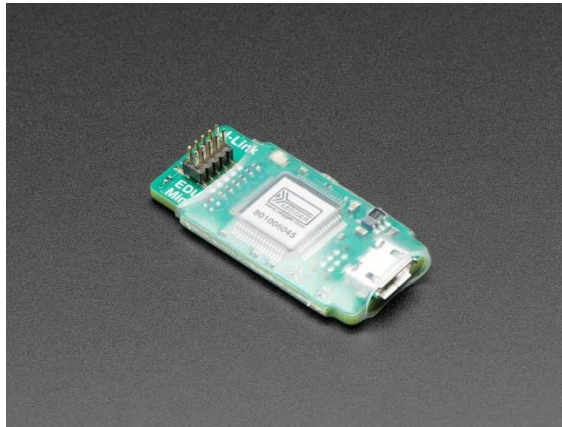


## AN-013 OPS241/OPS242 Code Update

From time to time, OmniPreSense provides code updates with new features and/or fixes for its radar sensors. The embedded code in the OPS241/OPS242 short range radar sensor can be easily updated to take advantage of these enhancements. This application note describes how to update the code on the OPS241/OPS242 radar sensors.

### Update Tools

To update the code on the OPS241/OPS242 radar sensor the user will need a JTAG programmer and a PC based code flashing tool. An example of a low cost JTAG programmer is shown Figure 1. This programmer is relatively inexpensive and available from Adafruit [here](#). Other models are available from [Segger](#).



*Figure 1. JTAG Programmer*

The code flashing tool used by OmniPreSense is XMCFIasher™ provided by Infineon. This free tool is available [here](#). Scroll down the page to find the Programmers/Flash Tools section (Figure 2) and click on “+” to expand the menu. Scroll down to the Infineon section and download XMCFIasher.

