Lab 3: "Generate makefiles and run from command line"

Goals:

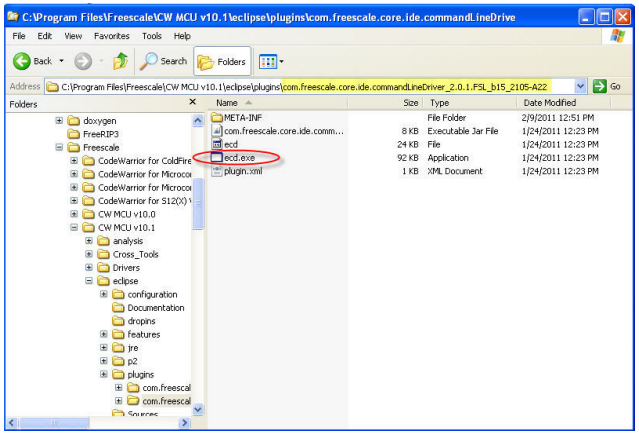
- Be able to generate makefiles
- Using make files in and outside of Eclipse

Generate Makefiles

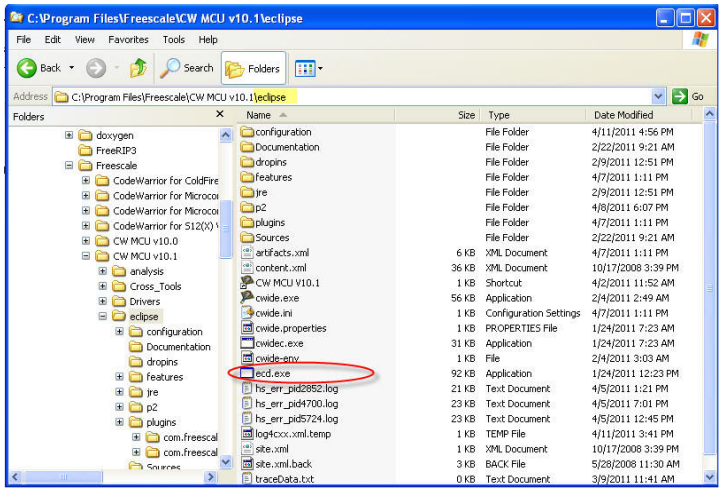
1) Go to the CodeWarrior installation folder `eclipse/plugins`

Search and open:
`com.freescale.core.ide.commandLineDriver_2.0.1.FSL_{build_number}`

***Note:** This tool is available with the CodeWarrior IDE version 10.1.1 or higher.



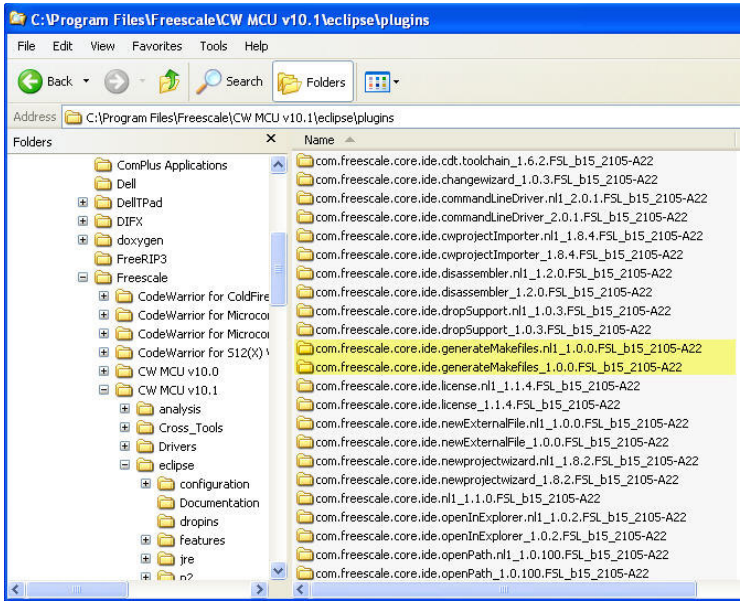
2) Copy `ecd.exe` to eclipse folder



3) For the tool to work properly, ensure that the following two plugins are present in the `eclipse/plugins` directory

