

Summary

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This document is intended to describe how to create and debug a new project within the Eclipse IDE using gnu-mcu-eclipse-arm-none-eabi-gcc toolchain.

Author	Date	Version	Description
g.reuillard	21/06/18	1.0	First attempt

Eclipse gnu arm toolchain – New project

1. Tools versions :

Windows 7 x64

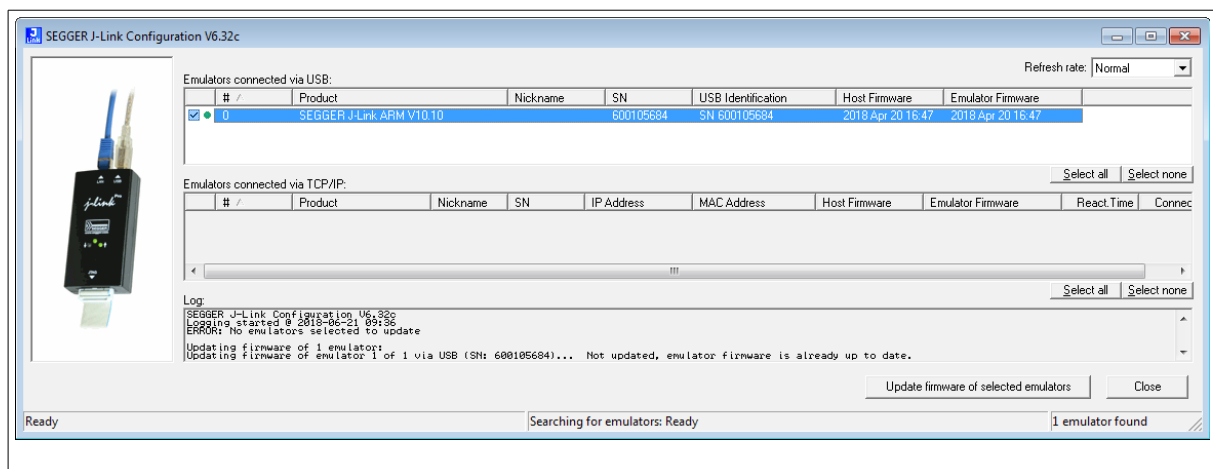
Eclipse: Oxygen.3a Release (4.7.3a), Build id: 20180405-1200

