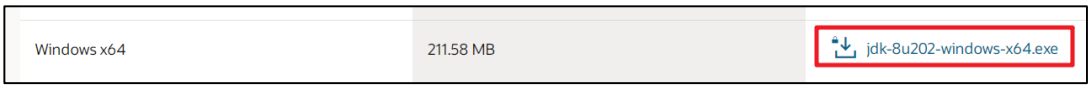
3.3.1. JDK 安装

- **Download the *jdk-8u202-windows-x64.exe***

Eclipse需要运行在Java环境，所以在安装Eclipse之前需要先安装JDK。访问*http://www.oracle.com/technetwork/java/javase/downloads/java-archive-javase8-2177648.html*可选择下载不同版本的JDK工具。

本文中选择***jdk-8u202-windows-x64.exe***下载并安装。

图 3-6. 下载 JDK 工具-1



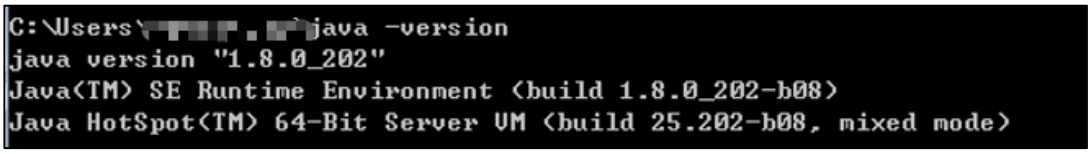
在下载之前，需要先接受License Agreement。

图 3-7. 下载 JDK 工具-2

- **Install the *jdk-8u202-windows-x64.exe***

打开cmd窗口并键入java -version测试JDK是否正确安装。如果JDK已正确安装，可得到如*图 3-8. JDK版本测试*所示类似输出。

图 3-8. JDK 版本测试



3.3.2. Eclipse IDE for GNU ARM & RISC-V C/C++ Developers 安装

- **Download the *eclipse-embedcpp-2021-03-R-win32-x86_64.zip***

访问 *https://eclipse-embed-cdt.github.io/packages/releases/* 可选择下载不同版本的Eclipse IDE。

本文中，选择下载eclipse-embedcpp-2021-03-R-win32-x86_64.zip，下载地址：*https://www.eclipse.org/downloads/download.php?file=/technology/epp/downloads/release/2021-03/R/eclipse-embedcpp-2021-03-R-win32-x86_64.zip*

