



BDE-RFM208-IN Wireless Module User Guide

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BDE-RFM208-IN Wireless Module



Introduction

This user guide is for BDE-RFM208-IN, a Wireless Module based on TI CC1352R.

It is a quick start guide for how to connect the module with the evaluation board BDE-EVB07 or with the TI launchpad, and how to build the first application. It also shows a demo for how BDE-RFM208-IN receives a data packet that is sent from another BDE-RFM208-IN.

Get Ready

The following tools are recommended to develop with BDE-RFM208-IN.

Hardware tools:

- Two modules of BDE-RFM208-IN (BDE-RFM208-IN-BDE Technology Inc. (bdecomm.com))
- Two BDE-ADP208 V1.0 (adaptor board)
- PC or Laptop
- Two BDE-EVB07 (BDE-EVB07-BDE Technology Inc. (bdecomm.com)) or
- Two TI Launchpad (LAUNCHXL-CC13X2R1 Evaluation board | TI.com)
- USB cable for power supply and debugging

Software tools:

- Terminal software such as CCS, IAR.
- CCS download
- Software Development Kit (SDK)

Build Your First Application

Once have the Hardware and Software tools in place, please following the following steps:

A. Connect the Hardware

If chose EVB07:

Use USB cable to connect EVB07 and PC or laptop. Plug BDE-RFM208-IN with the adaptor board into the dev board and connect all the pins with Jumpers as the following picture shows.

Wireless Module

Connection Designator	BDE-RFM208-IN	LaunchPad Pin
3V3 Power	VDD	3V3
Ground	GND	GND
RST	RST	RESET
TMS	TMS	TMS
TCK	TCK	TCK
TDO	DIO16	TDO
TDI	DIO17	TDI

Optional: TDO TDI RXD TXD

B. Build the Application

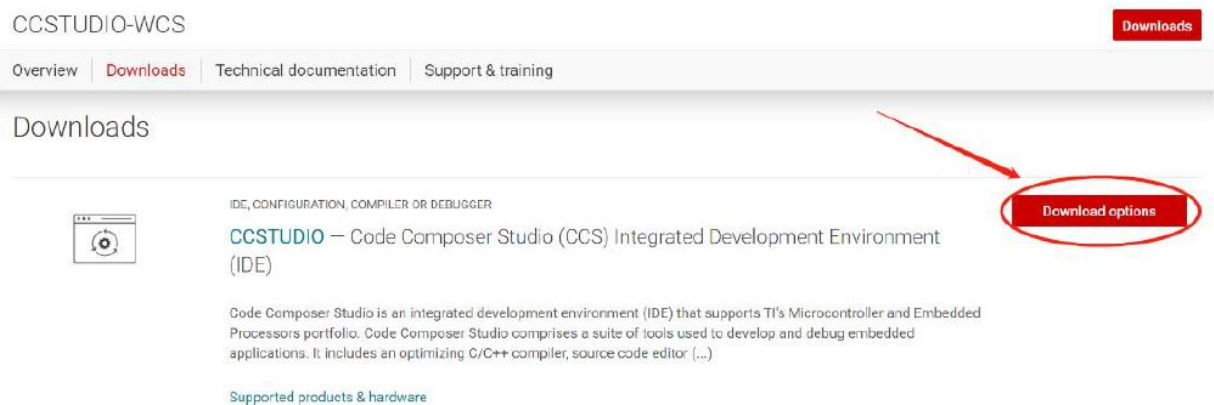


- **Download and install the CCS and SDK**

From the above links, follow the instructions in the following steps to download and install the CCS and SDK.

- **CCS Installation**

1. Click on this option



2. Select an option to download CCS

Download options



Code Composer Studio (CCS) Integrated Development Environment (IDE)

Version: 10.3.0.00007

Release date: 05 Apr 2021

SINGLE FILE INSTALLERS

↓ [Windows single file installer for CCS IDE \(1181753652 KB\)](#)

↓ [Linux single file installer for CCS IDE \(1102001729 KB\)](#)

↓ [macOS single file installer for CCS IDE \(1083552986 KB\)](#)

ON-DEMAND INSTALLERS

↓ [Windows on-demand installer for CCS IDE \(40136960 KB\)](#)

↓ [Linux on-demand installer for CCS IDE \(25338386 KB\)](#)

↓ [macOS on-demand installer for CCS IDE \(24595266 KB\)](#)

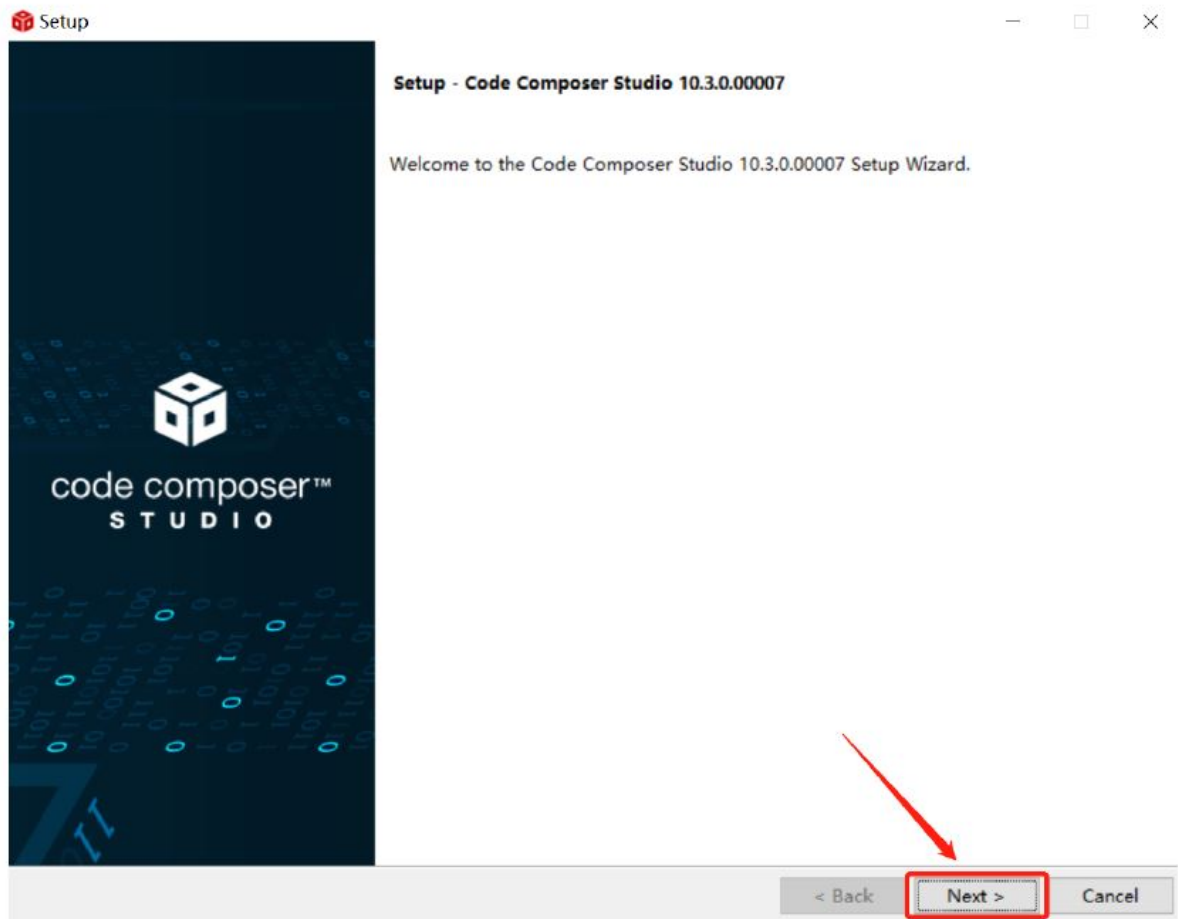
3. Unzip the package to a local disc
4. Click the setup of CCS
5. Click "Next"

CCS10.3.0.00007 win64.zip	2021/4/19 11:11	WinRAR ZIP
CCS10.3.0.00007_win64	2021/4/20 11:36	文件夹

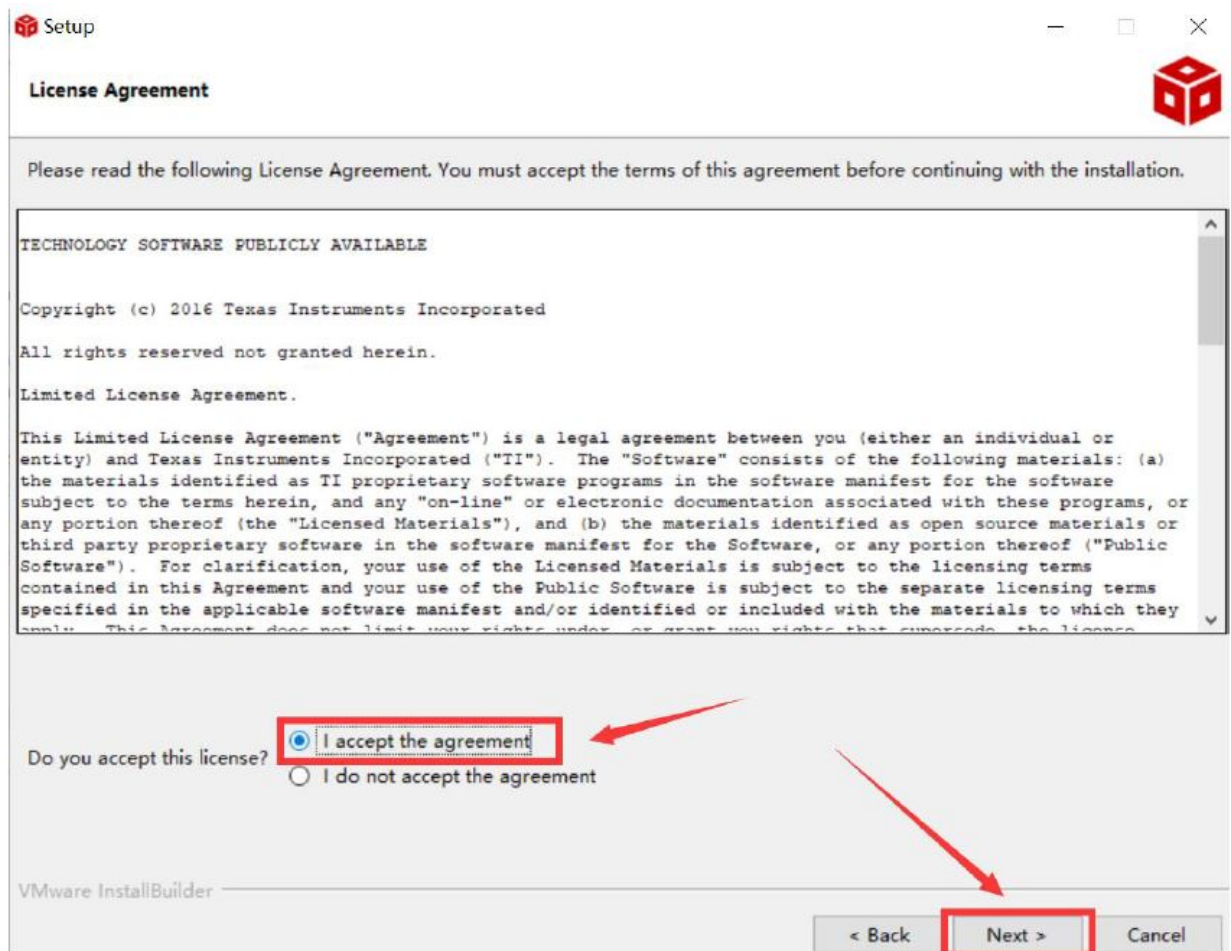
6. Select the default option

binary	2021/3/29 21:38
CCS10.3.0.00007_win64	2021/4/19 11:23
components	2021/3/29 21:38
features	2021/3/29 21:38
artifacts.jar	2021/3/29 21:38
ccs_setup_10.3.0.00007.exe	2021/3/29 21:37
content.jar	2021/3/29 21:38
README_FIRST_win64.txt	2021/3/29 21:38
timestamp.txt	2021/3/29 21:38