gnu-mcu-eclipse-arm-none-eabi-gcc-7.2.1-1.1-20180401-0515-win64

gnu-mcu-eclipse-build-tools-2.11-20180428-1604-win64

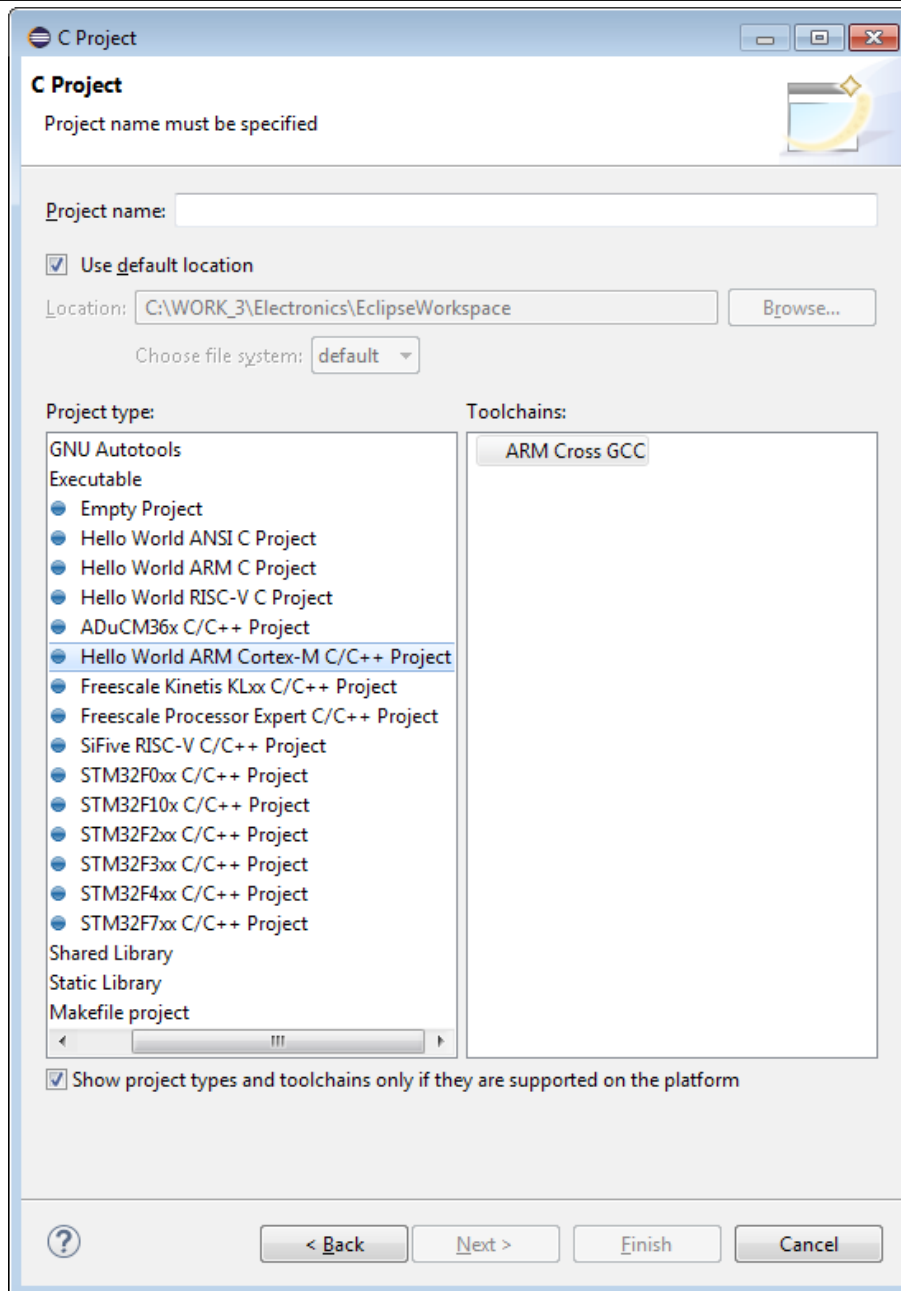
SEGGER J-Link ARM V10.10 host and emulator firmware updated (2018 april 20).

