

MANUAL GUIDE

Firmware debugging with Eclipse

Version 1.0

Revision history

Version	Date	Note	Contributor(s)	Approver
1.0	12 May 2021	Initial version	Nguyen Hoang Hoan	Nguyen Hoang Hoan

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1. Introduction

This document shows step-by-step how to debug and flash firmware with Eclipse IDE and Iosonata which was installed in the Installation guide “Eclipse IDE in firmware development with IOsonata”.

2. Debugging and Flashing Firmware with Eclipse IDE

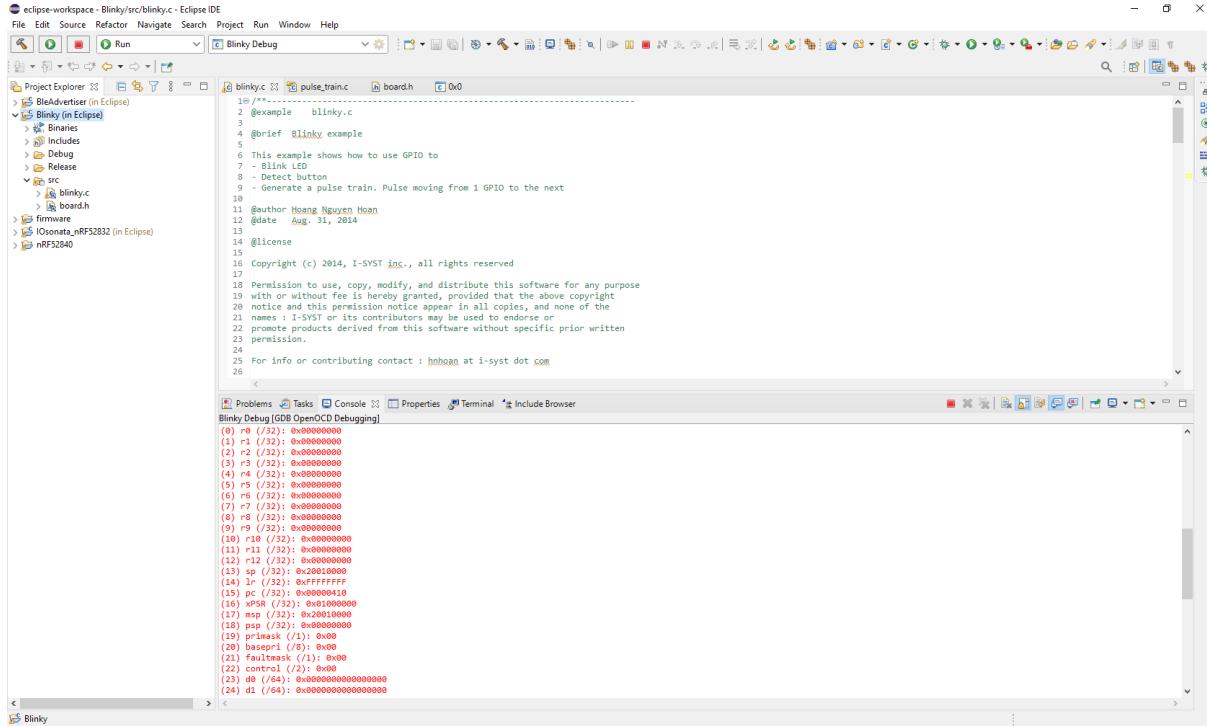


Connect IDK-BLYST-NANO to your computer.

