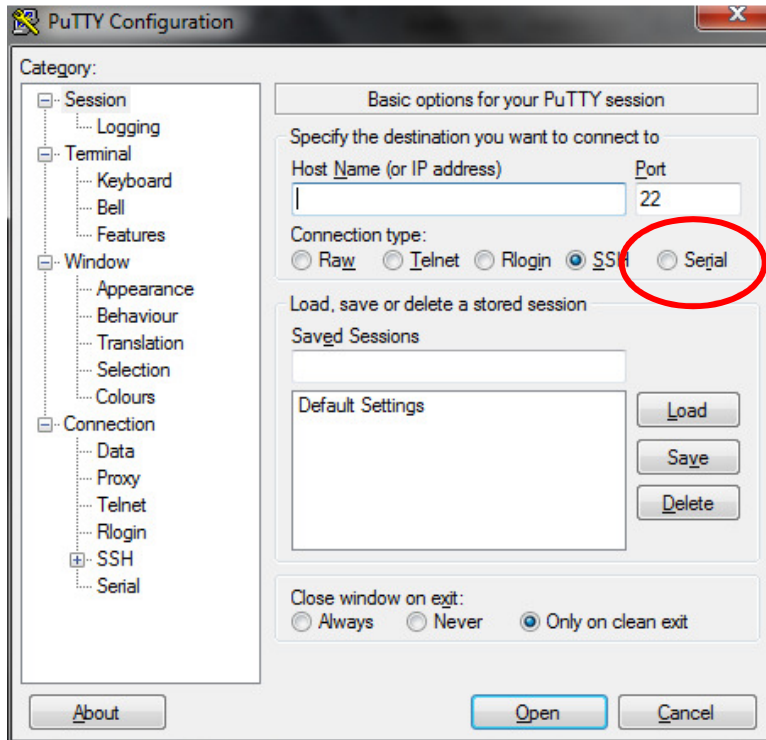


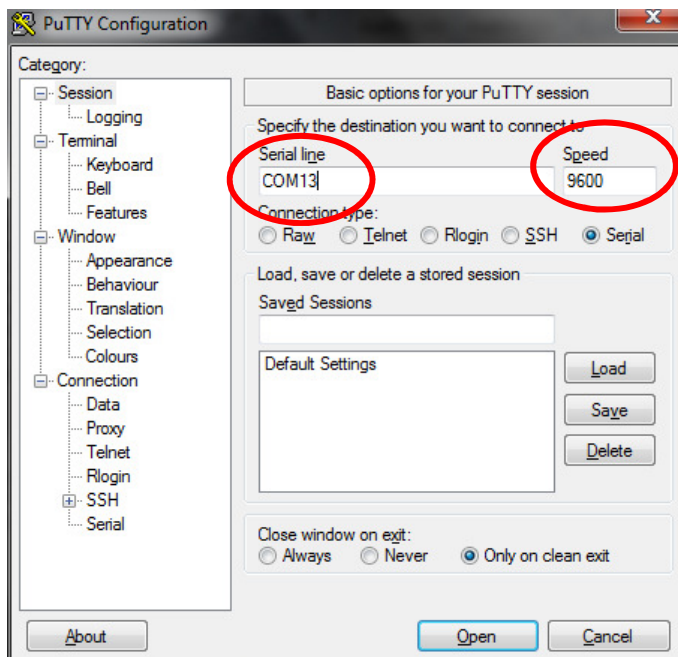
Cheatsheet - Advanced Data Display with PuTTY