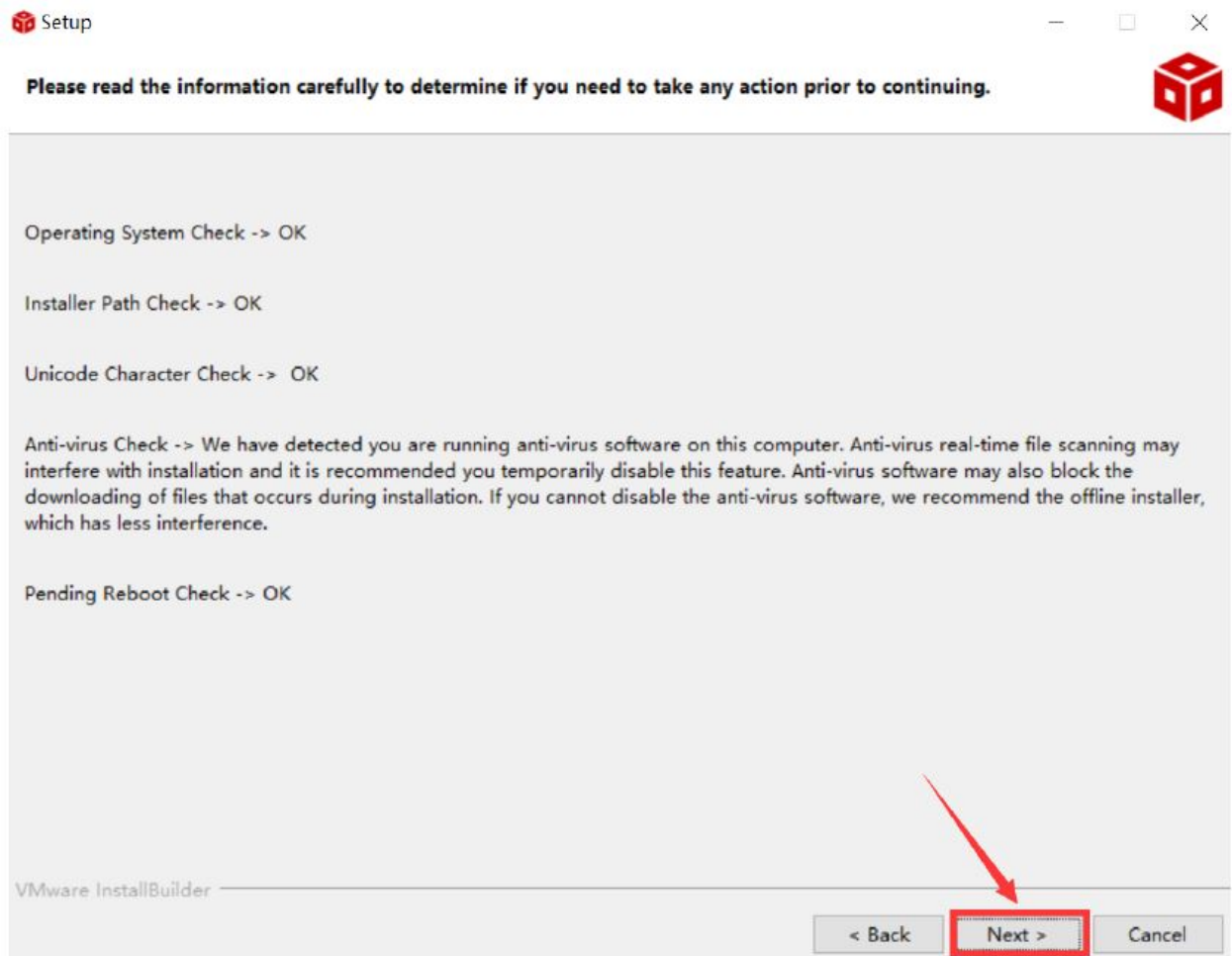
7. Click "Next"



