

CC Studio MSP432 Mode

Last updated 11/30/21

CC Studio – MSP432 Mode

This guide assumes you have already successfully completed the Code Composer Tool Setup activities

CC Studio – MSP432 Mode

- Start Code Composer Studio
 - from
 - desktop shortcut
 - start menu
 - *install_dir*/Code Composer Studio x.x.x

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- Summary

- 1) Select a workspace

Where all your files will be stored

Not in the installation directory

- 2) Create a CCS Project

This is the type of project required for the MSP432

- 3) Create a program file and enter your code

filename.c

- 4) Build the project

Create all the necessary sw connections

- 5) Debug the program

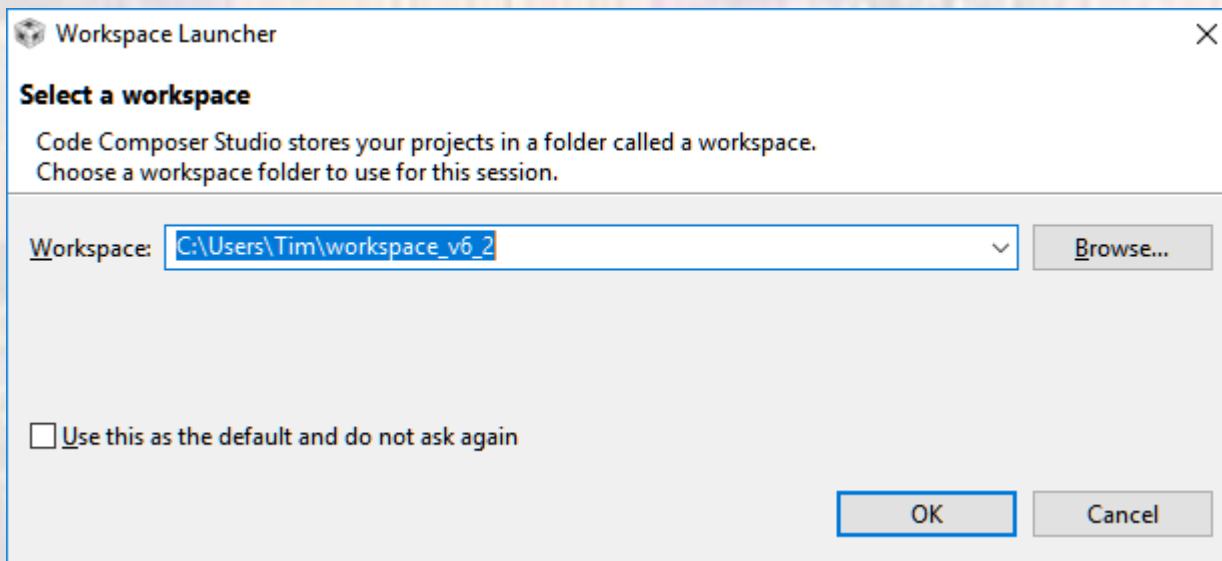
Create a communications channel from laptop to MSP board

