arm Education

Embedded Systems Essentials with Arm: Getting Started

Module 2

SV1 (2): Getting started

In this lab, we will learn how to run the Mbed Simulator using Docker.

At the end of this lab, we will have successfully installed Docker Desktop. We will also have downloaded and run the Mbed Simulator image file using Docker. To confirm that the setup is successful, we will also have completed running a blinky demo program using the Mbed simulator.

Docker is a platform that uses OS-level virtualization to deliver software. The Mbed Simulator image file is hosted as a Docker container so that you can easily access the Mbed Simulator without having to build it manually. Therefore, you will need to install Docker so that you can access the Mbed Simulator image file.

If you are using a Windows 10 OS, you will need to download the Docker Desktop Installer program. This video primarily shows the set-up steps for a Windows 10 OS and demonstrates the simulator using a Chrome web browser.

Note that Docker Desktop is also available for Mac OS. If you are a Linux OS user, you may need to check if there are any Docker Desktop versions available for Linux. If there are none, then you may need to install Docker Engine instead. For more information on system requirements and Docker Engine, please visit the Docker website or see the lab manual documentation for this course.

We will now follow the steps to install Docker Desktop.

First, go to the Docker Desktop website and download the appropriate Docker Desktop Installer program.

Run the downloaded Docker Desktop installer.

You can accept the default configuration where appropriate and click OK.

It may take some time for the Installer to unpack the files.

When the installation has completed successfully, click Close and restart your PC.

After restarting your PC, you may be greeted with a 'Get Started with Docker' message which you can skip for now.

You will also notice that the Docker Desktop icon in your Windows system tray, indicating that Docker Desktop is running.

Next, we shall use Docker to download the Mbed Simulator image files. To do this, open a command prompt terminal and enter the 'docker pull' command pointing to the path of the image file as shown here. The downloading may take some time.

Once the downloading has completed, you should get a status message saying that the pull has been completed and downloaded.

Then, enter the 'docker run' command specifying a container port that you would like to bind to a specified port of the machine. In this demonstration, we will just do a 1-to-1 port mapping of port 7829. You will also need to specify the path of the image file.

After entering the command you should get the following message:

Now, expand your OS system tray (or status bar, depending on your OS), and right click on the Docker Icon. Then select Dashboard. Hover your mouse over the relevant container named 'mbed_sim' and select 'Open in Browser'.

A browser will now launch with the Mbed Simulator.

In this demonstration, an LED blinky program is simulating.

That concludes this lab. In this lab, we have successfully set up Docker Desktop in a Windows 10 OS and run the Mbed Simulator image using Docker.

In the next lab, we will be using the Mbed Simulator in more detail.