

Announcement before class starts

- To avoid repeated group announcements, we will receive group change inquiries by **11:59 PM today**.
- In any case, we do not accept it when it is past the deadline.
- The next group announcement is the last group announcement, which is final.

Line Tracer 01

- Setup Development Environment -

This lecture is based on

- [Running Code on the TI LaunchPad Board Using CCS](#)

1. CCS IDE Installation

Why we use CCS IDE?

- > IDE is short for integrated development environment and provides a convenient and rich development features.**
- > Although various IDEs such as Visual Studio exist, CCS IDE provides provides optimized features for TI-RSLK (Line Tracer) robots.**

Download Installer

-> Download CCS installer ([LINK](#))

The screenshot shows the download page for Code Composer Studio IDE. On the left, a version list is filtered by 'version or date'. The 'v12x' section is expanded, and '12.0.0 (08 Jul 2022)' is highlighted with a red box. A red arrow points from this box to the text 'Select 12.0.0 version'. In the main content area, the 'Downloads' tab is active. The 'Windows single file (offline) installer for Code Composer Studio IDE (all features, devices)' is highlighted with a red box. A red arrow points from this box to the text 'Click to download offline version (Windows Only)'. The page also includes links for 'Release notes', 'View software details', and 'Evaluate in the cloud'.

Filter by version or date

v12x

12.0.0 (08 Jul 2022)

v11x

11.2.0.00007 (08 Apr 2022)

11.1.0.00011 (20 Dec 2021)

11.0.0.00012 (11 Oct 2021)

v10x

10.4.0.00006 (06 Jul 2021)

10.3.1.00003 (01 May 2021)

10.3.0.00007 (04 Apr 2021)

10.2.0.00009 (06 Jan 2021)

10.1.1.00004 (20 Sep 2020)

10.1.0.00010 (10 Jun 2020)

10.0.0.00010 (15 Mar 2020)

v9x

9.3.0.00012 (18 Dec 2019)

Release notes View software details Evaluate in the cloud

Downloads Supported products & hardware

Windows on-demand installer for Code Composer Studio IDE (all features, devices) — 39223 K

Link to Windows on-demand (web) installer for Code Composer Studio IDE (all features, devices)

Checksum 16dd4ff3960644094bd1aa2d035d4f44

Windows single file (offline) installer for Code Composer Studio IDE (all features, devices) — 1224165 K

Link to Windows single file (offline) installer for Code Composer Studio IDE (all features, devices)

Checksum ac282d1096b2c2287377a480abb2dd1d

Linux on-demand (web) installer for Code Composer Studio IDE (all features, devices) — 24756 K

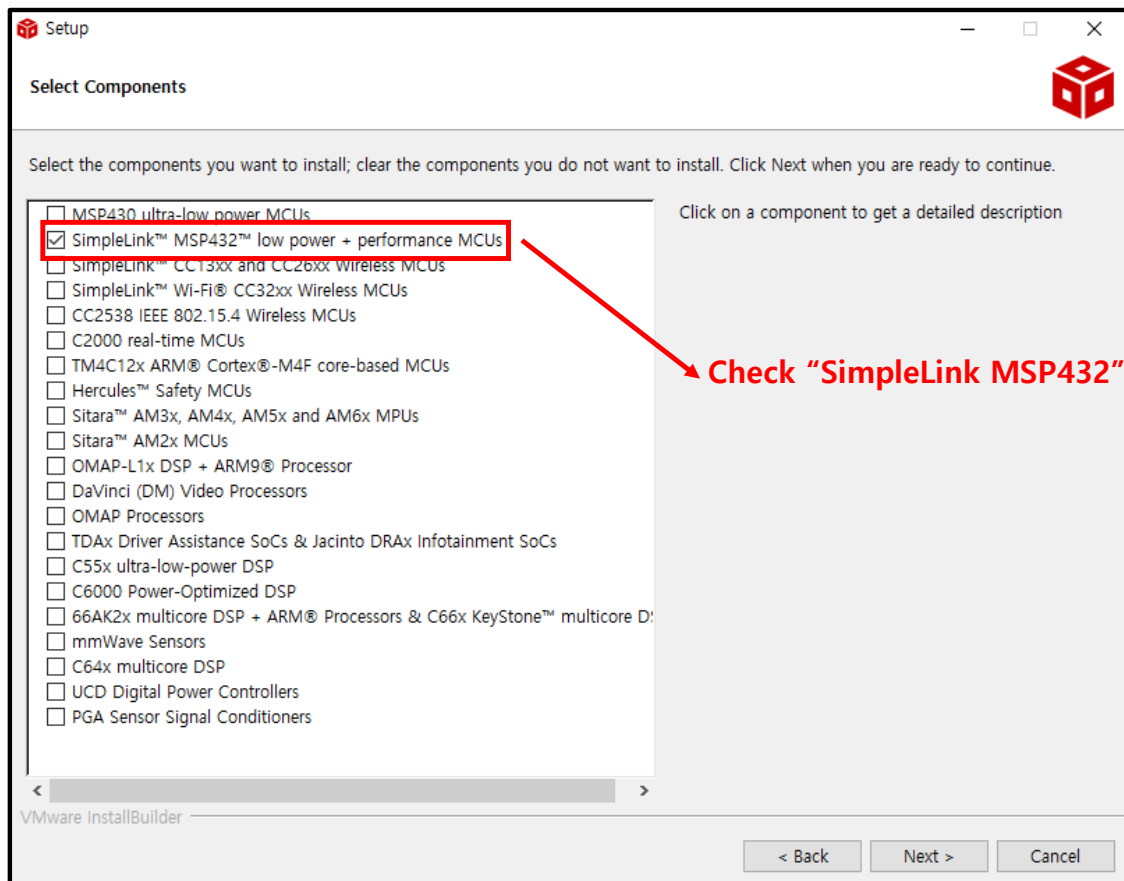
Link to Linux on-demand (web) installer for Code Composer Studio IDE (all features, devices)