- 6) Run the program

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1

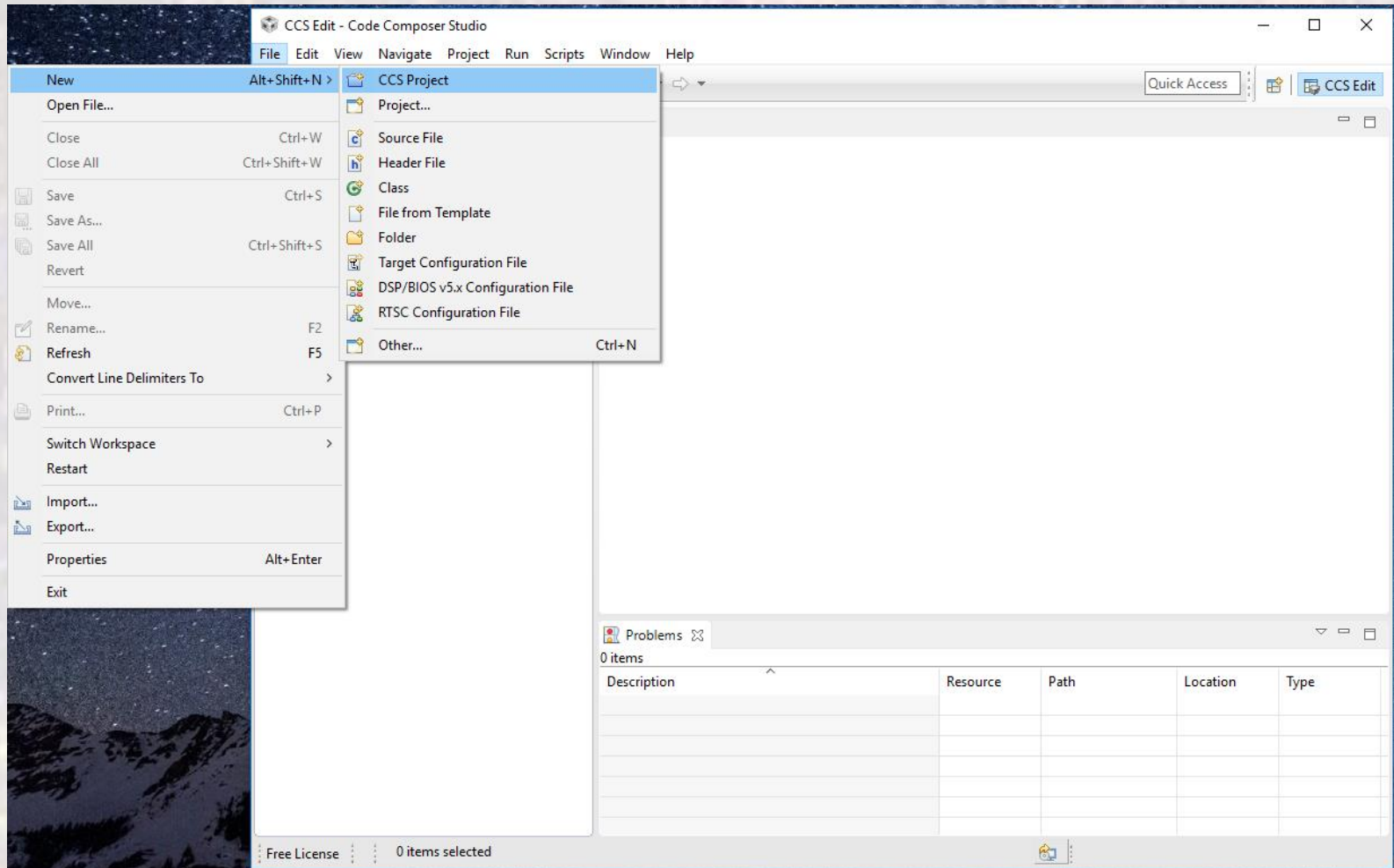
- Select a workspace
 - You can use the same workspace for all of your projects
 - You should already have a workspace selected from the CCStudio setup process



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- Select file -> new -> CCS Project

