

Starting laboratory session

Methods and tools for software quality

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Goals



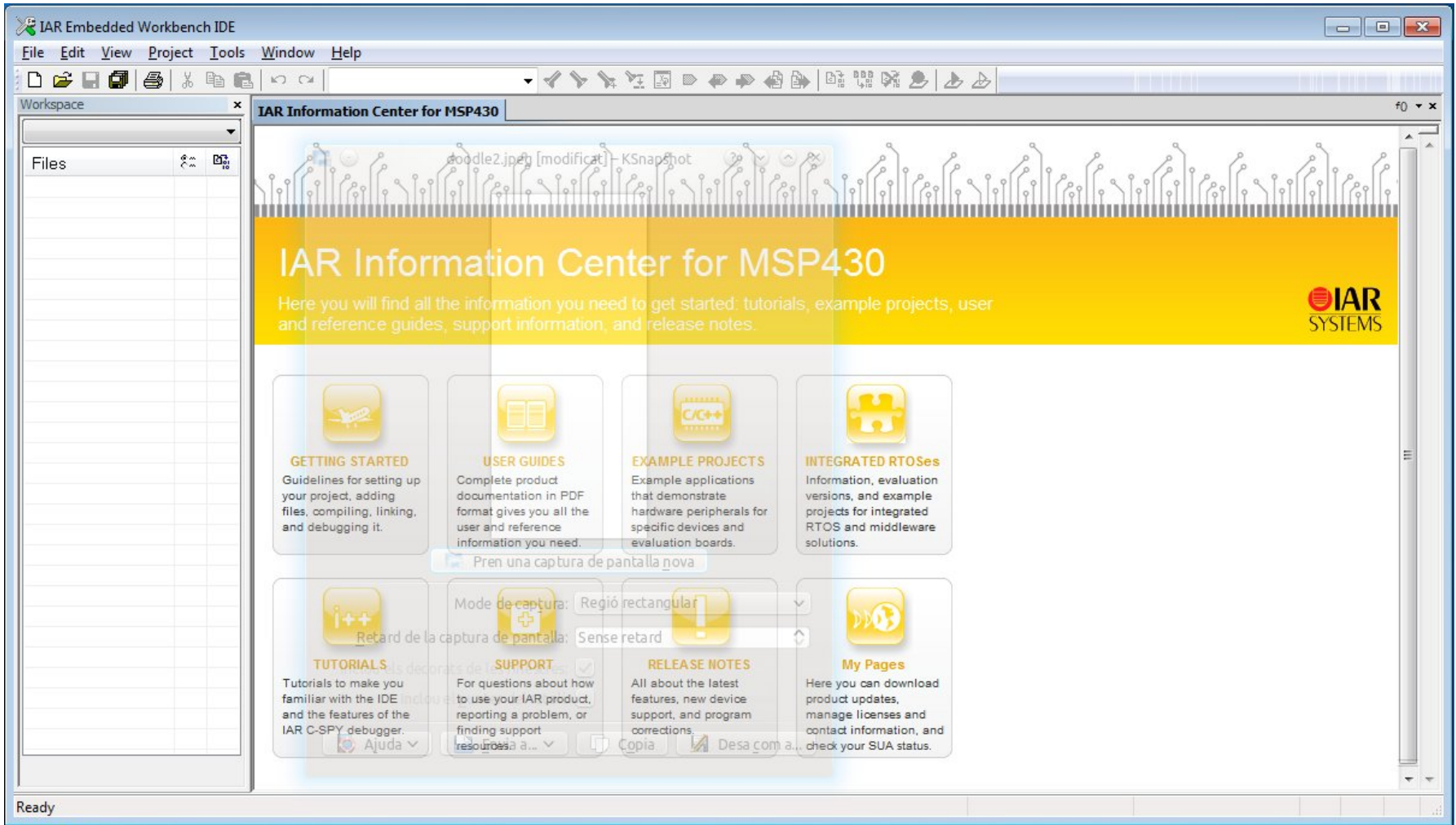
- Getting basic knowledge about the Integrated Development Environment (IDE) of IAR
 - IAR Embedded Workbench