custom LPC1788 board with SWD/JTAG connections

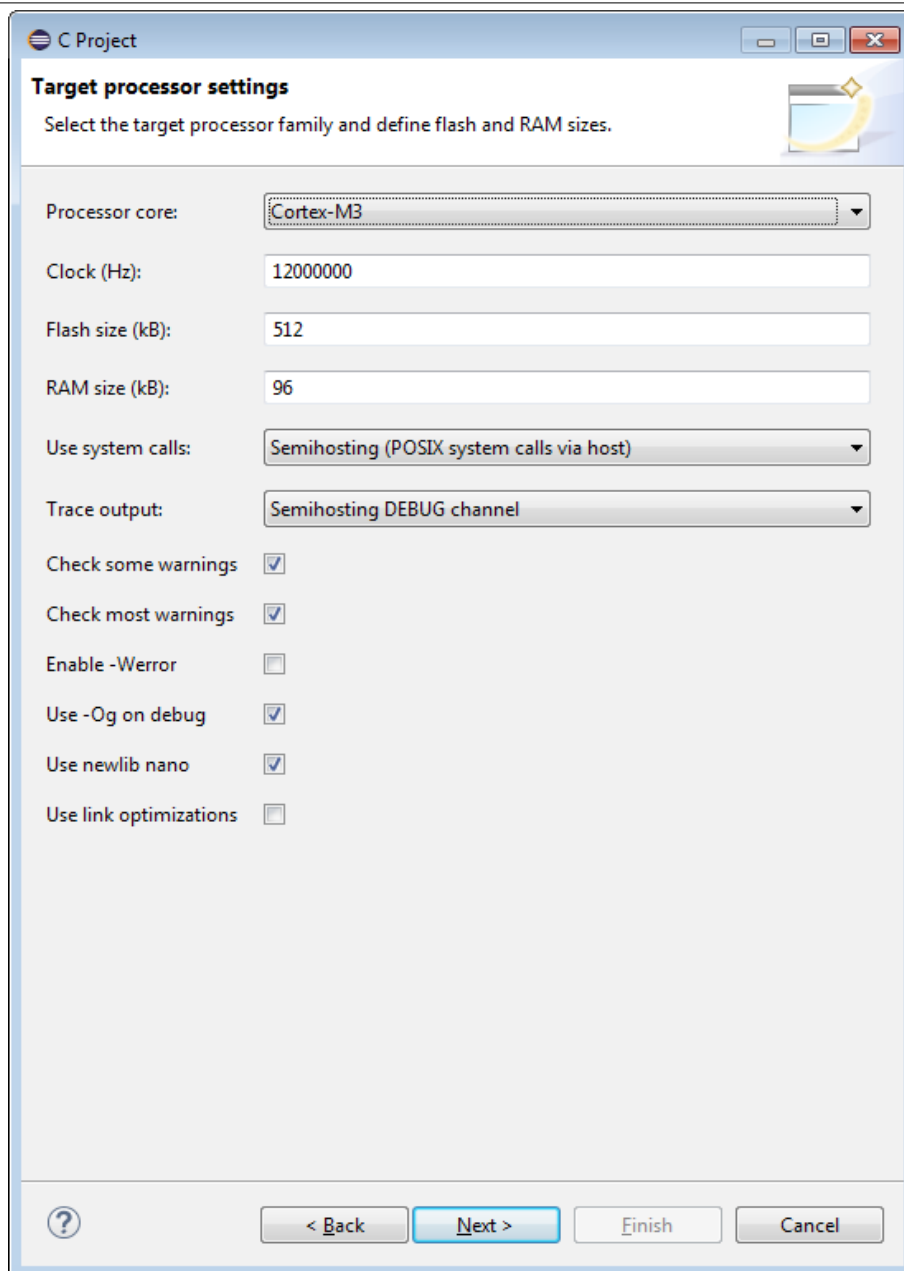


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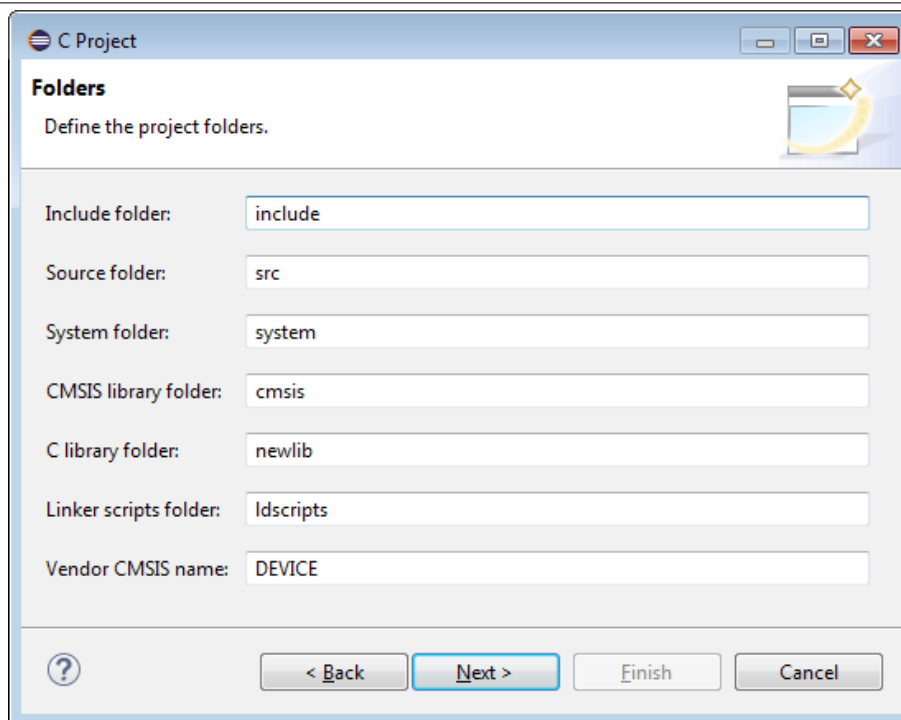
2. Project creation



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The screenshot shows the 'C Project' dialog box in Eclipse, specifically the 'Folders' tab. The dialog is titled 'C Project' and has a subtitle 'Define the project folders.' Below this, there are several input fields for defining project folders. The fields are: 'Include folder:' with the value 'include', 'Source folder:' with the value 'src', 'System folder:' with the value 'system', 'CMSIS library folder:' with the value 'cmsis', 'C library folder:' with the value 'newlib', 'Linker scripts folder:' with the value 'ldscripts', and 'Vendor CMSIS name:' with the value 'DEVICE'. At the bottom of the dialog, there are four buttons: a help button (question mark icon), '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

C Project

Define the project folders.

