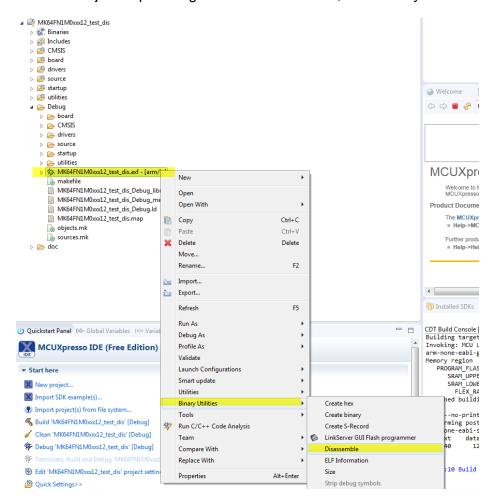
Generating Disassemble File under MCUXpresso IDE

By Jennie Zhang (TIC)

Checking disassemble code is often needed for programmers when developing a project. This article will introduce two methods of generating disassemble file under MCUXpresso IDE 10.1.0.

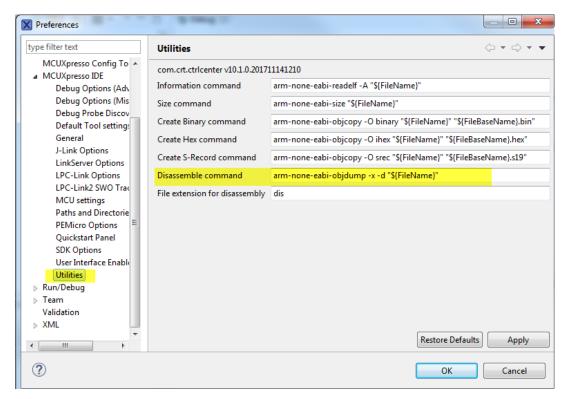
1. Method1: Generate disassemble code with Using Binary Utilities

The simplest way to create a disassemble file is to open up the Debug (or Release) folder in Project Explorer right click on the .axf file, and "Binary Utilities->disassemble



Then we can see disassemble file generated in MCUXpresso IDE.

User can also change the underlying commands and options that are called by these menu entries from the "Preferences->MCUXpresso IDE ->Utilites" preference page. This option invokes the GUN utilities disassemble command **arm-none-eabi-objdump.exe.**



The simple syntax of objdump is:

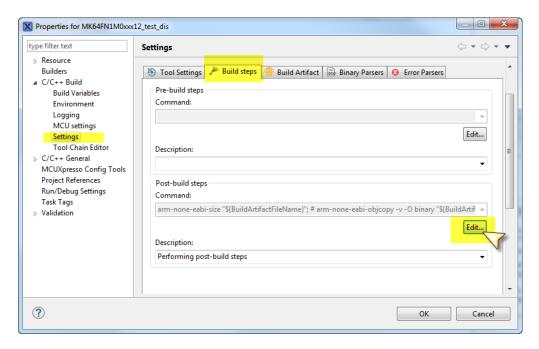
arm-none-eabi-objdump.exe <output options> <file name>

All the GUN utilities included in MCUXpresso IDE can be found in its install path:

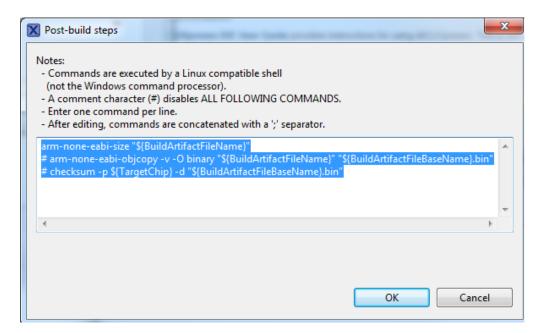
C:\nxp\MCUXpressoIDE_10.1.0_589\ide\tools\bin

2. Method 2: Generate disassemble code from Post-build Command Line

The Post-build Steps can be found under "Properties->C/C++ Build->Settings-> Build Steps"

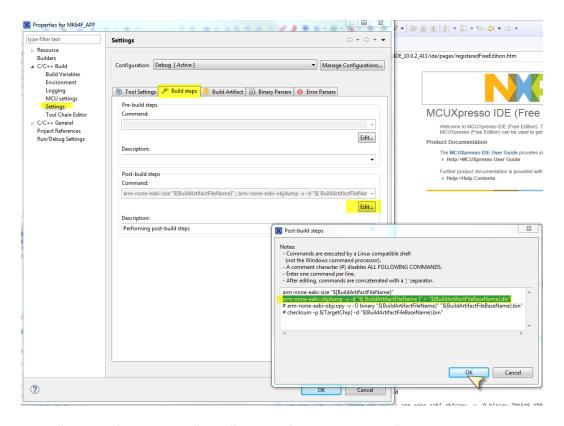


Click on "Edit" button to edit commands. The default command is like this:

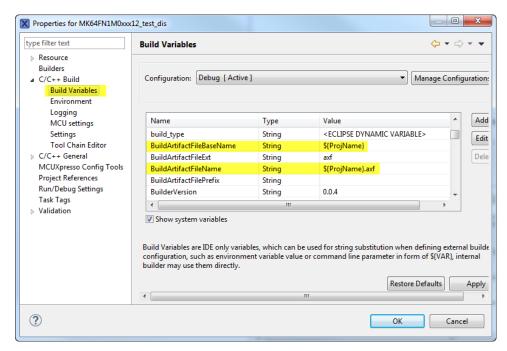


We add below command to to Post-build commandline

arm-none-eabi-objdump -x -d "\${ BuildArtifactFileName }" > "\${BuildArtifactFileBaseName}.dis"



Here, "BuildArtifactFileName" and "BuildArtifactFileBaseName" are system variables. We can find the definition in project properties



Description of argument "-x" and "-d"

-x, ---- Display the contents of all headers

-d, ---- Display assembler contents of executable sections

Direction operator ">", ---- Redirect the output content to a file.