Checksum 31248d8c104864f162b689d8b6626d8f

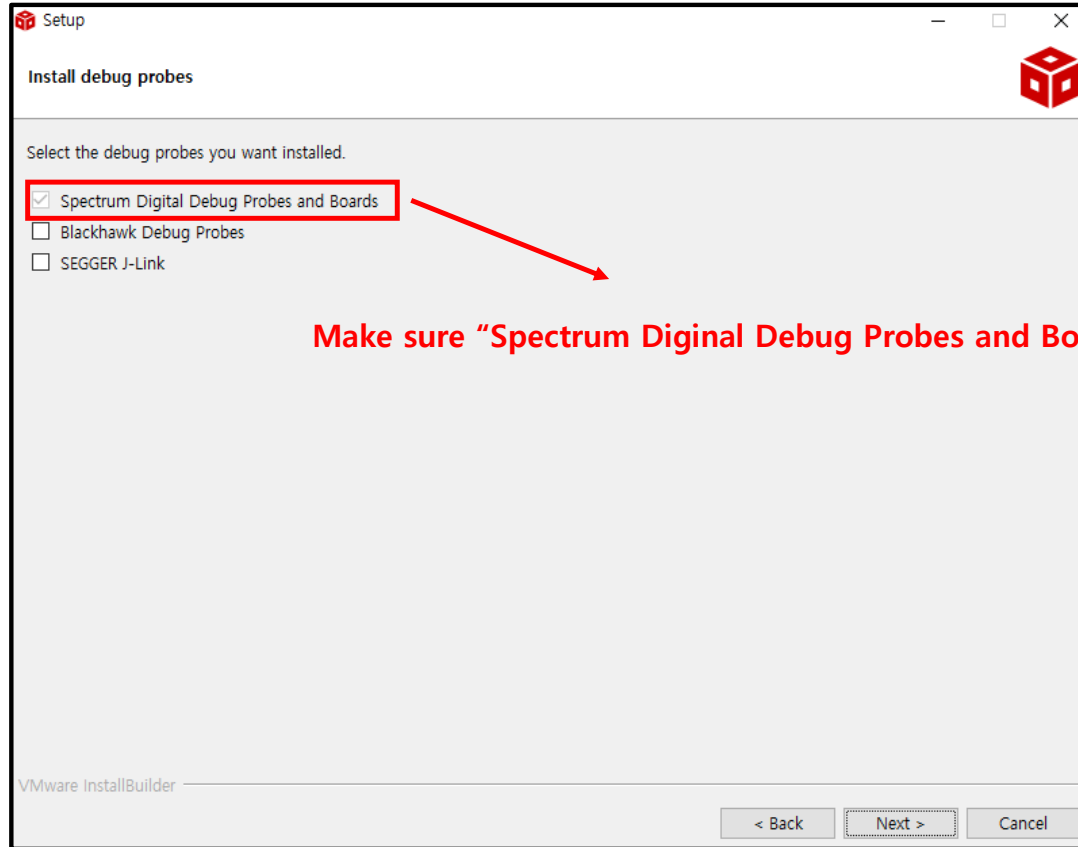
Select 12.0.0 version

Click to download offline version (Windows Only)