2.1 Debugging Firmware with OpenODC

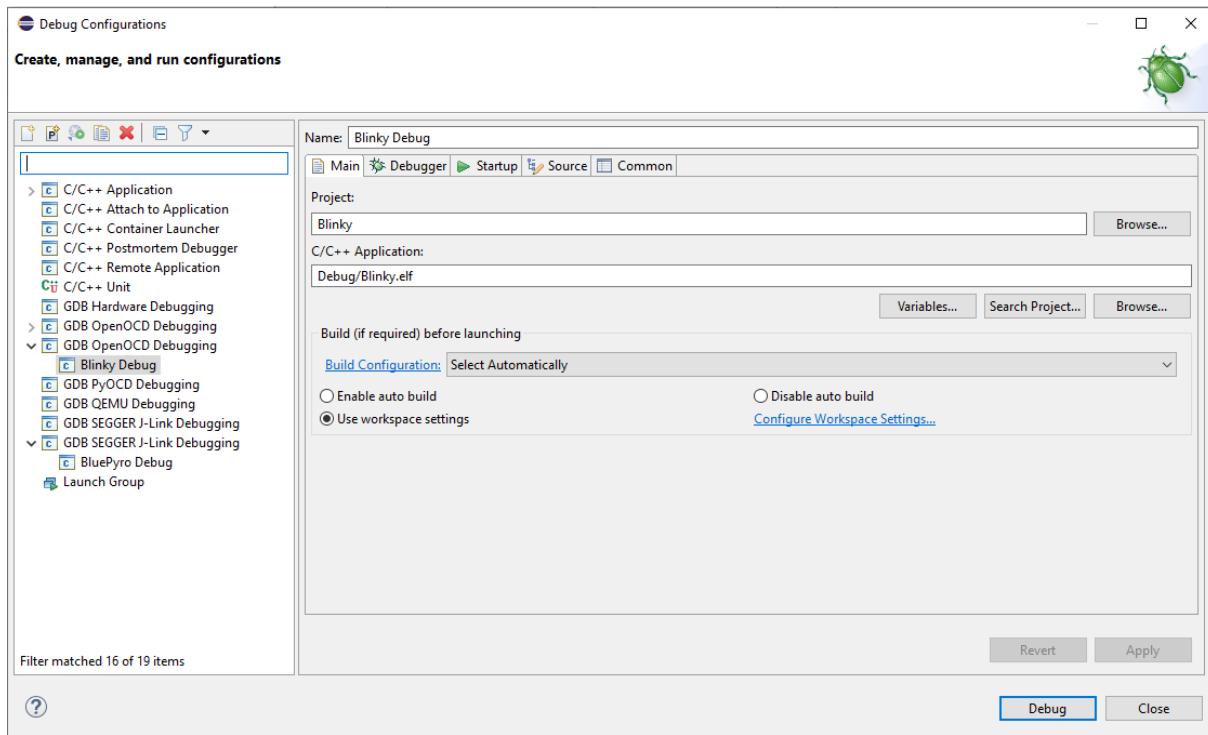
We will start with Blinky Project as an example.

Select Blinky Project, Right click select Debug Configuration



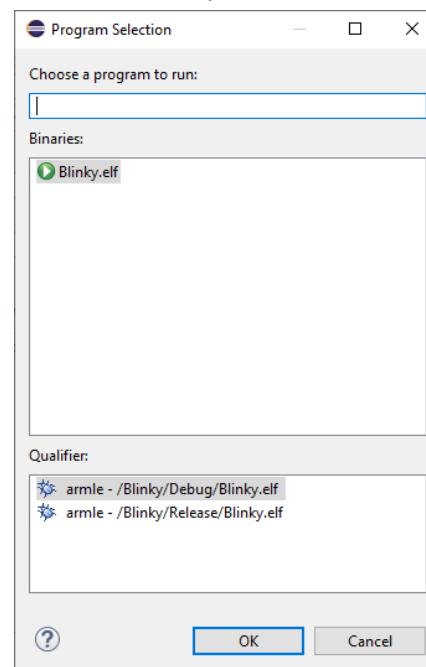
The screenshot shows the Eclipse IDE interface with the following details:

- Project Explorer:** Shows the Blinky project structure under the Blinky (in Eclipse) node.
- Registers View:** Displays memory locations from 0x00000000 to 0x0000000F. The values for each register are as follows:
 - r0 (/32): 0x00000000
 - r1 (/32): 0x00000000
 - r2 (/32): 0x00000000
 - r3 (/32): 0x00000000
 - r4 (/32): 0x00000000
 - r5 (/32): 0x00000000
 - r6 (/32): 0x00000000
 - r7 (/32): 0x00000000
 - r8 (/32): 0x00000000
 - r9 (/32): 0x00000000
 - r10 (/32): 0x00000000
 - r11 (/32): 0x00000000
 - r12 (/32): 0x00000000
 - r13 (/32): 0x00000000
 - lr (/32): 0xFFFFFFFF
 - pc (/32): 0x000000410
 - xpsr (/32): 0x01000000
 - sp (/32): 0x00000000
 - psr (/32): 0x00000000
 - primask (/1): 0x00
 - basepri (/8): 0x00
 - control (/1): 0x00
 - control (/8): 0x00
 - d0 (/64): 0x0000000000000000
 - d1 (/64): 0x0000000000000000
- Bottom Status Bar:** Shows the current configuration as "Blinky Debug (GDB OpenOCD Debugging)".

