School of Advanced Technology

CST8244 Lab 2: Hello World

Lab Objectives:

1. To create and run Hello World on QNX's Neutrino
2. To create a git repository, local to your development host

Part A: Hello World

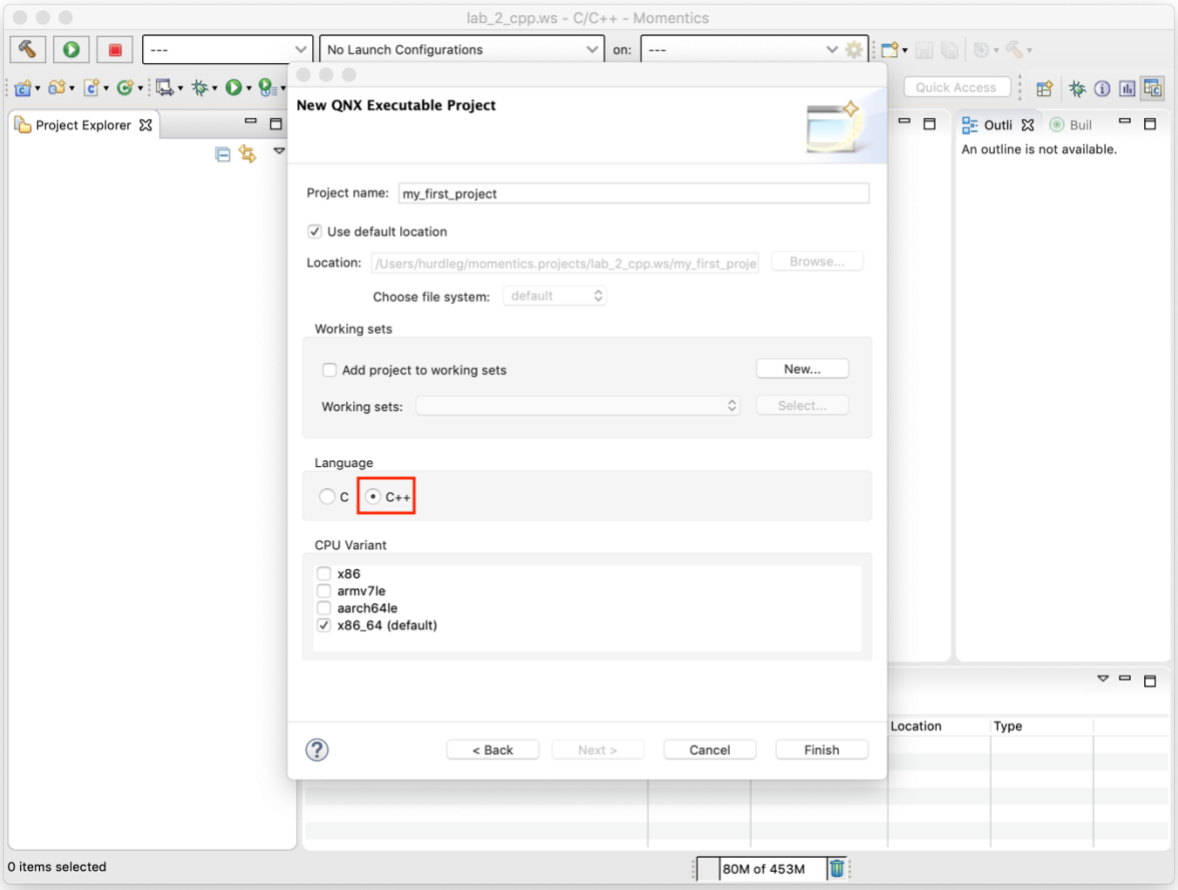
The QNX Momentics Tool Suite is a comprehensive, Eclipse-based integrated development environment with innovative profiling tools for maximum insight into systems behaviour.

In this part, you will use the Momentics IDE to create your first program for Neutrino, 'Hello World'.