Running the CCS Installer



Running the CCS Installer

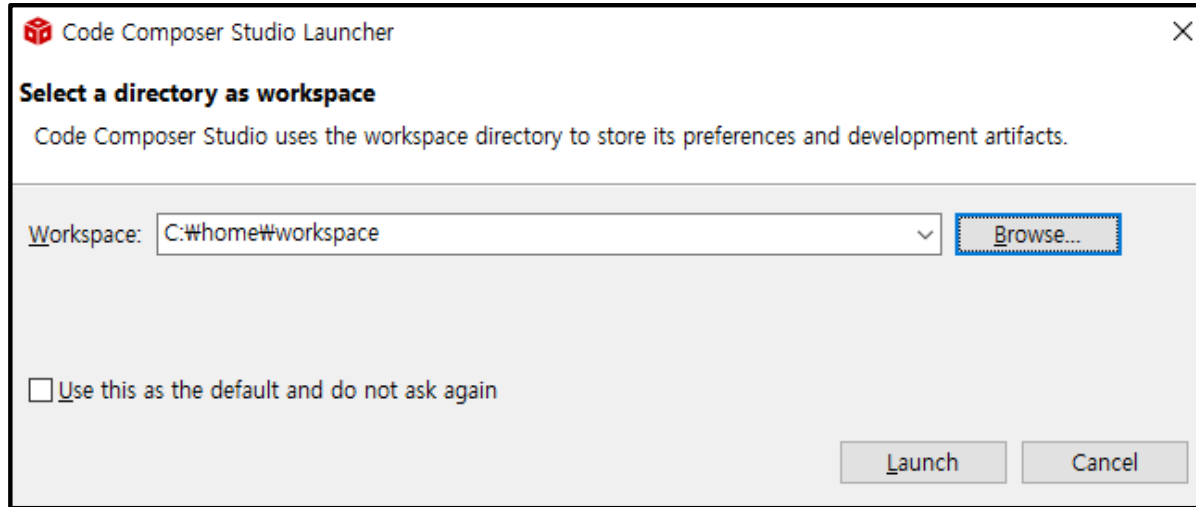


Make sure "Spectrum Digital Debug Probes and Boards" is checked

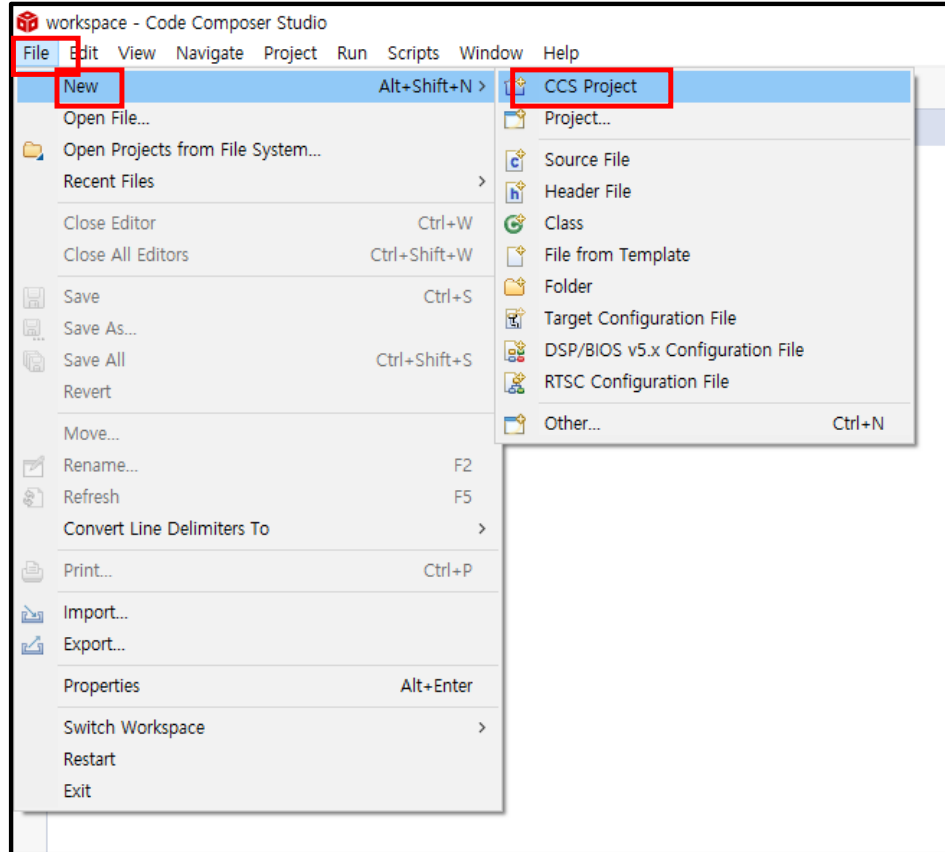
2. Launch a New Project

