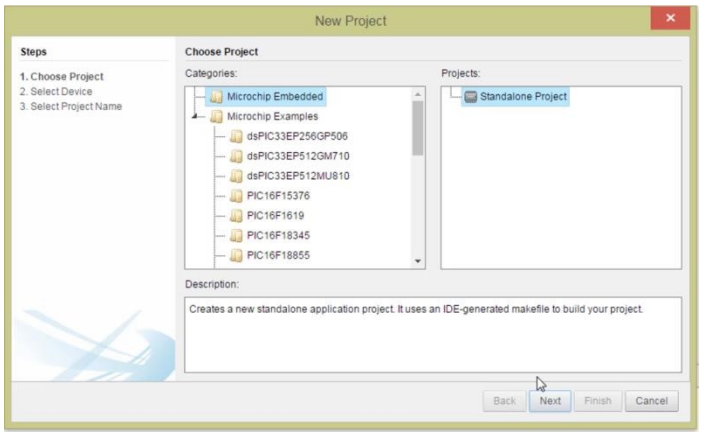
Lab 1: Hello World

Skip steps 1 & 2 if IDE and Code Configurator already installed

1. **Download the IDE:**
    a. Open the provided flash drive
    b. Click on the provided tar, dmg, or exe file labeled **MPLAB X** to start the installation process
    c. Once the IDE has been installed, click on the provided tar, dmg, or exe file labeled **xc8 Compiler** to start the compiler installation process
    Note: Be sure to check the **Add xc8 to the PATH environment variable** checkbox when prompted for compiler settings
2. **Install MPLAB® Code Configurator**
    a. In the MPLAB® X IDE, select Plugins from the Tools menu
    b. Select the Available Plugins tab
    c. Check the box for the MPLAB® Code Configurator and click install
3. **Creating a New Project:**
    a. From File>New Project, create a new project

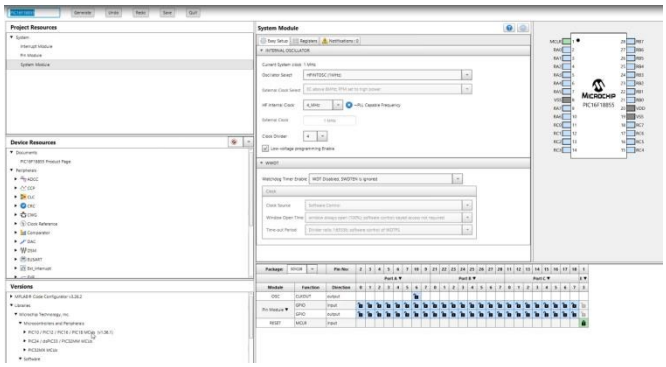


    b. Use Standalone Project for the project type.
    c. Select PIC16F18446 as the device (Can be searched in the device box)
    d. Select SN: ATMLXXX as the device tool (Your device needs to be connected to do this step)
    e. Select XC8 as the compiler
    f. Give a project name (No space)

4. **Launching MCC (MPLAB Code Configurator):**
    a. From the navigation panel click the MCC icon