`com.freescale.core.ide.generateMakefiles_1.0.0.FSL_{build_number}`

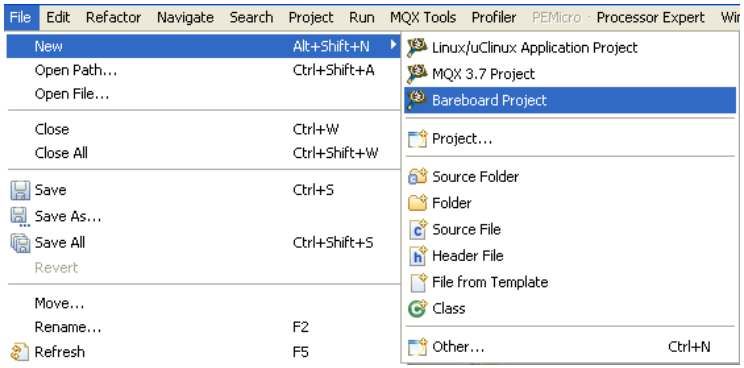
`com.freescale.core.ide.generateMakefiles.nl1_1.0.0.FSL_{build_number}`



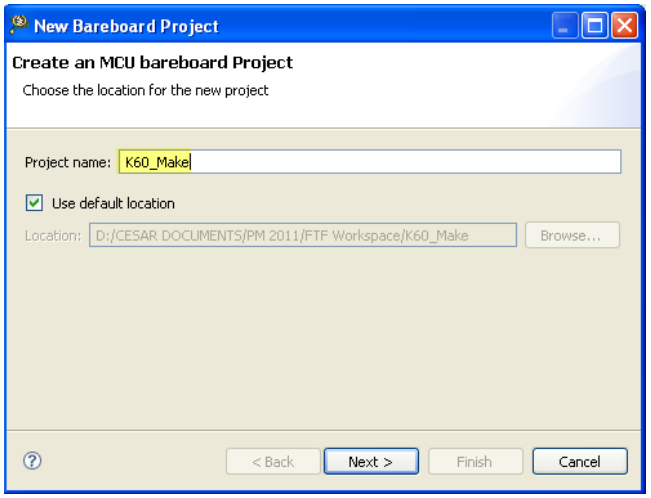
***Note:** These two plugins are available in CodeWarrior IDE 10.1.8 and newer versions, but can also be used in old CodeWarrior IDE versions like 10.1.5.

For earlier CodeWarrior IDE versions, the user should copy the plugins to the correct locations as described above.

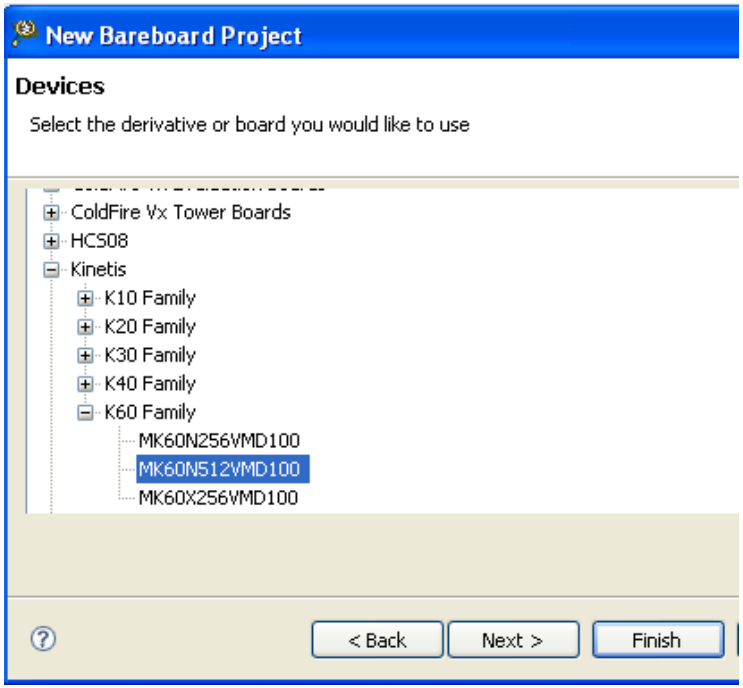
4) Create a New Project "K60_Make"
Go to `File->New Bareboard Project`