图 3-9. 下载 Eclipse-1

图 3-10. 下载 Eclipse-2

图 3-11. 下载 Eclipse-3

3.4. 调试工具驱动安装

3.4.1. OpenOCD 安装

- **Download the OpenOCD software**

OpenOCD软件无需安装，打开即可使用。可从GD原厂获取适用于GD32 MCU的OpenOCD软件。

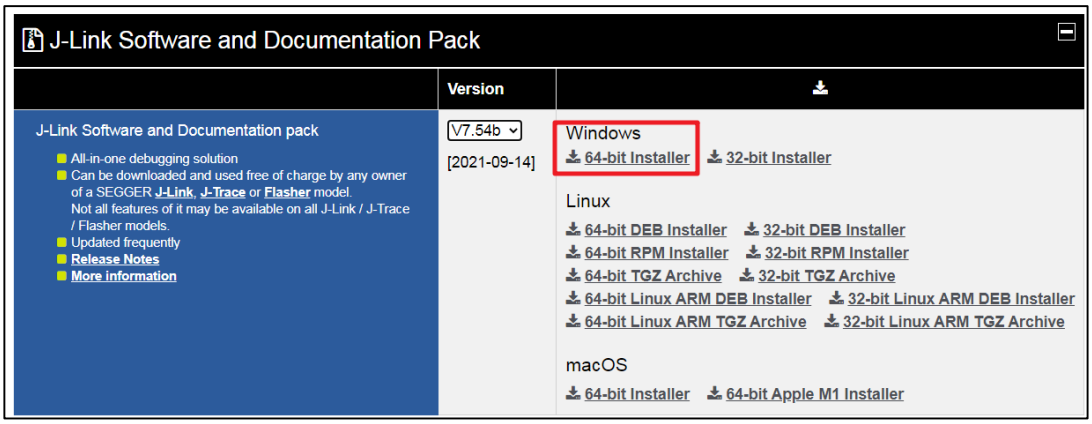
3.4.2. Segger J-Link 安装

- **Download the J-Link software**

访问***https://www.segger.com/downloads/jlink#Documentation***可选择下载不同版本的J-Link驱动。

本文中，选择下载J-LinkV7.54b版本。

图 3-12. 下载 JLink 驱动



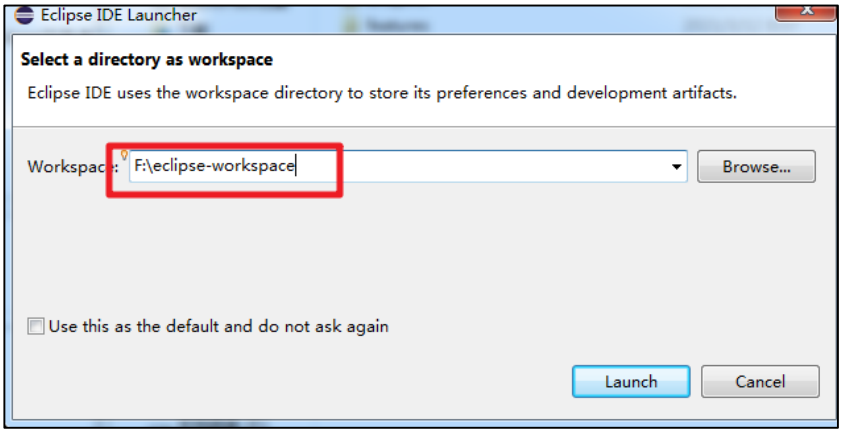
下载完成后，直接安装即可。

4. Eclipse 启动及配置

4.1. 新建 workspace

Eclipse软件本身为绿色软件，无需安装，直接双击eclipse文件夹下的eclipse.exe来启动Eclipse，启动之后如*图4-1. Eclipse IDE Launcher*。