Setup PuTTY

- Download from www.putty.org
- Open PuTTY



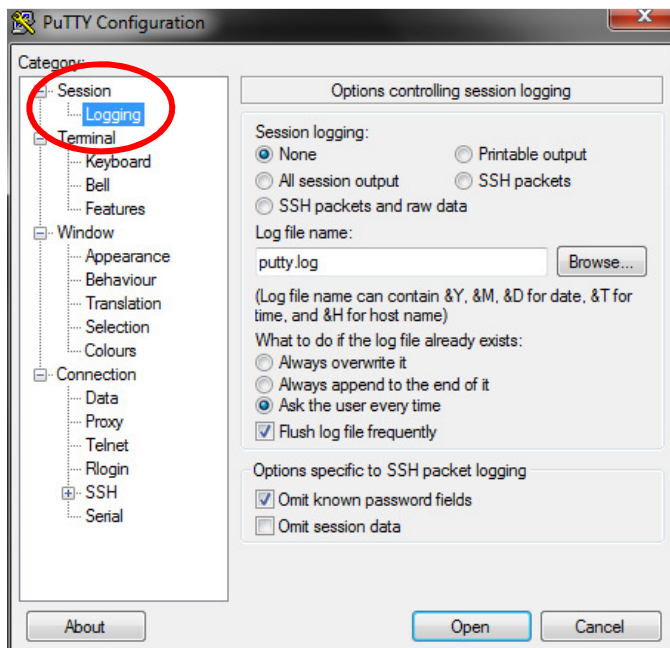
- Change tab to "serial"
- Change "serial line" to the COM port that Arduino has selected
- Check the "speed" matches the baud that is used in Serial.begin()



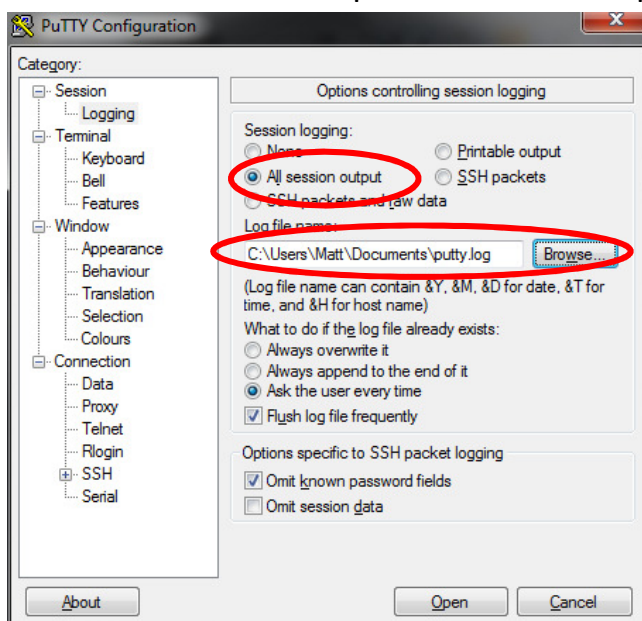
- Click "Open"
 - If you get a "unable to open serial port" error message, check that Arduino's "Serial Monitor" window is closed first!
- You should now see your board's output on the screen.

Saving to a file via PuTTY

- Open PuTTY and setup the serial as before
- BEFORE clicking open select the "logging" category on the left



- Choose "all session output" and choose a place to save the file to



- Then click open to see the output and start logging to the file.

Comma-Separated Values

Now that we can write to a file, we can use this to store our results for later analysis. An easy way to do this in such a way that is compatible with many data analysis programs (Excel, matlab) is to use a format known as comma-separated-values. This takes a 2D format similar to a spreadsheet with each data entry separated by rows and each value in the data entry separated by commas.

For example a series of temperature and pressure readings could look as follows:

```
24,1010  
23,1011  
25,1020
```

Thus we use our print statements carefully to achieve this format.

```
Serial.print(T,2);  
Serial.print(',');  
Serial.println(P,2);
```

If we use this with the PuTTY file logging, then we can now import the file into our data analysis tool and plot the data.

Of course, the serial port can be used by other programs too. It may even be desirable to write your own software on the PC that communicates directly with the cansat, either by serial for ground testing or via the wireless ground station for live telemetry. There are many exciting possibilities!