Create a New Workspace

- > After installation, run CCS and you will see the following
- > Create a new workspace

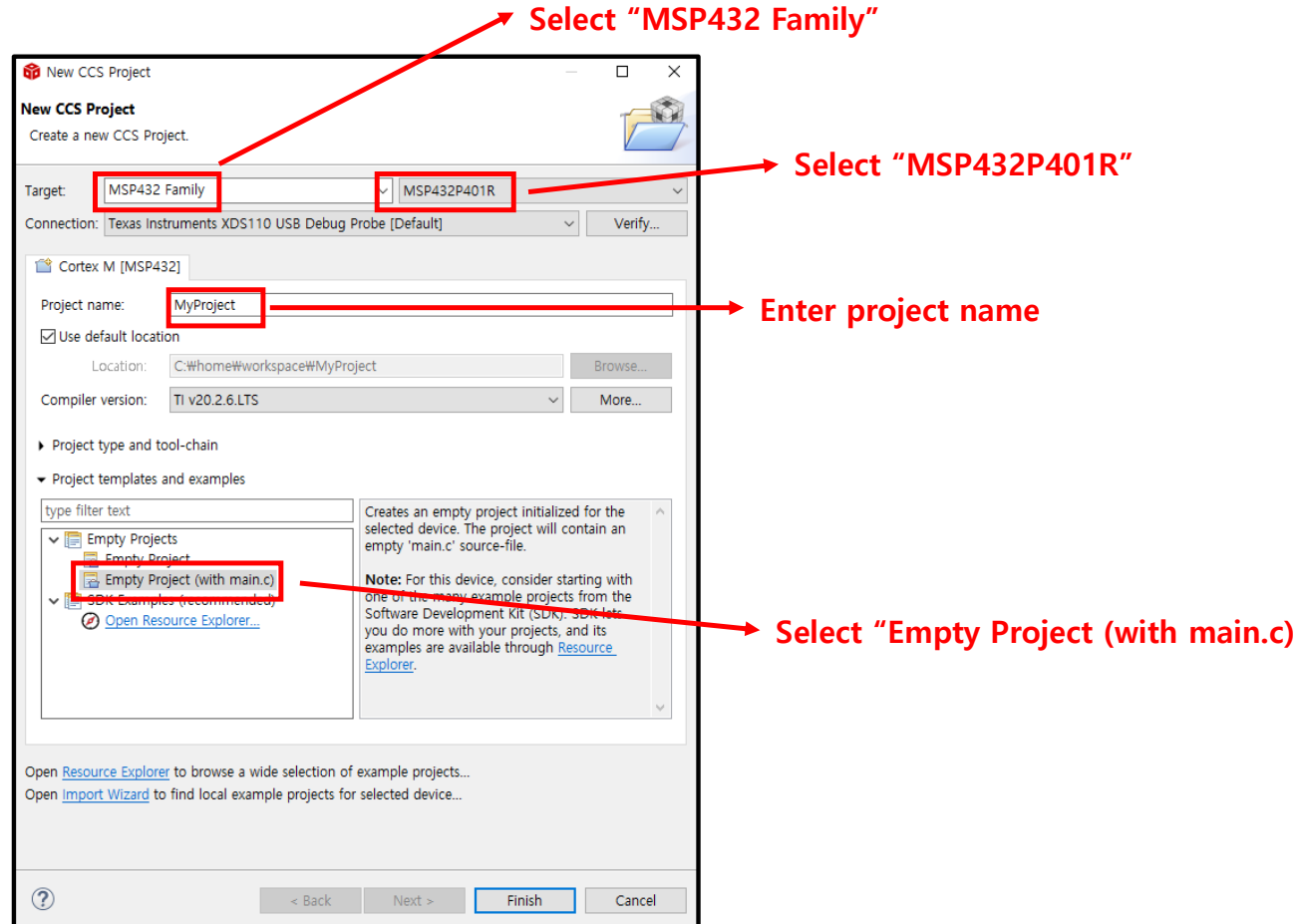


Create a New Project



Click "File->New->CCS Project"

