Printing Data from the STM32 Nucleo Board on Your Computer

We need a terminal application that can be run to read information from the Serial Port and display it on Your Computer. There are many apps that can do this, but I have tested **PuTTY** on Windows 10:

https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

This web page also describes how to install a version of Putty ported to Mac OS:

https://www.ssh.com/ssh/putty/mac/ (look for Section "Ported PuTTY for Mac")

Once Putty is installed, you need to open it, then click on the "Session" tab to configure the serial port and baud rate before use as shown in Figure 1:

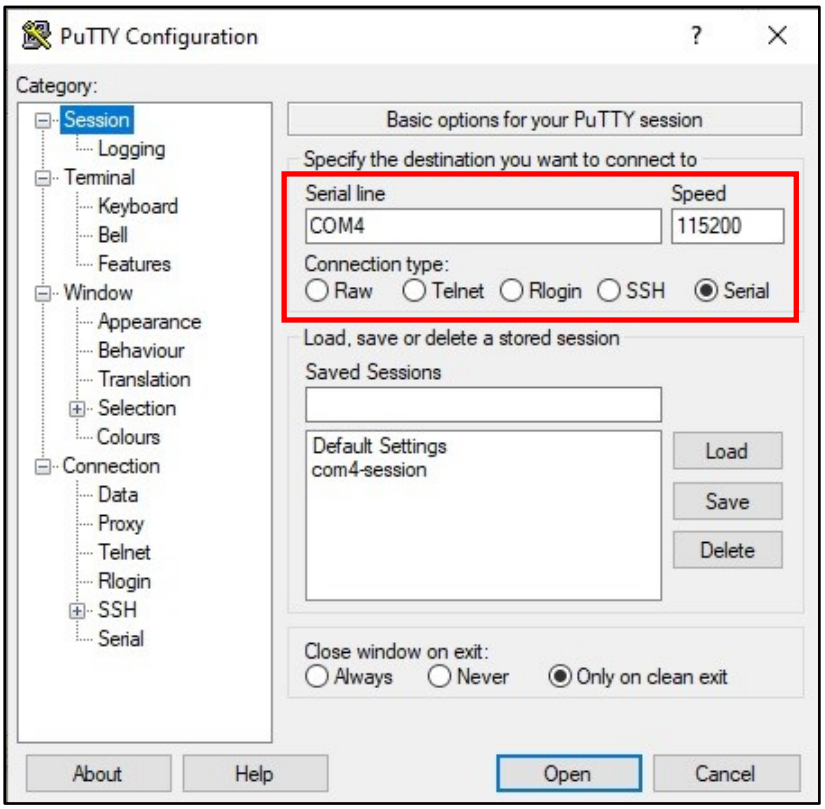

Figure 1: Setting up the Serial Port and Baud Rate in the Session tab of Putty

In *Windows 10*, the serial port name can be found by using the Search icon (Magnifying Glass) to find the "Device Manager". Connect the STM32 Nucleo Board using the USB cable. When the Device Manager app is run, you should see something like Figure 2.

Figure 2 shows that for this computer, the Serial Port is called COM4. The number may be different for each computer.

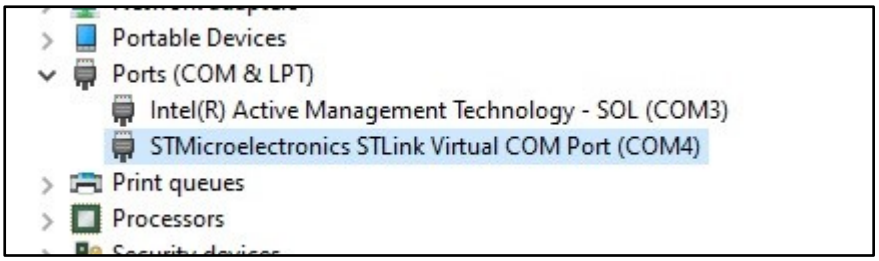

Figure 2: Serial Port Settings in Device Manager for Windows 10

In *Mac OS*, the Serial port will begin “tty”, not “COM”. Open a terminal window on a MAC OS computer and type:

*ls /dev/tty**

To look for your Nucleo board tty number, compare the list of terminals before you connect the board with the list after it is connected by USB – see what has changed!

Printing Data to the Putty Terminal Window

In this week’s laboratory, one of the exercises is a “Hello World” type C program. Figure 3 shows an example print-out from this code on the Putty terminal when it is run on the STM32 Nucleo Board using the Cube IDE software.