Include folder:

Source folder:

System folder:

CMSIS library folder:

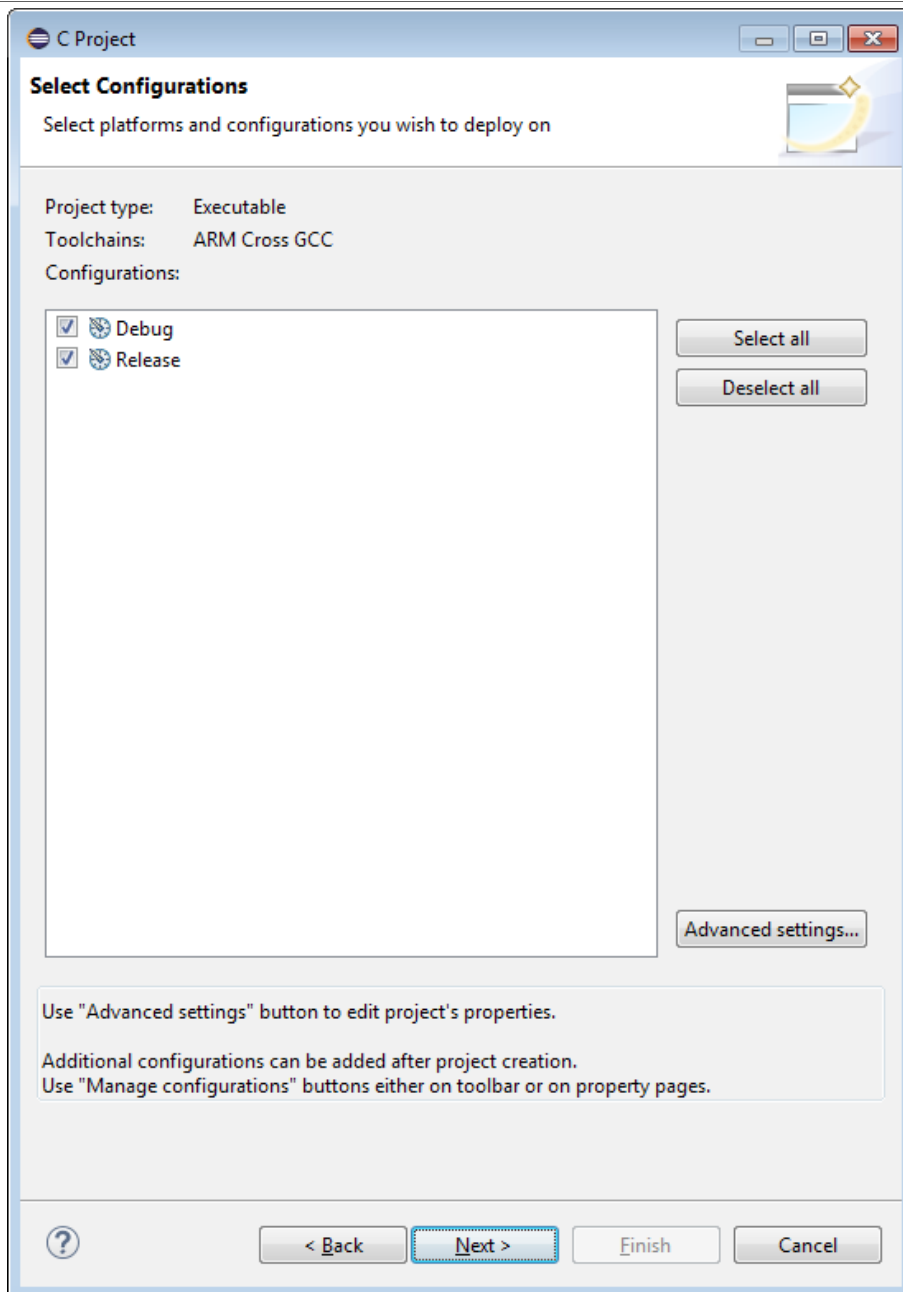
C library folder:

Linker scripts folder:

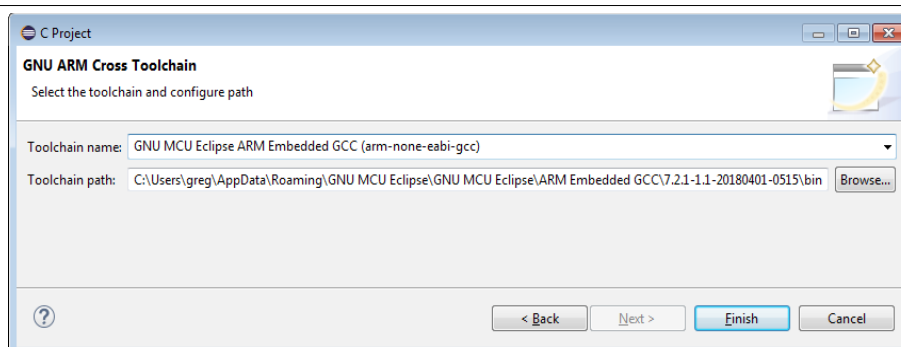
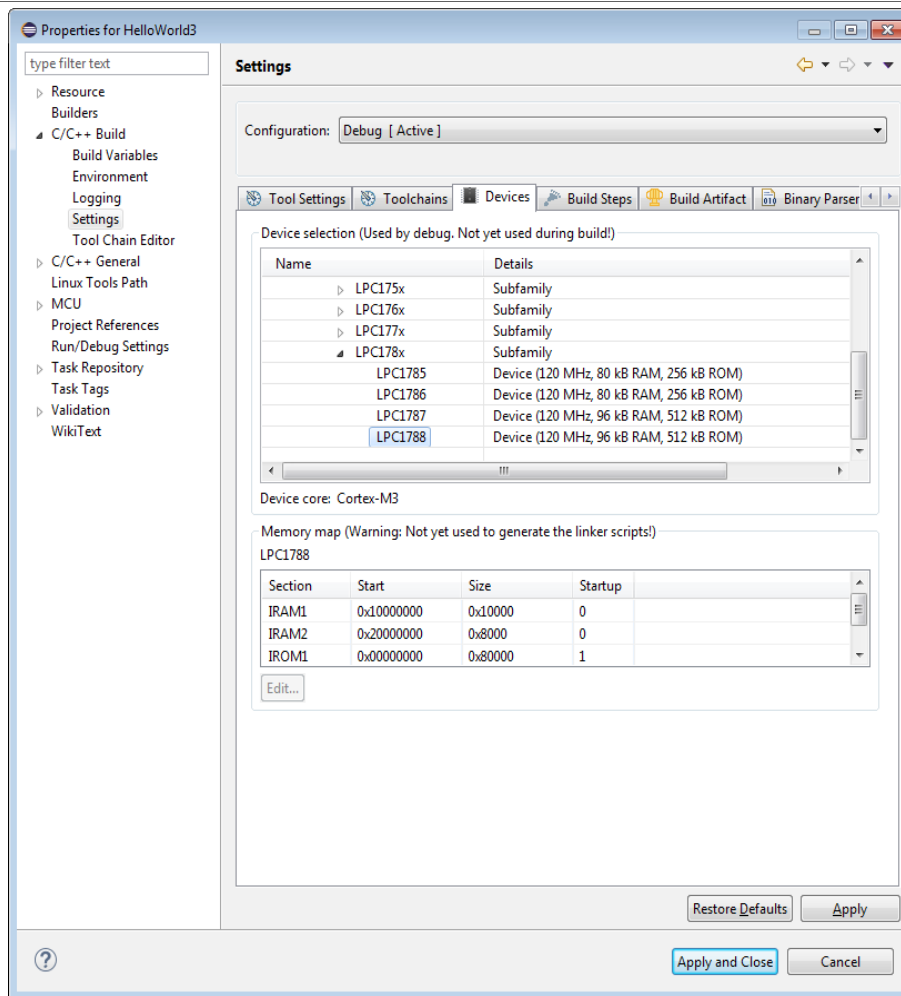
Vendor CMSIS name:

? < Back Next > Finish Cancel

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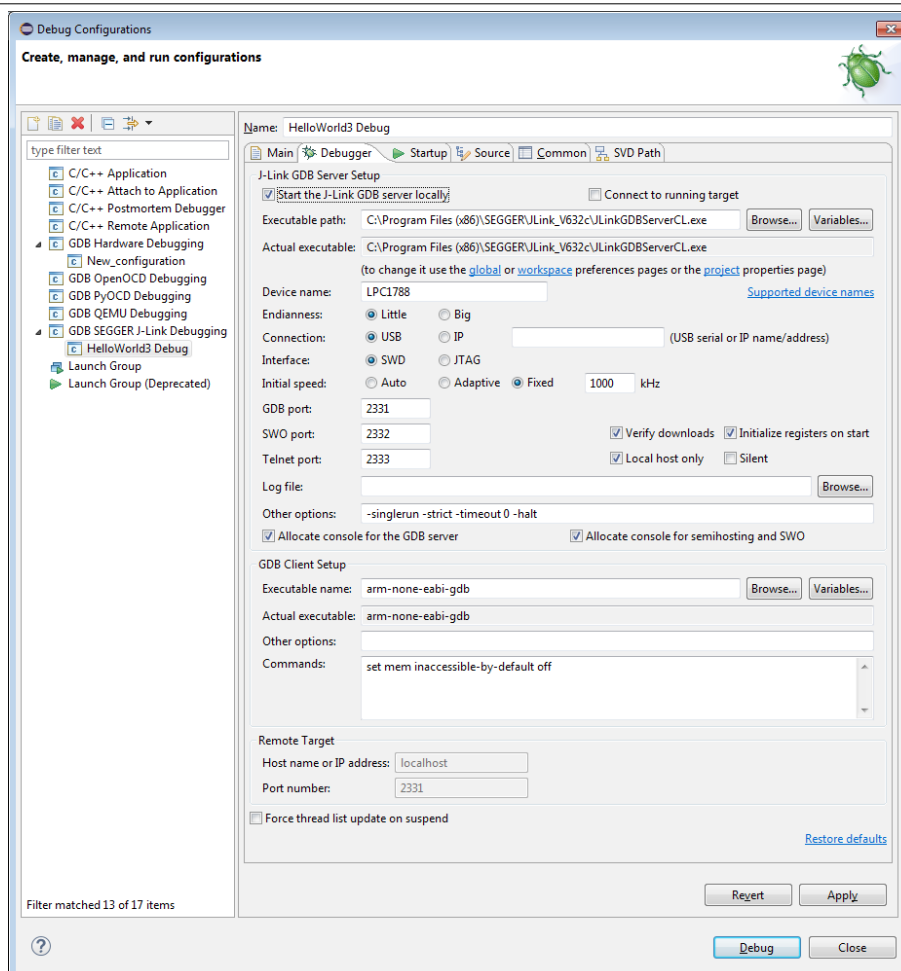
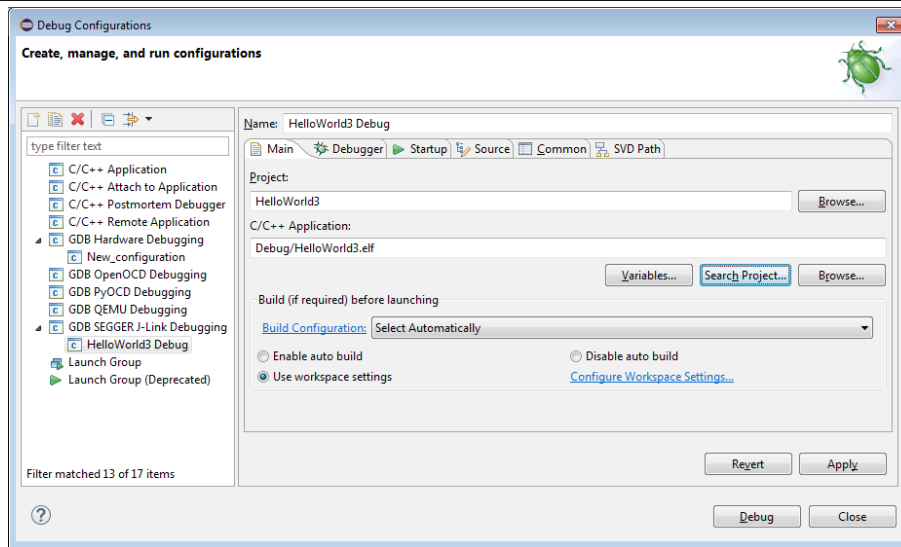