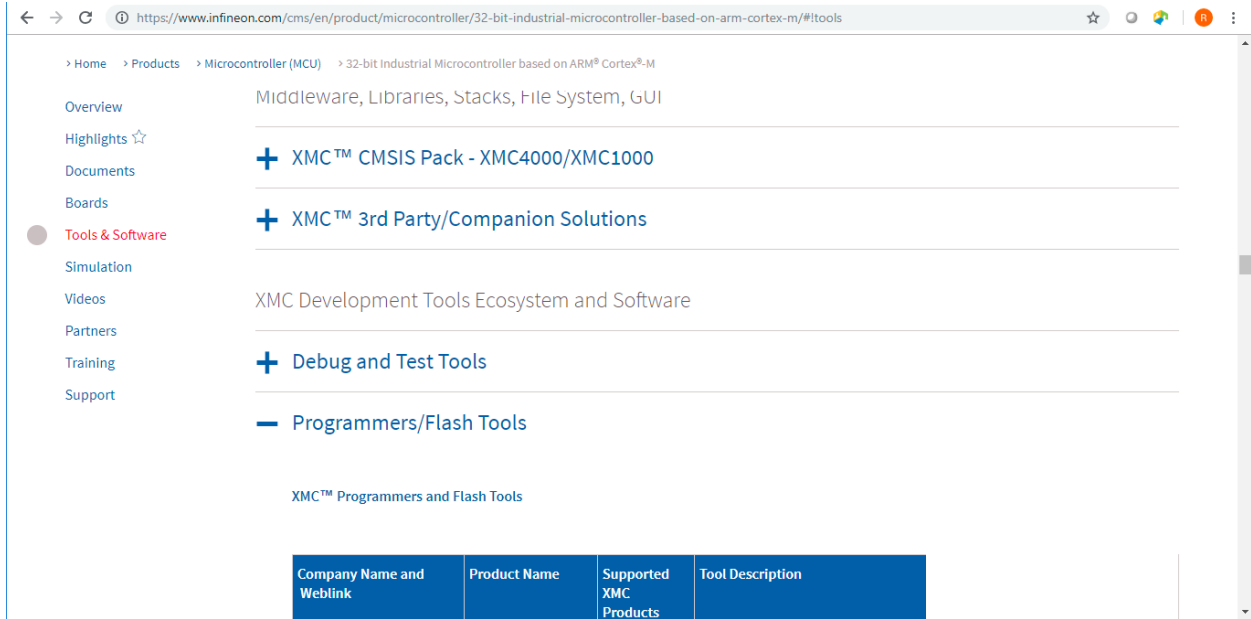


Figure 2. XMCFlasher Download Page

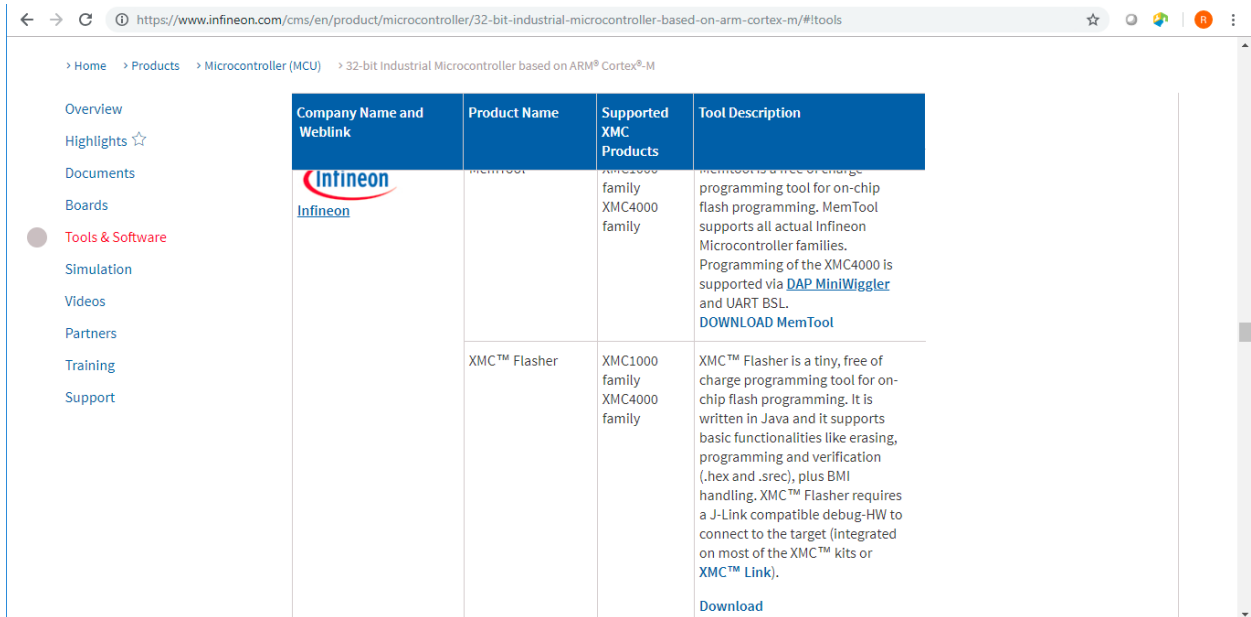


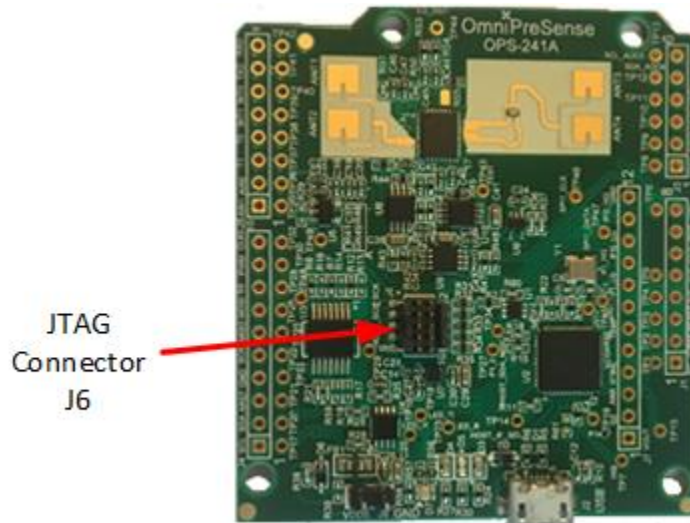
Figure 3. XMCFlasher Download

## Updating Code

To update the code in the OPS241/OPS242, follow the step by step instructions below. You should have a JTAG programming tool like the Segger noted above.