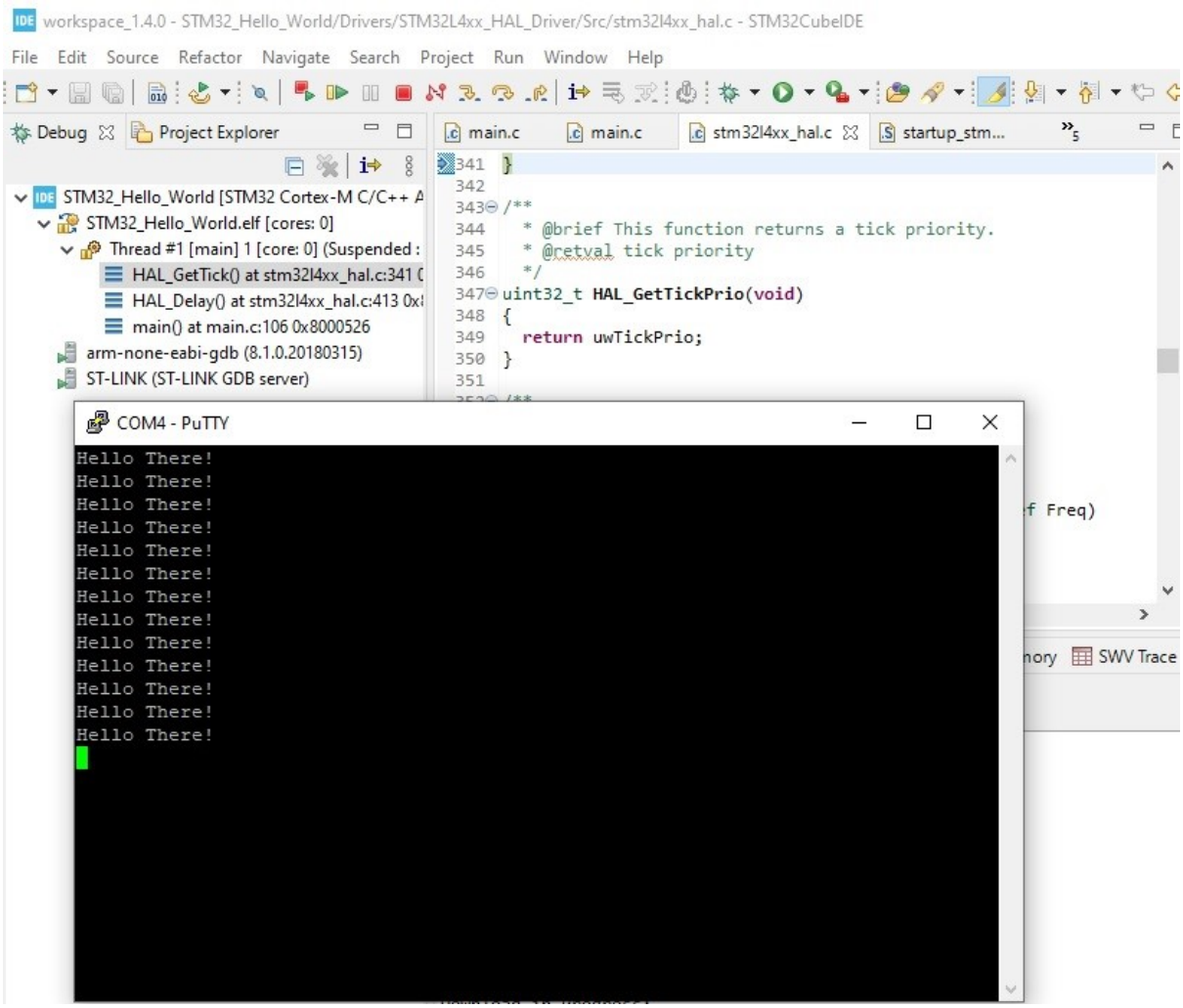

Figure 3: Hello There Example in Putty (program has been paused)

Clock Settings for STM32 Nucleo Board

It is **essential** that when setting up the clock for the STM32 microprocessor that the "MSI" option is selected as shown in Figure 4. If any other clock source is selected, the putty printout characters can become corrupted and not print properly on screen.