The command line arguments to GNU objdump utility are described here:

https://sourceware.org/binutils/docs/binutils/objdump.html

or

check help with command prompt:

arm-none-eabi-objdump.exe -H

```
Administrator: Command Prompt
D:\nxp\MCUXpressoIDE_10.1.0_589\ide\tools\bin>arm-none-eabi-objdump.exe -H
Usage: arm-none-eabi-objdump.exe <option(s)> <file(s)>
 Display information from object <file(s)>.
 At least one of the following switches must be given:
 -a, --archive-headers
                          Display archive header information
 -f, --file-headers
                           Display the contents of the overall file header
  -p, --private-headers
                           Display object format specific file header contents
  -P, --private=OPT,OPT... Display object format specific contents
  -h, --[section-]headers
                          Display the contents of the section headers
                           Display the contents of all headers
  -x, --all-headers
                           Display assembler contents of executable sections
  -d, --disassemble
  -D, --disassemble-all
                           Display assembler contents of all sections
                           Ir armix se ye
                                            -de with disassembl
       -8011***
```

Build project, we will see disassemble file generated

```
💢 workspace - Develop - MK64F_APP/Debug/MK64F_APP.dis - MCUXpresso IDE
File Edit Navigate Search Project Run FreeRTOS Window Help
 Project Ex... 🔞 🚼 Peripheral... 🚻 Registers 🔠 Symbol Vi... 😕 🗖 💼 add.c 🚳 Welcome 📓 MK64F_APP.dis 😢
                                                                                                                                    □ ⑤ ▽
                                                                                                                                                                                 1
2MK64F_APP.axf: file format elf32-
3MK64F_APP.axf
4 architecture: arm, flags 0x00000112:
5EXEC_P, HAS_SYMS, D_PAGED
6 start address 0x00000205
                                                                                                                                                                                                                                   file format elf32-littlearm

    Binaries
    Binaries

           ▶ includes
▶ is source
              startup
                                                                                                                                                                                 8 Program Header:
           ▲ 🗁 Debua
                                                                                                                                                                             8 Program neader:
9 LOAD off 0x00010000 vaddr 0x00000000 paddr 0x00000000 align 2**16
10 filesz 0x0000007c memsz 0x0000007c flags r-x
11 LOAD off 0x000000000 vadde 0x200000000 align 2**16
12 filesz 0x000000000 memsz 0x0000020bc flags rw-
12 private flags = 5000400: [Version 5.861] [hard-float ABI]
                       MK64F APP.axf - [arm/le]
                       makefile

MK64F_APP_Debug_library.ld
                                                                                                                                                                                                                                  MK64F_APP_Debug_memory.ld
                       MK64F_APP_Debug.ld
MK64F_APP.dis
MK64F_APP.map
                                                                                                                                                                             18
19 1 .data
                        objects.mk
                                                                                                                                                                                     2 .data_RAM2
                                                                                                                                                                                                                                   CONTENTS
            23 3 .data_RAM3
                                                                                                                                                                                                                                   00000000 14000000 14000000 00010c7c 2**2
                  —
⊝⊸ lib
                                                                                                                                                                                                                                   CONTENTS
                 MK64F_APP PE Debug.launch
MK64F_APP PE Release.launch
                                                                                                                                                                             25 4 .bss
                                                                                                                                                                                                                                    000000bc 20000000 20000000 00020000 2**2
                                                                                                                                                                                                                                0000000 1fff0000 1fff0000 00010c7c 2**2
CONTENTS
         MK64F LIB
         MK64FN1M0xxx12_libr
                                                                                                                                                                                       6 .noinit_RAM2
                                                                                                                                                                                                                                  00000000 14000000 14000000 00010c7c 2**2
CONTENTS
                                                                                                                                                                                       7 .noinit_RAM3
                                                                                                                                                                      👣 Installed SDKs 🔲 Properties 📮 Console 🛭 🦹 Problems 🔫 Progress 🚦 Memory 🗞 Instruction Trace 🌉
                                                                                                                                                                    CDT Build Console [MK84F,APP]
Invoking: MCU Compiler
arm-none-eabi-gcc -DCR_INTEGER_PRINTF -DSDK_DEBUGCONSOLE=0 -D_MCUXPRESSO -DDEBUG -DFSL_RTOS_
() Quicks... (4) Global ... (4) Variabl... O Break... O Outline Finished building: ../source/pin mux.c
```

Reference:

https://mcuoneclipse.com/2017/03/29/mcuxpresso-ide-s-record-intel-hex-and-binary-files/

https://sourceware.org/binutils/docs/binutils/objdump.html