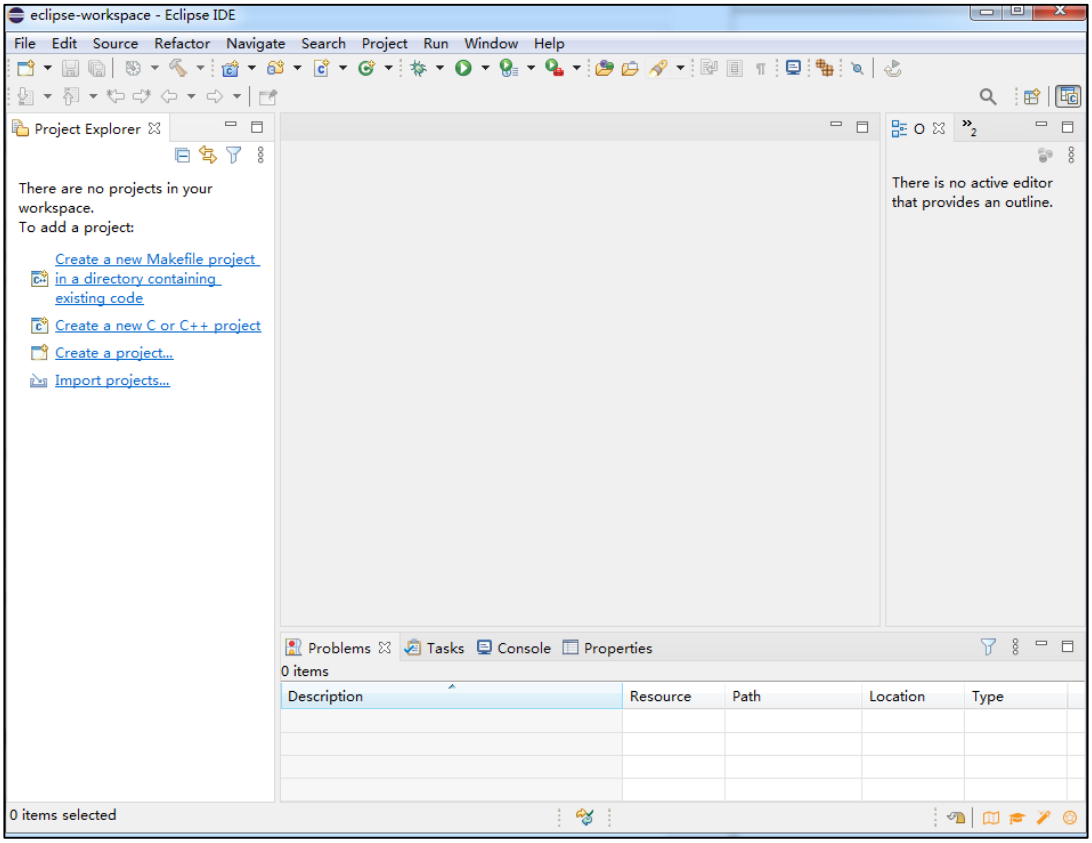
图 4-1. Eclipse IDE Launcher



如*图4-1. Eclipse IDE Launcher*，选择本地英文路径，创建workspace。点击Launch。注意路径深度不可太深。

进入欢迎界面后可以选择直接关闭左上角welcome或打开右上角workbench图标进入主界面。

图 4-2. Eclipse workspace

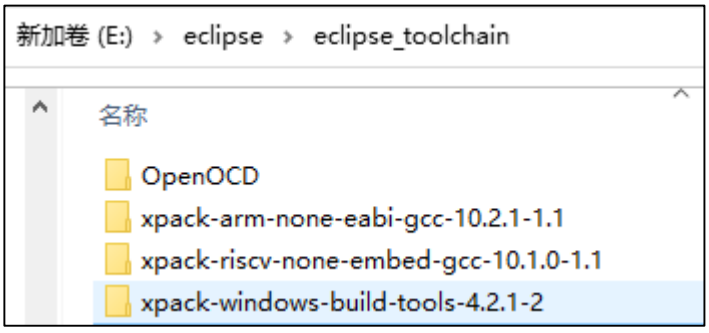


同一个workspace中可以包含多个工程。

4.2. 设置 Build Tools 路径

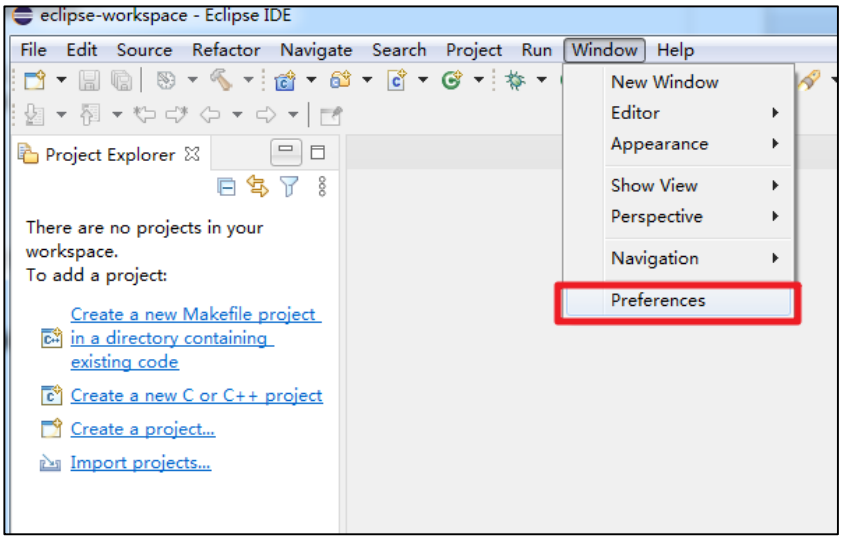
在eclipse安装路径下，建立eclipse_toolchain文件夹。将*工具安装说明*中下载的ARM/RISCV交叉编译链，Build工具及OpenOCD均解压后放置在该文件夹内。