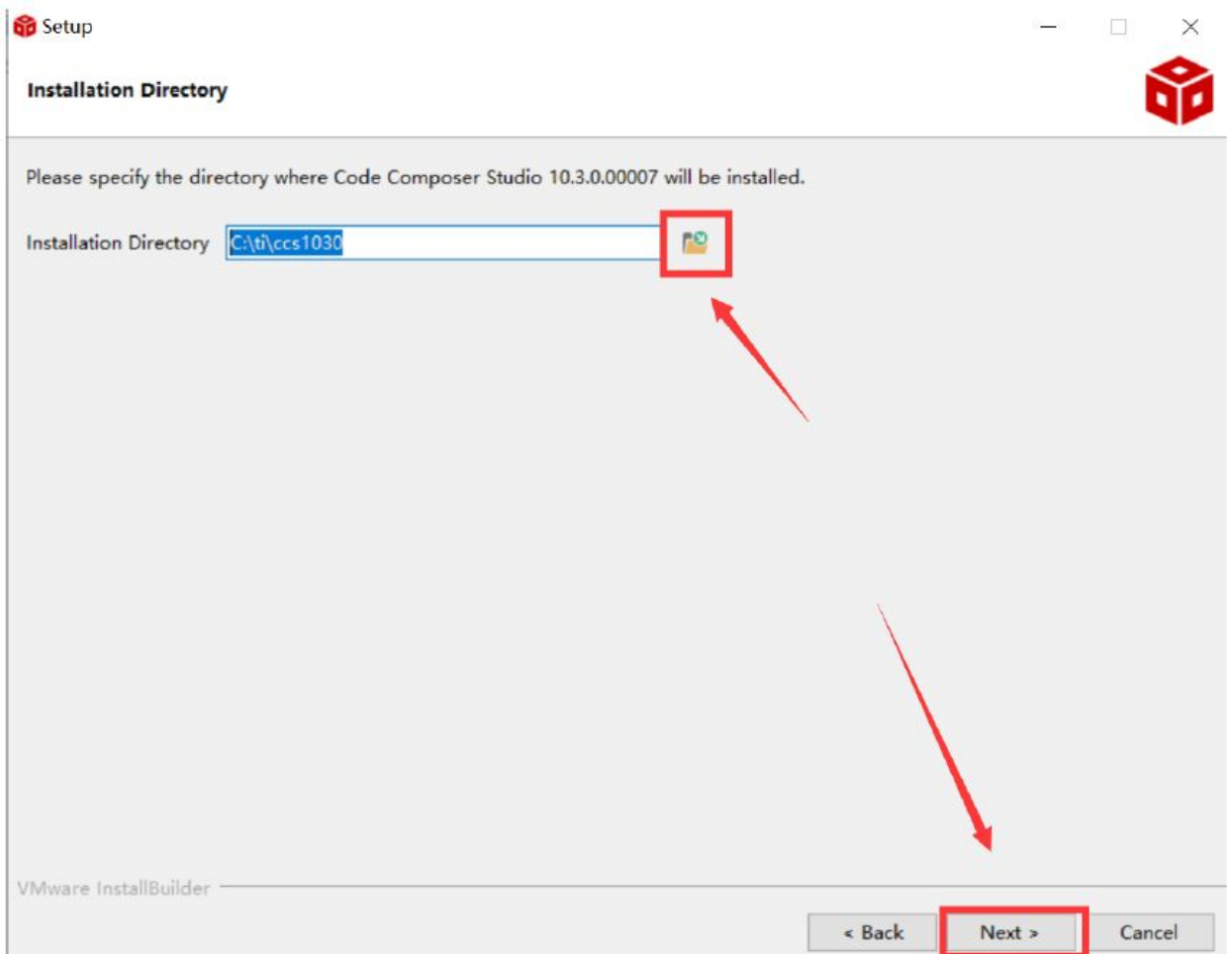
8. Select the Installation Directory



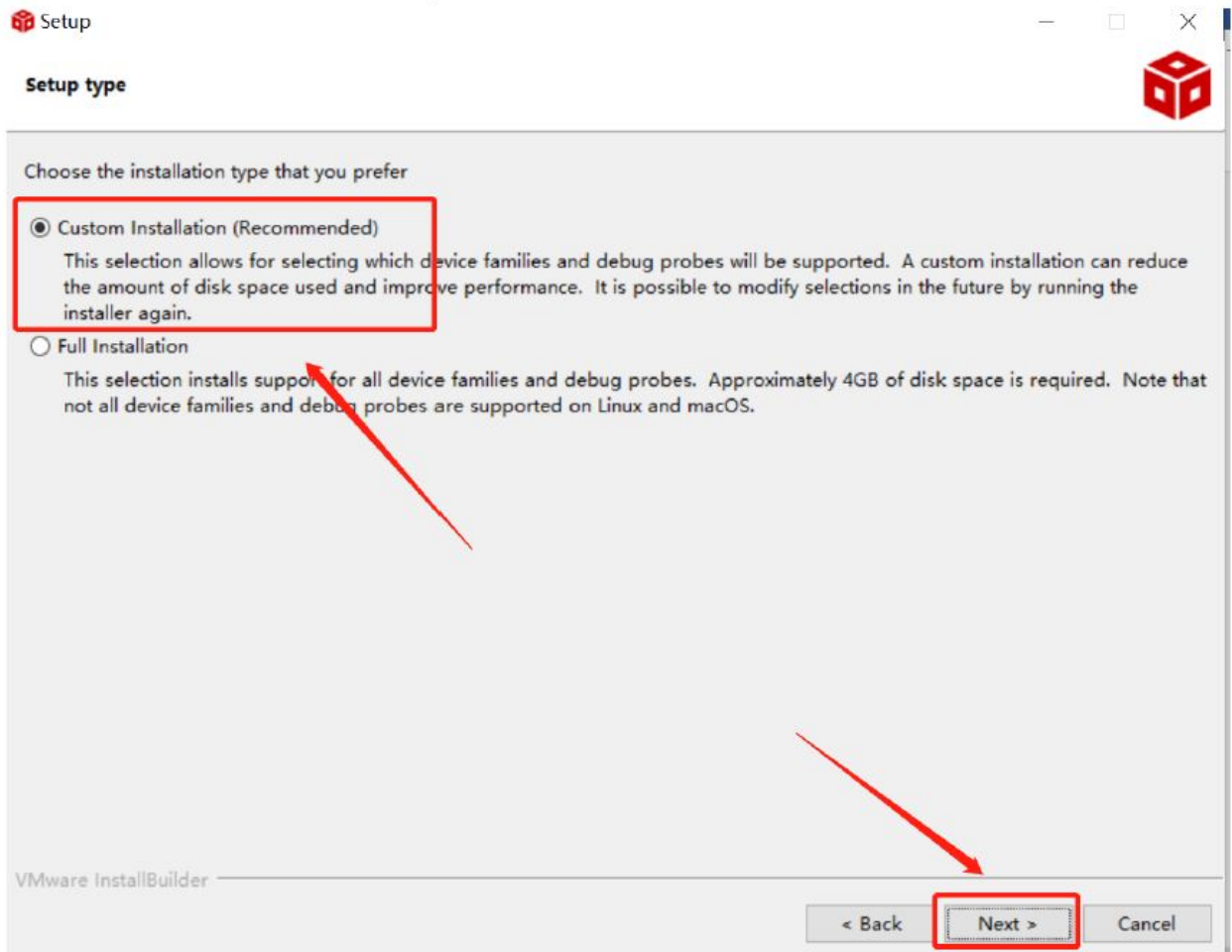
9. Select the default option



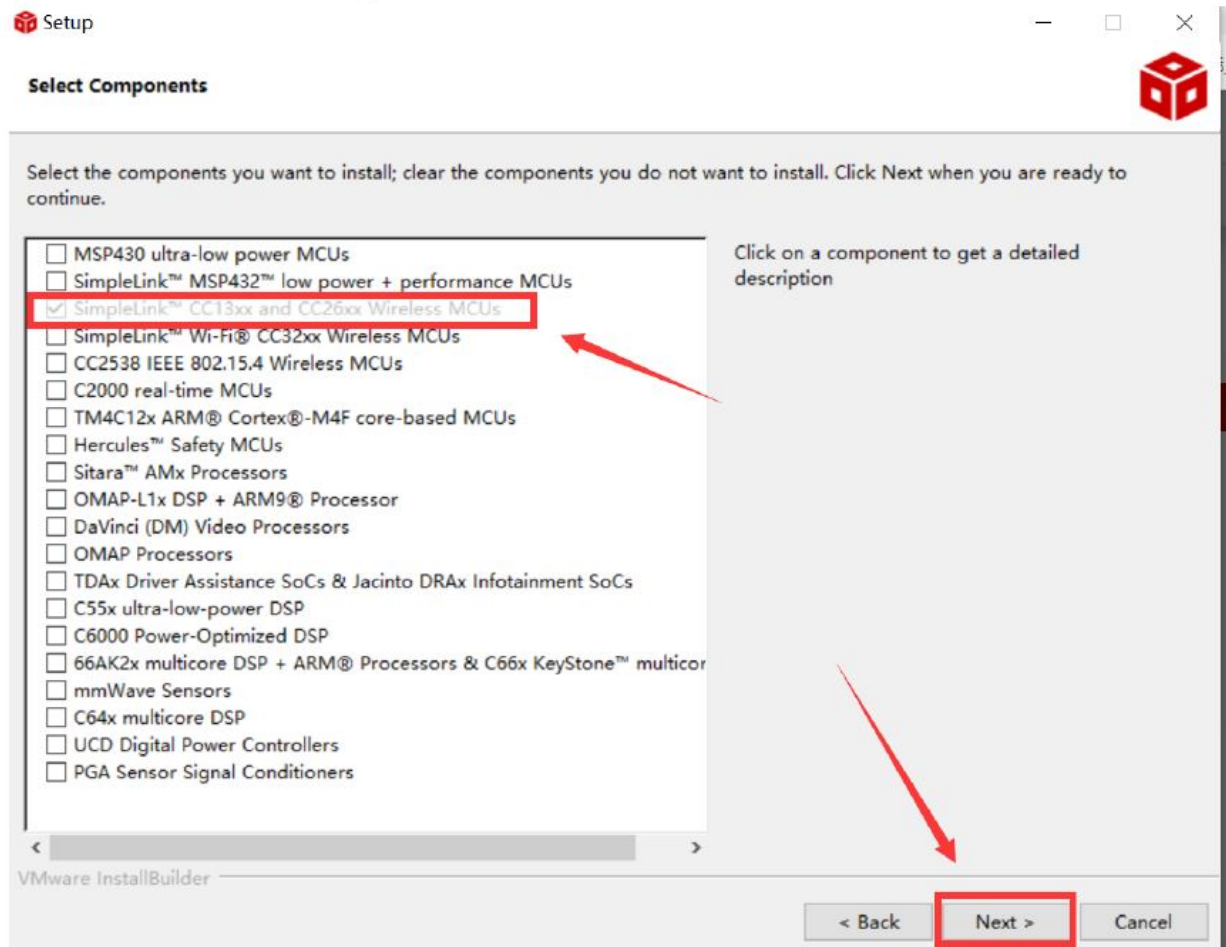
10. Select the component



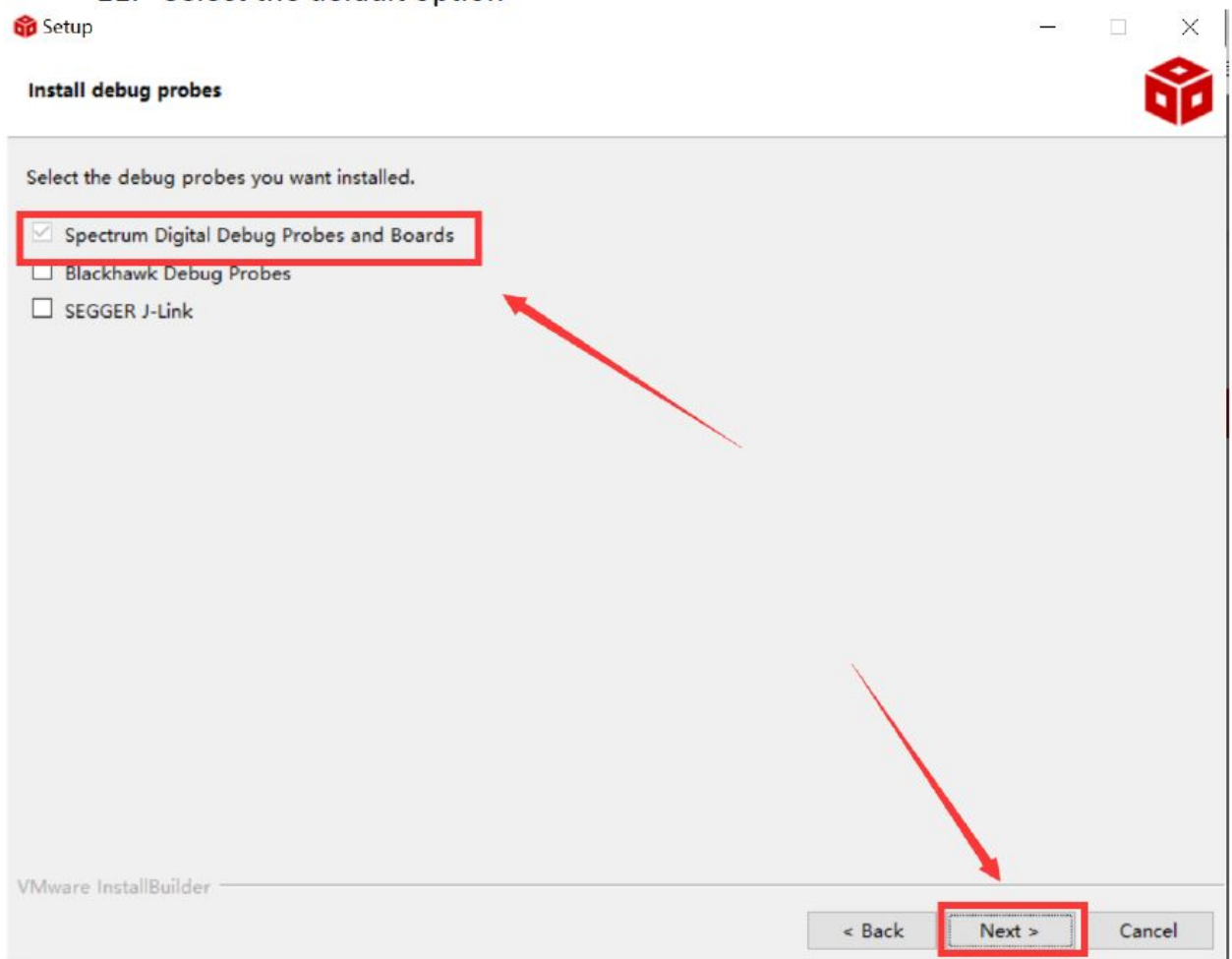
11. Select the default option



12. Click "Next"

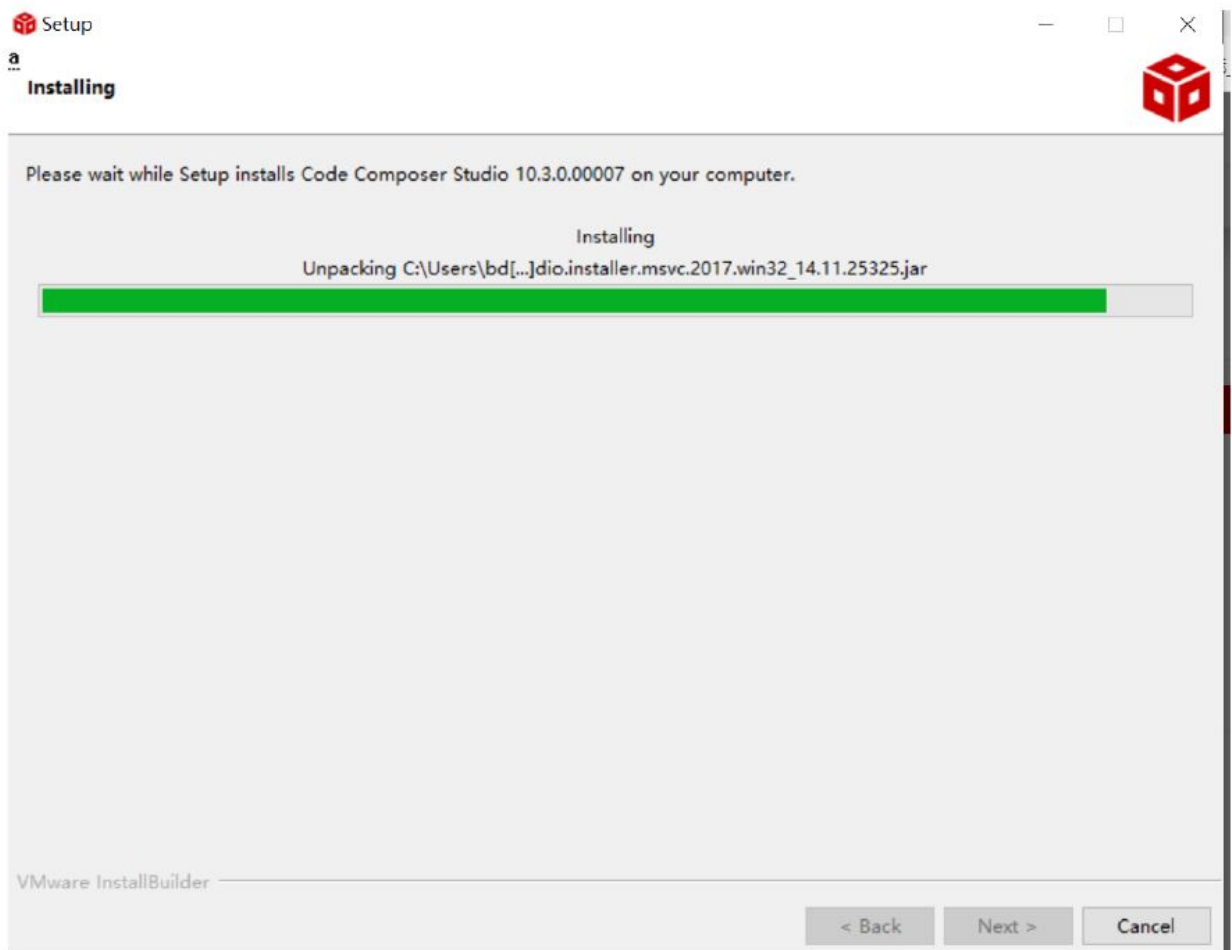


13. Click "Next"



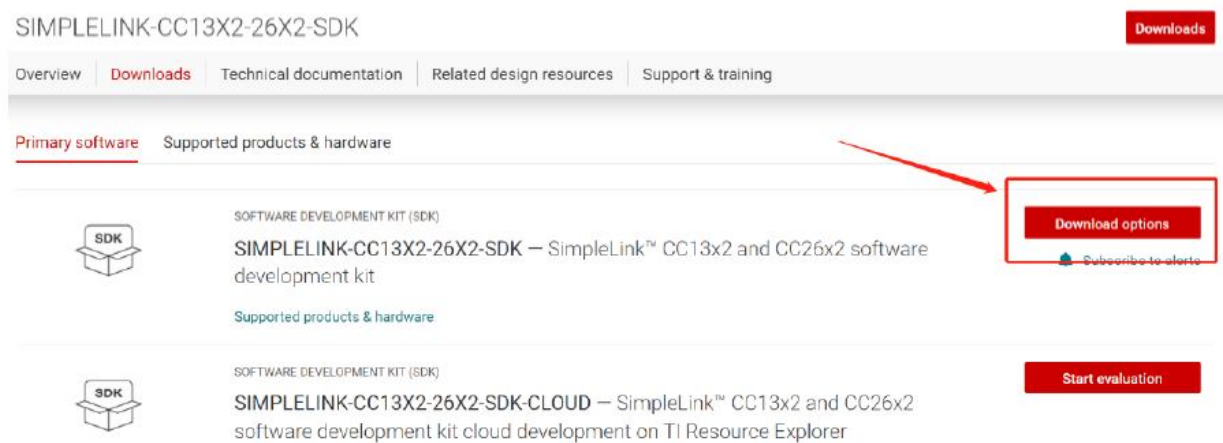
14.