Plan

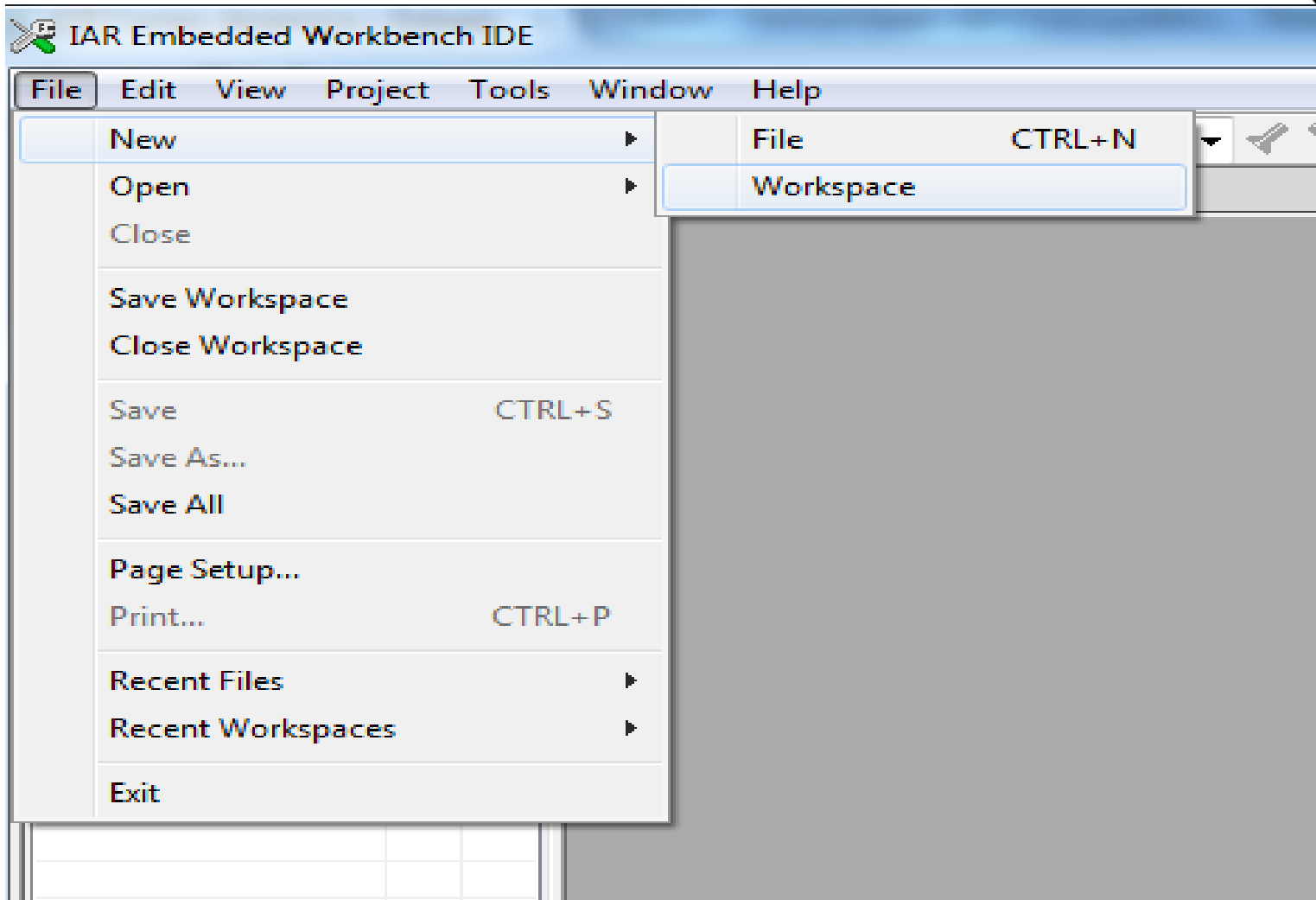


- Creating a new project.
- Setting options for the project.
- Adding robot_library.
- Testing the project.
- Testing the hardware.