图 4-3. eclipse_toolchain 文件夹



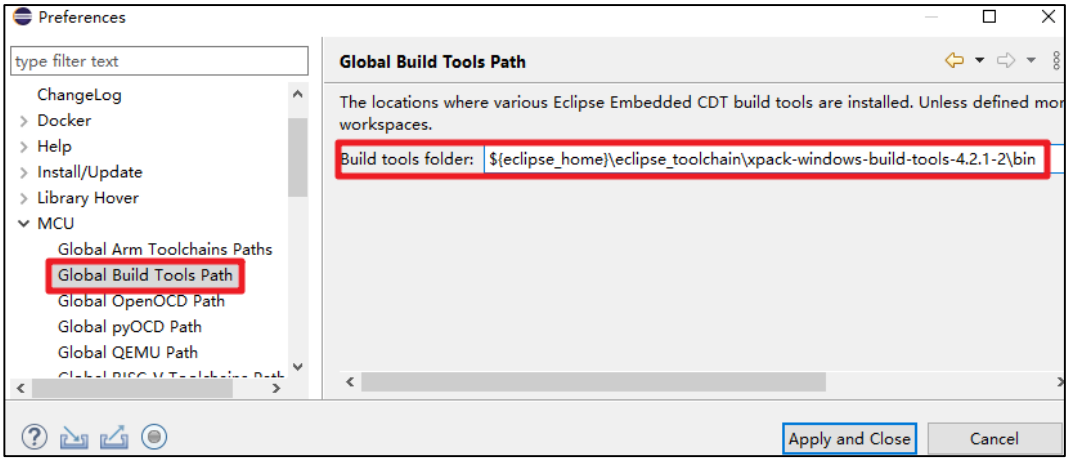
打开Winodow->Preferences选项

图 4-4. Eclipse Window Preferences 选项



选择 MCU->Global Build Tools Path，设置全局 Build 工具路径：${eclipse_home}\eclipse_toolchain\xpack-windows-build-tools-4.2.1-2\bin

图 4-5. 设置 Build Tools 路径

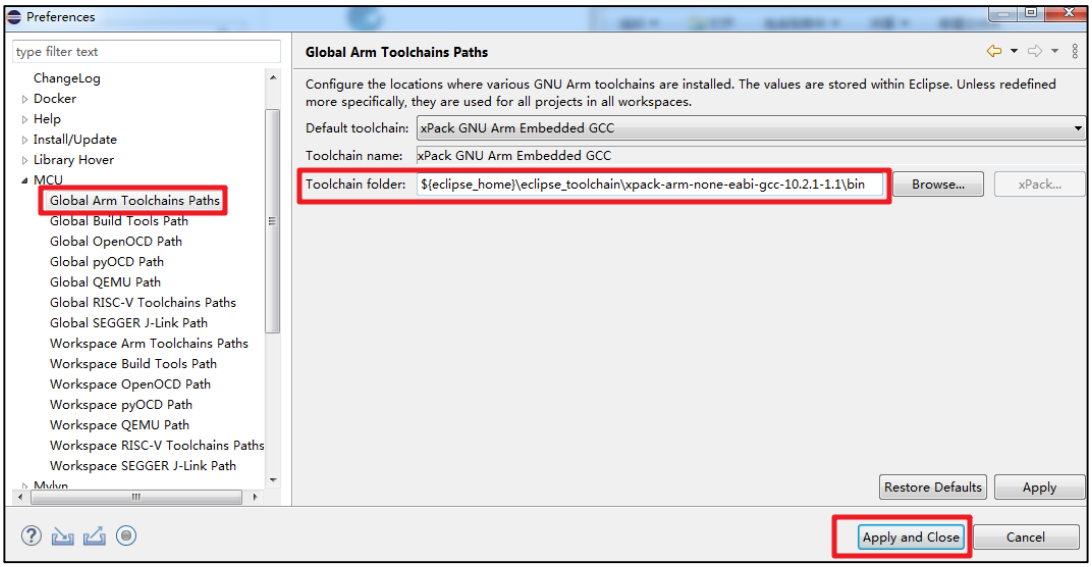


注意：这里配置的路径配置为相对路径。

4.3. 设置 ARM Toolchains Path

选择 MCU->Global Arm Toolchains Path，设置全局 Arm Toolchains 工具路径。${eclipse_home}\eclipse_toolchain\xpack-arm-none-eabi-gcc-10.2.1-1.1\bin