15. Waiting for installation to complete



- Software Development Kit (SDK) installation


1. Click on this option




SIMPLELINK-CC13X2-26X2-SDK Downloads

Overview **Downloads** Technical documentation Related design resources Support & training

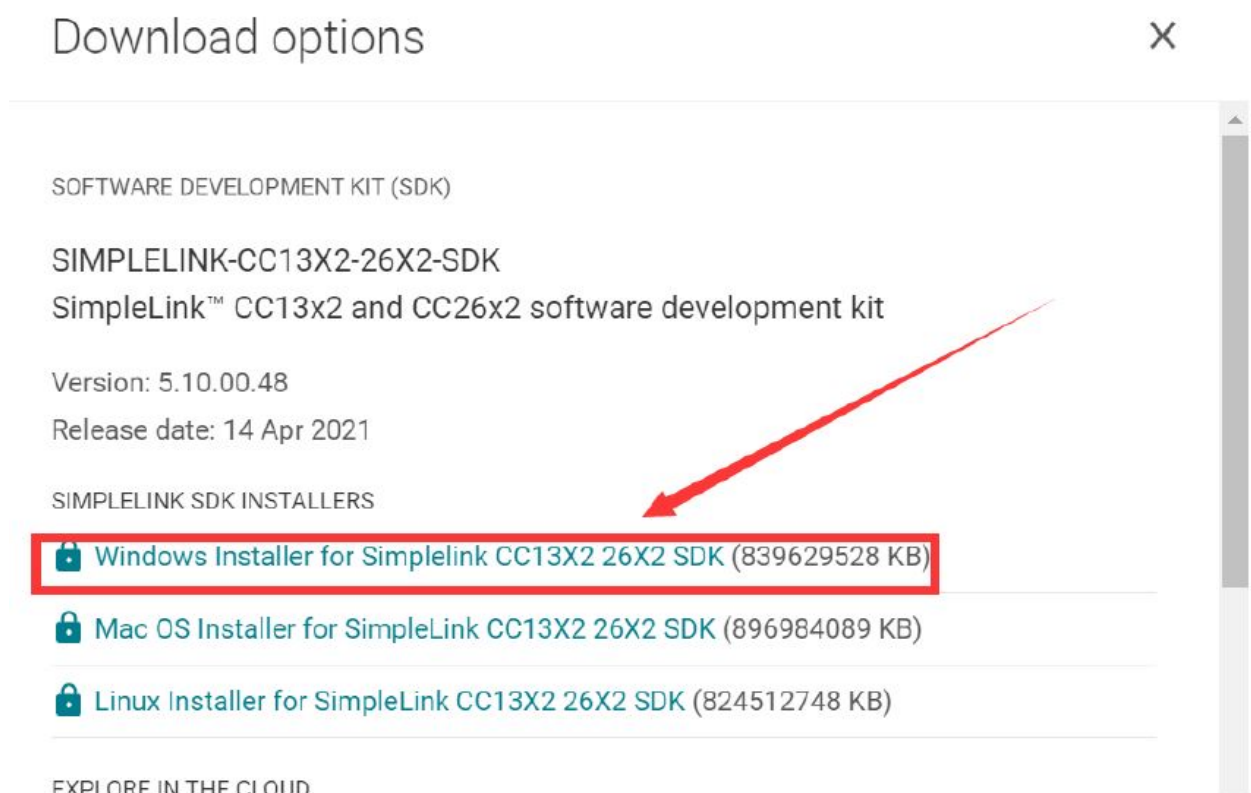
Primary software Supported products & hardware

 SOFTWARE DEVELOPMENT KIT (SDK)
SIMPLELINK-CC13X2-26X2-SDK — SimpleLink™ CC13x2 and CC26x2 software development kit
[Supported products & hardware](#)

Download options [Subscribe to alerts](#)

 SOFTWARE DEVELOPMENT KIT (SDK)
SIMPLELINK-CC13X2-26X2-SDK-CLOUD — SimpleLink™ CC13x2 and CC26x2 software development kit cloud development on TI Resource Explorer Start evaluation

2. Select an option you need to download SDK






Download options X

SOFTWARE DEVELOPMENT KIT (SDK)

SIMPLELINK-CC13X2-26X2-SDK
SimpleLink™ CC13x2 and CC26x2 software development kit

Version: 5.10.00.48
Release date: 14 Apr 2021

SIMPLELINK SDK INSTALLERS

-  **Windows Installer for Simplelink CC13X2 26X2 SDK (839629528 KB)**
-  Mac OS Installer for SimpleLink CC13X2 26X2 SDK (896984089 KB)
-  Linux Installer for SimpleLink CC13X2 26X2 SDK (824512748 KB)

EXPLORE IN THE CLOUD

3. Log in to your TI account, if you are a new user, register a TI account first

myTI account

[myTI FAQ](#)

Existing myTI user?

Your email address

Your myTI password

☒ Remember me

Login

[Forgot your password?](#)

By logging in, you agree to
[TI's Terms of use & Privacy policy.](#)

4. Select "civil" if your application is for civil use

U.S. Government export approval:

All fields are Required. Incomplete information will be DENIED.

First name:

Last name:

Your email address:

Your full company/university name:

Country this file will be used in:

What end-equipment/application will you use this file for:

☐ Military

☒ Civil

I certify that the following is true:

5. Select "Yes" and submit

compliance with any such import, use, or export restrictions.

- I / We hereby certify that we will adhere to the conditions above.
- I / We do not know of any additional facts different from the above.
- I / We take responsibility to comply with these terms.
- I / We understand we are responsible to abide by the most current. versions of the Export Administration Regulations and other U.S. export and sanctions laws.

I CERTIFY ALL THE ABOVE IS TRUE:

Yes ☒ No ☐

Submit

Thank you,
Texas Instruments

6. Download SDK

TI Request

**You have been approved to receive this file.
Click "Download" to proceed.**

In a few moments, you will also receive an email with the link to this file.

Download

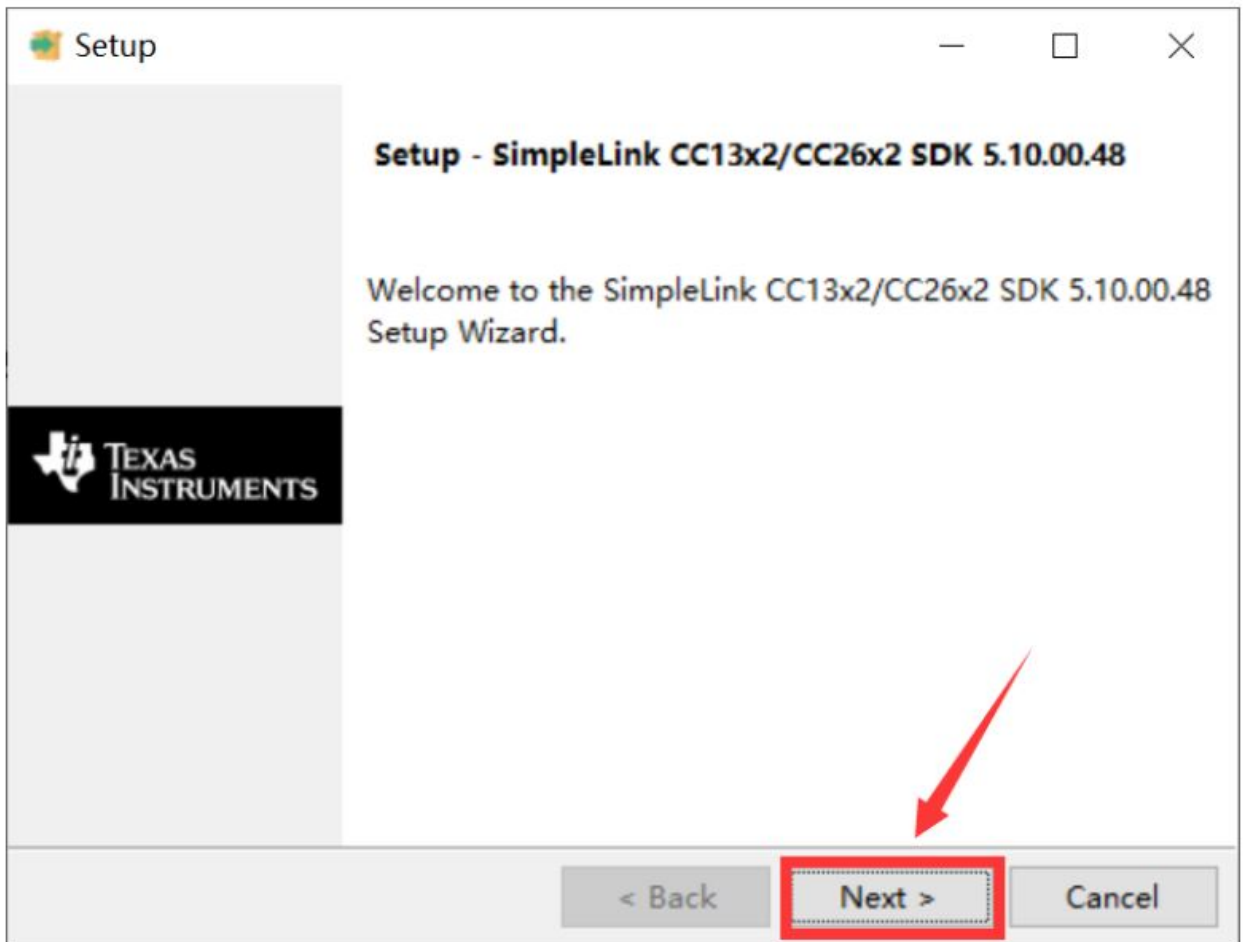
Having trouble downloading? Try www.ti.com/software-help