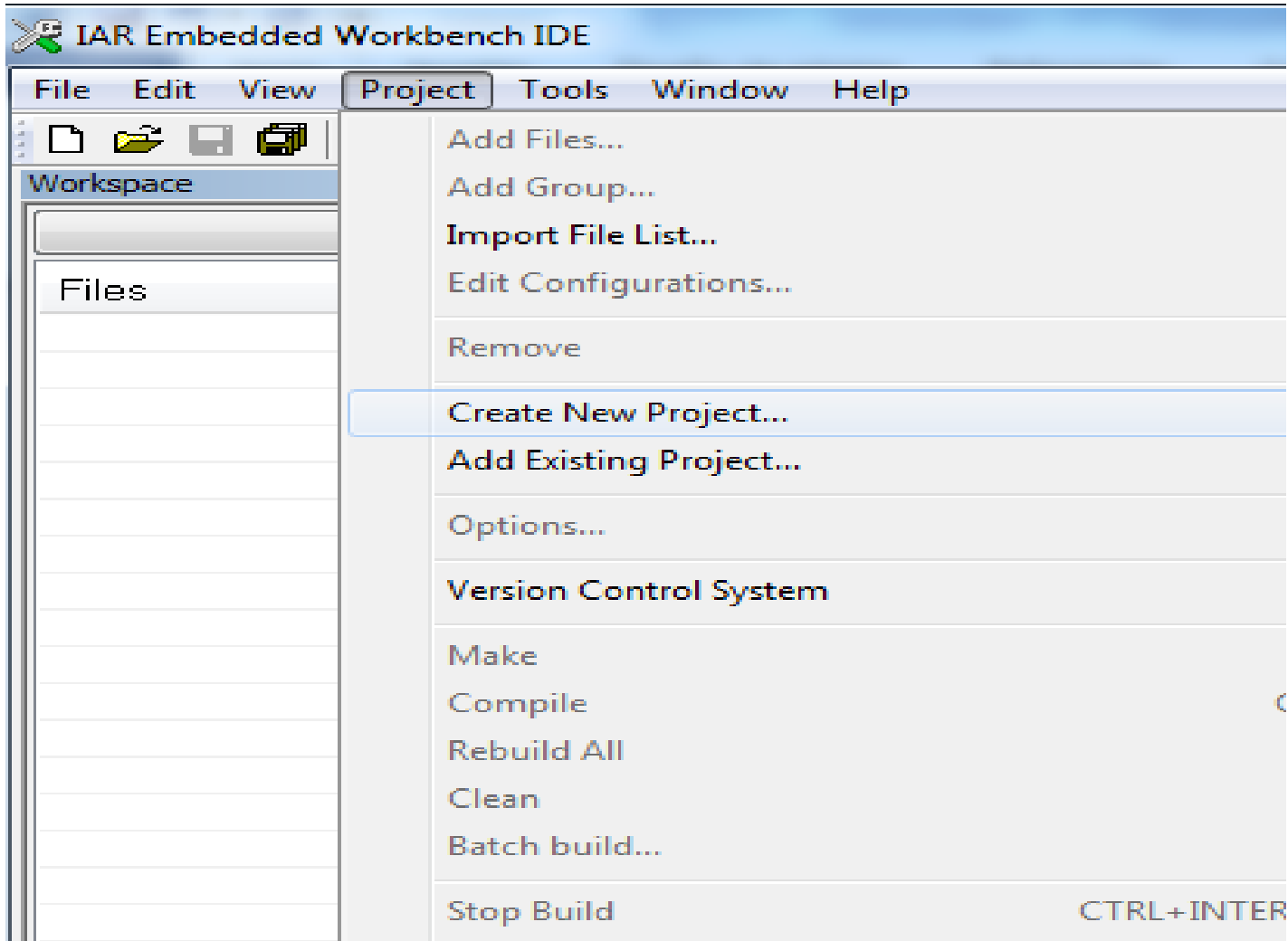
IAR Embedded Workbench



Create a new workspace



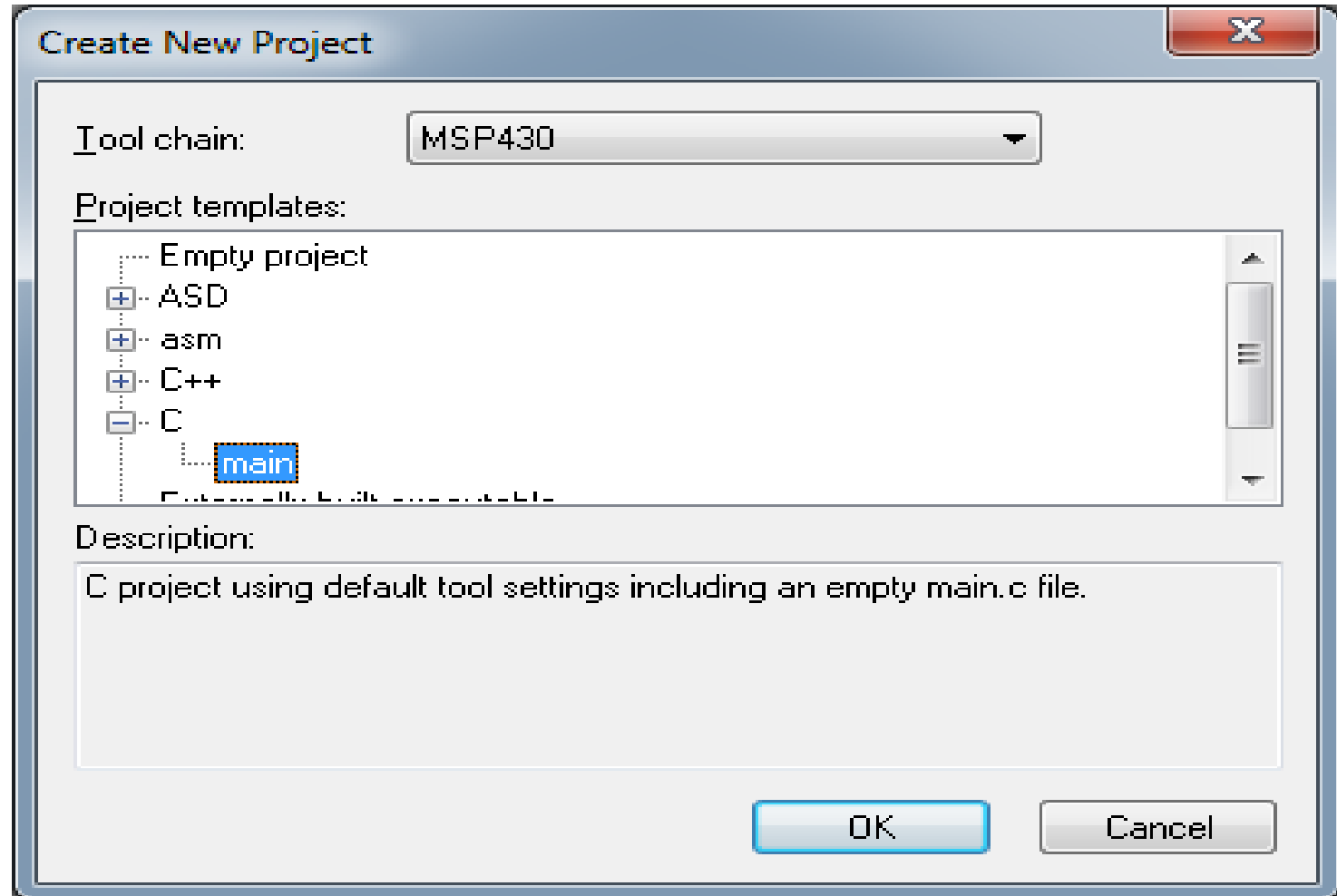
Create a new project



New project settings

