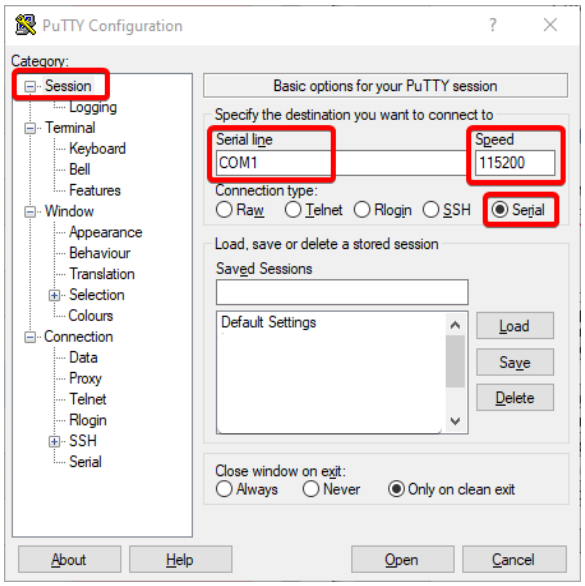
# UART and WiFi Board Quick Reference Sheet

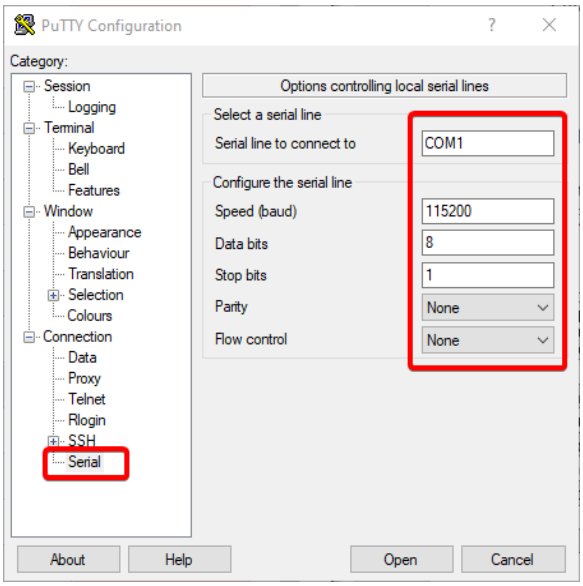
CPRE 288

The PuTTY application on the lab PC is used to communicate with the CyBot, transmitting messages between the user on the lab PC and the CyBot. This is how you as a user communicates with the CyBot. Communication with the lab PC is implemented using a UART serial cable or WiFi. On the lab PC end, PuTTY is configured for either a serial connection (UART cable) or a network connection (WiFi). On the CyBot end, a UART on the microcontroller is used to send and receive information. Additionally, there is a WiFi board on the CyBot to support a network connection.

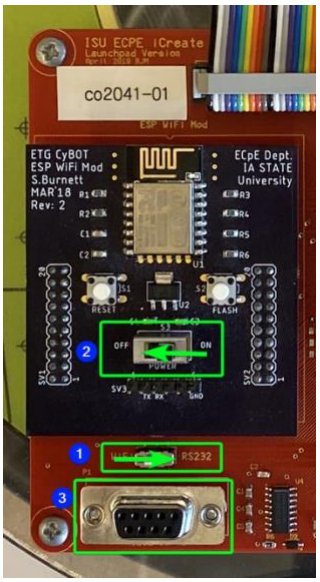
## Communicating Using a UART Cable

### PuTTY Configuration




### CyBot Baseboard Switches:




For the corresponding numbered circle in the image, ensure the following:

1. The switch is towards RS232
2. The WiFi board switch is OFF
3. The UART cable is plugged in firmly

### Note on UART Configuration

Check the baud rate in your microcontroller code configuring the UART. For part of a lab, you may be asked to use a baud rate other than 115200. If your code has a baud rate different from 115200, you can leave it as is. However, make sure to change the baud rate (Speed) in PuTTY to match the configuration in your code. Alternatively, you can implement a baud rate of 115200, which is the same as the required baud rate when using the WiFi board.

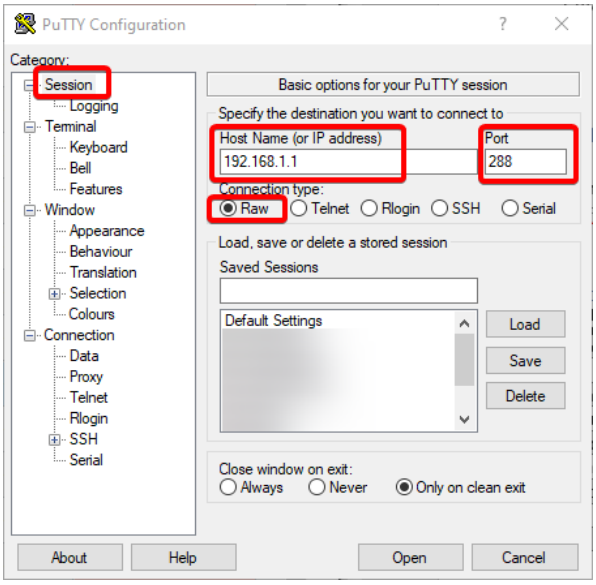
Note: PuTTY will not display characters in the terminal window as you type them unless you set up local echo (under Terminal, set Local echo to Force on).