图 4-6. 设置 ARM Toolchains 路径

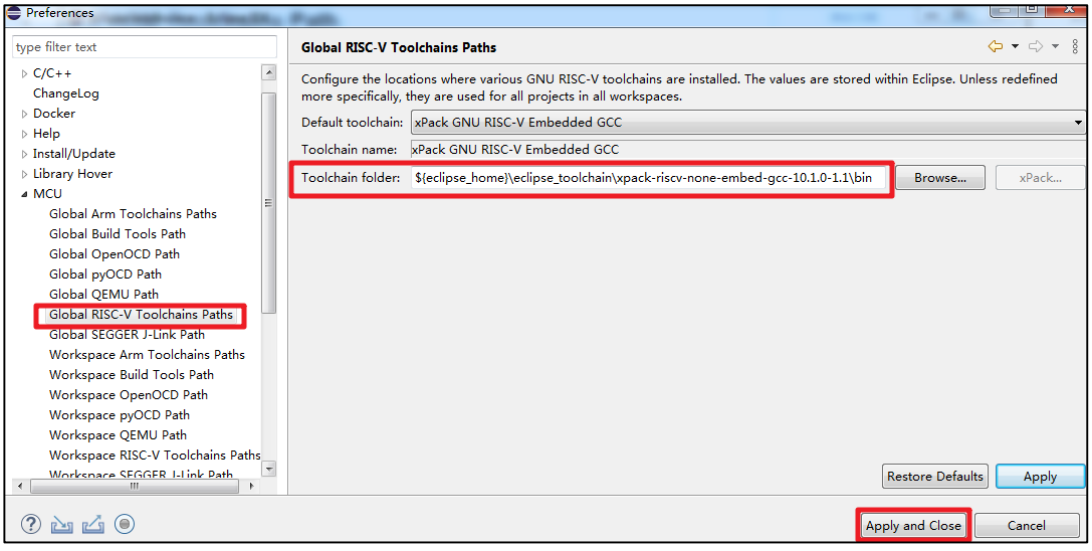


注意：这里配置的路径配置为相对路径。

4.4. 设置 RISC-V Toolchains Path

选择MCU->Global RISC-V Toolchains Path，设置全局RISC-V Toolchains工具路径。
${eclipse_home}\eclipse_toolchain\xpack-riscv-none-embed-gcc-10.1.0-1.1\bin