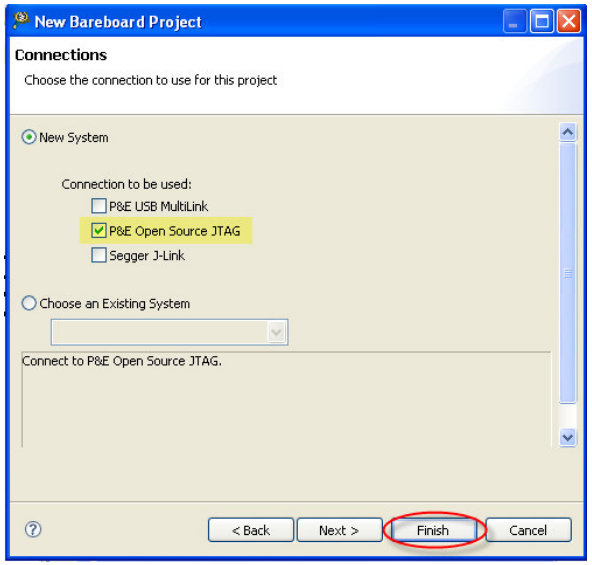
5) Select name and location



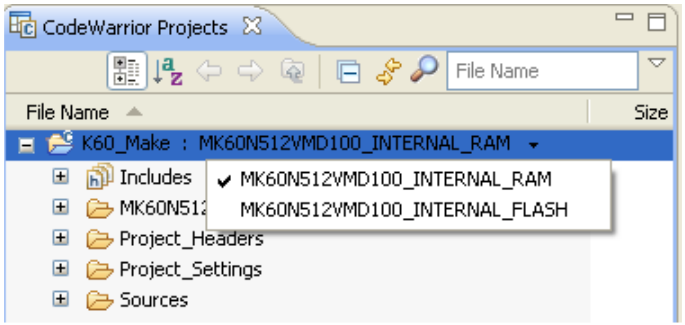
6) Select device



7) Select connection and click Finish



***Note:** Notice that for this project we have two configurations
The one selected by default is
`MK60N512VMD100_INTERNAL_RAM`



8) Generate makefiles for the launch configuration `MK60N512VMD100_INTERNAL_FLASH`

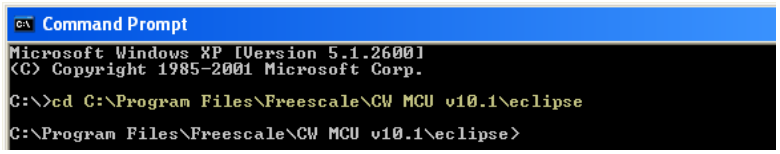
***Note:**

- The workspace is `C:\TEMP\FTF Workspace`
- The project is at `C:\TEMP\FTF Workspace\K60_Make`, where `.project` and `.cproject` are located
- The project has two launch configurations: `MK60N512VMD100_INTERNAL_FLASH` and `MK60N512VMD100_INTERNAL_RAM`
- The tool ecd.exe is located in `C:\Program Files\Freescale\CW MCU v10.1\eclipse`

9) Open **Command prompt** and enter the directory where ecd.exe file is located

Type the following:

```
Cd C:\Program Files\Freescale\CW MCU v10.1\eclipse
```



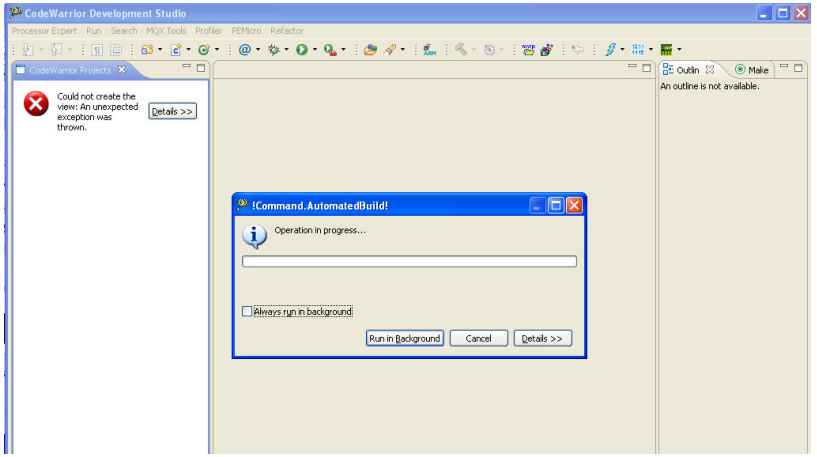
10) Invoke the following commands

```
ecd.exe -generateMakefiles -project
"C:\TEMP\FTF Workspace\K60_Make" -config
MK60N512VMD100_INTERNAL_FLASH
```