Thank you,
Texas Instruments

7. Installation

 simplelink_cc13x2_26x2_sdk_5_10_00_48.exe 2021/4/19 15:11

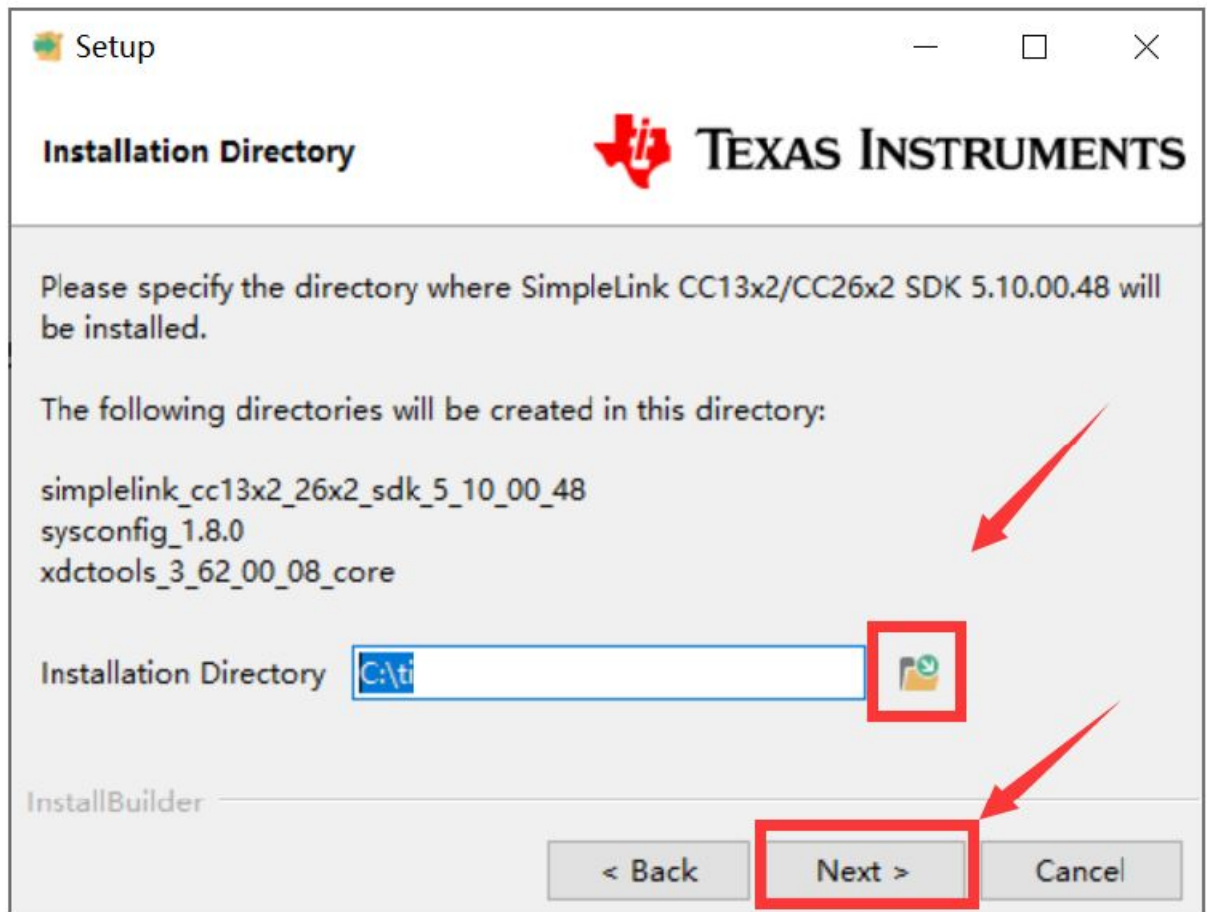
8. Click "Next"