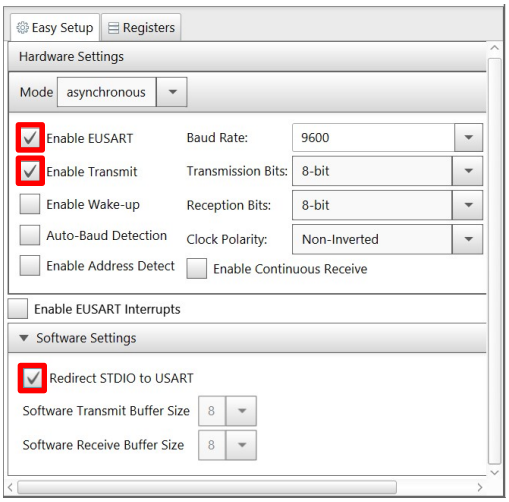
    b. Save the prompted config file

c. If you see the following window, MCC Launched properly

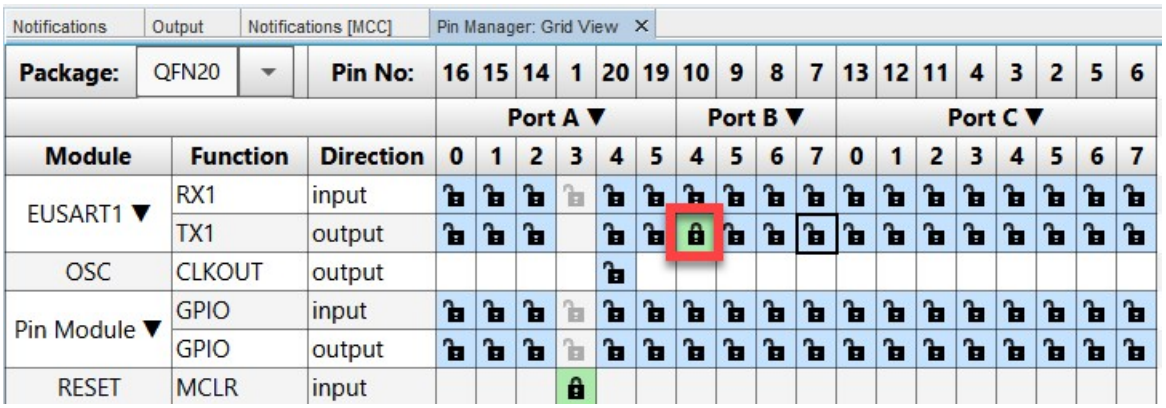


5. Add a EUSART Peripheral

a. To print outputs to the screen, data is transferred over EUSART/USB. Add EUSART1 module from the device resources window to the project (Use the EUSART1 [PIC10/PIC12…..] module). Configure the EUSART module as follows: check the **Enable Transmit** box, **Baud Rate = 9600**, transmission and reception = 8 bits and check the **Redirect STDIO to USART** box

