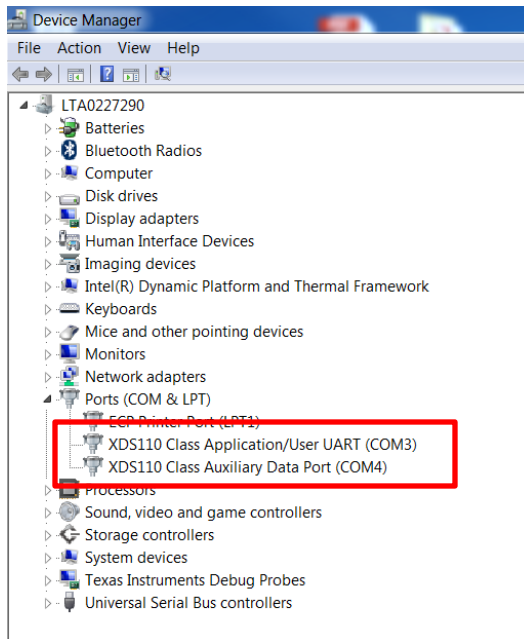


Lab 1: mmWave Demo

8/9/2017

Connect EVM

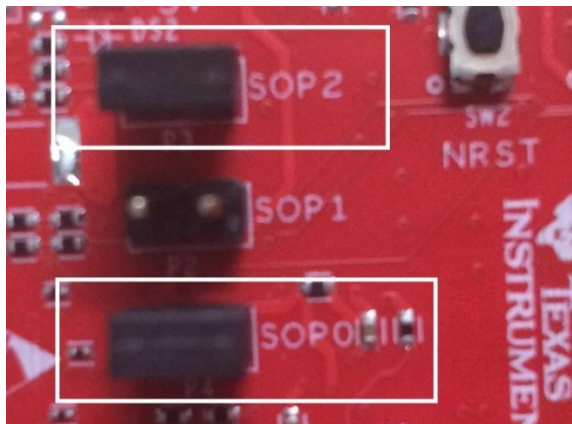
- Connect EVM to your PC and Check the COM Ports in Device Manager



- If above Ports are not seen, Check your CCS installation.
- XDS110 drivers must be present at below path in CCS installation directory:

C:\ti\ccsv7\ccs_base\emulation\windows

Configure Flash Mode



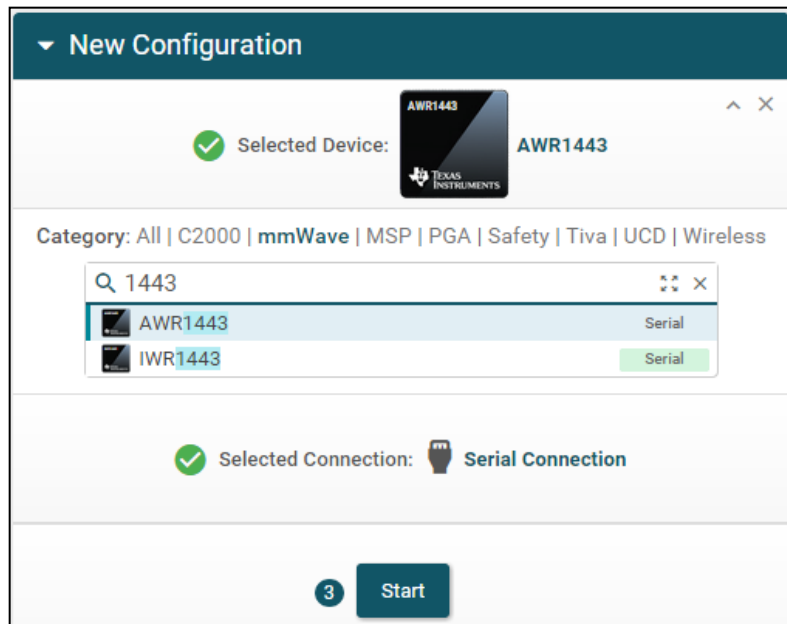
1. Setup the Booster Pack EVM for Flashing

Refer to the EVM User Guide to understand the bootup modes of the EVM and the SOP jumper locations. To put the EVM in flashing mode, power off the board and place jumpers on pins marked as SOP2 and SOP0 .

SOP2	SOP1	SOP0	Bootloader mode & operation
0	0	1	Functional Mode Device Bootloader loads user application from QSPI Serial Flash to internal RAM and switches the control to it
1	0	1	Flashing Mode Device Bootloader spins in loop to allow flashing of user application to the serial flash.