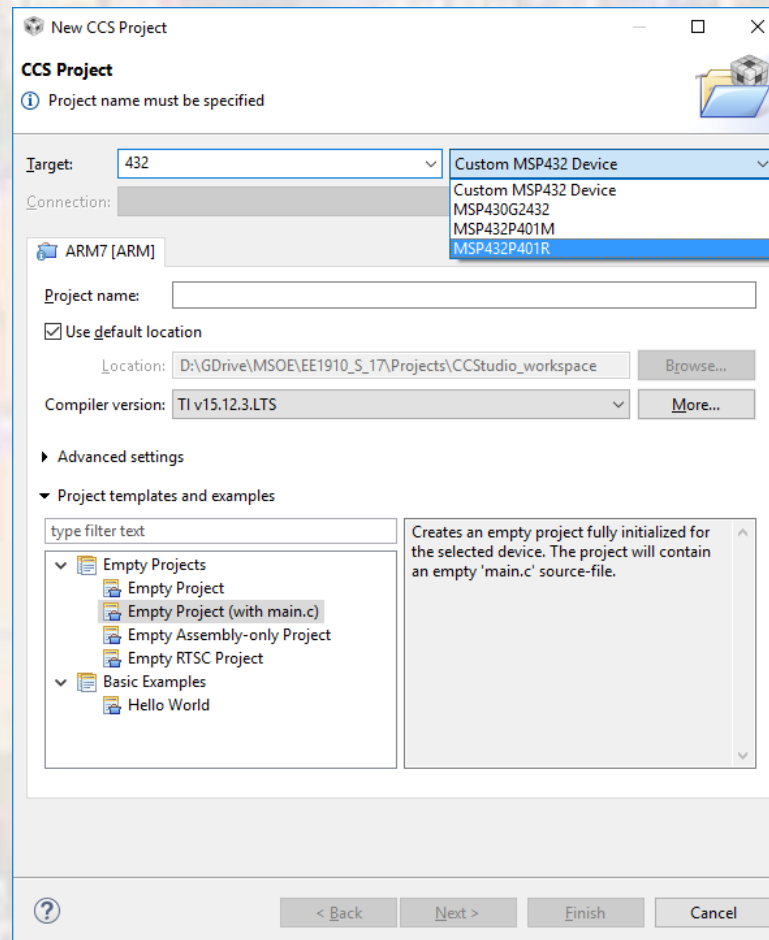
2



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2

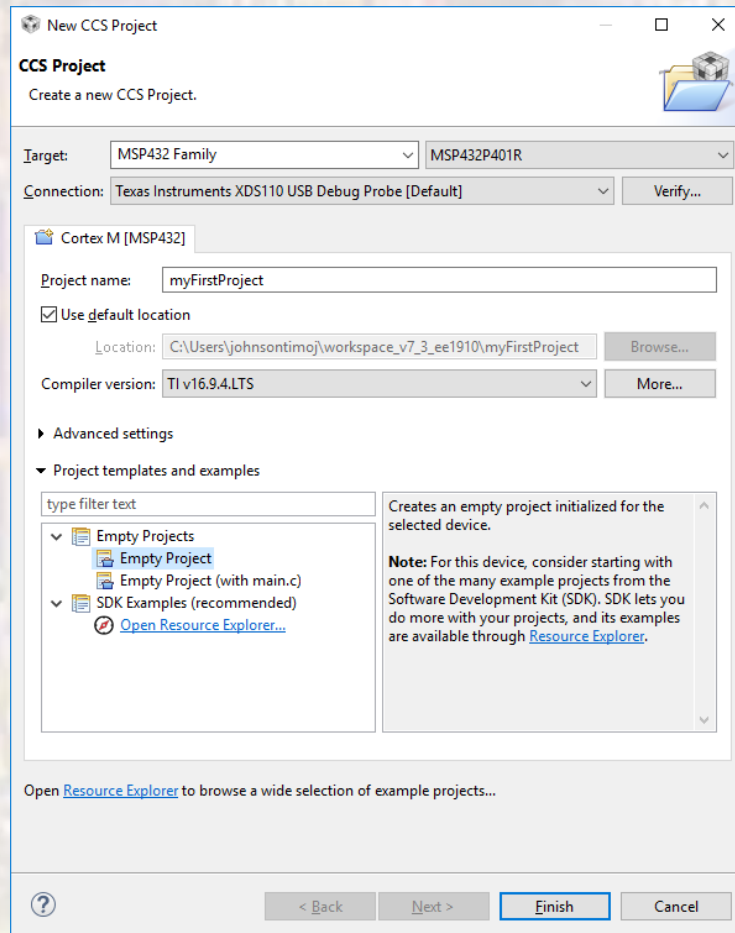
- Type 432 into the Target window
- Expand the pulldown to select **MSP432P401R**



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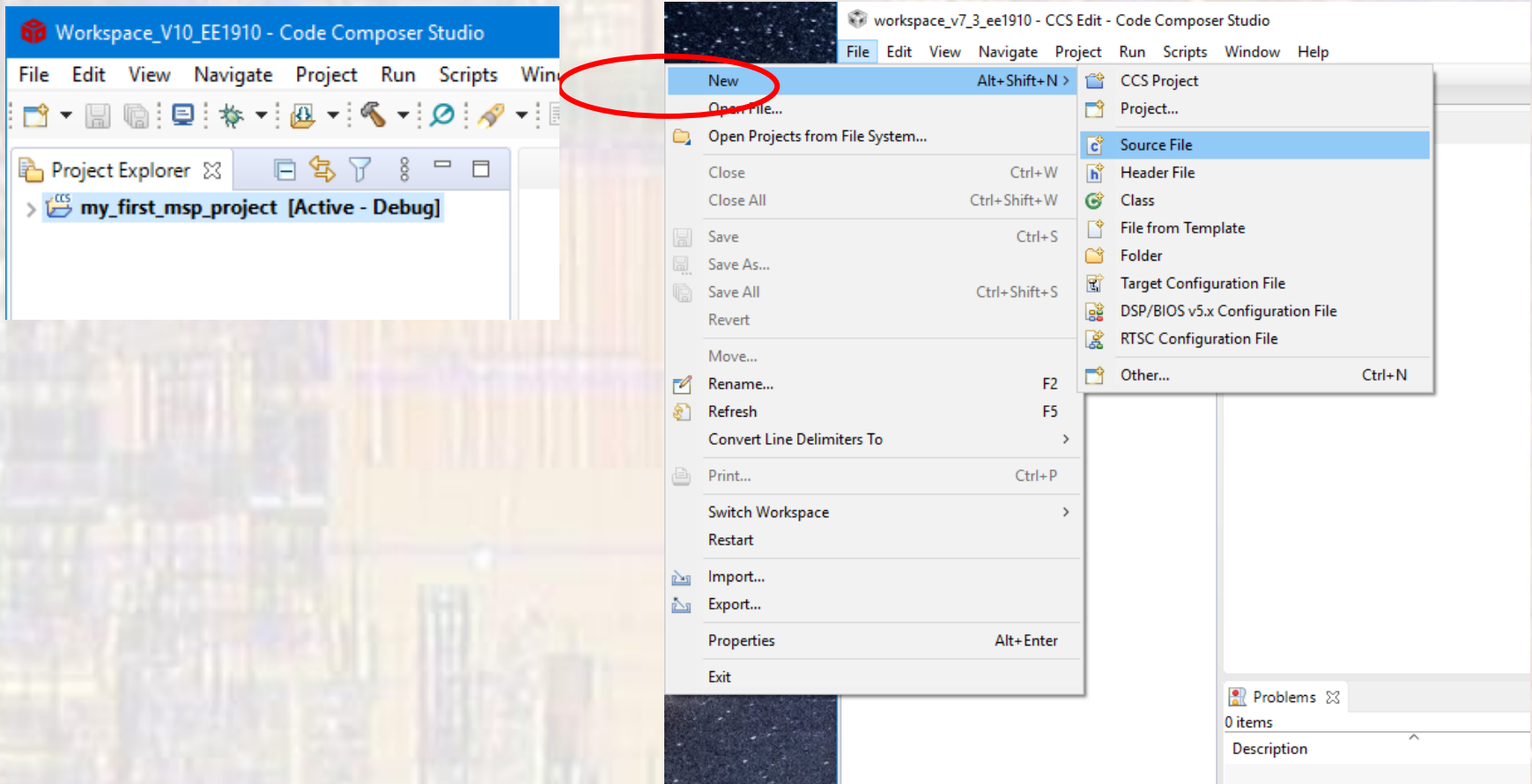
2