1. Complete steps 4 thru 7 (inclusive) of the Quickstart Guide

   http://www.qnx.com/developers/docs/7.0.0/#com.qnx.doc.qnxsdp.quickstart/topic/about.html

   Notes:
   - On first launch of Momentics IDE, rename the workspace to: ***<directory>*/cst8244_lab2.ws**
     - where *<directory>* is the absolute path on your filesystem to the workspace
   - you're welcome to submit your labs and/or assignments in the **C++** language

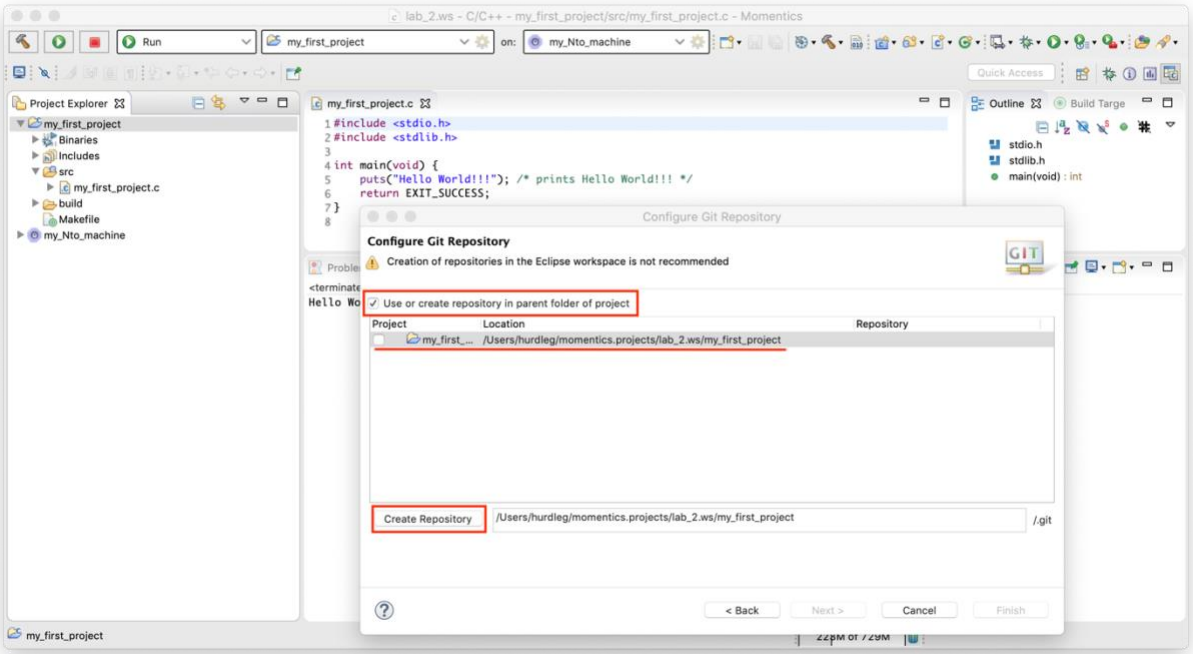


Part B: Create a Local Git Repository for Your Project

In this step, you will put your Momenetics IDE project of Part A under the control of git. The git repository created in this step will be stored locally on your host development computer.

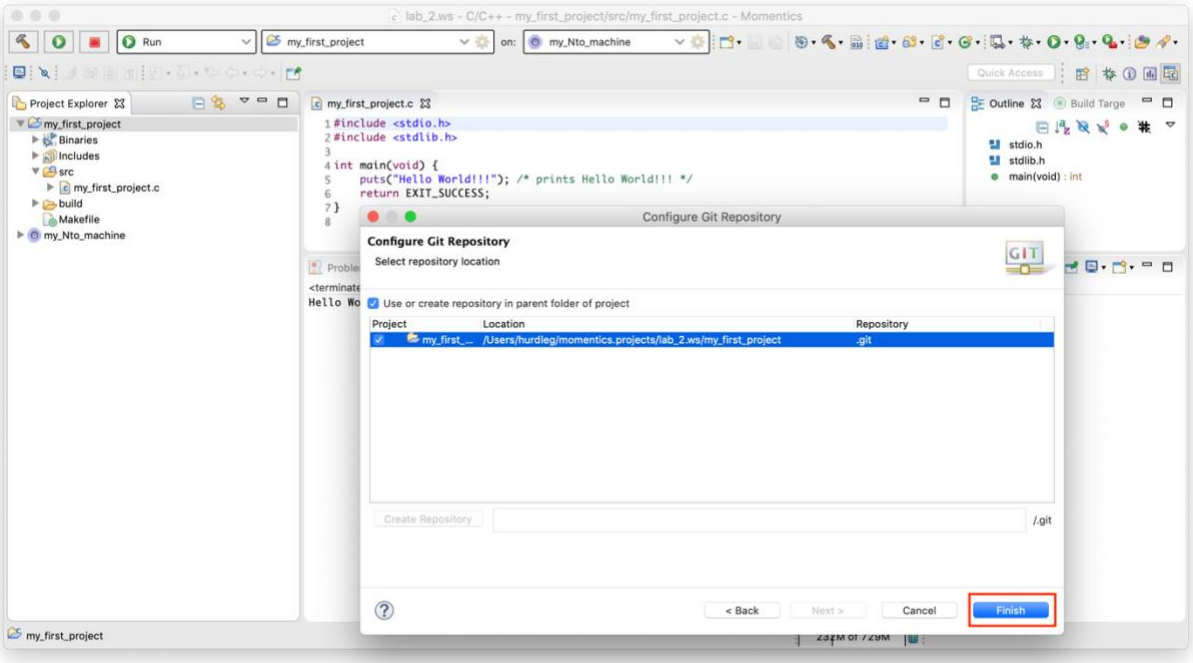
1. In Momentics IDE, select your **my_first_project** in Project Explorer, right-click, and select: **Team > Share Project…**
2. Select **Git** as the repository type, and click **Next >**
3. Check: **Use or create repository in parent folder of project**
4. Select your project
5. Click the **Create Repository** button to create a local git repository

