

Using Serial Terminal interface for COL215 LAB assignment.

The below steps explain how to communicate with Basys board using serial terminal interface .

Configuring the serial port

Step-1:

Verify that your machine has **gtkterm** installed. Using gtkterm messages can be exchanged with the application running in the basys board.

Step-2:

Connect your Basys3 board to the PC and power it on. As you connect the Basys board with PC using micro USB cable it appears as ttyUSB port. Each user has given permission to read/write ttyUSB ports. You can verify the permissions using following command from the ubuntu terminal

`ls -l /dev/ttyUSB*`

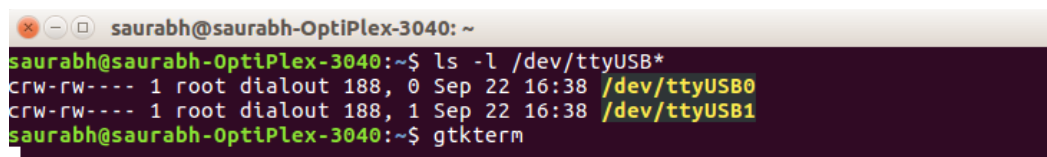
`crw-rw---- 1 root dialout 188, 0 Sep 22 16:38 /dev/ttyUSB0`

`crw-rw---- 1 root dialout 188, 1 Sep 22 16:38 /dev/ttyUSB1`

check the permissions of the ports.

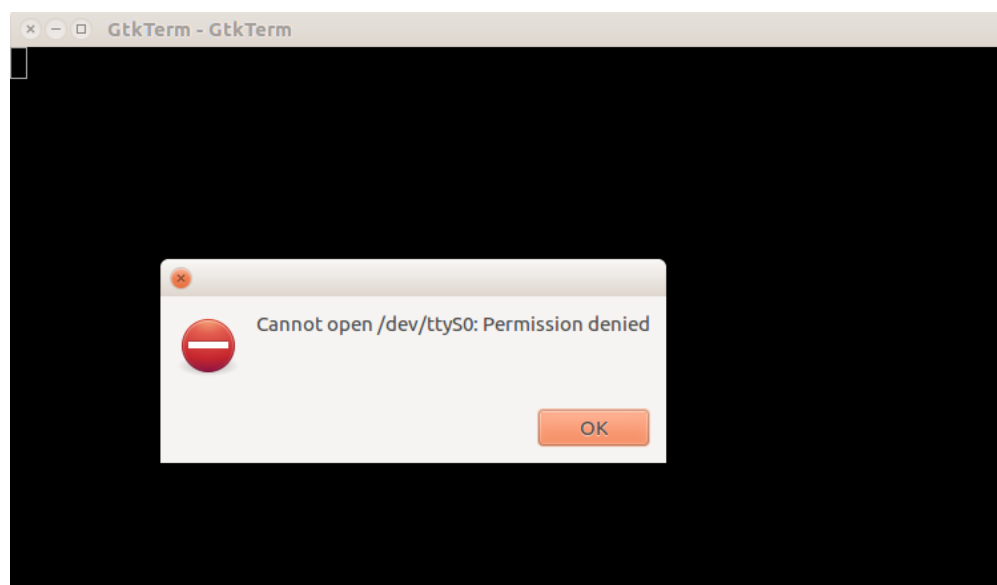
Step-3:

- a) Now open ubuntu terminal and type command "**gtkterm**".