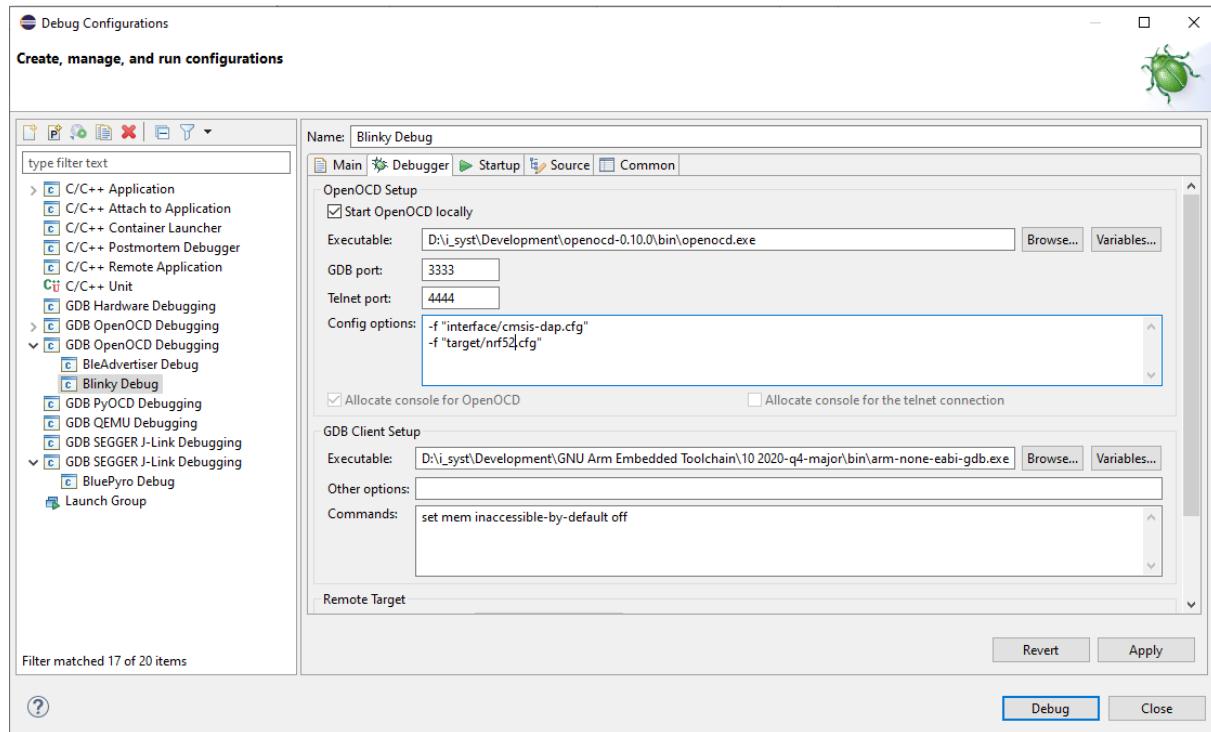


Double click on GDB OpenOCD Debugging

In Main tab, at C/C++ Application click Search Project



Select Blinky.elf

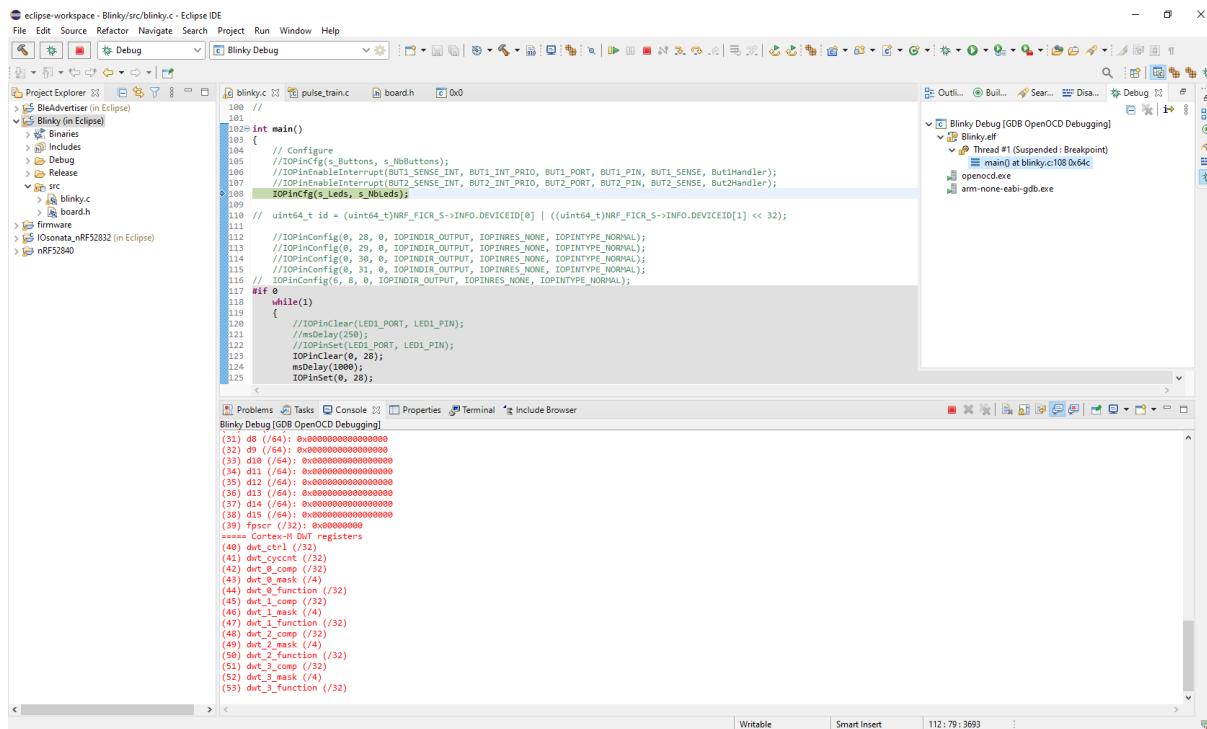


In Debugger tab, set Config options

- f "interface/cmsis-dap.cfg"
- f "target/nrf52.cfg"

Browse OpenOCD executable file and ARM GDB executable file.