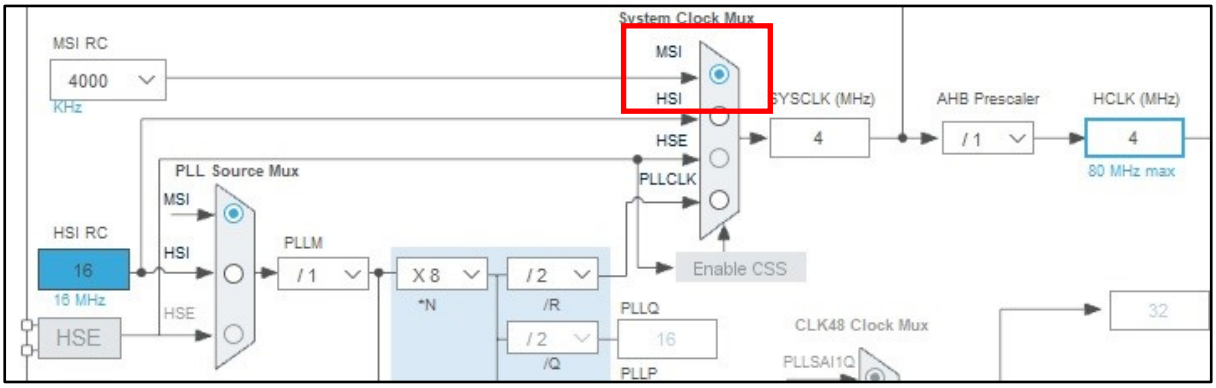

Figure 4: Clock Selection Window, showing the MSI option in the red box

Saving Data from Putty Terminal Window

In some of the lab work, you will find it helpful to save the data printed on the screen to a text file. This file can then be imported and processed in MATLAB, for example. To enable this, you need to edit the "Logging Option" in Putty before it is run. Figure 5 shows the settings you should select for saving the file.

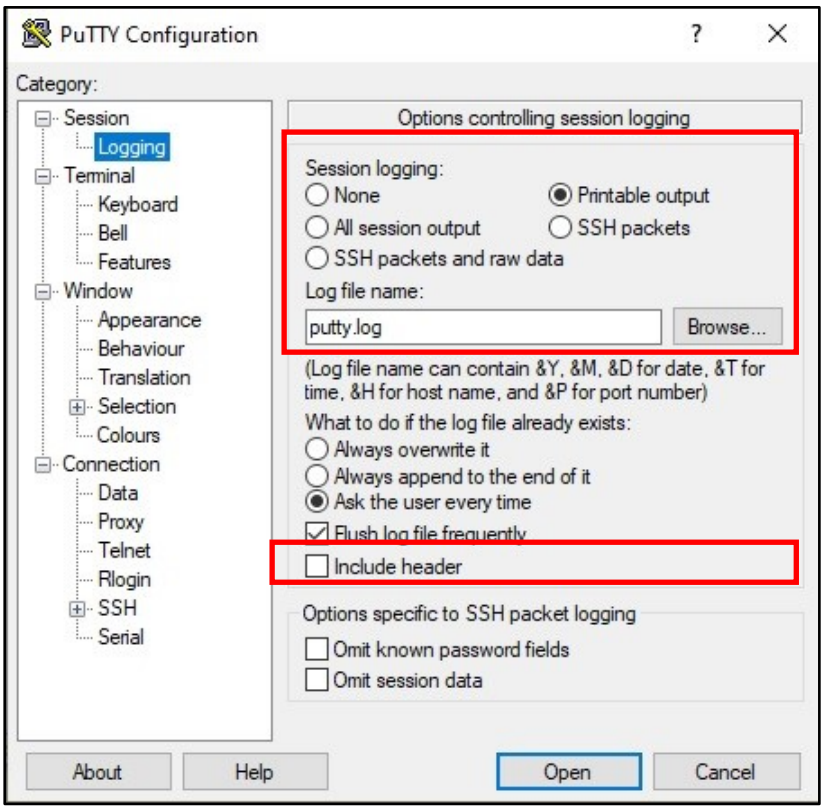

Figure 5: Putty Log File Settings

It is best to select the “Printable Output” option, specify the file name and untick the “include header” option. Clicking on the “Browse” tab will show you the default directory that Putty will use for the filename you specify. Remember to change the log filename each time, if you are creating multiple data files.

When your printout is ready, click on the “X” at the top right of the Putty window in Figure 3 to exit and thus to save the text file. Once the file is created, you can edit it with a text editor (e.g. Wordpad in Windows 10) to make sure it contains the data you expect and to remove any information that is not needed.