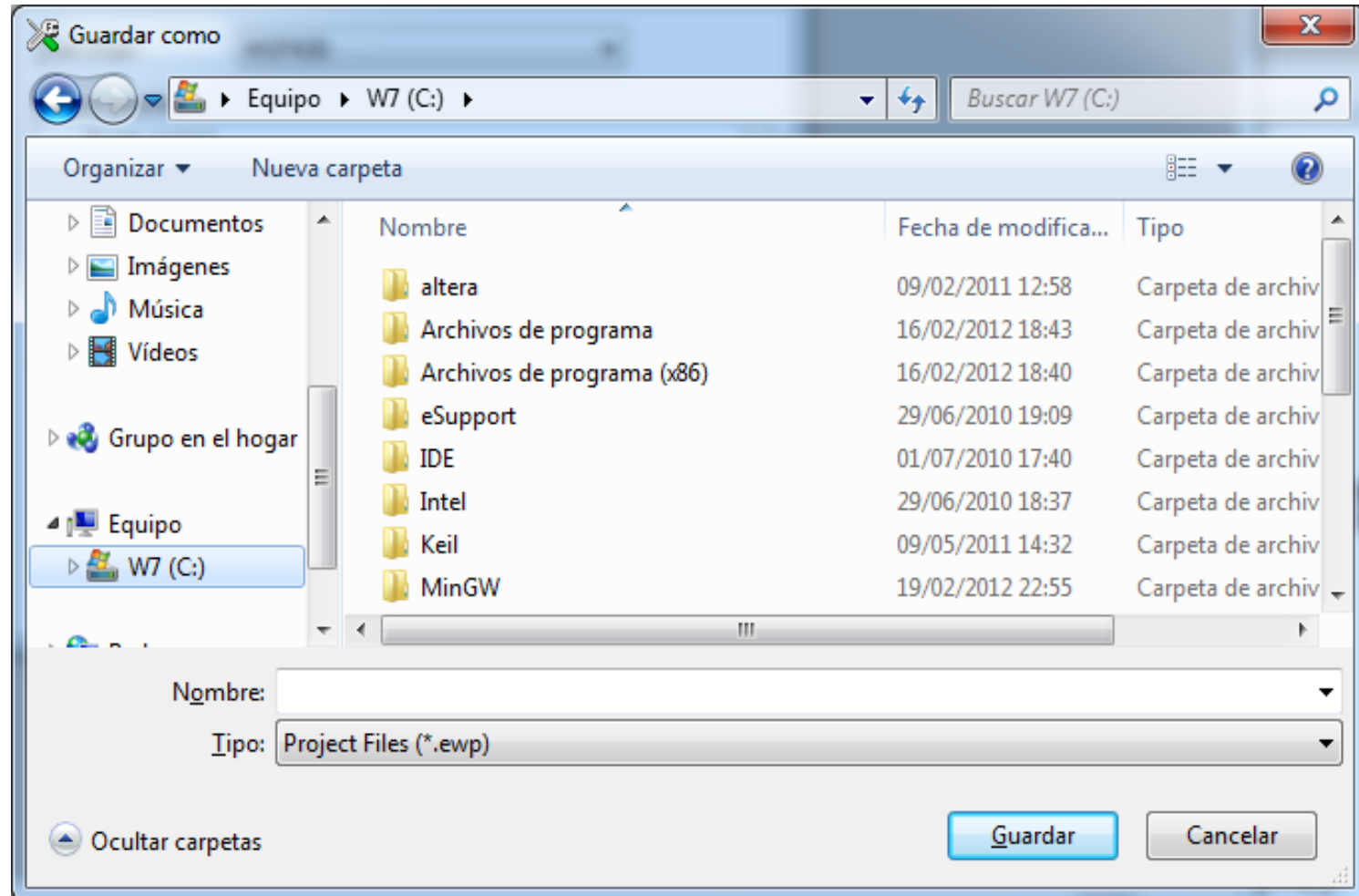


- MSP430 toolchain, C type with empty main file



“Save as” for the project

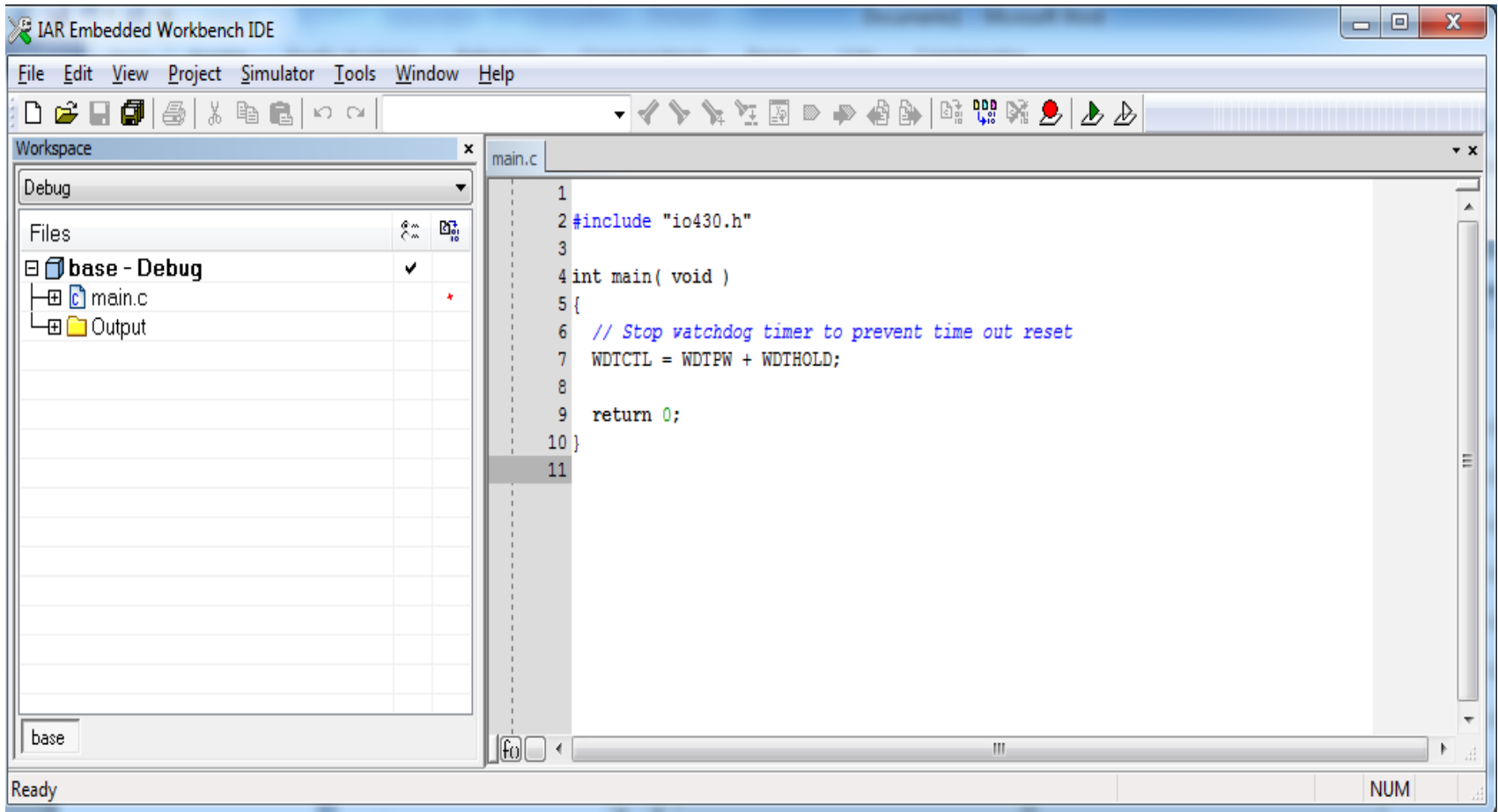
- Create a new folder and save a .ewp file