Create a New Project



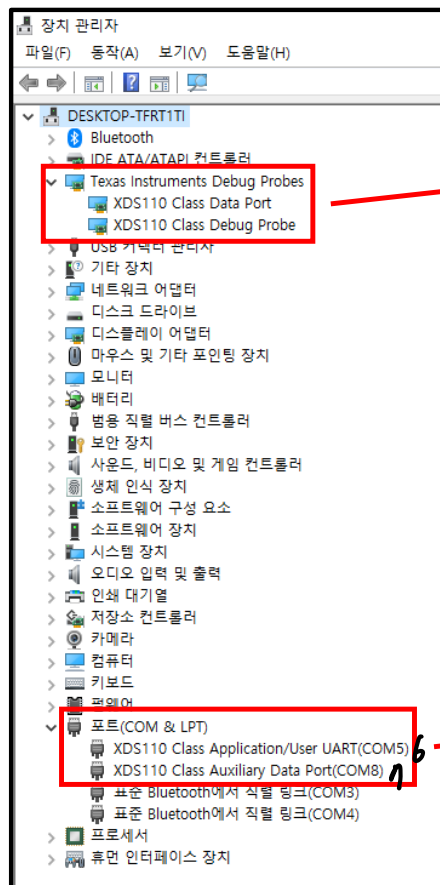
3. Device Testing

Connect USB Cable

-> Connect the computer and the robot with a USB cable



Check the Driver is Loaded Correctly



XDS110 Class Data Port


XDS110 Class Debug Probe

XDS110 Class Application/User UART


XDS110 Class Auxiliary Data Port

Check the Robot is Working Correctly


-> Go to [Link](#), and click “TI-RSLK MAX debug application”




Explore the new curriculum




View the new kit



Purchase the new kit



See the classic TI-RSLK



TI-RSLK MAX was developed in collaboration with [Jon Valvano, Ph.D.](#), professor, electrical and computer engineering at The University of Texas at Austin.

Additional links

Videos

- [Meet the TI-RSLK MAX video](#)
- [TI-RSLK MAX overview video](#)
- [Construction guide video series](#)

Documents

- [Construction guide document](#)
- [TI-RSLK MAX user guide](#)
- [TI-RSLK to TI-RSLK MAX change document](#)
- [TI-RSLK MAX pin map](#)

Tools

- [TI-RSLK MAX debug application](#)

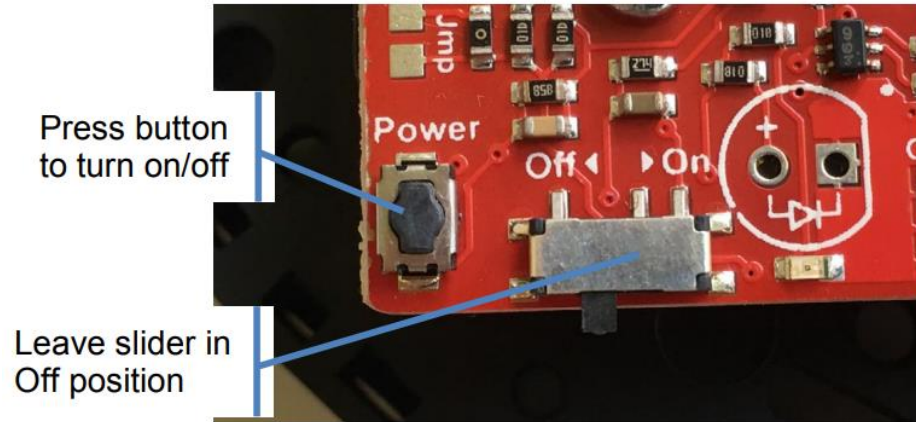
Textbook reference

- [Embedded Systems: Introduction to Robotics by Jonathan W. Valvano \(Amazon\)](#)

Click “TI-RSLK MAX debug application”