图 4-7. 设置 RISC-V Toolchains 路径

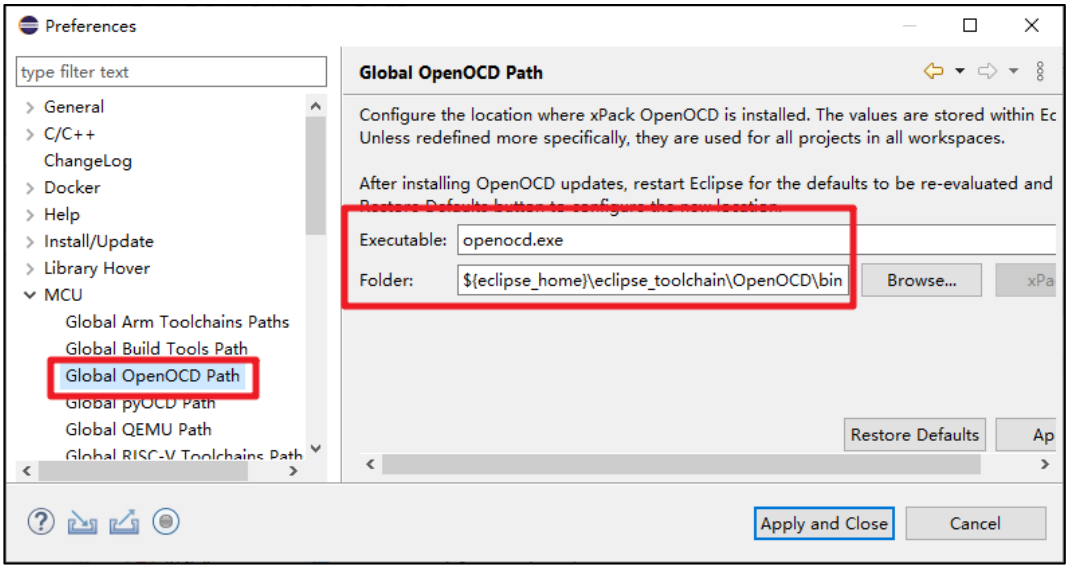


注意：这里配置的路径配置为相对路径。

4.5. 设置 OpenOCD Path

选择 MCU->Global OpenOCD Toolchains Path，设置全局 OpenOCD 工具路径。${eclipse_home}\eclipse_toolchain\OpenOCD\bin

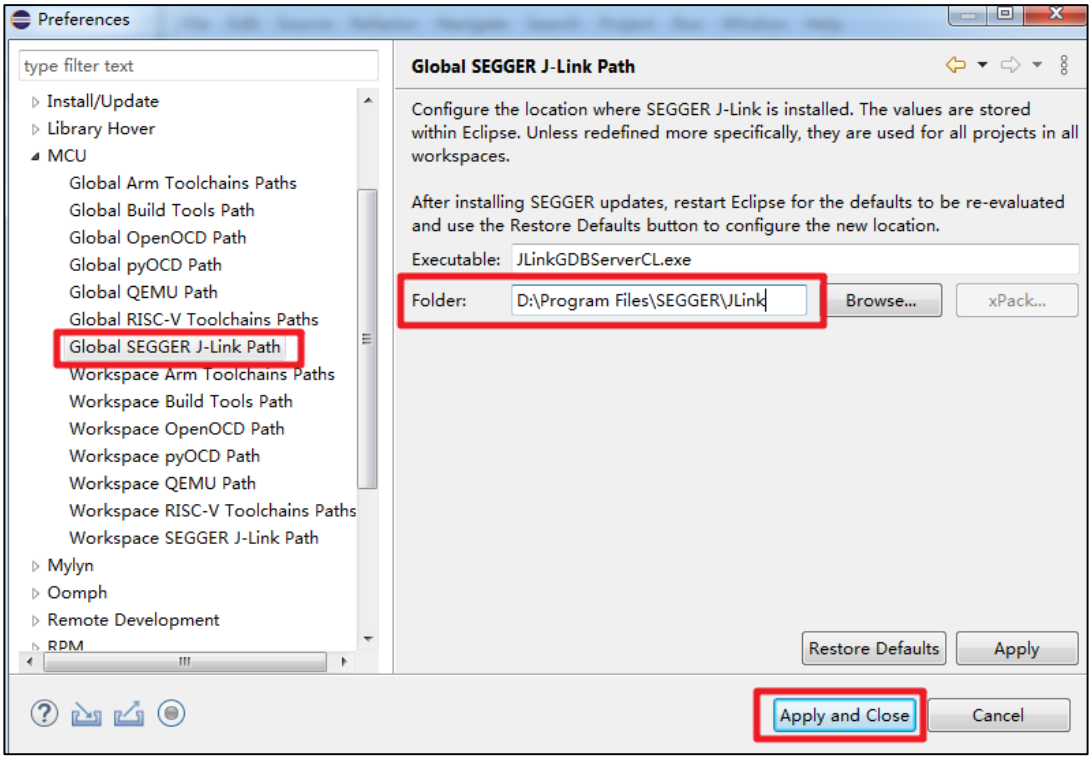
图 4-8. 设置 OpenOCD 路径



4.6. 设置 SEGGER J-Link Path

选择MCU->Global SEGGER J-Link Path，设置全局SEGGER J-Link工具路径，这里选择本地绝对路径，本例中路径为D:\Program Files\SEGGER\JLink

图 4-9. 设置 SEGGER J-Link 路径



至此，已经完成Eclipse IDE的全部配置，可以使用配置好的Eclipse开发GD32 ARM/RISC-V的项目。

5. 版本历史

表 5-1. 版本历史

版本号	描述	日期
1.0	首次发布	2022 年 5 月 30 日

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