The project



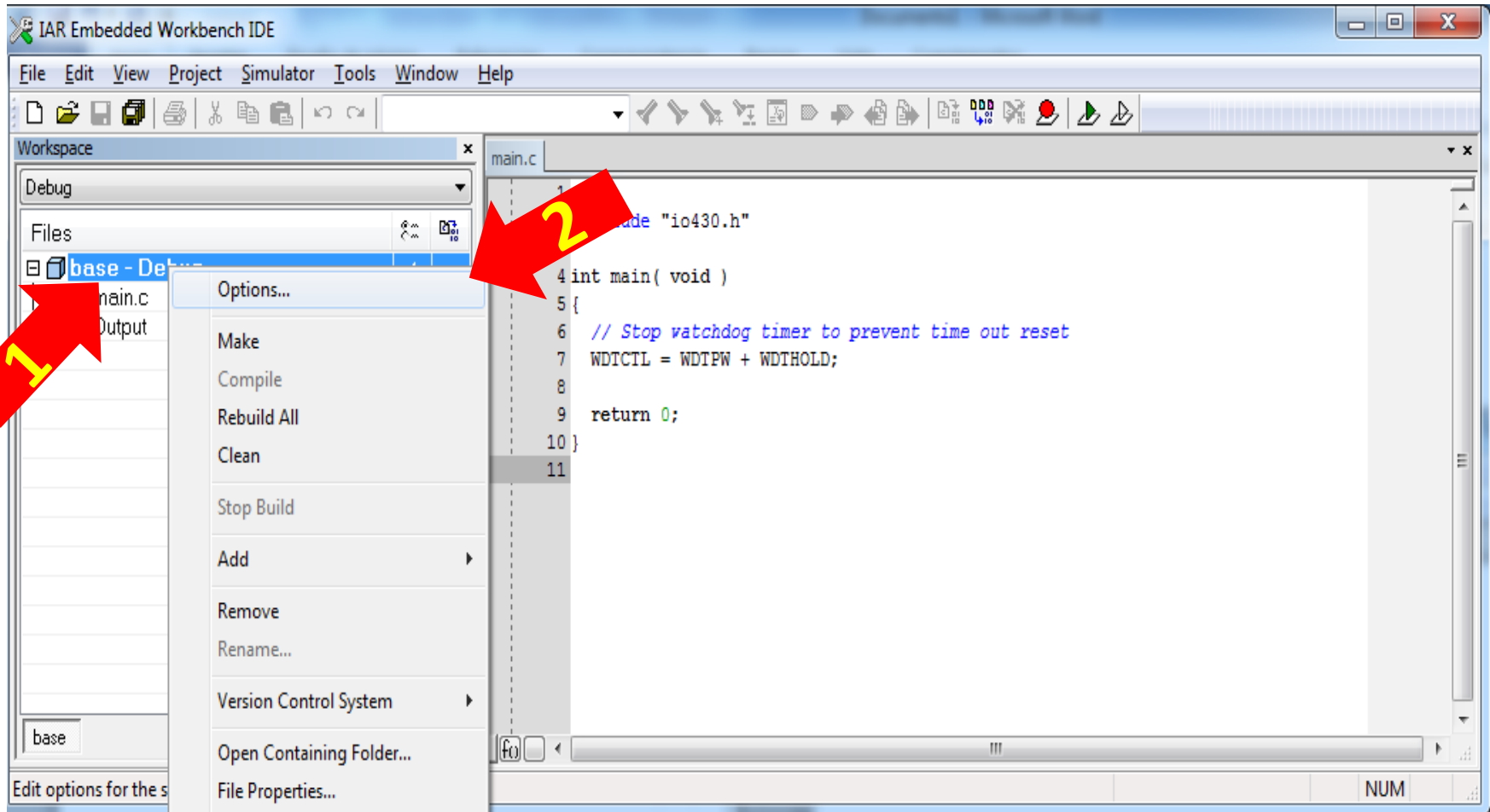
- Here your new project



Configure the project



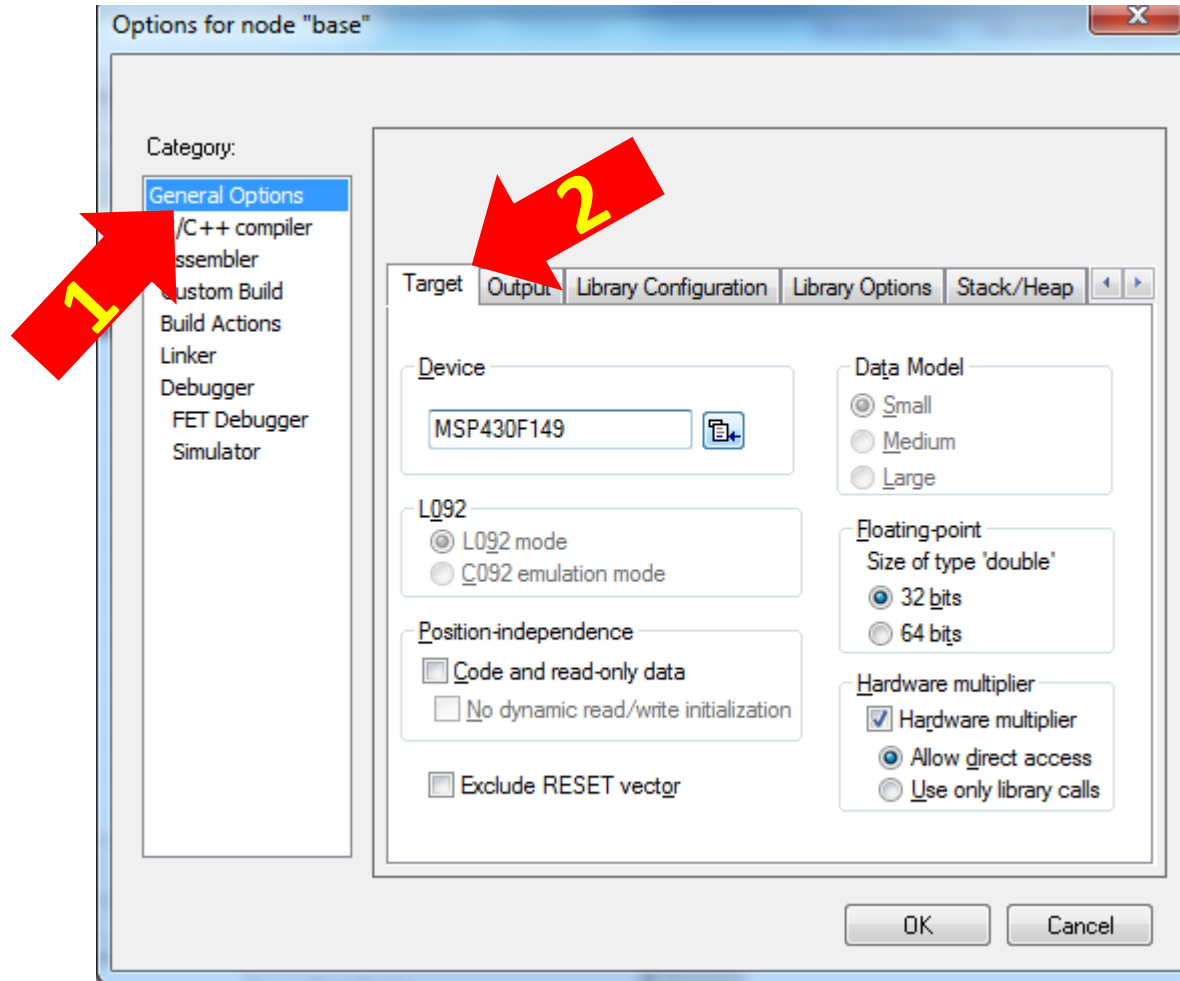
- Set device: MSP430G2553



Configure the project



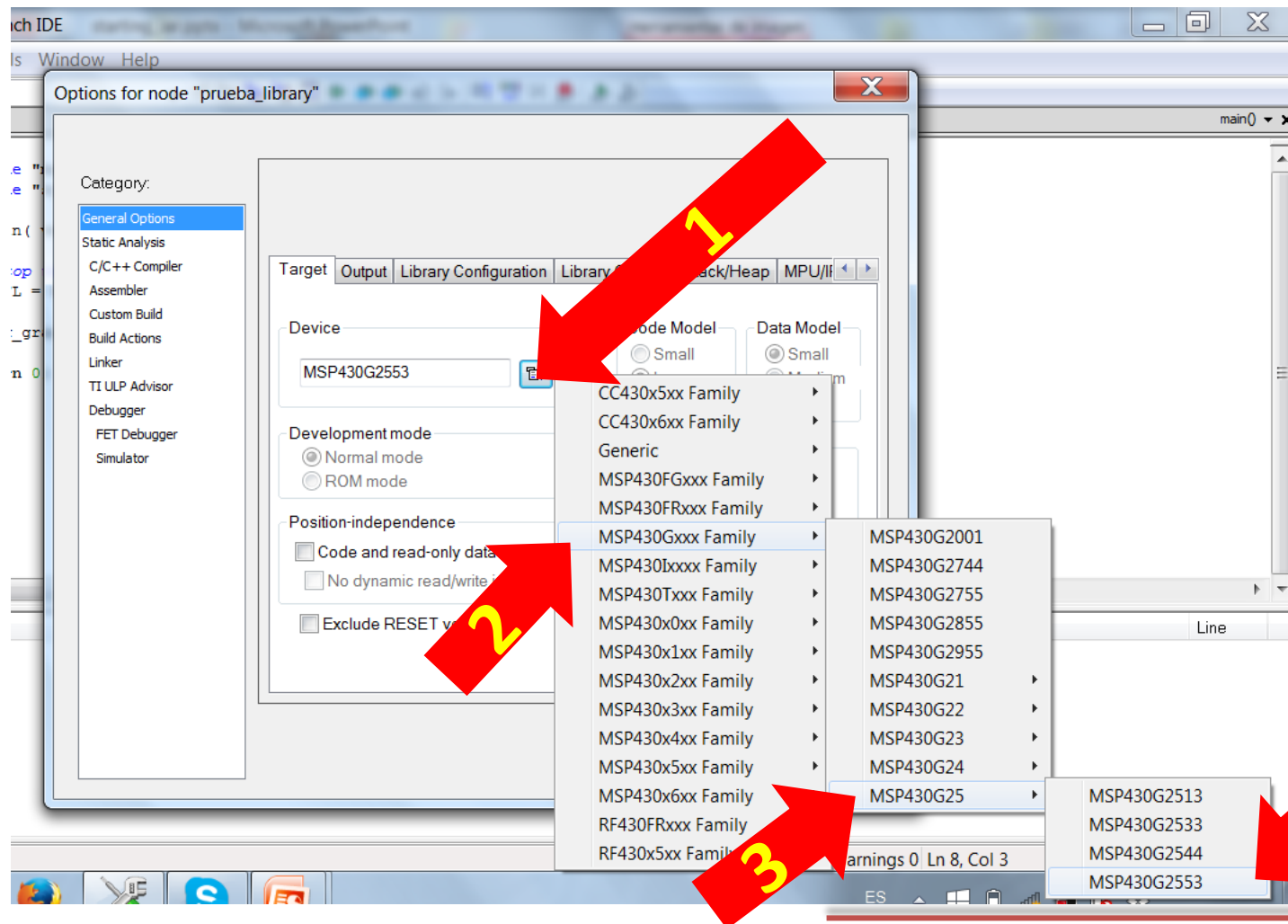
- Set device: MSP430FG4619



Configure the project



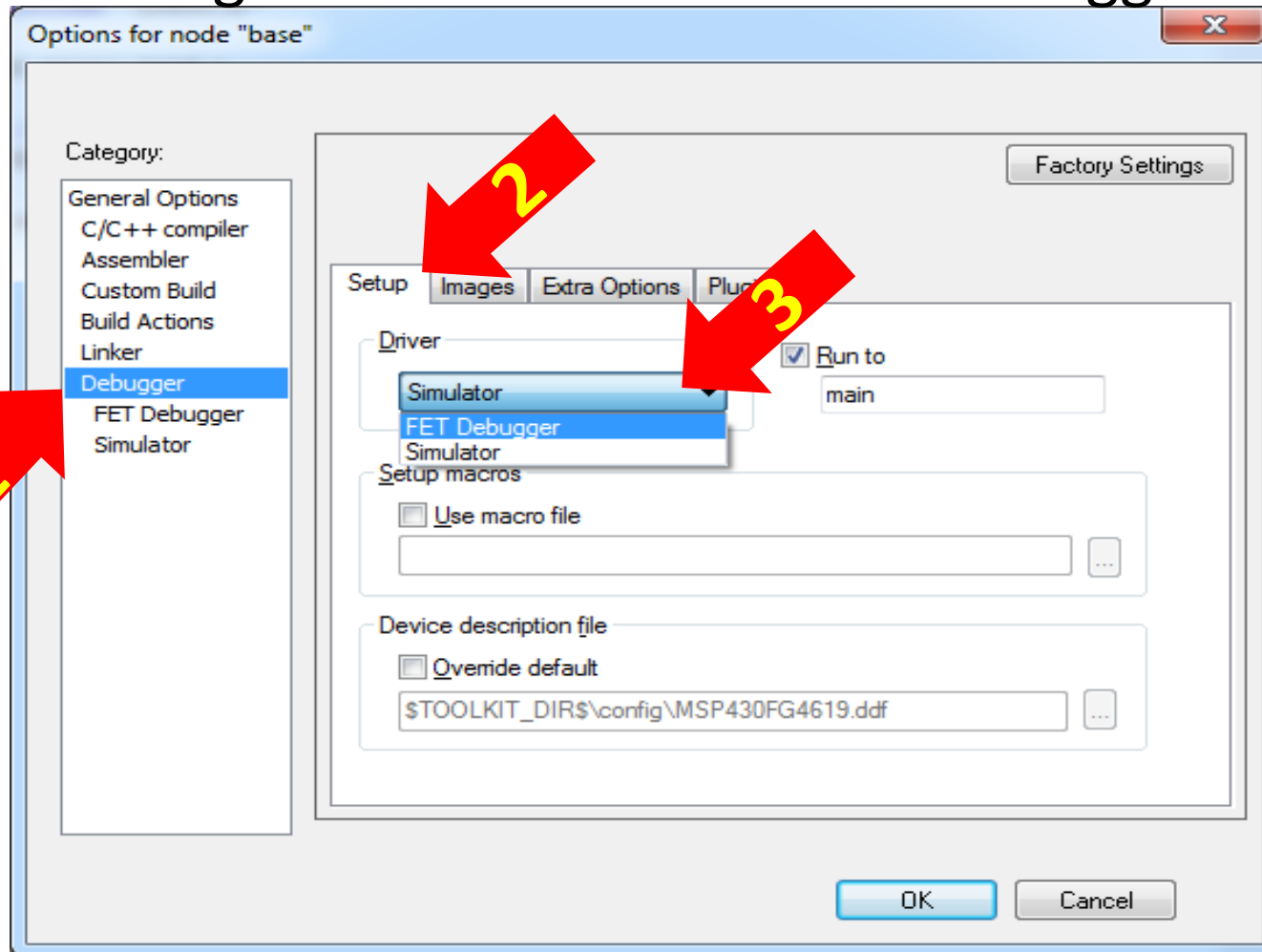
- Set device: MSP430FG4619



Configure the project

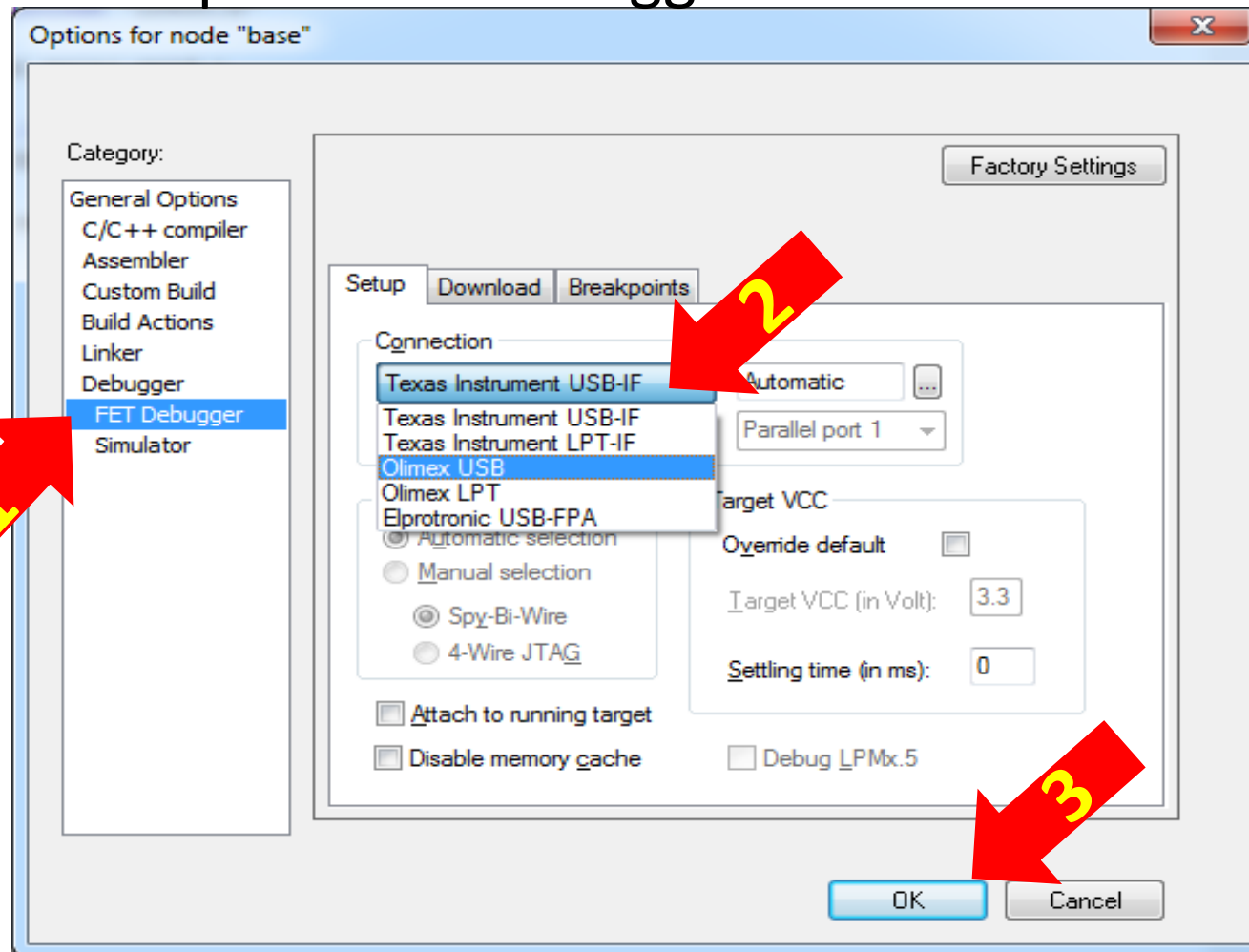


- Change from simulator to FET debugger



Configure the project

- Setup the FET debugger to Texas Instruments USB-IF