- Type in a project name (**NO SPACES ALLOWED**)
- Select “Empty Project”
- Finish



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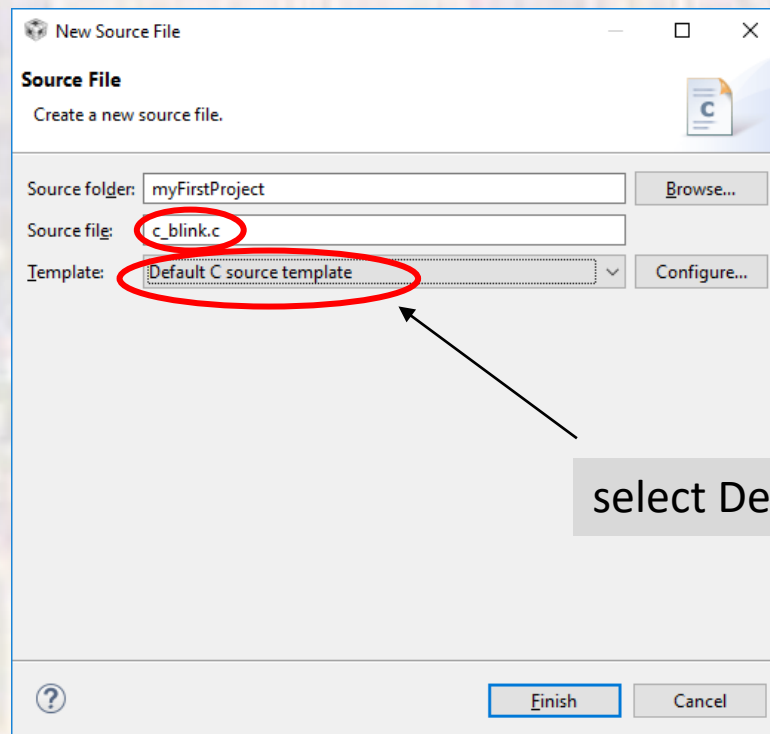
- With your project highlighted in the project explorer area ³
- File -> New -> C Source File



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3

- Provide a file name
- You must include the `xxxxx.c` extension
- **NO spaces**
 - It is common to use an underscore “`_`” instead of spaces

