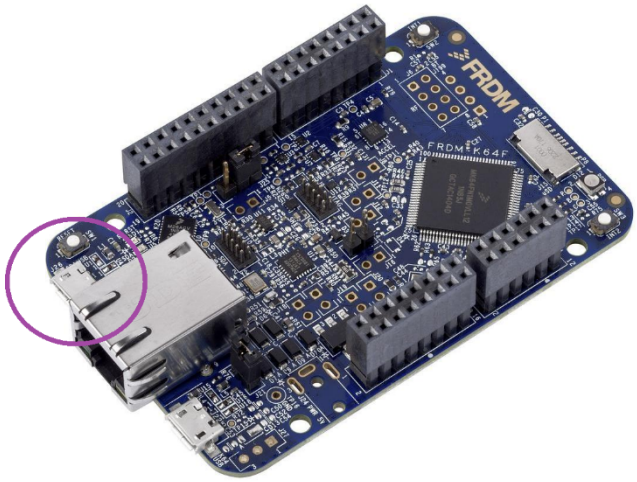
First time Steps: µVision Software Packs Download and Install Process:

1) Connect your K64F to your computer:

1. Make sure to use the port on the left side of the board, shown here:



2) Install the mbed Serial Driver:

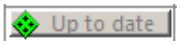
1. Navigate to https://developer.mbed.org/handbook/Windows-serial-configuration
2. Click Download latest driver.
3. Run the setup – everything should install correctly if your board is connected via USB.

3) Install µVision and open the Pack Installer:

1. Navigate to http://www2.keil.com/mdk5/install/.
2. Install MDK Version 5 by clicking 

3. You will have to fill out a form with your contact information – you only need to fill in the bold fields.
4. Run the installer (you may have to fill in your contact information again).
5. Once installed, the Pack Installer may open automatically. If it doesn't, open Keil µVision5  from the desktop and then click the icon for the Pack  Installer:

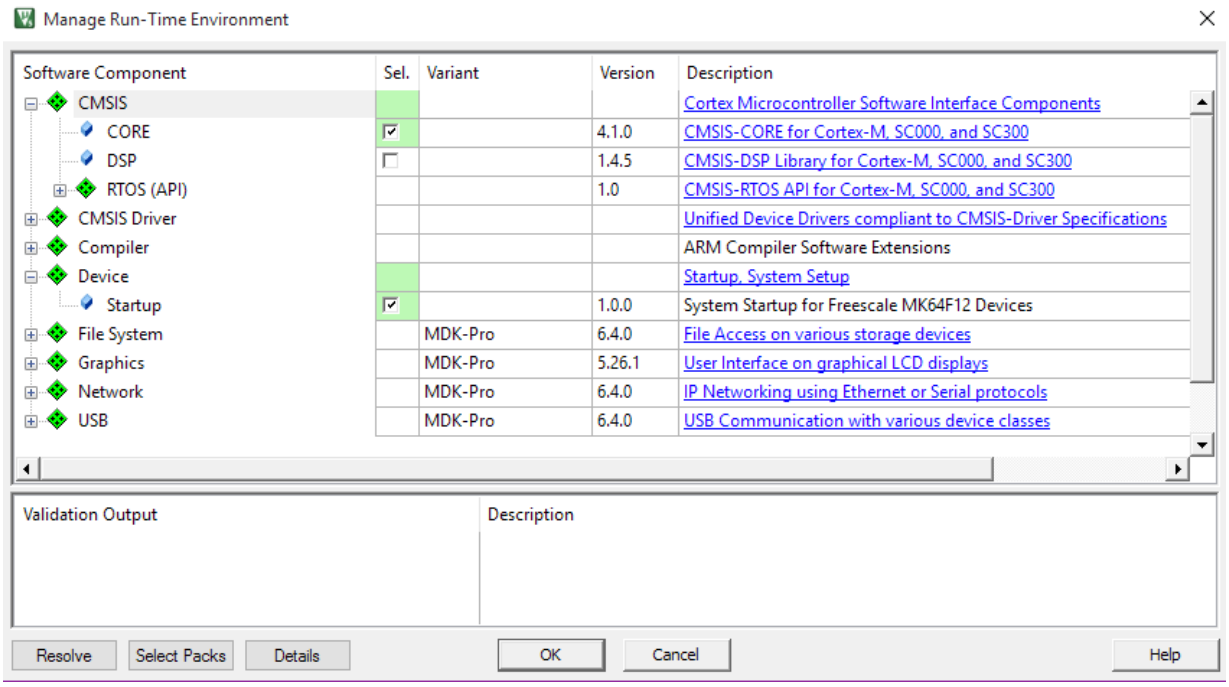
4) Install The K64F Software Pack:

1. Make sure you are connected to the Internet! "ONLINE" should be displayed at the bottom right.
2. Initially, the Software Pack ARM::CMSIS is installed by default. Now, you will install Keil::Kinetis_K60_DFP.
3. In the panel on the left, select All Devices » Freescale » K60 Series » MK64FN1M0xx12. (You may have to stretch the "Device" window to see the full name). It may take a few minutes for the Freescale section to appear.
4. Once selected, click "Install" next to Keil::Kinetis_K60_DFP in the Pack panel on the right. This Software Pack will download and install to C:\Keil_v5\ARM\Pack\Keil\Kinetis_K60_DFP\1.0.0\ by default. This download can take two to four minutes.
5. Its status is indicated by the "Up to date" icon: 

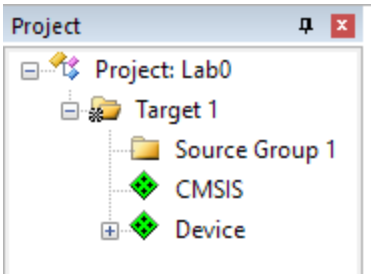
6. Close the Pack Installer window.

5) Create a New Project:

1. In the main µVision menu, click on Project/New µVision Project…
2. Choose a name and directory.
3. To select the device you are using, expand Freescale » K60 Series » MK64FN1M0xx12
4. Click OK and the Manage Run Time window shown below opens.



5. Expand the items in CMSIS and Device and select CORE and Startup as shown above. They will be highlighted in green indicating there are no other files needed.
6. Click OK.
7. Click on File/Save All or select the Save All icon: 
8. You now have a new project list shown to the right. The appropriate CMSIS files you selected have been automatically entered and configured.



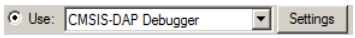
6) Load the Example Assembly Source File:

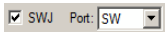
1. Expand Target 1 in the Project window on the left if it is not already expanded.
2. Right click on Source Group 1 in the Project window and select Add Existing Files to Group 'Source Group 1'…
3. Change the "Files of type" field to "Asm Source file", then navigate to where you downloaded Lab 1.
4. Double-click "Lab0.s".
5. Click on Add – the file will be added even if the window does not close. Now close the window.
6. Click on File/Save All or 
7. Expand "Source Group 1" in the Project window and Lab0.s will now display.
8. Double-click the file and it should open in the main window.
9. Make sure that the __main function resembles the one shown below.

NOTE: The spacing matters, so make sure that the END directive and the directives at the top are indented correctly, or you will receive warnings (or errors!)

```
1   |       AREA Lab0, CODE, READONLY
2           EXPORT __main
3
4   __main
5       ; This is a comment!
6           MOVS  R3, #7
7           MOVS  R7, #19
8           MOVS  R1, #0xef
9
10              END
11
12
```

7) Configure the Target CMSIS-DAP:

1. Select the Target Options icon.  It should be at the top next to "Target 1".
2. Click on the **Debug** tab. Select CMSIS-DAP Debugger in the "Use:" box. 

3. Select the "Settings:" button next to the "Use:" box.
4. Make sure SWJ and SW are selected as shown here: 

(You will receive an RDDI error if the Port is set to JTAG.)
5. Click on OK **twice** to leave these windows.
6. Click on File/Save All or 
7. Build the files by clicking  (It is below the save icon). There will be 0 errors and 0 warnings if all was entered correctly. If there are, please fix them!

8) Run the Program:

1. Program the K64F Flash by clicking on the  Load icon. Progress will be indicated in the Output Window.
2. Enter Debug mode by clicking on the Debug  icon.
3. Insert a breakpoint on the first MOV operation in main by left-clicking the bar to the left of the line numbers. This should be on line 6.
5. Click on the RUN icon.  It should be below the "Edit" menu. The program will run to the breakpoint.
6. Press the Step  icon to step one line in your code. Notice that the Disassembly window points a yellow arrow to the current line.
7. Check that the Register list on the left side of the screen updates accordingly with your instructions as you Step through.
8. You finished Lab 0! Woohoo!

TIP: In the future, to avoid entering Debug mode each time, you can also run any program after loading it to the board by pressing the RESET (SW1) button on the board itself.