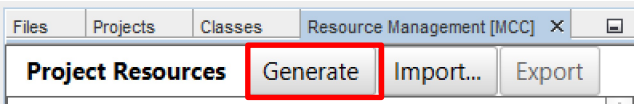


b. In the pin manager: configure the EUSART Transmit pin: TX = RB4

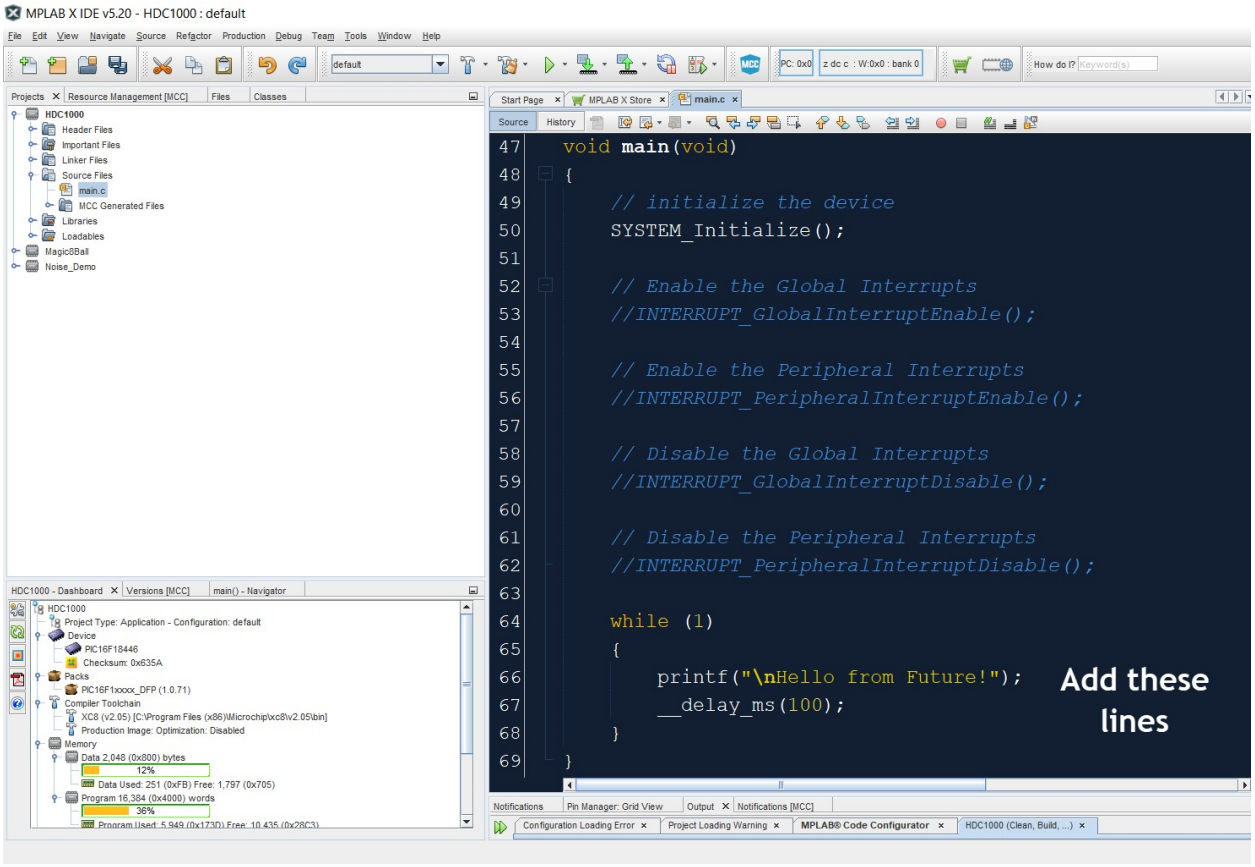


Note: You may need to uncheck the lock on RB7

6. **Generate Code:** Click on generate code from top of the MCC window

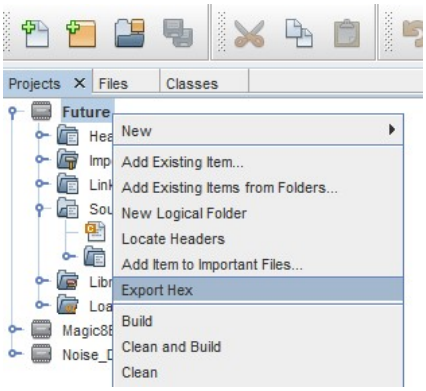


7. **Navigate to main.c:** Click the **Projects** tab in the top left corner of the IDE. Expand the Source Files drop down. Double click **on Main.c.** Make the following change:

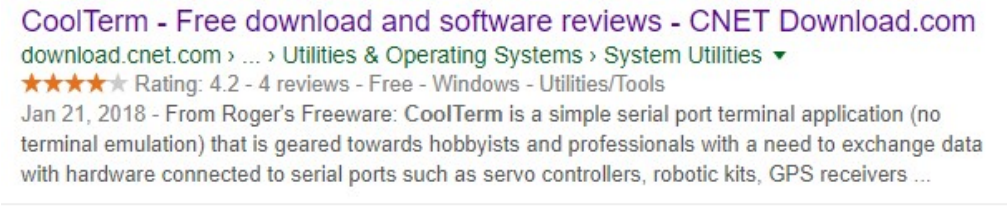


Note: The delay is to ensure that all characters get printed to the serial terminal before the printf statement is called again

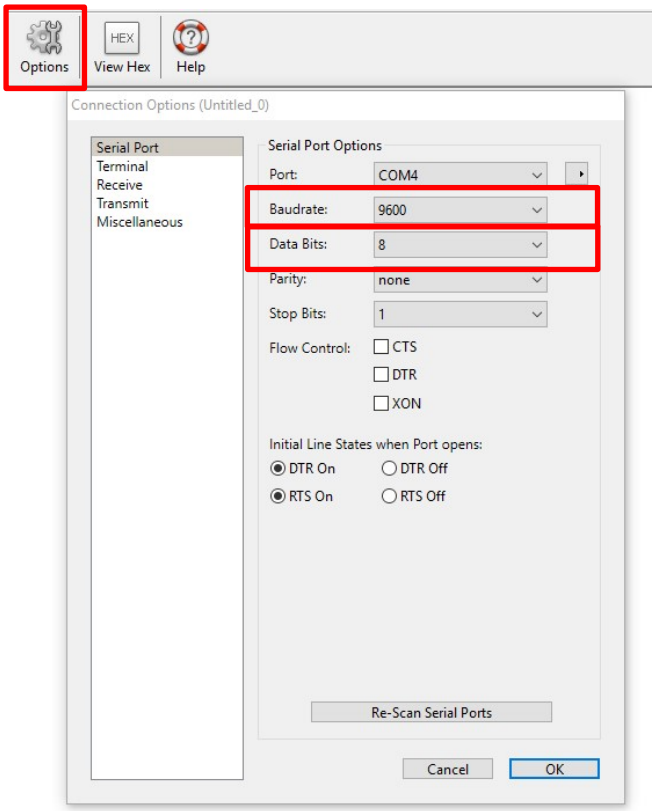
8. **Connect and turn on your device:** Make sure that your device is connected to your computer and ensure that the power switch is turned on.
   Important: Without doing this your board will not write the hex file to memory and the program will not work.
9. **Compile and Program:** In the projects tab on the left-hand side, go to the top level of your project and right click. In the dropdown menu you will see **Export Hex**. It will then ask you to provide a file name. Do this and click save.



10. **Download CoolTerm:** In google search for “CoolTerm” and use the third link from the top to download the software to your machine.



11. **Configure Your Terminal:** In the toolbar, click on the Options tab. Change your Port to the port of your currently connected MPLAB X USB connection. Verify that your Baudrate is set to 9600.



12. **Connect and See Output:** In the toolbar, click on the Connect tab. If everything is configured correctly then you should see “Hello from Future!” output in your serial terminal.