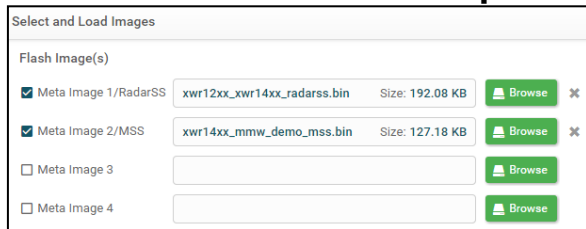
Flash the Device

- Open UniFlash
- Within the **New Configuration** section, locate and select the appropriate device (xWR14xx) and select **Serial Connection**
- Click **Start**



Flash the Device

- Navigate to the **Program** tab and load the appropriate binaries as shown below
 - The RadarSS firmware is located in the SDK folder under the **firmware\radarss** directory
 - The MSS firmware is located in the SDK folder under the **packages\ti\demo\xwr14xx\mmw** directory



- Navigate to the **Settings & Utilities** tab and select the UART COM port shown in your device manager as in Slide 1

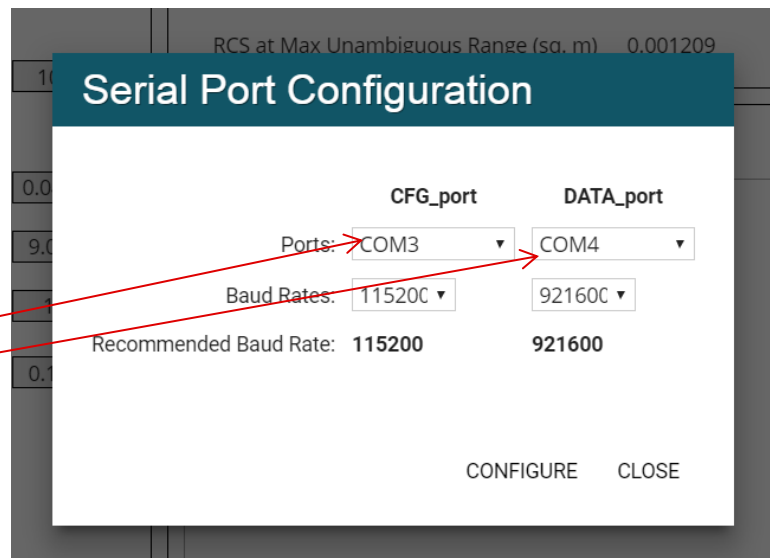
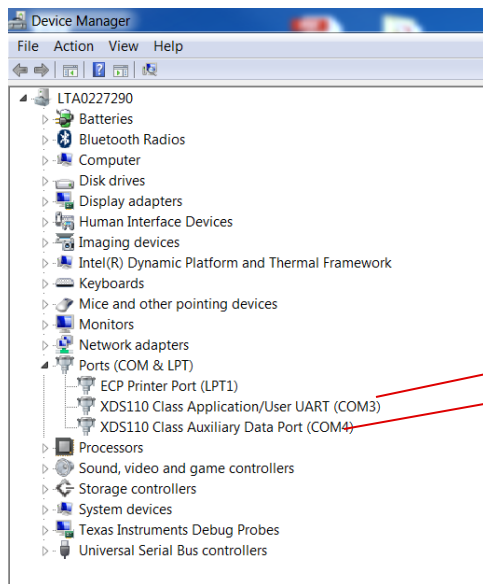


- Return to the **Program** tab and click on **Load Images** to load the firmware. Upon successful completion you should see the following message:

[SUCCESS] Program Load completed successfully

Run the Demo

- Remove the **SOP2** jumper and power cycle the board
- Open a web browser and navigate to https://dev.ti.com/gallery/view/534566/mmWave_Demo_Visualizer/
 - Note: the web GUI does not work with Internet Explorer
- Install any required software if prompted by the web GUI
- Click on the **Options** tab at the top of the GUI and configure the COM ports



Run the Demo

- In the **Configure** tab of the GUI, select the xWR14xx Platform and press **SEND CONFIG TO MMWAVE DEVICE**

Configure

Platform: **xWR14xx**

Desirable Configuration: Best Range Resolution

Frequency Band (GHz): 77-81

Scene Selection

Frame Rate (fps): 10

Azimuth Resolution (Deg): 15

Range Resolution (m): 0.044

Maximum Unambiguous Range (m): 9.01

Maximum Radial Velocity (m/s): 1

Radial Velocity Resolution (m/s): 0.13

Object Detection

Group Peaks from Same Object: ☒ Range Direction ☒ Doppler Direction

Range Detection Threshold (0-100dB): 15

Plot Selection

☒ Scatter Plot ☐ Range Azimuth Heat Map

☒ Range Profile ☐ Range Doppler Heat Map

☐ Noise Profile ☒ Statistics

SEND CONFIG TO MMWAVE DEVICE **SAVE CONFIG TO PC** **RESET SELECTION**

RCS

Desired Radar Cross Section (sq. m): 0.5

Maximum Range for desired RCS (m): 40.68

RCS at Max Unambiguous Range (sq. m): 0.001203

Console Messages

```
mmwDemo: />adcbufCfg 0 1 0 1
Done
mmwDemo: />profileCfg 0 77 429 7 57.14 0 0 70 1 240 4884 0 0 30
Done
mmwDemo: />chirpCfg 0 0 0 0 0 0 0 1
Done
mmwDemo: />chirpCfg 1 1 0 0 0 0 0 4
Done
mmwDemo: />frameCfg 0 1 16 0 100 1 0
Done
mmwDemo: />guiMonitor 1 1 0 0 1
Done
mmwDemo: />cFarCfg 0 2 8 4 3 0 1280
Done
mmwDemo: />peakGrouping 1 1 1 1 229
Done
mmwDemo: />multiObjBeamForming 1 0.5
Done
mmwDemo: />sensorStart
Done
```

The following message should appear in the console window upon successful completion

Run the Demo

- Click on the **Plots** tab of the GUI to see the demo running