You should see what I see:



6. Click **Finish**

You should see what I see:



Part C: Add Files to be Committed

In this step, you will add the files of your project to git. This is also known as staging.

1. Right-click on the **my_first_project** again to select it and all of its contents: **Team > Add to Index**

Part D: Open the Git Perspective

Open the Git perspective in Momentics IDE:

Window > Perspective > Open Perspective > Other… > Git > OK

Part E: Commit Your Changes

In this step, you will commit your changes to your local git repository.

1. Click the **Git Stagging** tab
2. Add the initial commit message: **Initial commit**
3. Click: **Commit**

Part F: The Code Development Lifecyle for QNX Neutrino

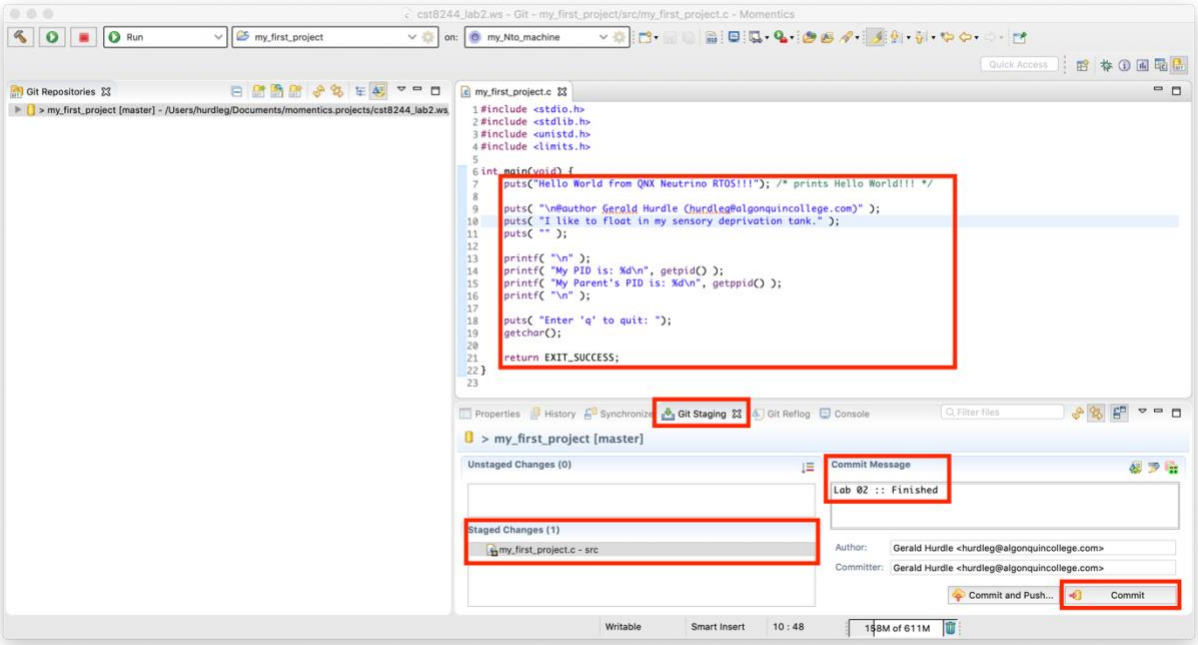
Click the **C perspective** icon (upper right hand corner; 'C' icon) and return to the Editor.