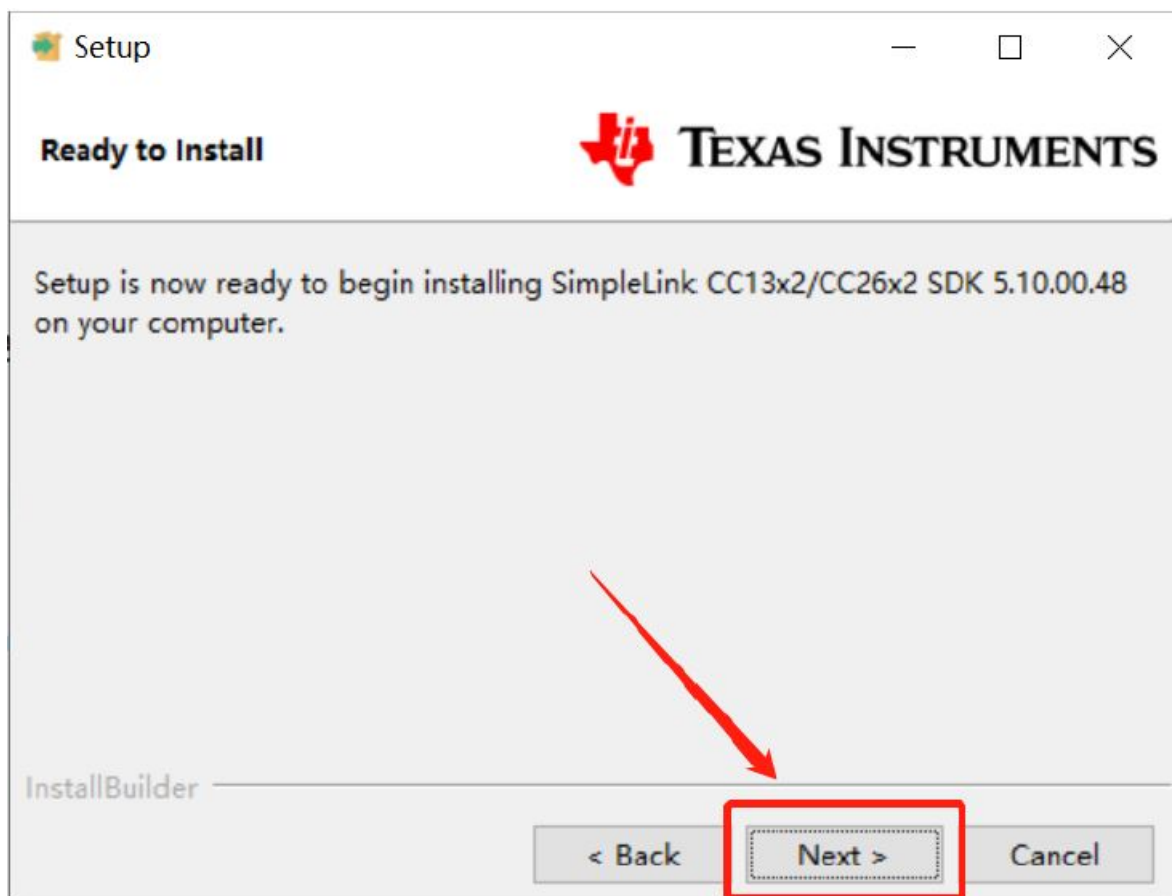
9. Select the default option



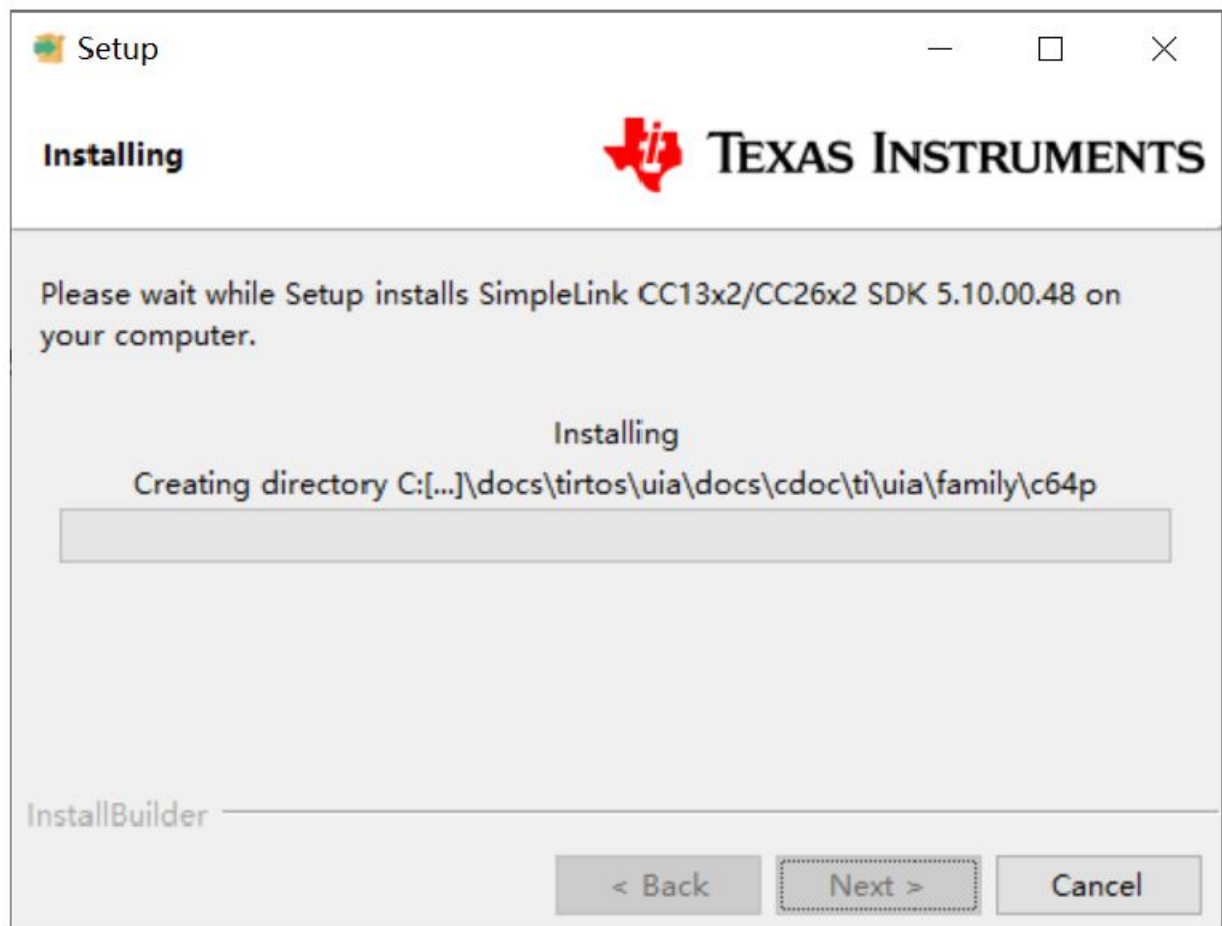
10. Select the Installation directory



11. Click "Next"

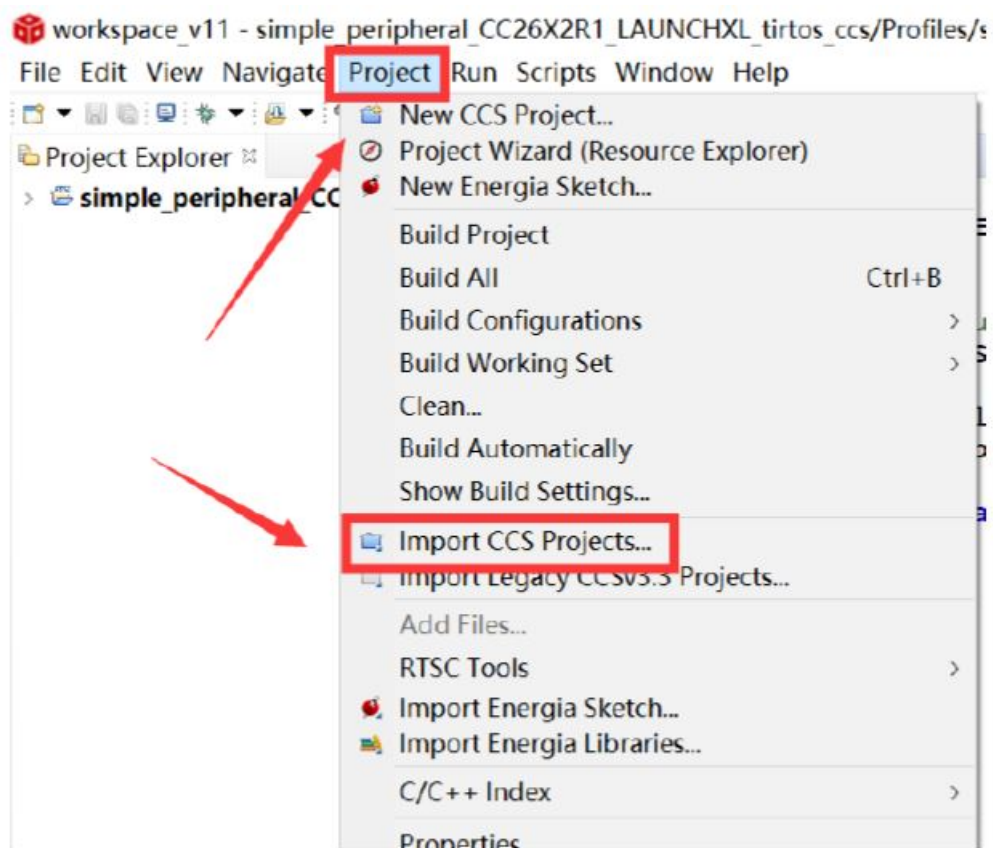


12. Waiting for installation to complete



- Run an example/demo code

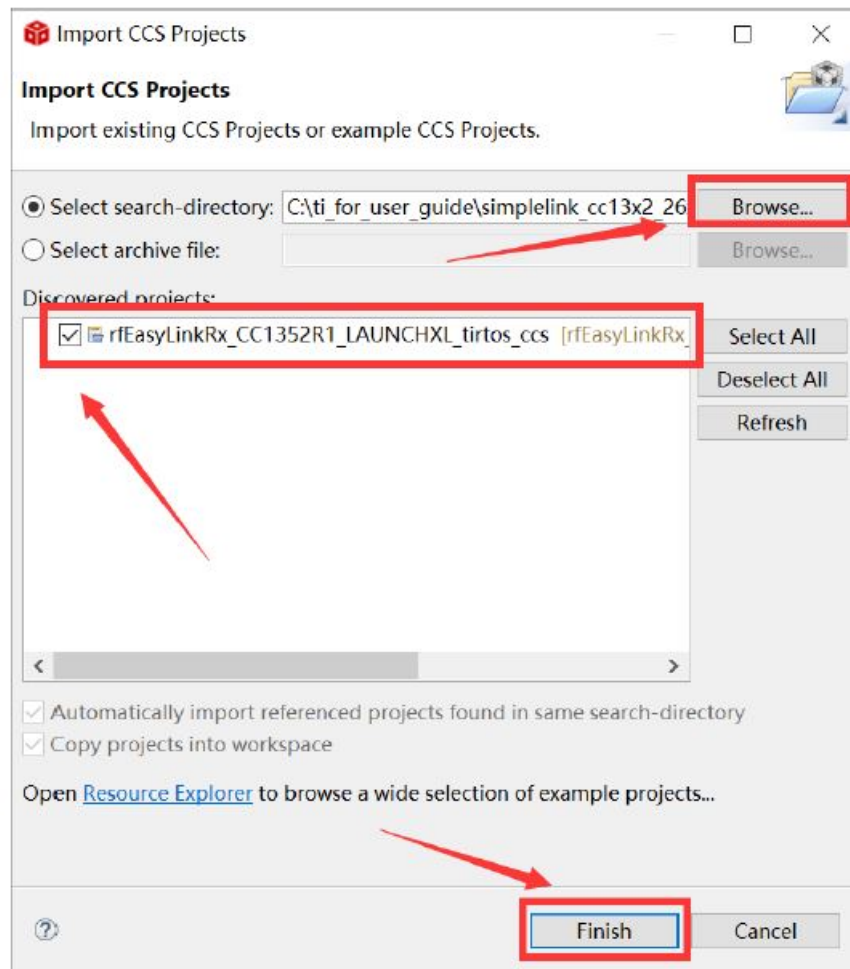
1. For the first module, find the option named “Import CCS project...”



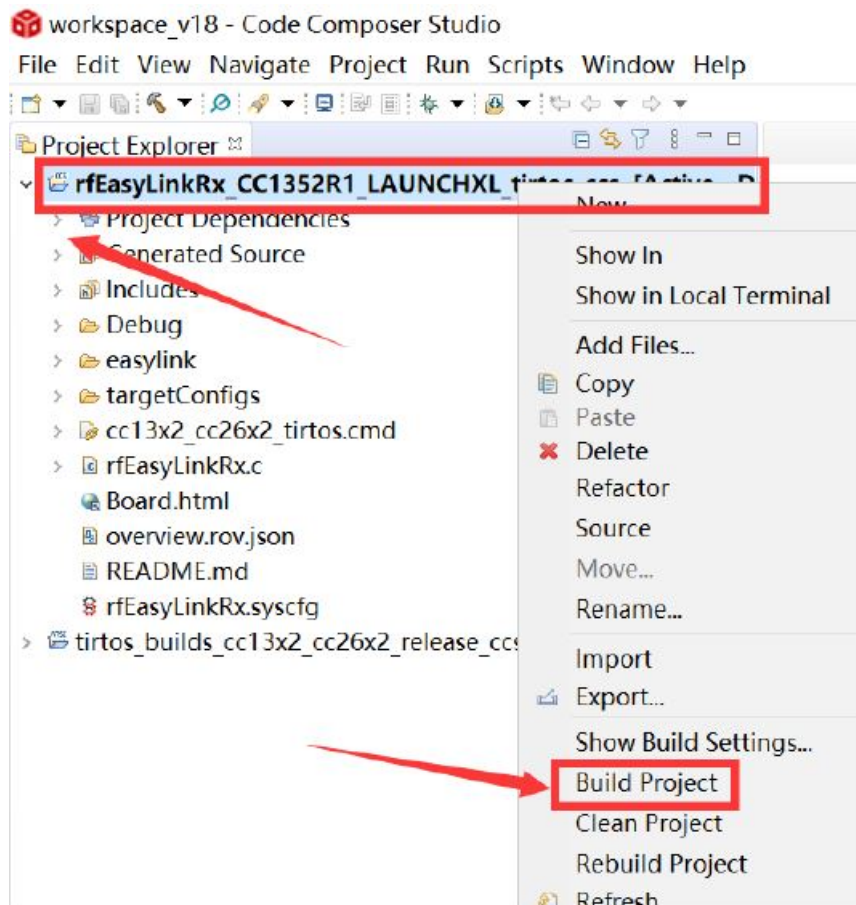
2. According to the following path to find the sending end project:

ti\simplelink_cc13x2_26x2_sdk_5_10_00_48\examples\rtos\CC1352R1_L AUNCHXL\ easylink\
rfEasyLinkRx\tirtos\ccs

- 3.



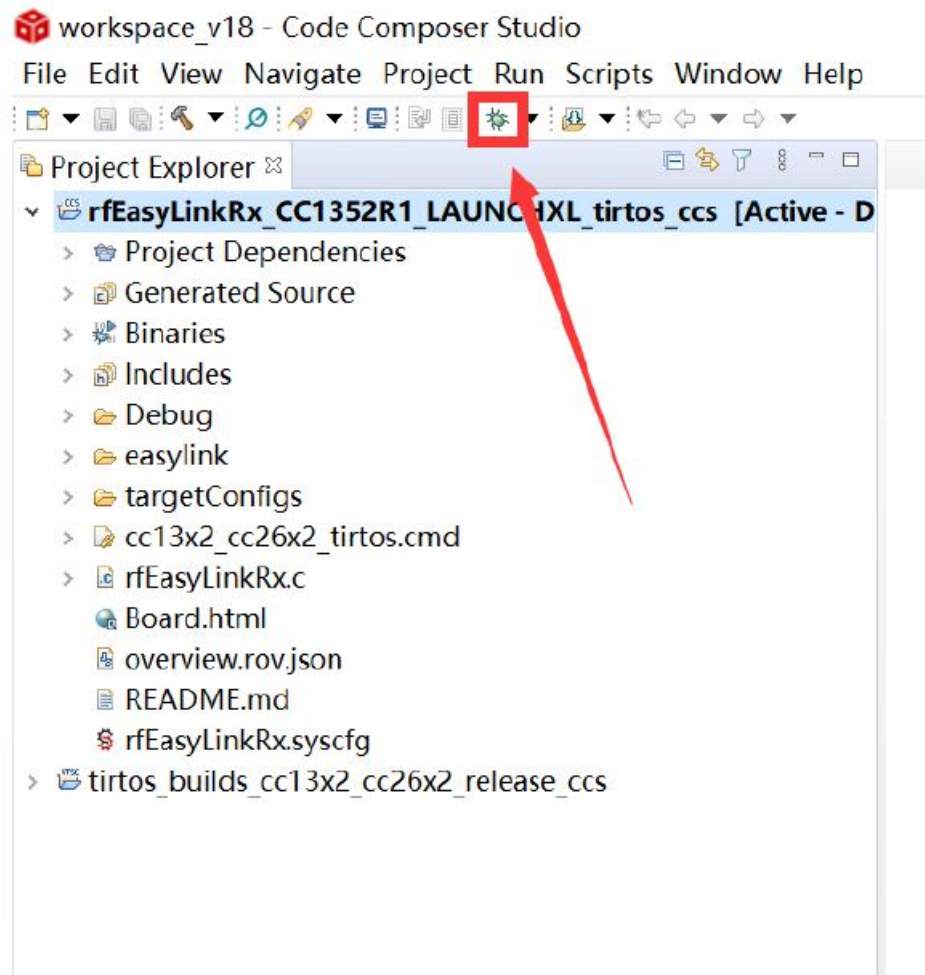
Right Click the project to build the receiving end project



4. Click this bug icon (means download and debugging)

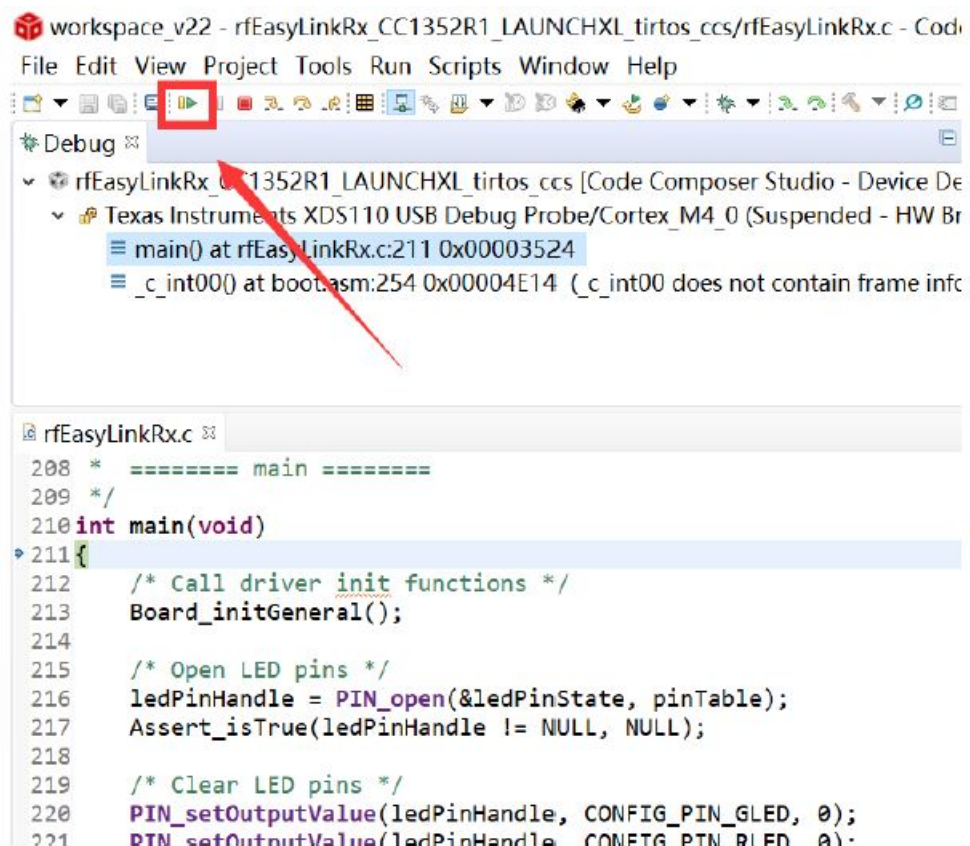
5.