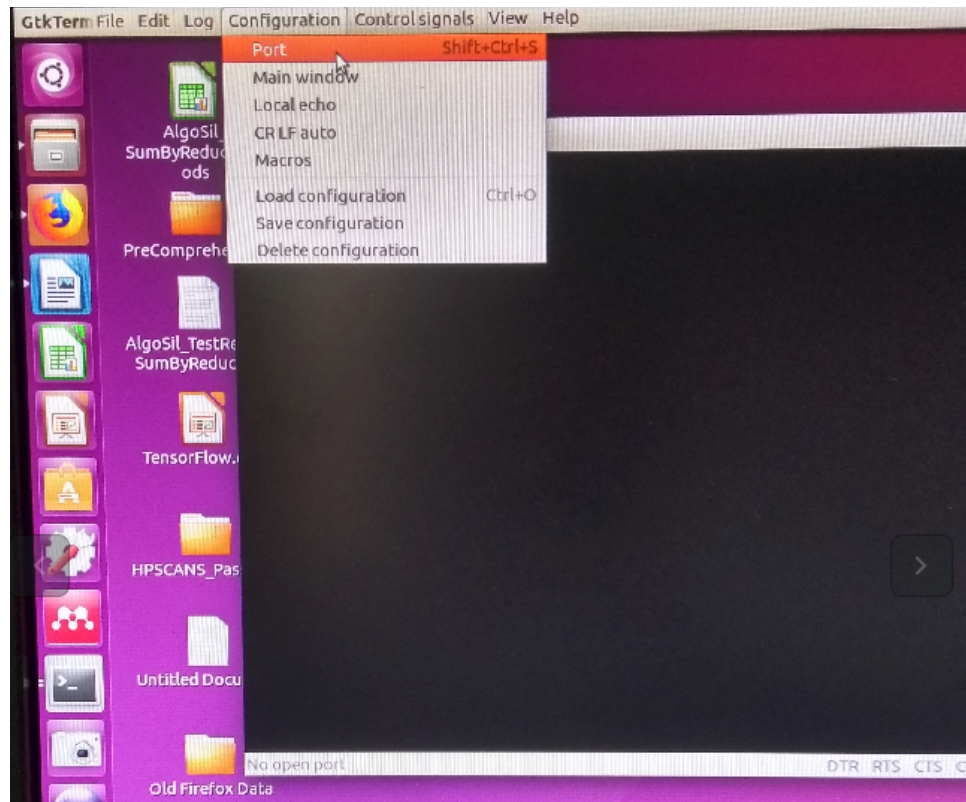


```
saaurabh@saaurabh-OptiPlex-3040: ~  
saaurabh@saaurabh-OptiPlex-3040:~$ ls -l /dev/ttyUSB*  
crw-rw---- 1 root dialout 188, 0 Sep 22 16:38 /dev/ttyUSB0  
crw-rw---- 1 root dialout 188, 1 Sep 22 16:38 /dev/ttyUSB1  
saaurabh@saaurabh-OptiPlex-3040:~$ gtkterm
```