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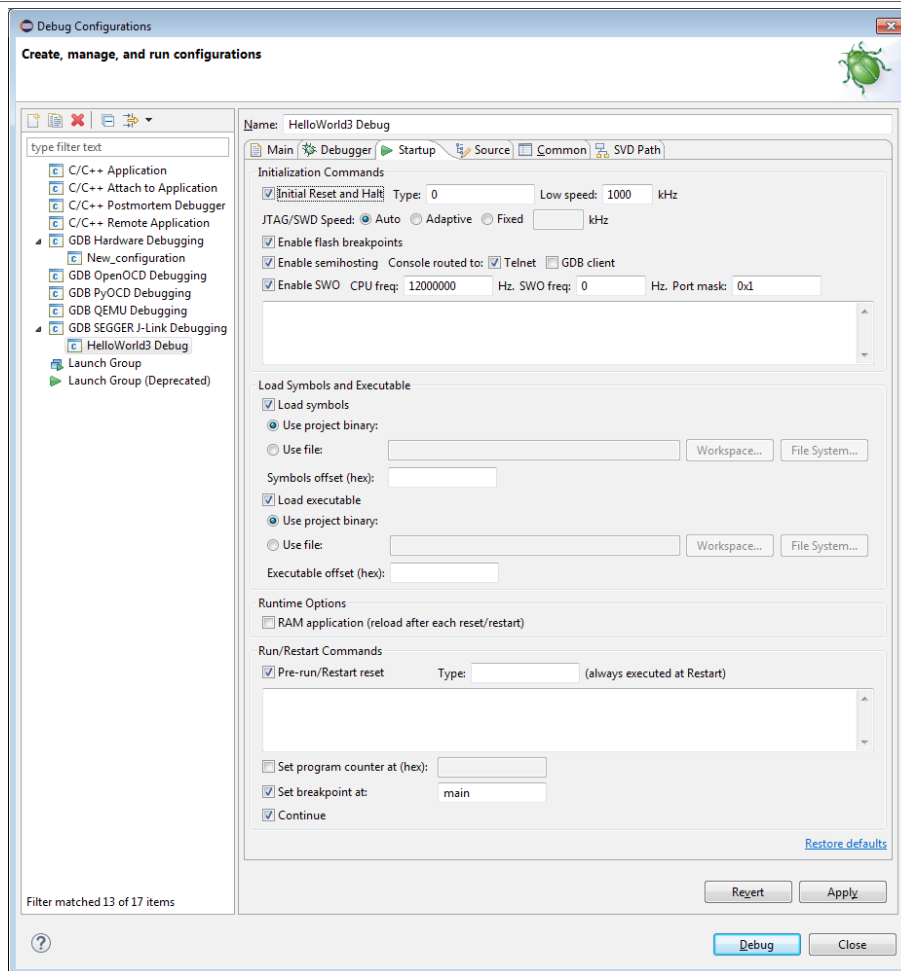


Eclipse gnu arm toolchain – New project

3. Debug configuration



Eclipse gnu arm toolchain – New project



4. Debug results

Console output when trying to debug :

```
SEGGER J-Link GDB Server V6.32c Command Line Version
JLinkARM.dll V6.32c (DLL compiled May 11 2018 16:30:26)

Command line: -if swd -device LPC1788 -endian little -speed 1000 -port 2331
-swoport 2332 -telnetport 2333 -vd -ir -localhostonly 1 -singlerun -strict
-timeout 0 -halt
-----GDB Server start settings-----
GDBInit file:                none
GDB Server Listening port:    2331
SWO raw output listening port: 2332
Terminal I/O port:          2333
Accept remote connection:    localhost only
Generate logfile:            off
Verify download:             on
Init regs on start:          on
```

Eclipse gnu arm toolchain – New project

```
Silent mode:                off
Single run mode:            on
Target connection timeout:  0 ms
-----J-Link related settings-----
J-Link Host interface:      USB
J-Link script:              none
J-Link settings file:       none
-----Target related settings-----
Target device:              LPC1788
Target interface:           SWD
Target interface speed:     1000kHz
Target endian:              little

Connecting to J-Link...
J-Link is connected.
Firmware: J-Link V10 compiled Apr 20 2018 16:47:09
Hardware: V10.10
S/N: 600105684
Feature(s): RDI, FlashBP, FlashDL, JFlash, GDB
Checking target voltage...
Target voltage: 3.32 V
Listening on TCP/IP port 2331
Connecting to target...Connected to target
Waiting for GDB connection...Connected to 127.0.0.1
Reading all registers
Read 4 bytes @ address 0x00000000 (Data = 0x10001FFC)
Read 2 bytes @ address 0x00000000 (Data = 0x1FFC)
Received monitor command: speed 1000
Target interface speed set to 1000 kHz
Received monitor command: clrbp
Received monitor command: reset 0
Resets core & peripherals via SYSRESETREQ & VECTRESET bit.
Received monitor command: halt
Halting target CPU...
...Target halted (PC = 0x1FFF0D92)
Received monitor command: regs
R0 = 00000000, R1 = 00000001, R2 = FFFFFFFF, R3 = 00000000
R4 = FFFFFFFF, R5 = 400FC000, R6 = 00010004, R7 = 20098000
R8 = 40008000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 00000490, R13= 1000FFC8, MSP= 1000FFC8, PSP= 3B59B578
R14(LR) = 1FFF0EA5, R15(PC) = 1FFF0D92
XPSR 81000000, APSR 80000000, EPSR 01000000, IPSR 00000000
CFBP 00000000, CONTROL 00, FAULTMASK 00, BASEPRI 00, PRIMASK 00
Reading all registers
Received monitor command: speed auto
Select auto target interface speed (2000 kHz)
Received monitor command: flash breakpoints 1
Flash breakpoints enabled
Received monitor command: semihosting enable
Semi-hosting enabled (Handle on BKPT)
Received monitor command: semihosting IOClient 1
Semihosting I/O set to TELNET Client
Received monitor command: SW0 DisableTarget 0xFFFFFFFF
SW0 disabled successfully.
Received monitor command: SW0 EnableTarget 12000000 0 0x1 0
SW0 enabled successfully.
Read 4 bytes @ address 0x1FFF0D92 (Data = 0x44221C49)
Read 2 bytes @ address 0x1FFF0D92 (Data = 0x1C49)
Downloading 646 bytes @ address 0x00000000 - Verified OK
```