Edit **my_first_project.c**, and make the following changes:

1. Change the string in the puts() function (**put s**tring) to: Hello World from QNX Neutrino RTOS!!!
    - QNX named their **r**eal-**t**ime **o**perating **s**ystem (RTOS): Neutrino
2. Just after 'Hello World', add a second puts() function that displays the following templated message:
   @author *FirstName Lastname* (*userID*@algonquinlive.com)
   Where *Firstname* is your first name, *Lastname* is your last name (surname), and *userID* is your Algonquin College userID
3. Add a third puts() function that displays something unique about yourself.
4. Add code to display:
    - a) the process ID (pid) at run-time: getpid() function
    - b) the parent's process ID: getppid() function
    - **Note**: you'll need to import an addition header file (.h). See the Reference Screenshot below for details.
5. Format your source code to make it easier for me to read. Momentics IDE will do this for you: Source → Format
    - In future, please format all lab work and assignments prior to submitting to Brightspace.

- You're welcome to change the 'C' coding style to your personal preference. I just ask that you're consistent in styling your code.

6. Verify your code compiles clean: no warnings and no errors. Please action: a) Project -> Clean… and b) Project -> Build All
    - In future, please verify all lab work and assignments compile cleanly before submitting to Brightspace.
7. Run your program. Make sure your program behaves as expected, and that you haven't introduced any software defects (i.e. "bugs") since the last git commit.
8. Once you are happy with your changes and have tested your project, you can commit your changes to git. Switch back to the Git perspective and stage the changes files: open the **Git Staging** window and drag all of the files from the **Unstaged Changes** window and drop to the **Staged Changes** window. This same operation can be done as: select the project, right-click **Team > + Add to Index**
9. Add a commit message: **Lab 2 :: Finished**



10. Click **Commit** to commit your changes to your local git repo.

Welcome to the code development life-cycle:

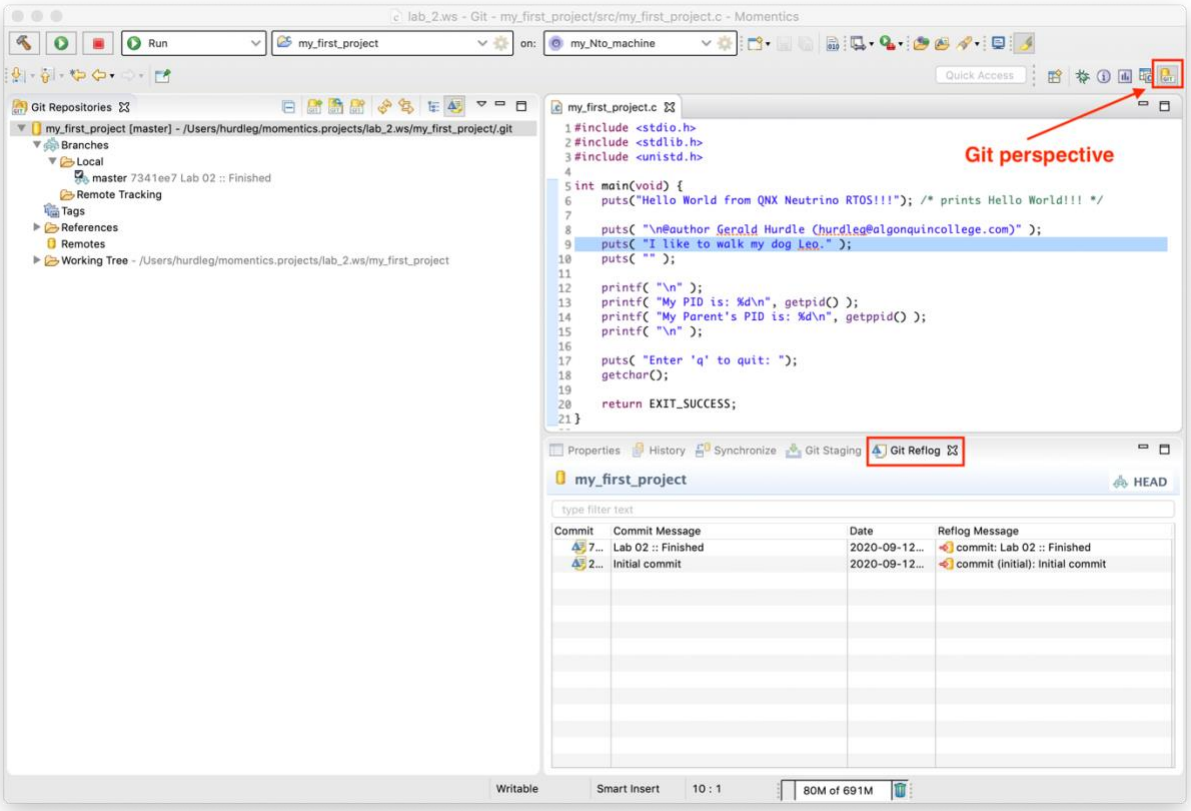
```
while( true ):
        write code
        test code
        commit code
```