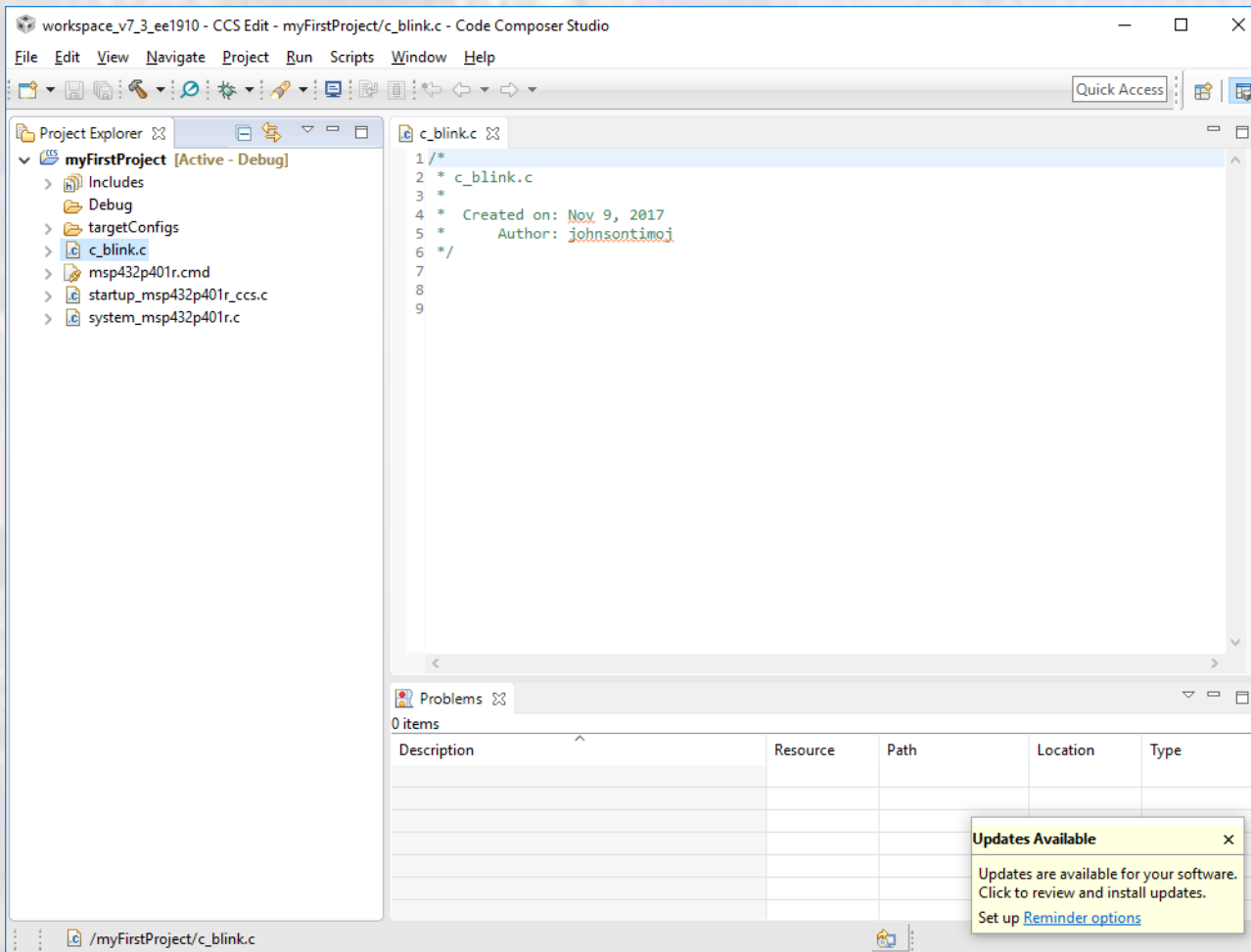


select Default C source template

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- The new file will be opened with a short comment section included at the top



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- Type the following into the file
- Do not try to copy and paste
 - Microsoft adds hidden characters
- Save

```
/*
 * c_blink.c
 *
 * Created on: Nov 9, 2017
 * Author: johnsontimmoj
 */

//
// Our version of blink.c
//

// Includes
#include "msp432.h"
#include <stdio.h>

// Global Variables

// Function Prototypes

void main(void){
    // Local Variables
    uint32_t i;

    // Note: Port 1, bit 0 (P1.0) is one of the on board LEDs
    P1->DIR |= 0x01; // Configure P1.0 as output

    // Greeting code
    printf(" !! Hello EE1910 !!\n");

    // Blink and Print Code
    while(1){
        // Blink LED
        P1->OUT ^= 0x01; // Toggle P1.0

        // Print to console
        if(P1->OUT & 0x01)
            printf("ON\n");
        else
            printf("OFF\n");

        // Delay so we can see blinking
        for(i=100000; i>0; i--); // Lousy Delay
    } // end while

    return;
} // end main
```