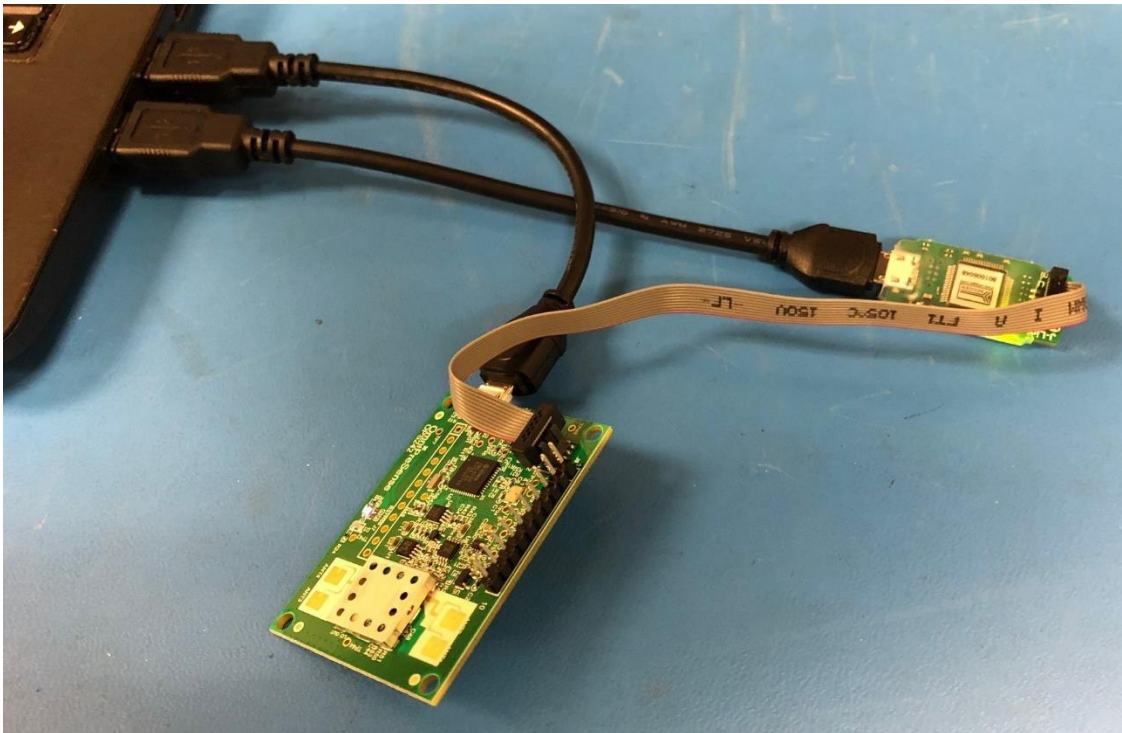
**Step 1.** Download and install the XMCFlasher programming tool from the Infineon website. Follow the installation instructions that come with the download.

**Step 2.** Connect the JTAG programmer's connector to the JTAG connector on the OPS241/OPS242 (J6) located near the middle of the board (Figure 4). The connector is keyed, so it can only connect in one direction.



*Figure 4. JTAG Connector J6*

**Step 3.** Plug in the USB connector of the JTAG programmer to a USB port on the PC. Plug in a USB micro cable into the OPS241/OPS242 and the other end into another USB port on the PC (Figure 5). This provides power to the OPS241/OPS242 during the program update.