***Note:**
If you get the following error:

You probably copied and pasted the line above.
To fix it you need to delete and retype the quotation marks in the path, they are not recognized correctly when copied and pasted.

It takes some seconds for the IDE to launch:



Command prompt message:

"Makefiles generated successfully for build configuration `MK60N512VMD100_INTERNAL_FLASH`"

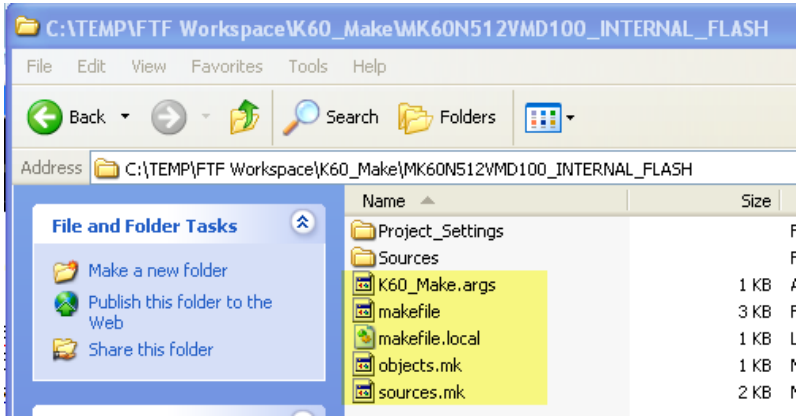
```
Managed Build system manifest file error: Unable to resolve the category identif
ier hc08.compiler.optionCategory.optimization in the option hc08.toolchain.compi
ler.base.opt.o0.

Generating Makefiles for build configuration MK60N512VMD100_INTERNAL_FLASH in pr
oject K60_Make...
Makefiles generated successfully for build configuration MK60N512VMD100_INTERNAL
_FLASH in project K60_Make

C:\Program Files\Freescale\CW MCU v10.1\eclipse>
```

11) After the command is finished, the makefiles (makefile, *.mk) are located in

`C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH`



12) Generate makefiles for all of the project launch configurations (use –allConfigs)

***Note:** This example assumes the same workspace and project location as in the previous example

13) Invoke the following command in a Command Prompt window:

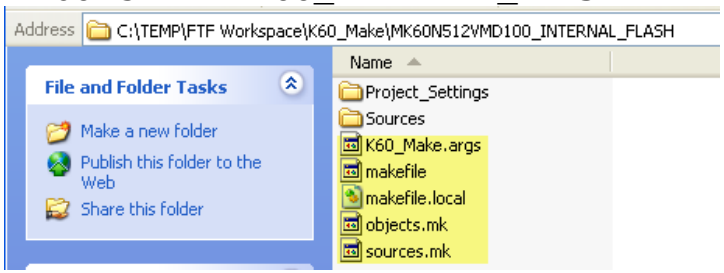
```
ecd.exe –generateMakefiles –project
"C:\TEMP\FTF Workspace\K60_Make" –allConfigs
```