Deliverables:

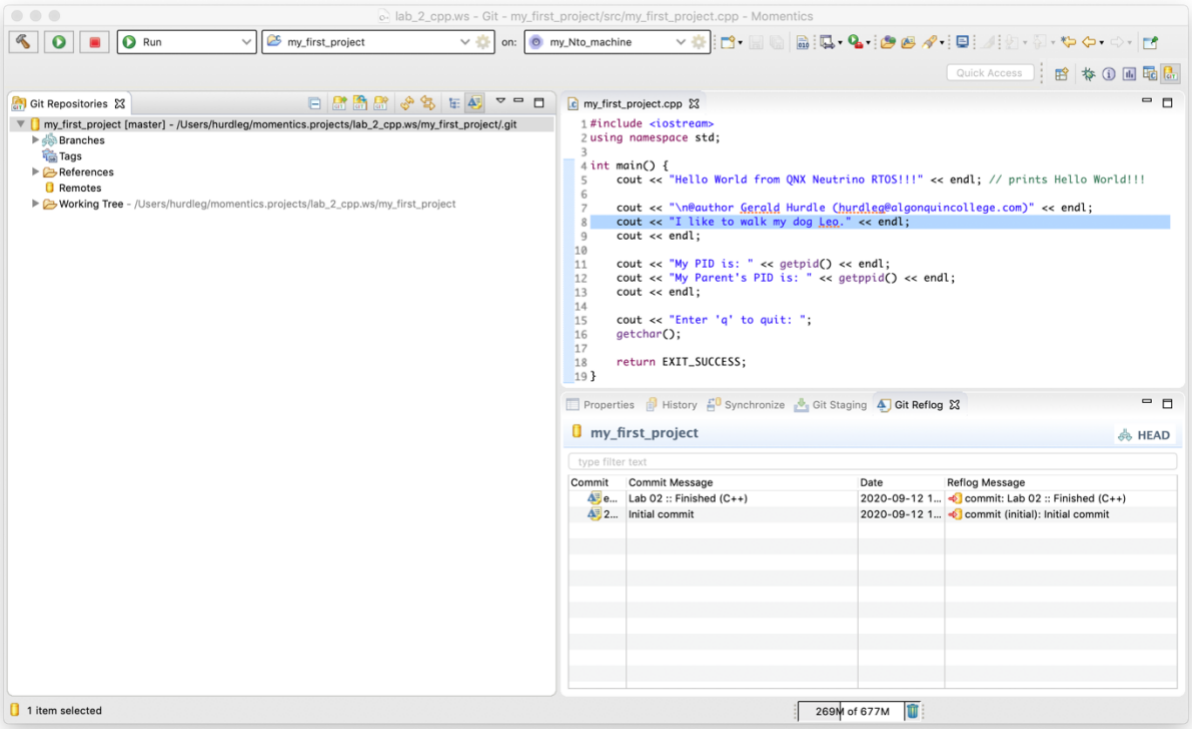
1. In-lab demonstration during your scheduled lab period [7 marks].
2. To Brightspace, upload and submit a screenshot of your Momentics IDE project open in the Git perspective with the Git Reflog tab selected [3 marks]. Please increase the zoom-level so that I can read the information in your screenshot. I really do want to see your code. Thanks!

Reference Screenshot:

Compare your screenshot to mine (C language version):



Reference screenshot for C++ language:



Post Lab:

Congratulations on completing the lab!

Remember to shut down the Neutrino RTOS (use the *shutdown* command), followed by shut down of VMware, and finally quitting VMware (i.e. quit the program).