Configure the project

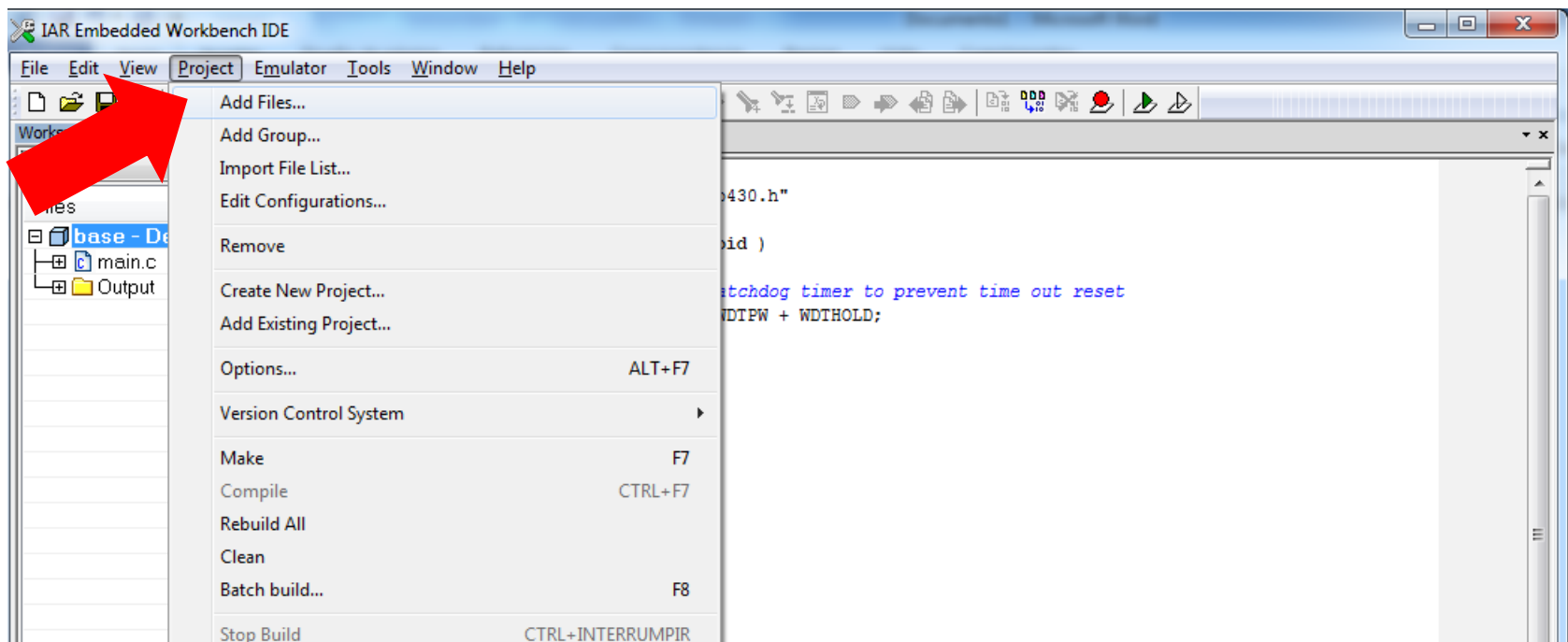


- Replace the generic microcontroller header file with the actual microcontroller header:
 - Replace `#include "io430.h"` with `#include "msp430G2553.h"`
- Download file "robot_library.zip" from moodle:
ent.esigelec.fr
 - Extract files in the folder of your workspace/project

Setup the project



- Add header files “stdint.h” and “intrinsics.h” to have access to standard types and low level functions.
- Add the robot_library to the project: *robot_library.r43*



Setup the project




- Add in the main function sentences to disable the watchdog and initialise the Clock System


```
// Stop watchdog timer to prevent time out reset  
WDTCTL = WDTPW + WDTHOLD;  
Clock_graceInit_DCO_12M(); //from robot_library.r43
```

- To use the function *Clock_graceInit_DCO_12M()* you have to include header “system.h”

Test the project



- Now, before adding your new code, test if everything is ok compiling the project:
 1. Compile all files and link them with F7 (Make) or “Project → Make” (you will be prompted to save the workspace before)
 - Expected result is warnings: 0 errors:0
 2. Download and activate debug with “Project → Download and debug”

A small screenshot of the 'Project' menu in the IAR Embedded Workbench IDE. The 'Download and debug' option is highlighted with a blue oval.
 3. Run program with “Debug → Go”

A screenshot of the 'Debug' menu in the IAR Embedded Workbench IDE. The 'Go' option is highlighted with a red oval.

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