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```
Downloading 40 bytes @ address 0x00000288 - Verified OK
Downloading 7846 bytes @ address 0x000002B0 - Verified OK
Downloading 476 bytes @ address 0x000002158 - Verified OK
Writing register (PC = 0x00000044)
Read 4 bytes @ address 0x00000044 (Data = 0xB083B500)
Read 2 bytes @ address 0x00000B18 (Data = 0xB538)
Received monitor command: clrbp
Received monitor command: reset
Resetting target
Received monitor command: halt
Halting target CPU...
...Target halted (PC = 0x00000158)
Read 2 bytes @ address 0x00000B18 (Data = 0xB538)
Received monitor command: regs
R0 = 00000000, R1 = 00000159, R2 = 00000000, R3 = 00000000
R4 = 3456ABCD, R5 = 3456ABCD, R6 = 12345678, R7 = 20098000
R8 = 40008000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 100005E0, R13= 20018000, MSP= 20018000, PSP= 3B59B578
R14(LR) = 1FFF0EA5, R15(PC) = 00000158
XPSR 61000000, APSR 60000000, EPSR 01000000, IPSR 00000000
CFBP 00000000, CONTROL 00, FAULTMASK 00, BASEPRI 00, PRIMASK 00
Reading all registers
Setting breakpoint @ address 0x00000B18, Size = 2, BPHandle = 0x0001
Starting target CPU...
ERROR: Can not read register 15 (R15) while CPU is running
Reading all registers
ERROR: Can not read register 0 (R0) while CPU is running
ERROR: Can not read register 1 (R1) while CPU is running
ERROR: Can not read register 2 (R2) while CPU is running
ERROR: Can not read register 3 (R3) while CPU is running
ERROR: Can not read register 4 (R4) while CPU is running
ERROR: Can not read register 5 (R5) while CPU is running
ERROR: Can not read register 6 (R6) while CPU is running
ERROR: Can not read register 7 (R7) while CPU is running
ERROR: Can not read register 8 (R8) while CPU is running
ERROR: Can not read register 9 (R9) while CPU is running
ERROR: Can not read register 10 (R10) while CPU is running
ERROR: Can not read register 11 (R11) while CPU is running
ERROR: Can not read register 12 (R12) while CPU is running
ERROR: Can not read register 13 (R13) while CPU is running
ERROR: Can not read register 14 (R14) while CPU is running
ERROR: Can not read register 15 (R15) while CPU is running
ERROR: Can not read register 16 (XPSR) while CPU is running
ERROR: Can not read register 17 (MSP) while CPU is running
ERROR: Can not read register 18 (PSP) while CPU is running
ERROR: Can not read register 24 (PRIMASK) while CPU is running
ERROR: Can not read register 25 (BASEPRI) while CPU is running
ERROR: Can not read register 26 (FAULTMASK) while CPU is running
ERROR: Can not read register 27 (CONTROL) while CPU is running
Removing breakpoint @ address 0x00000B18, Size = 2
WARNING: Failed to read memory @ address 0x00000000
WARNING: Failed to read memory @ address 0x00000000
```