*Figure 5. USB and JTAG Connections to PC*

**Step 4.** Start XMCFasher on the PC to get a window like that shown in Figure 6.

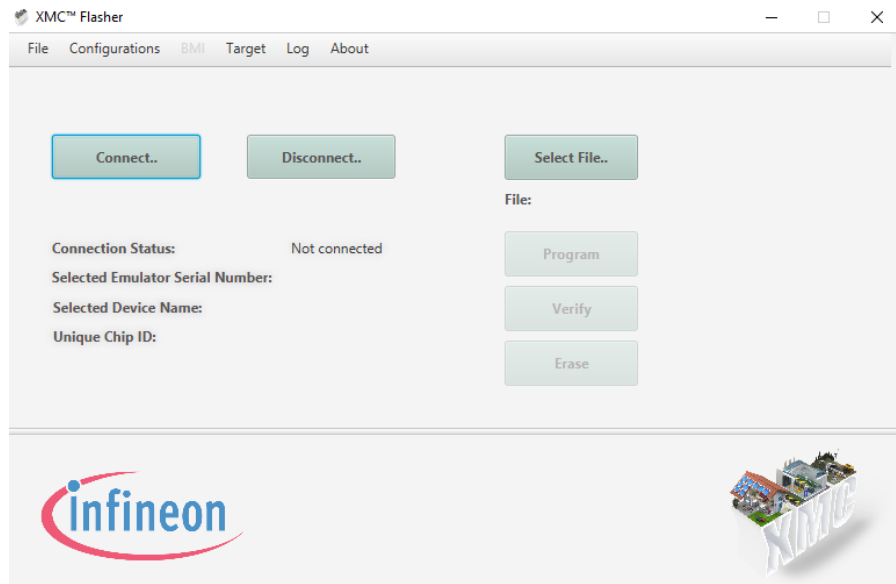


Figure 6. XMCFasher Programming Tool

**Step 5.** With the OPS241/OPS242 connected to the PC, press the Connect button on XMCFasher. A pop-up window like that in Figure 7 will appear. Scroll down and select the XMC4200-256 and press Ok.

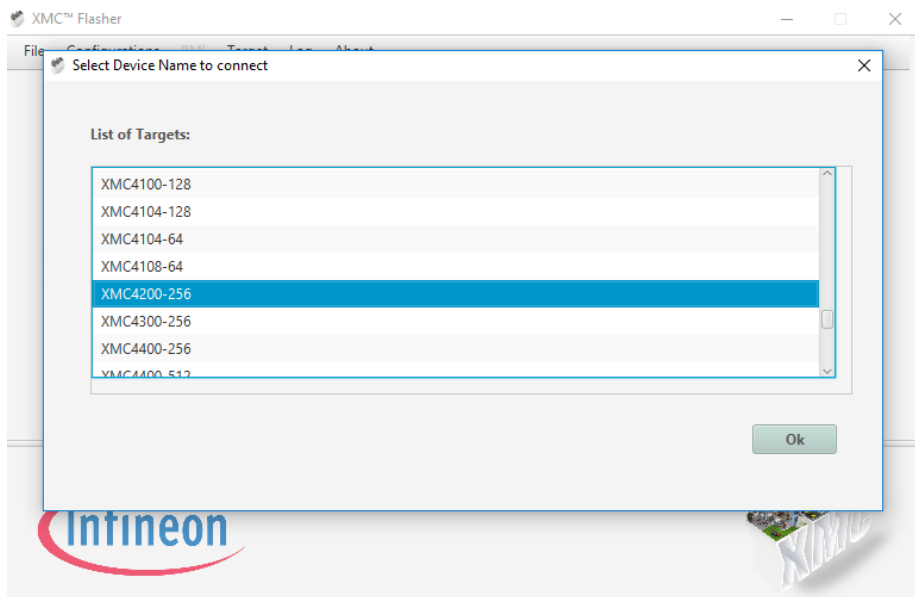


Figure 7. XMCFasher Device Selection Window

**Step 6.** The window will change and show the Connected Status as Connected (Figure 8). Additional information about the device will be shown including the Unique Chip ID.