- b) Gtkterm will start and an error dialogue will be displayed as shown below

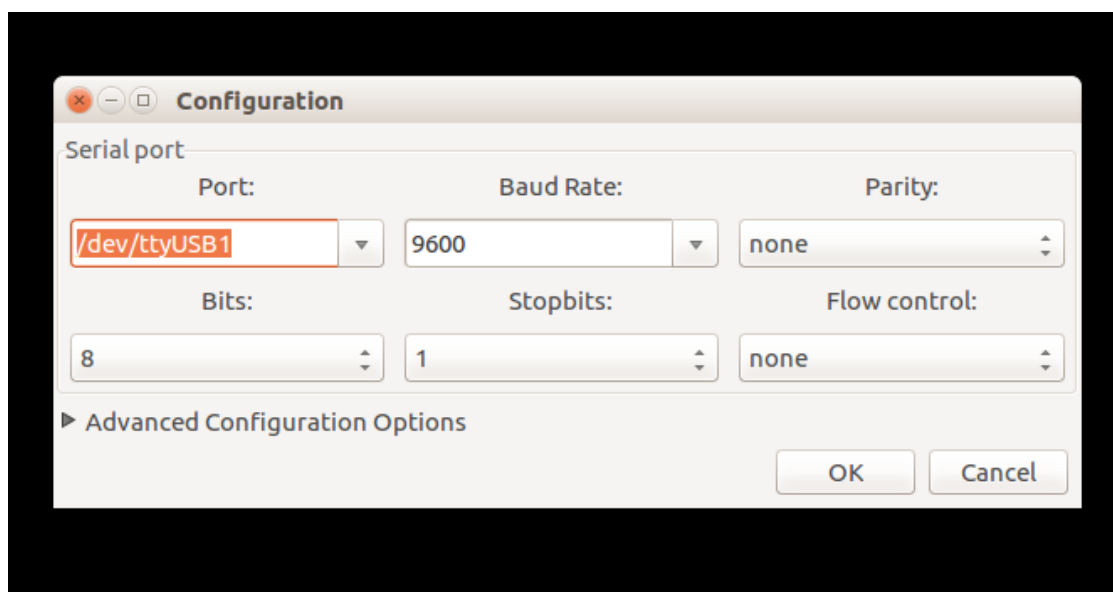


- c) Now, go to the Configuration tab from top menu and select Port as shown below



- d) Following screen will appear. Configure the serial port settings as it appears in screen below.

- Port : **/dev/ttyUSB1**
- Baud Rate: **9600**
- Parity **none**
- Stopbits: **1**



Press OK to save the settings.

gtkterm is ready to communicate with basys board with specified serial port settings.

Tranferring and viewing the data using gtkterm

Step-1:

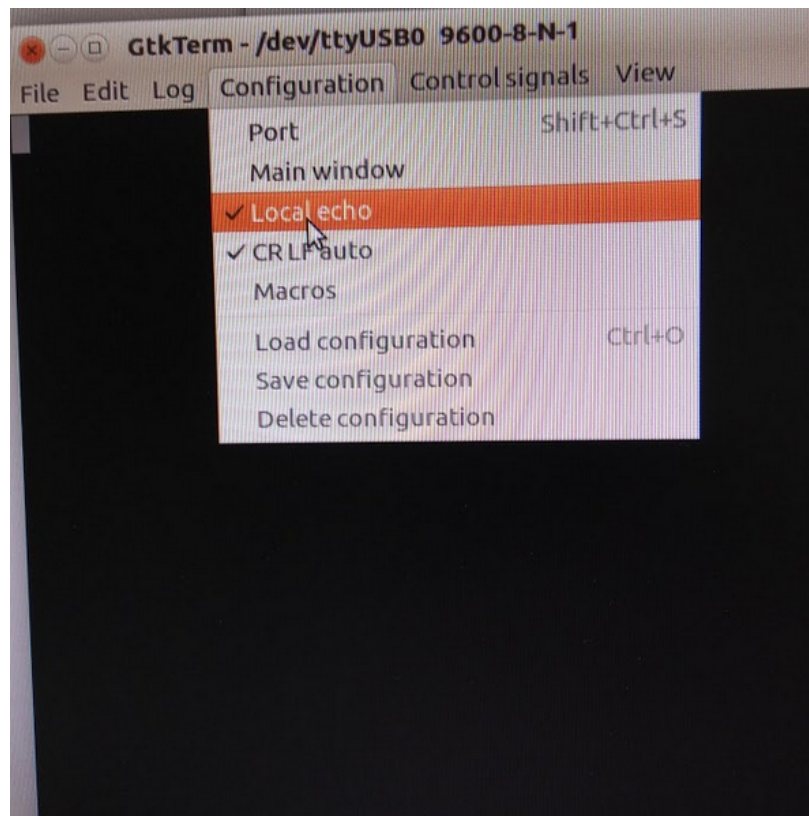
The data transferred from basys board to ubuntu PC will appear on the screen. You can choose the format of data received as explained in Step-4.

Step-2:

To transfer the data from ubuntu PC to basys board you can type the character on the gtkterm screen. To view the data from gtkterm you can follow the Step-3 and Step-4.