***Note**: to avoid any copy and paste errors it is recommended to retype the line above

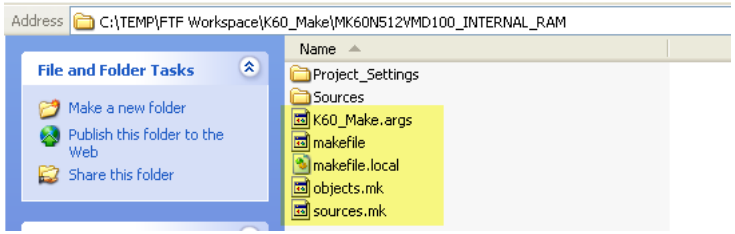
```
Generating Makefiles for build configuration MK60N512VMD100_INTERNAL_RAM in proj
ect K60_Make...
Makefiles generated successfully for build configuration MK60N512VMD100_INTERNAL
_RAM in project K60_Make
Generating Makefiles for build configuration MK60N512VMD100_INTERNAL_FLASH in pr
oject K60_Make...
Makefiles generated successfully for build configuration MK60N512VMD100_INTERNAL
_FLASH in project K60_Make
```

14) After the command is finished, the makefiles for the two configurations are located in the respective subfolders

MK60N512VMD100_INTERNAL_FLASH



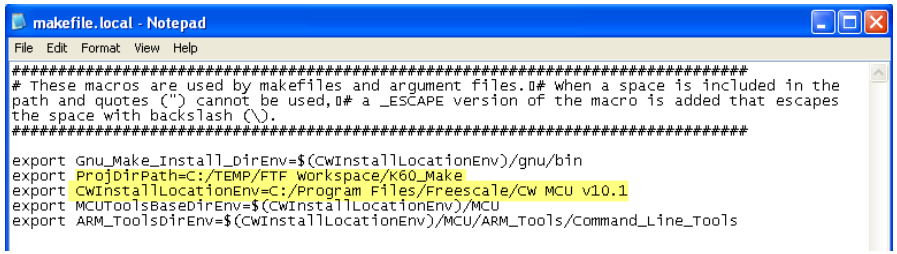
MK60N512VMD100_INTERNAL_RAM



15) Makefile.local

In CW MCU v10.1 this file was introduced so that we can have portable make files.

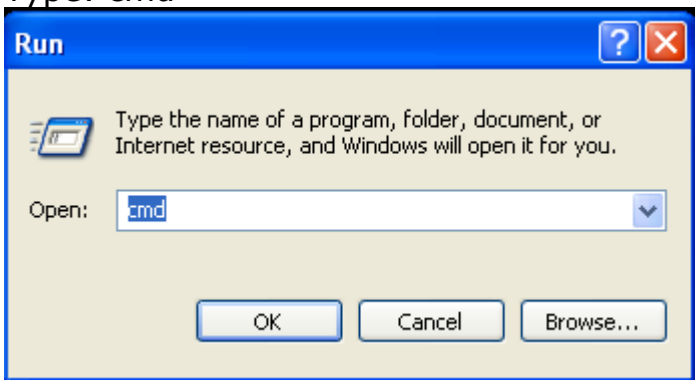
If you need to move the project folder/path or if you want to use another CodeWarrior installation folder you can edit this file by opening it in Notepad.



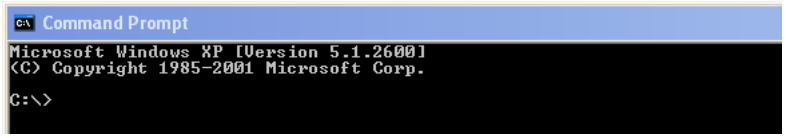
Run Makefiles from command line

1) Open a Command Prompt

You can go to Start->Run
Type: cmd



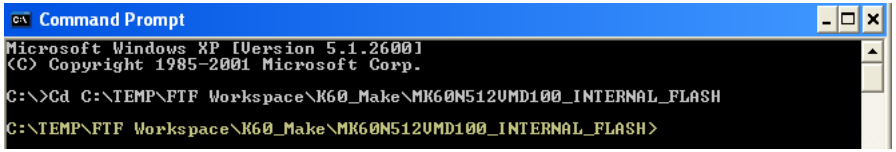
Command prompt should open



2) Go to the workspace folder where the project's makefiles are located

Type:

```
Cd C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH
```



Export an environment variable for "`{CW INSTALL PATH}\gnu\bin`" path

Example:
MCU_BIN= C:\Program Files\Freescale\CW MCU v10.1\gnu\bin

3) On the command prompt type:

```
Set MCU_BIN= "C:\Program Files\Freescale\CW MCU v10.1\gnu\bin"
```

