# Debugging using GDB

This section describes the procedure for debugging the applications using GDB to work with OpenOCD.

# Prerequisites

## Install Talaria TWO SDK

1. Download Talaria TWO SDK from the InnoPhase portal: <https://innophaseiot.com/portal/portal-hub/>
2. Unzip the SDK in an appropriate location as per requirement.

## Required Software

1. PC with Ubuntu 20.04 (or higher).
2. GNU GDB v.10.1 (or higher).

For the above Linux set-up, refer the following user guide: UG\_Environment\_Setup\_for\_Linux.pdf.

Execute the following Linux command in any terminal window to determine the versions of Ubuntu and GNU GDB:

For Ubuntu version:

|  |
| --- |
| lsb\_release -a |

Console output:

A screenshot of a computer

Description automatically generated

Figure 1: Ubuntu version

For GNU GDB version:

|  |
| --- |
| gdb --version |

**Note:** In case of Ubuntu 20.04, default version of the GDB is 9.2. Hence, GDB needs to be updated

to version 10.2 by executing the following commands:

|  |
| --- |
| sudo add-apt-repository ppa:ubuntu-toolchain-r/test  sudo apt-get update  sudo apt-get -y --force-yes install gdb |

Console output:

A computer screen shot of a program

Description automatically generated

Figure 2: GNU GDB version

## Installing necessary packages

In any terminal window, execute the following commands:

|  |
| --- |
| sudo apt update  sudo apt install build-essential libc6-armel-cross libc6-dev-armel-cross binutils-arm-linux-gnueabi libncurses5-dev -y |

## Installing ARM toolchain

From within a directory of your choice, execute the following command in a terminal window to download the ARM toolchain:

|  |
| --- |
| sudo apt install gcc-arm-none-eabi |

## Installing Python3 and dependencies

In any terminal window, execute the following commands to install Python3 and other Python packages that will be needed. Enter the password as prompted.

|  |
| --- |
| sudo apt install python3 -y  sudo apt install python3-pip -y  pip3 install pyelftools pyserial pyusb pyftdi ecdsa pycryptodome |

## Installing OpenOCD

In any terminal window, execute the following command to install OpenOCD. Enter the password as prompted.

|  |
| --- |
| sudo apt install openocd -y |

Install gdb-multiarch in any terminal window. Execute the following command to install gdb-multiarch:

|  |
| --- |
| sudo apt-get install gdb-multiarch |