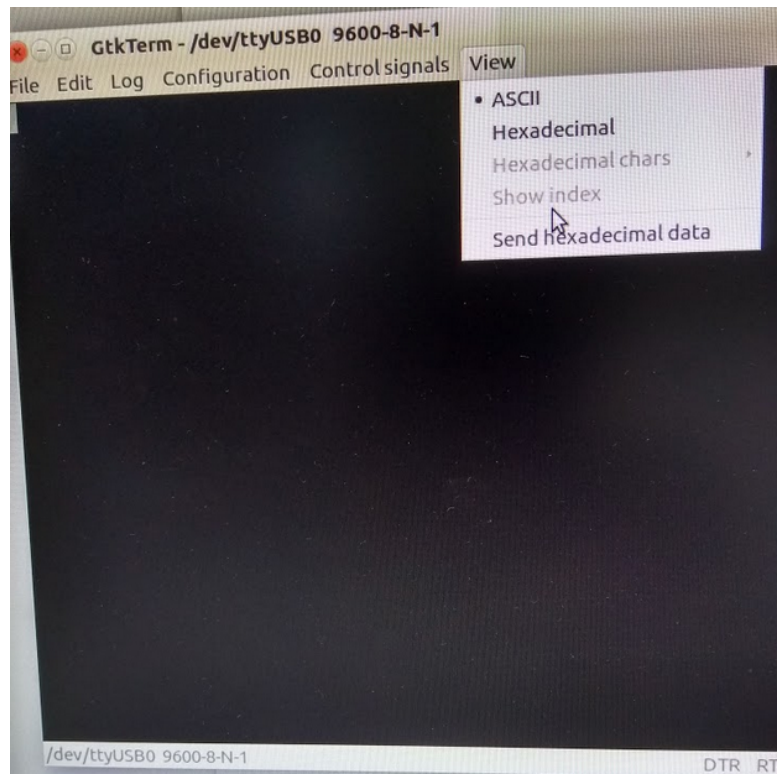
Step-3 : (optional)

You can turn on the Local Echo feature from the Configuration menu to see locally the data you have sent out serially. As shown in screen below



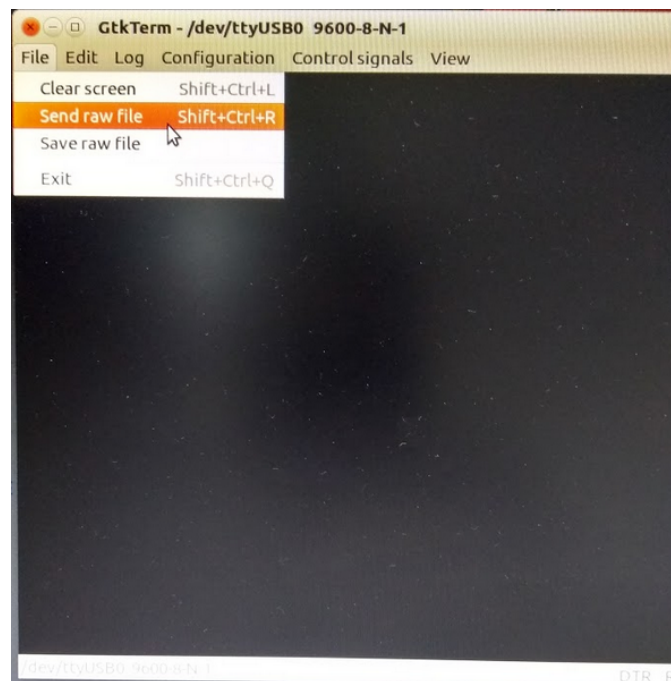
Step 4 (optional):

You can view the data transferred either as ASCII characters or as a hexadecimal numbers. This can be selected as shown in screen below.



Transferring a file using gtkterm

You can also transfer data-file(e.g.text file) from ubuntu PC to basys board over serial port. Select "Send raw file" from File menu as shown below



It will open a File Selection window using which you can select the file to transfer from your folder. Press OK to transfer the file.