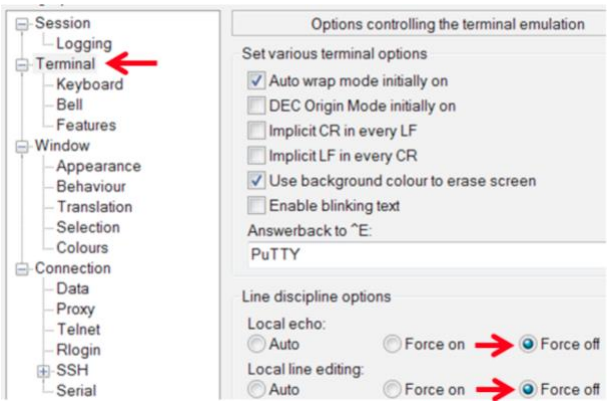
### Connect

After you have done all of the above, click the “Open” button near the bottom in your PuTTY window to start the connection.

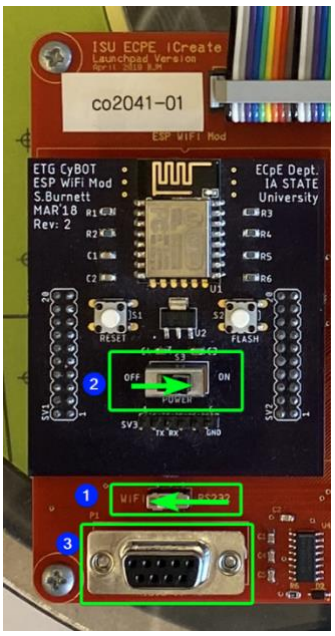
## Communicating Using WiFi

### PuTTY Configuration




### CyBot Baseboard Switches:




For the corresponding numbered circle in the image, ensure the following:

1. The switch is towards WiFi
2. The WiFi board switch is ON
3. The UART cable is unplugged

### Note on UART Configuration

On the CyBot, your microcontroller uses the UART to communicate with the WiFi board. Thus in software, communication with PuTTY looks the same whether you are using a UART serial cable or WiFi. The WiFi board handles the conversion. Check the baud rate in your microcontroller code configuring the UART. When using the WiFi connection, your code must be configured for a baud rate of 115200. Ensure your code is written to program a 115200 baud rate.

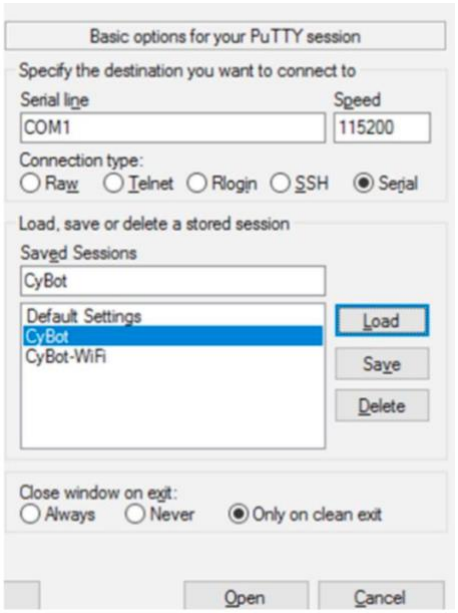
Refer to the PuTTY configuration window. If local line editing is enabled, PuTTY buffers a line, and no characters will be sent until enter is pressed.

Under Terminal, set Local line editing to Force off. Also set Local echo to Force off, if your microcontroller code is echoing characters it receives back to PuTTY.

## Final Steps

After following the configuration above, you are almost ready to connect. The last step is to connect the PC to your CyBot's WiFi network. In a corner of the red baseboard, you will find a label with the bot number printed on it (co2041-XX or co1318-XX). Find the WiFi network named "CyBot XX" in your network menu on your workstation, where XX is the number corresponding to the label on your CyBot. The network password is `cpre288psk`. Do **not** check the box labeled "Connect Automatically". Then click the "Open" button near the bottom of your PuTTY window to open the network connection to the CyBot.

Note: You can also save your PuTTY session information as shown below.



# Saving Data to a Log File on the PC

## PuTTY Configuration

PuTTY can be configured to save the data it receives to a log file. The settings are shown below.