6.

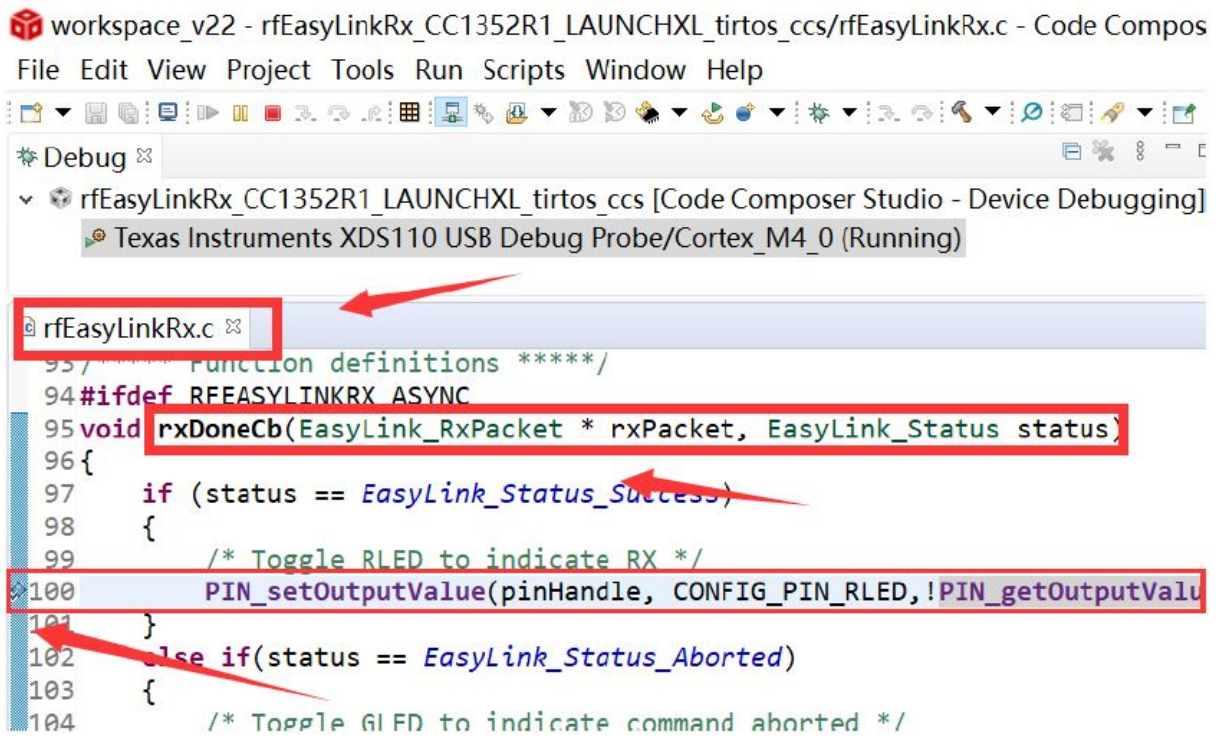


Click on this option to start debugging

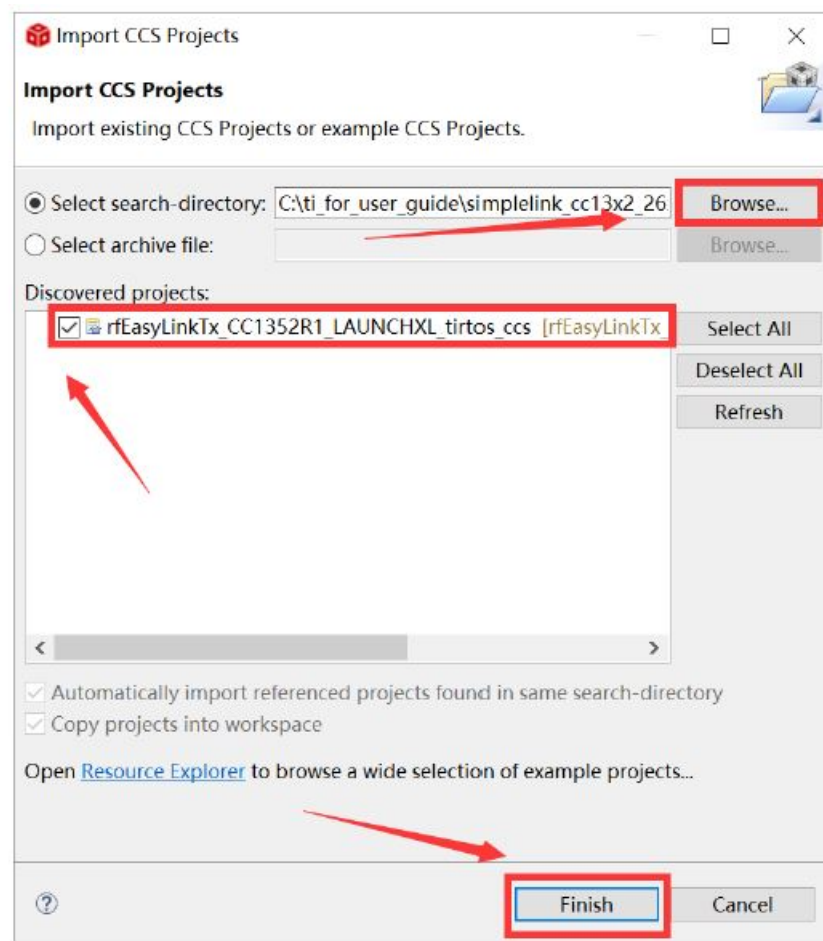
7.



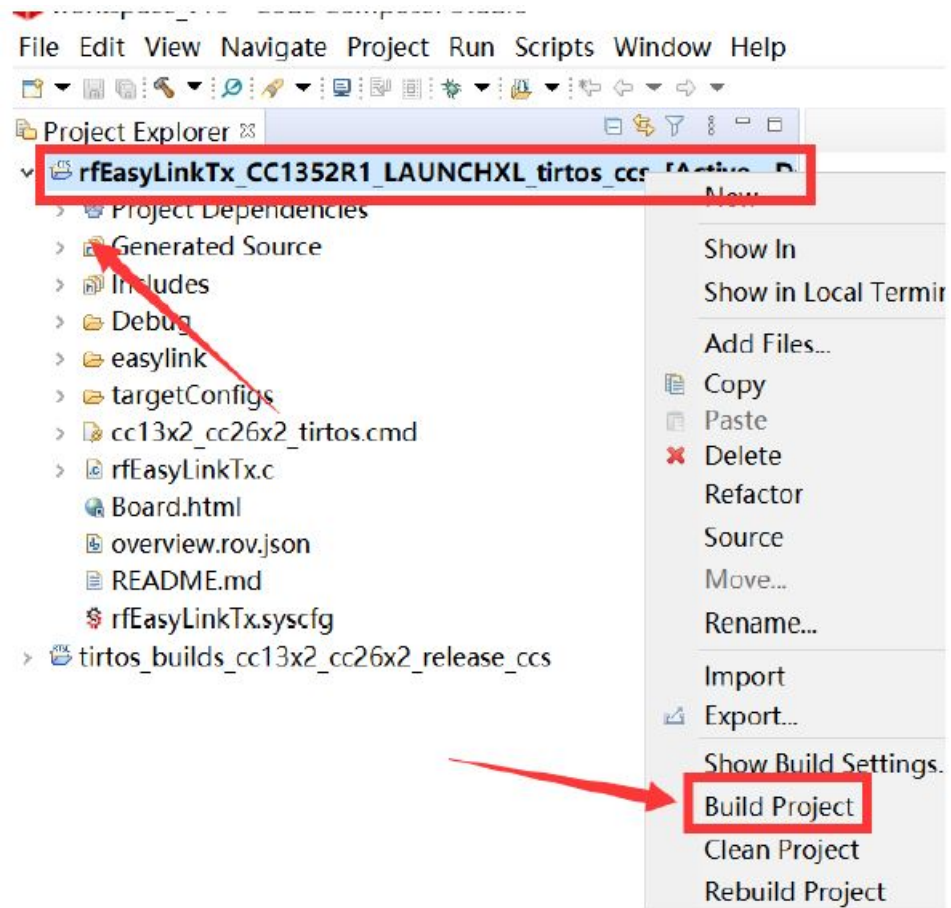
Find the file which is named "rfEasyLinkRx.c" and the function which is named "rxDoneCb", and set a breakpoint at the line as the arrows shows



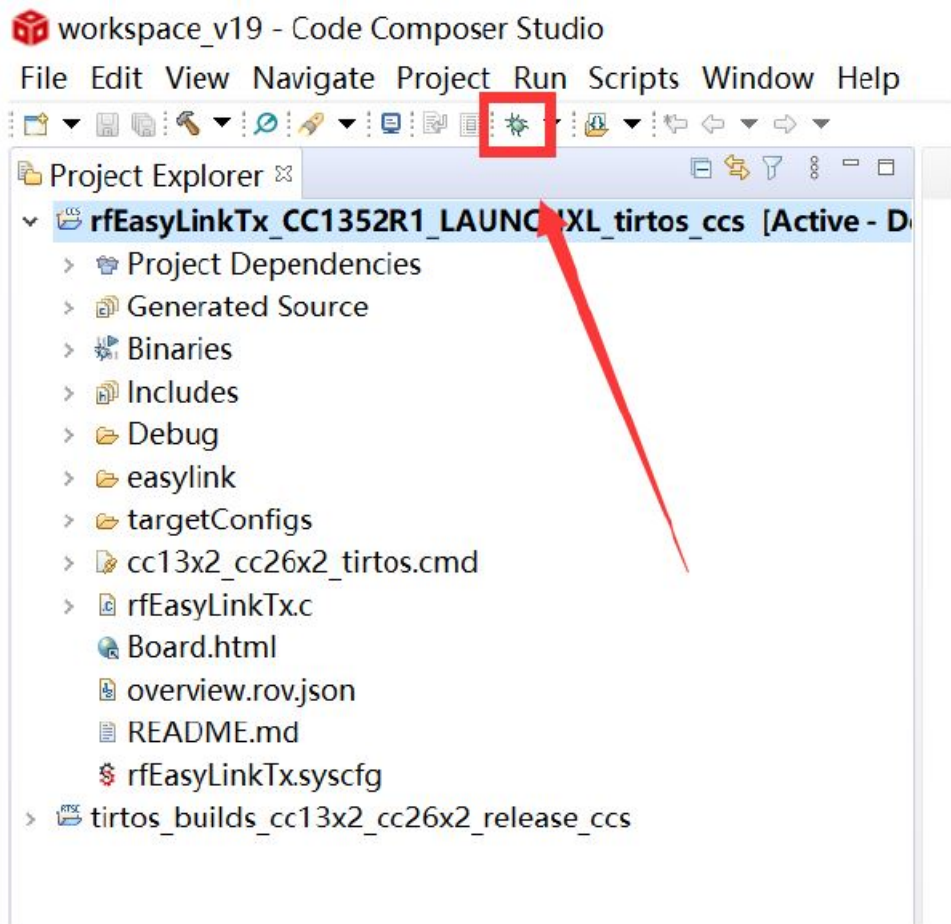
8. For another module, according to the following path to find the sending end project:
- t:\simplelink_cc13x2_26x2_sdk_5_10_00_48\examples\rtos\ CC1352R1_LAUNCHXL \ easylink\
rfEasyLinkTx\tirtos\ccs