4) Go to the workspace folder where the project's makefiles are located and run the following commands:

`%MCU_BIN%\make.exe clean` → *to clean the project*

```
C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH>Set MCU_BIN= "C:\Pr
ogram Files\Freescale\CW MCU v10.1\gnu\bin"

C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH>%MCU_BIN%\make.exe
clean
"C:/Program Files/Freescale/CW MCU v10.1/gnu/bin/rm" -f  ./Sources/main.obj  ./P
roject_Settings/Startup_Code/kinetis_sysinit.obj  ./Sources/main.d  ./Project_Se
ttings/Startup_Code/kinetis_sysinit.d  K60_Make.afx  "./Sources/main.obj"  "./Pr
oject_Settings/Startup_Code/kinetis_sysinit.obj"  "K60_Make.afx"  K60_Make.afx
./Sources/main.obj  ./Project_Settings/Startup_Code/kinetis_sysinit.obj  K60_Mak
e.afx
' '
```

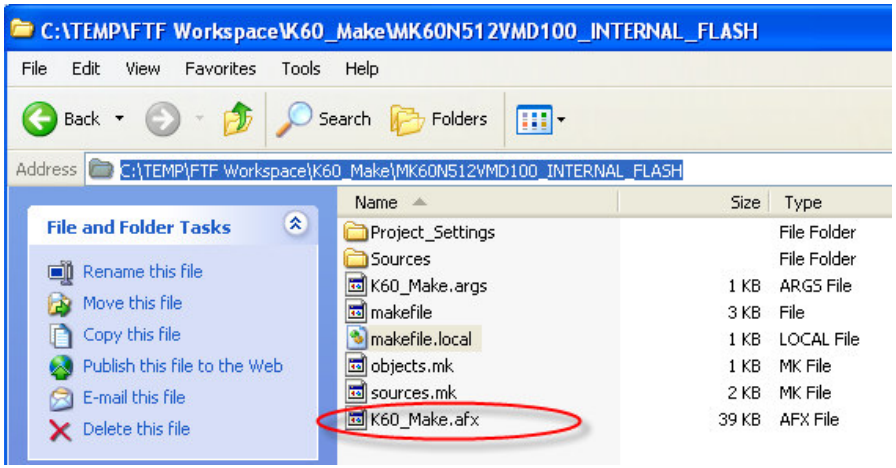
`%MCU_BIN%\make.exe` → *to build the project*

```
C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH>%MCU_BIN%\make.exe

'Regenerating dependency file: Project_Settings/Startup_Code/kinetis_sysinit.d'
' '
'Regenerating dependency file: Sources/main.d'
' '
'Building file: ../Sources/main.c'
'Invoking: ARM Compiler'
"C:/Program Files/Freescale/CW MCU v10.1/MCU/ARM_Tools/Command_Line_Tools/mwccar
m" -gccinc @@"Sources/main.args" -o "Sources/main.obj" -c "../Sources/main.c" -M
D -gccdep
'Finished building: ../Sources/main.c'
' '
'Building file: ../Project_Settings/Startup_Code/kinetis_sysinit.c'
'Invoking: ARM Compiler'
"C:/Program Files/Freescale/CW MCU v10.1/MCU/ARM_Tools/Command_Line_Tools/mwccar
m" -gccinc @@"Project_Settings/Startup_Code/kinetis_sysinit.args" -o "Project_Se
ttings/Startup_Code/kinetis_sysinit.obj" -c "../Project_Settings/Startup_Code/ki
netis_sysinit.c" -MD -gccdep
'Finished building: ../Project_Settings/Startup_Code/kinetis_sysinit.c'
' '
'Building target: K60_Make.afx'
'Invoking: ARM Linker'
"C:/Program Files/Freescale/CW MCU v10.1/MCU/ARM_Tools/Command_Line_Tools/mwldar
m" @@"K60_Make.args" -o "K60_Make.afx"
'Finished building target: K60_Make.afx'
' '

C:\TEMP\FTF Workspace\K60_Make\MK60N512VMD100_INTERNAL_FLASH>
```

5) Go to the project path and confirm that the binary file was created



We have finished this lab.