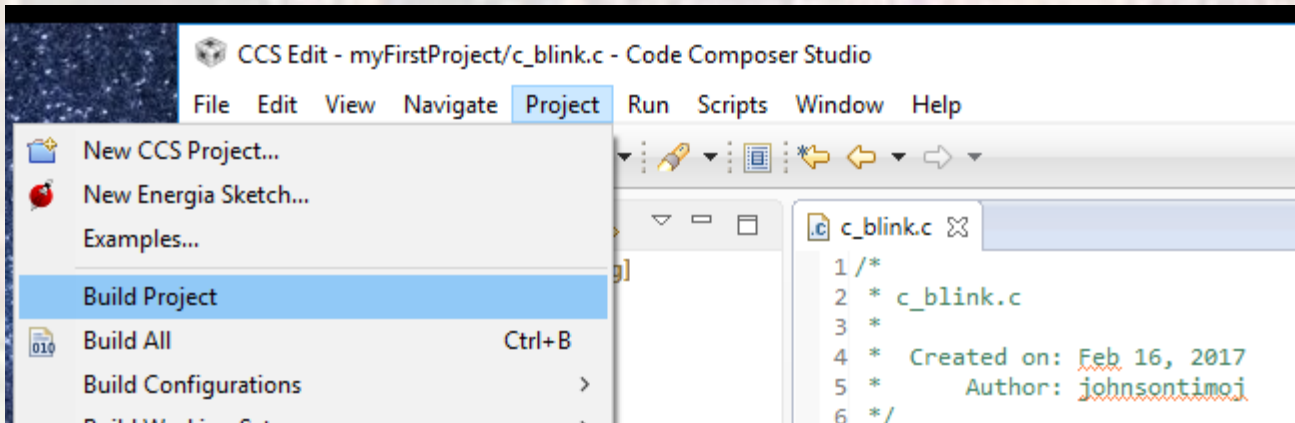
your information here

3

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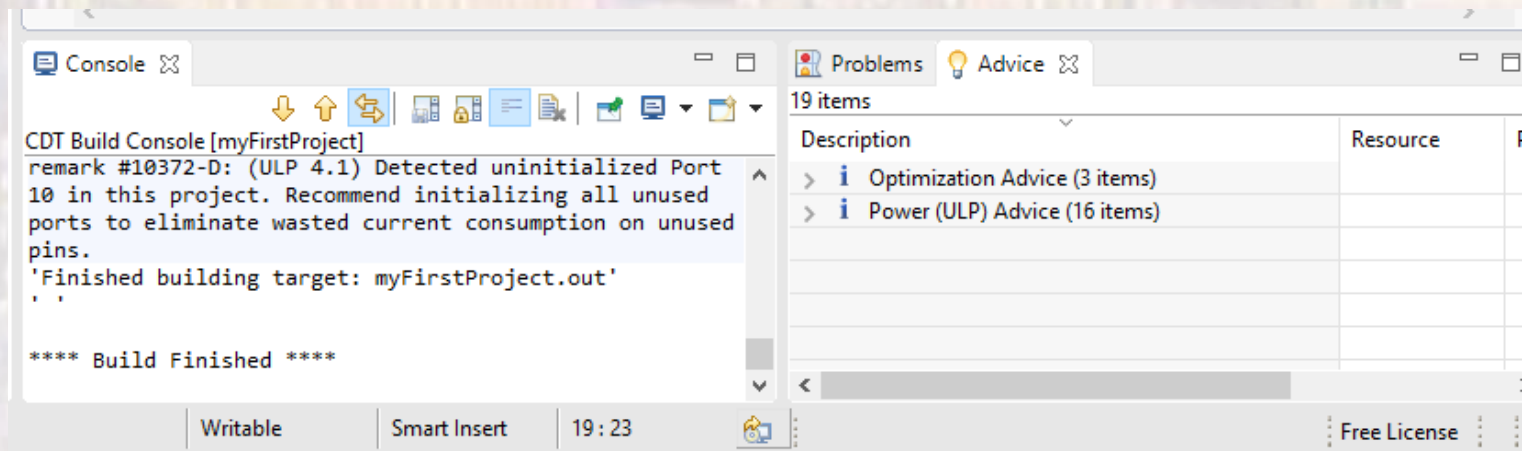
4

- Select Project -> Build Project



This compiles, assembles, and links the program

Check the console for errors



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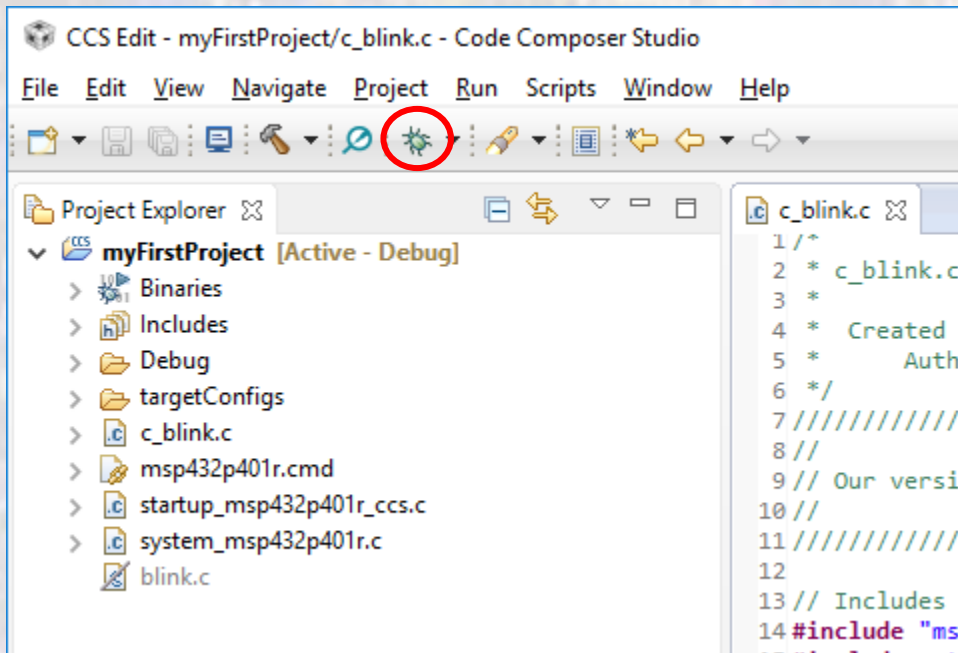
5