Check the Robot is Working Correctly

-> Test each feature of the robot

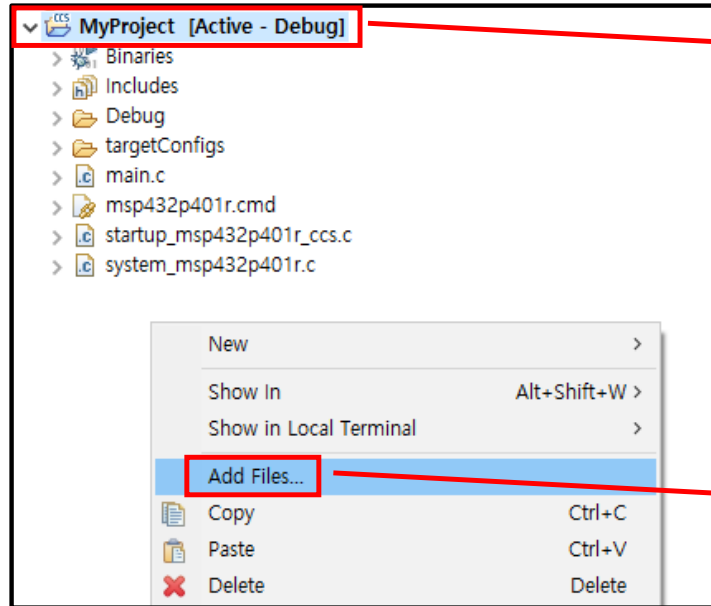


You should turn on the power before using sensor and motor

4. Write a Simple Program

Import Clock Library

-> Add Clock Library Files

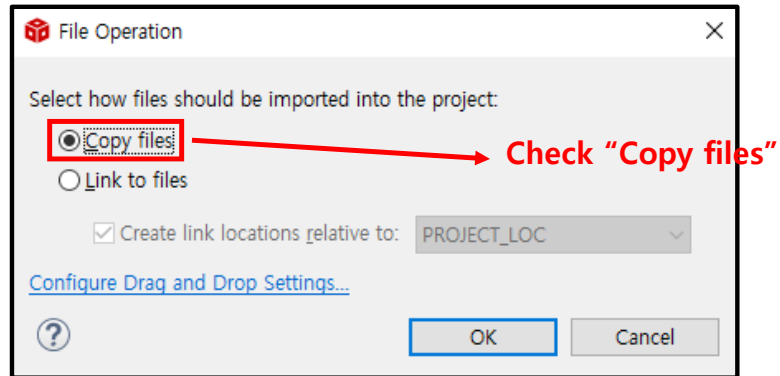


Click "MyProject" to activate

Select "Add Files..."

Import Clock Library

- > Select "Clock.c" and "Clock.h"
- > Copy them to the project folder

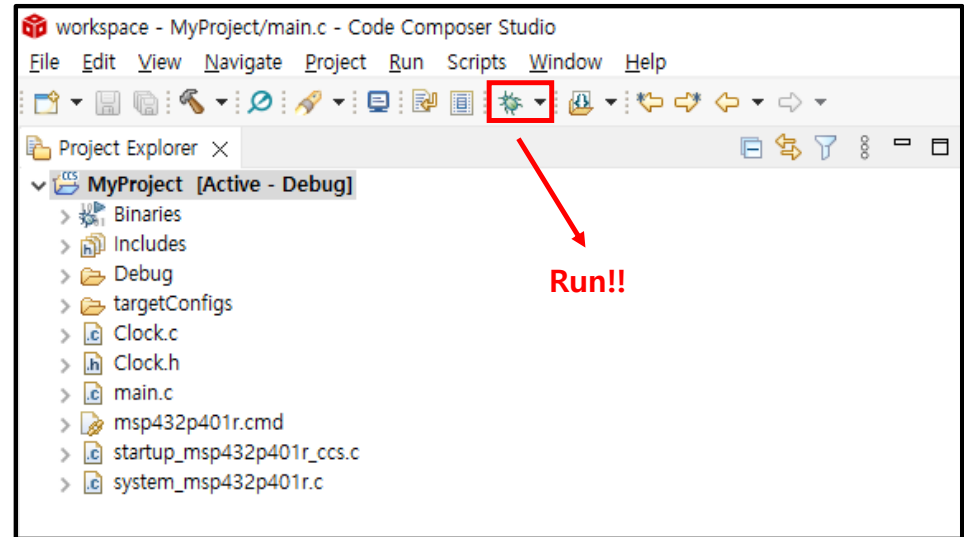


hello world

- > Write a simple program which is printing "hello world!"
- > Run the program clicking the debug button

```
1#include "msp.h"
2#include "Clock.h"
3#include <stdio.h>
4
5void main(void)
6{
7    Clock_Init48MHz();
8    printf("hello world!\n");
9}
```

Enter the function name correctly.



hello world

-> You can see the output