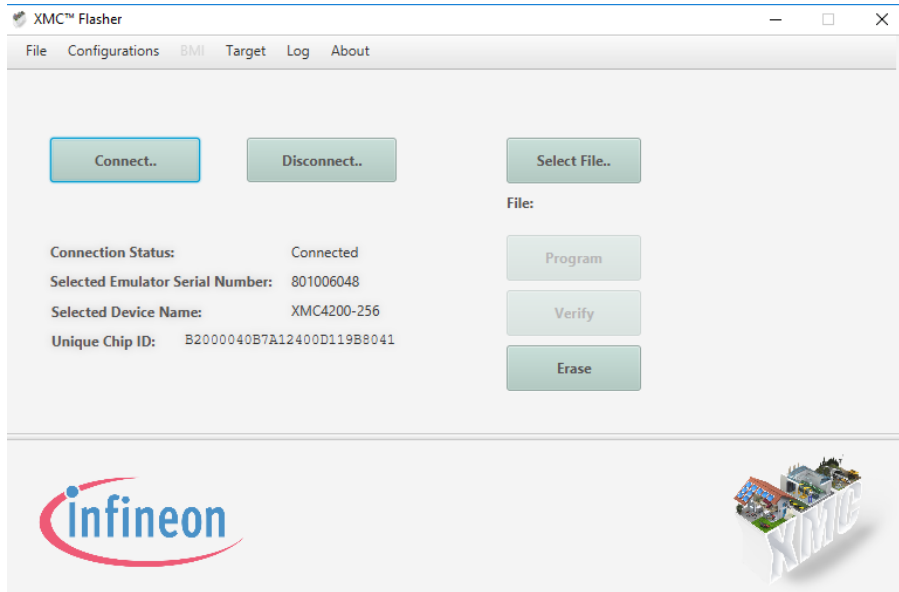


Figure 8. XMCFlasher Connected State Window

**Step 7.** Next, click on Select File and browse to the location of the hex file with the code to be updated on the OPS241/OPS242. The name of the file will show up under the Select File button (*Figure 9*). Contact OmniPreSense [customer service](#) to obtain the latest code version.

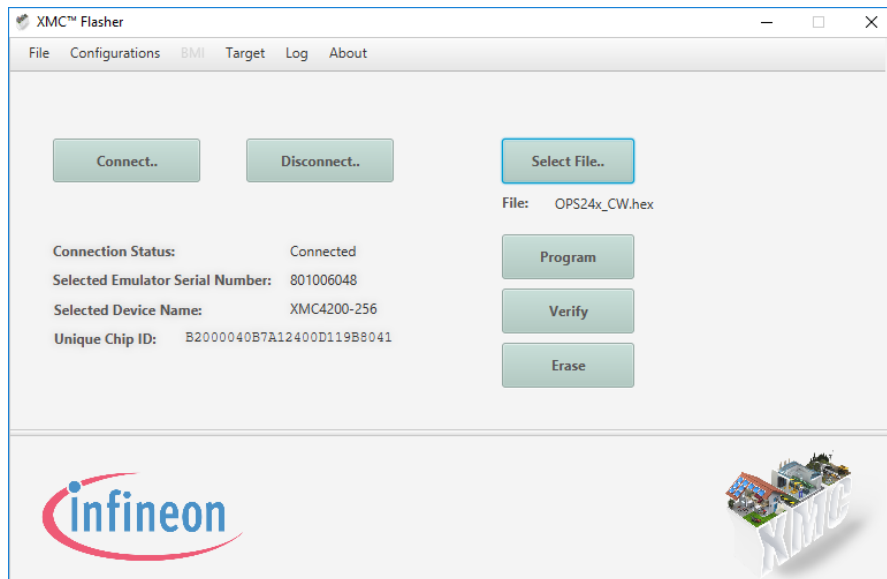


Figure 9. Hex File Selection

**Step 8.** Press Program to start the flashing process. A pop-up of rolling balls along with a status box will appear while the flashing in process (*Figure 10*). Typically, it only takes a few seconds to complete the flashing process.