- Plug your MSP432 board into your computer via the USB port
 - The software may ask you to update your board's firmware – select yes
- It will probably still have the original factory blink program running

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- Select debug icon
- The windows will change to CCS Debug mode



This downloads the program onto the board and establishes an active communications link between the board and Code Composer

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workspace_v7_3_ee1910 - CCS Debug - myFirstProject/c_blink.c - Code Composer Studio

File Edit View Project Tools Run Scripts Window Help

Quick Access

Debug

myFirstProject [Code Composer Studio - Device Debugging]

- Texas Instruments XDS110 USB Debug Probe/CORTEX_M4_0 (Suspended -
- main() at c_blink.c:24 0x000027C8
- _c_int00() at boot.asm:227 0x00002F3E (_c_int00 does not contain frar

Name	Type	Value	Location
(*) i	unknown	Memory map prevent...	

c_blink.c msp432.h msp432p401r.h

```
18 // Global Variables
19
20 // Function Prototypes
21
22
23 void main(void)
24 {
25     // Local Variables
26     volatile uint32_t i;
27
28     // Board Setup
29     WDT_A->CTL = 0x5A80; // Stop watchdog timer
30     //WDTCTL = WDTPW | WDTHOLD; /* Stop watchdog timer */
31     // Note: Port 1, bit 0 (P1.0) is one of the on board LEDs
32     P1->DIR |= 0x01; // Configure P1.0 as output
33
34     // Greeting code
35     printf("!! Hello EE1910 !!\n");
36 }
```

the program is paused at the beginning (main)

Console

myFirstProject

CORTEX_M4_0: While XMS silicon development is possible today, you are recommended to order production material at www.ti.com/product/MSP432P

CORTEX_M4_0: Pre-production silicon support will be phased out in the future, more details available here www.ti.com

CORTEX_M4_0: Flash Programmer: Erasing main memory

CORTEX_M4_0: Flash Programmer: Programming flash memory

Updates Available

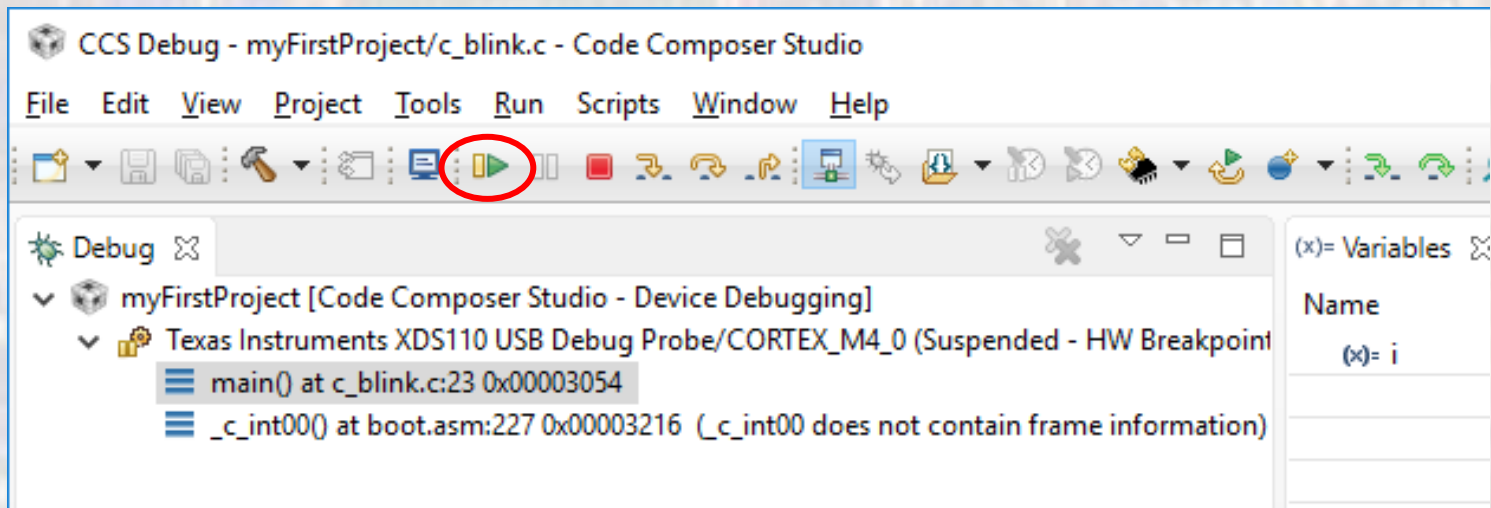
Updates are available for your software. Click to review and install updates. Set up [Reminder options](#)