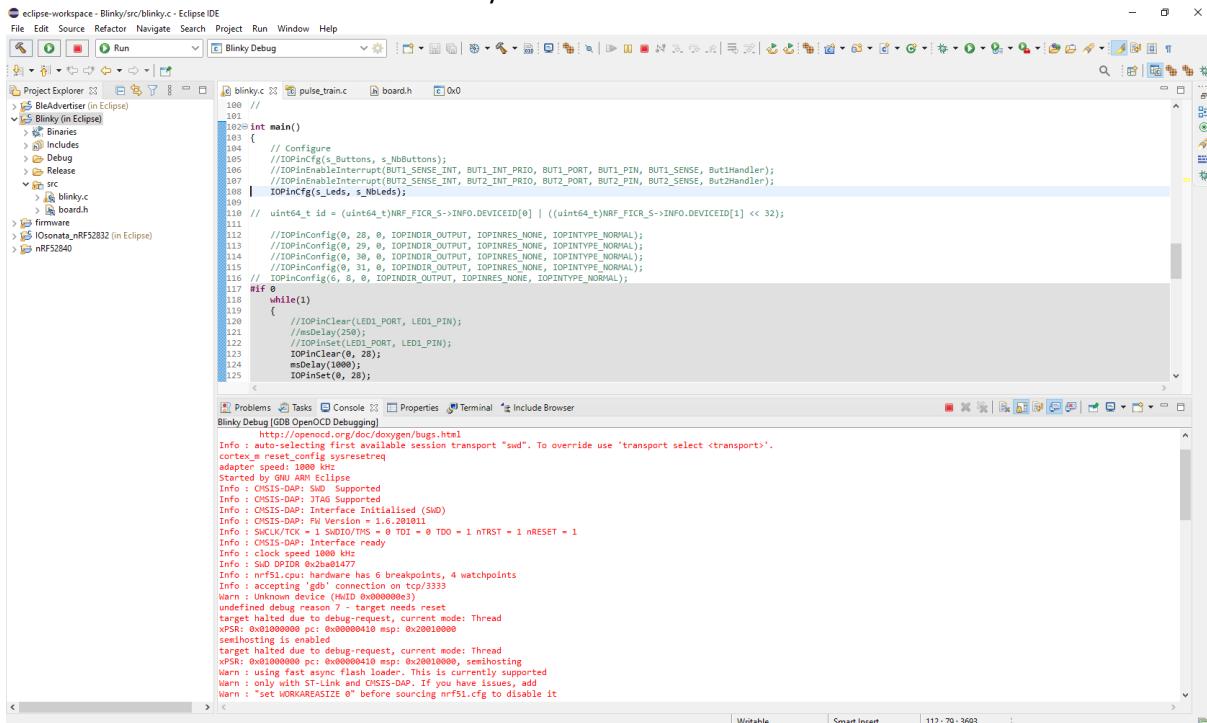
Click Debug



After you start the debugger, it will stop at main(). Now you can debug the firmware by clicking the step button (F5, F6) to trace your source code line by line.

2.2 Flashing Firmware

Click Run button to run the firmware on your device





2.3 Debugging and Flashing BleAdvertiser Firmware

BleAdvertiser requires NRF SDK softdevice components so we have to flash softdevice first. Use IDAPnRFProg to flash NRF softdevice using IDAP-Link. Download here: [IDAP-Link/M - Browse /Windows at SourceForge.net](#)

Run IDAPnRFProg by following command line:

```
$.\IDAPnRFProg.exe D:\i_syst\external\nRF5_SDK\components\softdevice\s132\hex\s132_nrf52_7.2.0_softdevice.hex
```

```
IDAPnRFProg Ver. 1.8.201221
Copyright 2014-2020, I-SYST inc. All rights reserved
Found IDAP-Link/M - S/N : 4030318000216, Firmware : 1.6.201011
Target device found : 1
IDAP-Link/M-4030318000216 : nRF52832-CIAAB0, Rev.-1, HWID = 0x52832, DEVID =
0x5A6E40192D427DB2
IDAP-Link/M-4030318000216 : Flash size = 524288, Ram size = 65536
IDAP-Link/M-4030318000216 : Device address = 0x237DE024308F
IDAP-Link/M-4030318000216 : Erase all
```

```
IDAP-Link/M-4030318000216 : Blank checking...
IDAP-Link/M-4030318000216 : Chip erased
IDAP-Link/M-4030318000216 : Programming 153964 bytes...
IDAP-Link/M-4030318000216 : Programmed 150 KB in 8.696 sec at rate 17.290 KB/s
IDAP-Link/M-4030318000216 : Verifying...
IDAP-Link/M-4030318000216 : Programming succeeded.

Total programmed 1 nRF5x devices in 11.177 sec, 300 KB R/W transferred, rate =
26.840 KB/s
```

After flashing Bluetooth Low Energy Module in IDK-BLYST-NANO with IDAPnRFProg, we can now debug and flash firmware BleAdvertiser on IDK-BLYST-NANO