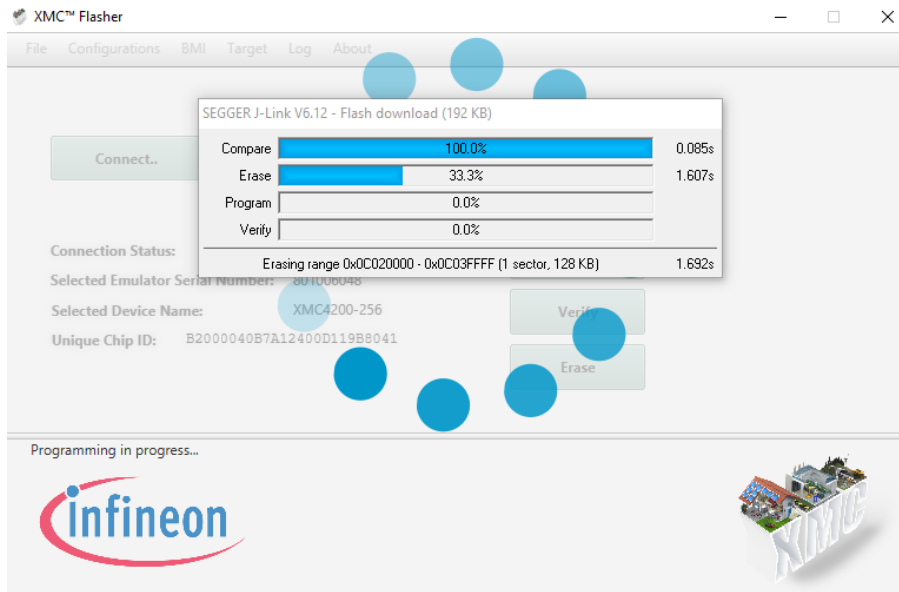


Figure 10. Sensor Flashing in Process

**Step 9.** Upon a successful re-flashing, a pop-up window will appear indicating a success (). Click Ok and followed by the Disconnect button. The sensor can now be unplugged from the JTAG programmer and PC.

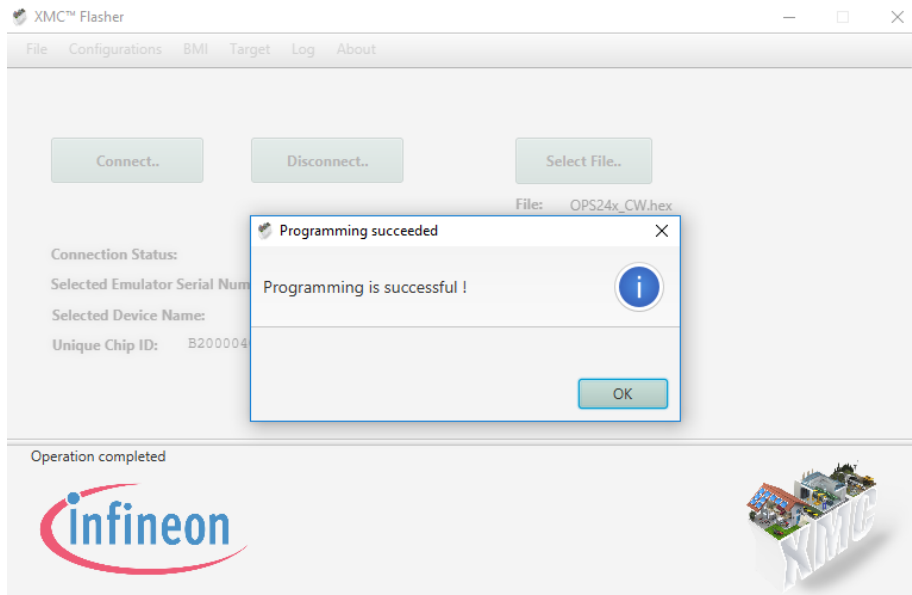


Figure 11. Successful Flashing of Sensor

You can check the programming was successful by plugging the board back into the USB port on the PC and using [Tera Term](#) to validate the new code is programmed and runs. Start Tera Term and it will automatically detect which port the board is connected to. Select the Serial button with the proper port selection. You should see speed data (m/s) start to stream from the board while waving your hand above the board. Press ?? to report the board information and note the Version number is correct for the expected code which has been programmed (Figure 12).

```
COM7 - Tera Term VT
File Edit Setup Control Window Help
0.09
0.09
-0.09
-0.21
0.09
0.21
-0.09
{"Product":"OPS242"}
{"Version":"1.3.1"}
{"SamplingRate":10000, "Resolution":0.0607}
{"SampleSize":1024}
{"Clock":24}
{"Q2COUNT":"1150 (~23000 counts/sec) @t=24"}
{"PowerMode":"Continuously Active"}
{"MagnitudeRequirements":"status", "MagnitudeMin":10, "MagnitudeMax":65536}
{"ReportingRequirements": "status", "RequiredMinSpeed":0.000, "RequiredMaxSpeed":
"No Maximum Speed", "RequiredDirection":"Either"}
0.09
0.09
0.09
0.09
0.09
0.09
```

Figure 12. Programmed Board Validation

## Revision History

Version	Date	Description
A	November 13, 2017	Initial release.
B	November 26, 2018	Updated with newer re-flashing tools.