LE Writable Smart Insert 24:1

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- Select run (green arrow)
 - This causes the program to continue



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- Check the console, and the on board LED

```
27 // Board Setup
28 WDTCTL = WDTPW | WDTHOLD;
29 // Note: Port 1, bit 0 (P1.0) is one of the o
30 P1DIR |= 0x01;
31
32 // Greeting code
...

```

Console

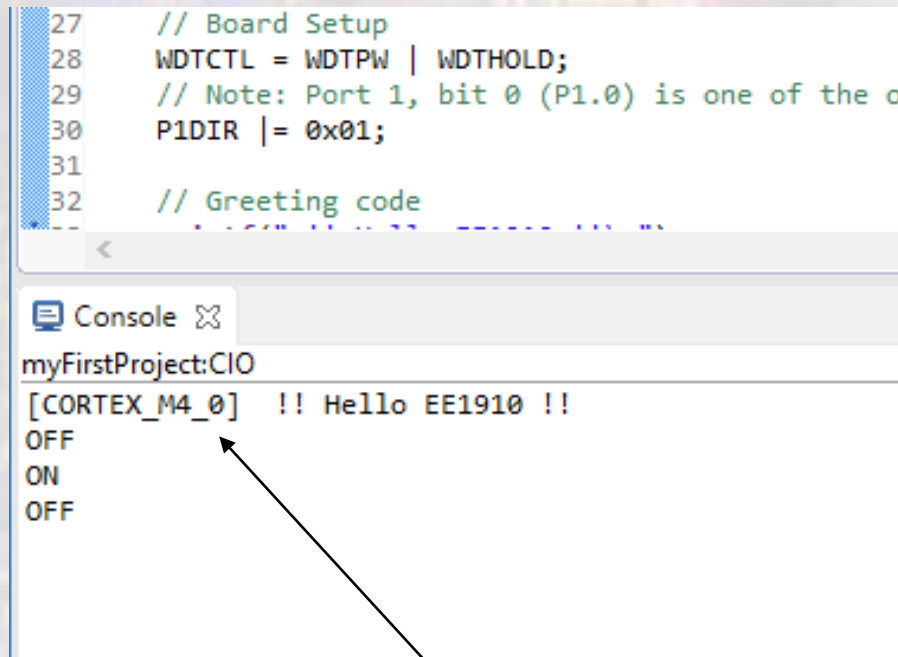
myFirstProject:CIO

[CORTEX_M4_0] !! Hello EE1910 !!

OFF

ON

OFF



The on board LED will be blinking

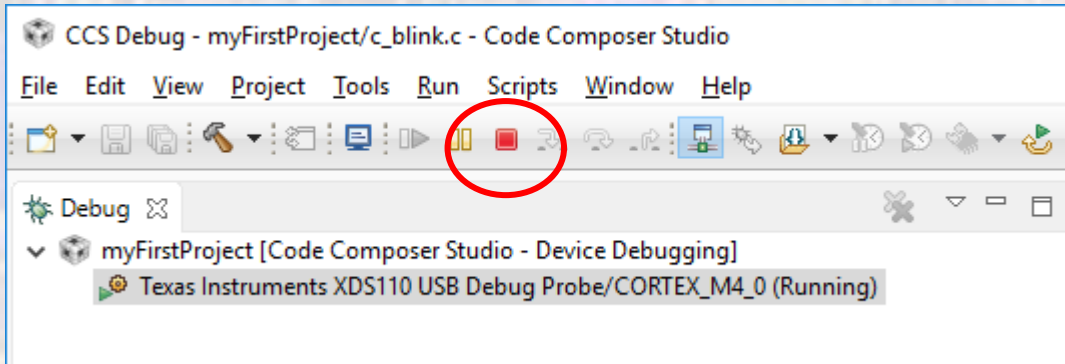
The console will display our greeting message followed by on off on off ...

[CORTEX_M4_0] indicates we are running on the MSP432 board

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- Stop the program (red square)



- The window returns to CCS Edit mode
- The LED continues to blink
 - The program continues to run on the board
- The console quits updating
 - The communications link is broken