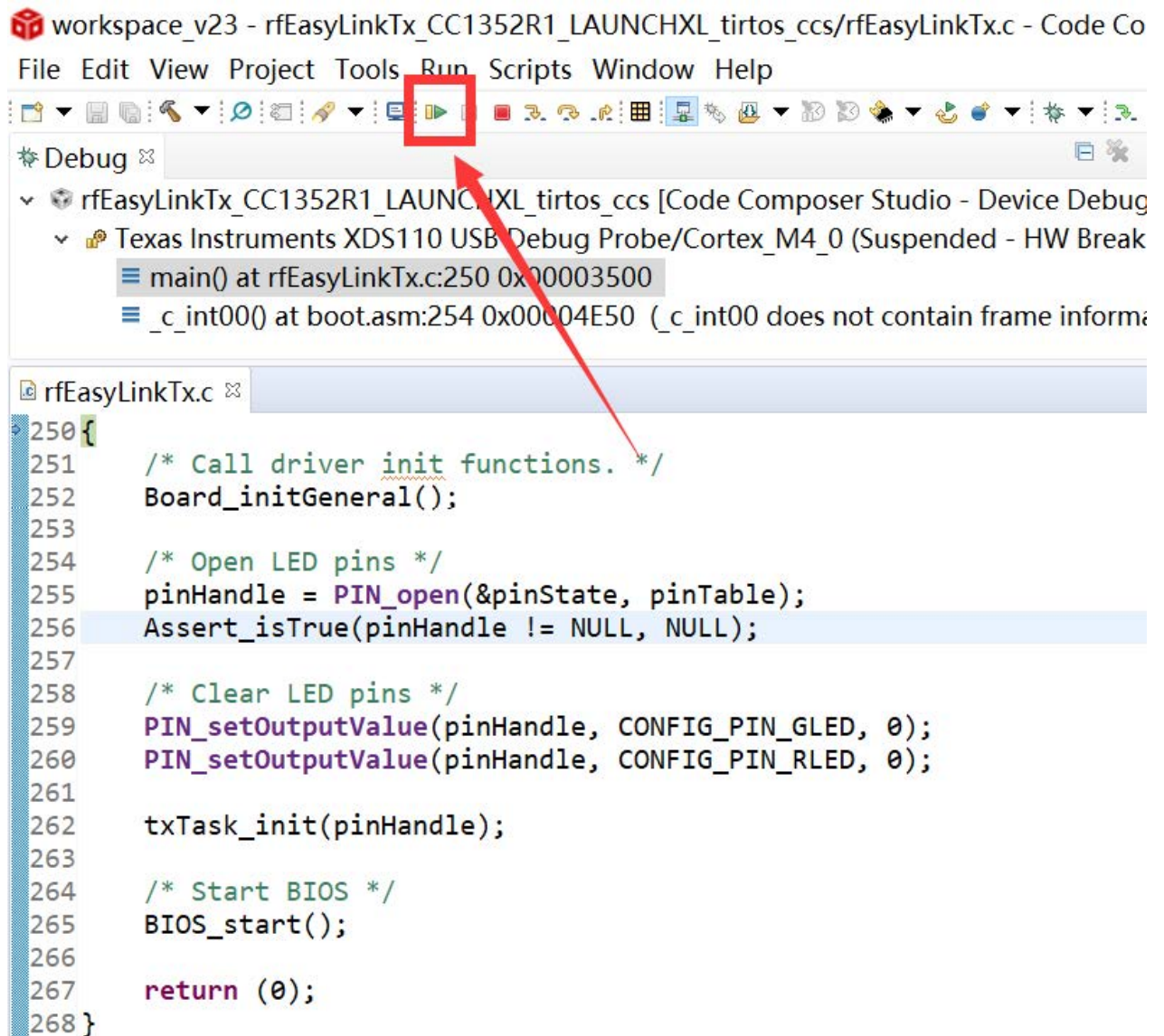
9. Right-Click the project to build the sending end project



10. Click this bug icon (means download and debugging)



11. Click on this option to start debugging



workspace_v23 - rfEasyLinkTx_CC1352R1_LAUNCHXL_tirtos_ccs/rfEasyLinkTx.c - Code Co

File Edit View Project Tools Run Scripts Window Help

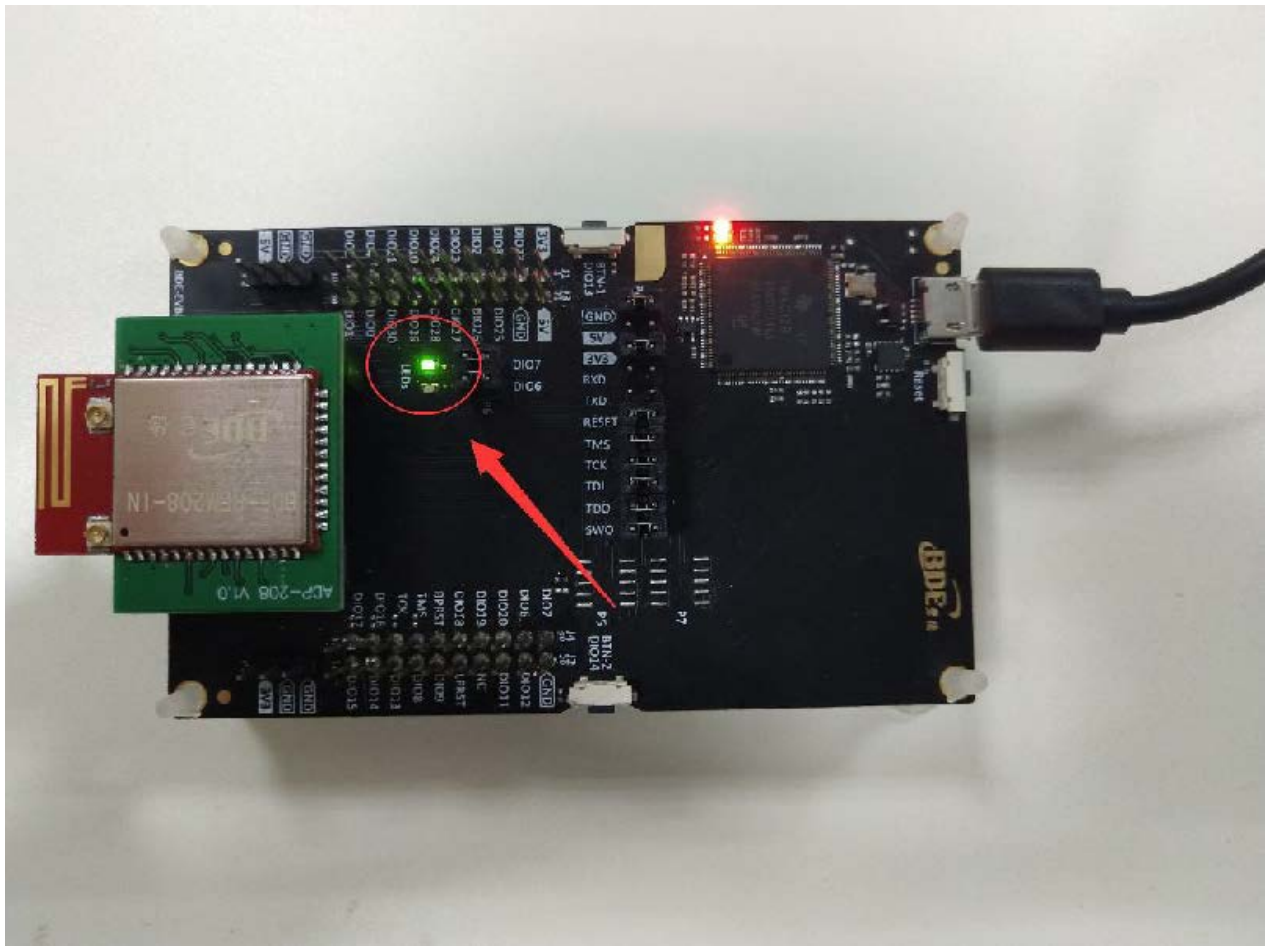
Debug

rfEasyLinkTx_CC1352R1_LAUNCHXL_tirtos_ccs [Code Composer Studio - Device Debug
Texas Instruments XDS110 USB Debug Probe/Cortex_M4_0 (Suspended - HW Break
main() at rfEasyLinkTx.c:250 0x00003500
_c_int00() at boot.asm:254 0x00004E50 (_c_int00 does not contain frame inform

rfEasyLinkTx.c

```
250 {  
251     /* Call driver init functions. */  
252     Board_initGeneral();  
253  
254     /* Open LED pins */  
255     pinHandle = PIN_open(&pinState, pinTable);  
256     Assert_isTrue(pinHandle != NULL, NULL);  
257  
258     /* Clear LED pins */  
259     PIN_setOutputValue(pinHandle, CONFIG_PIN_GLED, 0);  
260     PIN_setOutputValue(pinHandle, CONFIG_PIN_RLED, 0);  
261  
262     txTask_init(pinHandle);  
263  
264     /* Start BIOS */  
265     BIOS_start();  
266  
267     return (0);  
268 }
```

12. You can see the lights flashing (means sending a data uninterruptedly)



13. The program stops at the breakpoint

workspace_v22 - rfEasyLinkRx_CC1352R1_LAUNCHXL_tirtos_ccs/rfEasyLinkRx.c - C

File Edit View Project Tools Run Scripts Window Help

Debug

▼ Texas Instruments XDS110 USB Debug Probe/Cortex_M4_0 (Suspended - HW)

rxDoneCb(struct <unnamed> *, int)() at rfEasyLinkRx.c:100 0x000039C2

rfEasyLinkRx.c

```
93 /***** function definitions *****/
94 #ifdef RFEASYLINKRX_ASYNC
95 void rxDoneCb(EasyLink_RxPacket * rxPacket, EasyLink_Status st
96 {
97     if (status == EasyLink_Status_Success)
98     {
99         /* Toggle RLED to indicate RX */
100         PIN_setOutputValue(pinHandle, CONFIG_PIN_RLED, !PIN_get
101     }
102     else if(status == EasyLink_Status_Aborted)
103     {
104         /* Toggle GLED to indicate command aborted */
105         PIN_setOutputValue(pinHandle, CONFIG_PIN_GLED, !PIN_get
106     }
107     else
108     {
109         /* Toggle GLED and RLED to indicate error */
110         PIN_setOutputValue(pinHandle, CONFIG_PIN_GLED, !PIN_get
111         PIN_setOutputValue(pinHandle, CONFIG_PIN_RLED, !PIN_get
112     }
```

By far you should've built your first application successfully.

For further development, please check out the CC1352R1 data sheet, product information and support | TI.com page and download the User guide (<https://www.ti.com/lit/pdf/swcu185>)

Other Resources

Mac OS Installer for SimpleLink CC13X2 26X2 SDK

Linux Installer for SimpleLink CC13X2 26X2 SDK

Mac OS Installer for Code Composer Studio IDE

Linux Installer for Code Composer Studio IDE

CC1352R SimpleLink™ High-Performance Multi-Band Wireless MCU

Windows Installer for SmartRF Flash Programmer 2

More Questions:

Please search existing answers on TI E2E support forums

Contact your local TI sales representative.

Or

Contact BDE Technology, Inc.

China:

B2-403, 162 Science Ave, Huangpu District, Guangzhou, 510663

Tel: +86-020-28065335

Website: <http://www.bdecomm.com/cn/> Email: shu@bdecomm.com

USA:

67 E Madison St, #1603A, Chicago, IL 60603

Tel: +1-312-379-9589

Website: <http://www.bdecomm.com/> Email: info@bdecomm.com

Documents / Resources