

Appendix: UART Connections For FPGA

1 SOFTWARE INSTALLATION:

1.1 WINDOWS:

Download Putty from

<https://www.putty.org>

Windows users download one of the below mentioned versions of Putty installer depending on their processor types.

MSI ('Windows Installer')

64-bit x86:	putty-64bit-0.78-installer.msi	(signature)
64-bit Arm:	putty-arm64-0.78-installer.msi	(signature)
32-bit x86:	putty-0.78-installer.msi	(signature)

install the software. Installation steps are simple as installer is easy to use.

1.2 LINUX:

Use command:

```
sudo aptitude install putty
```

once installation is done use the command:

```
sudo aptitude install putty-tools
```

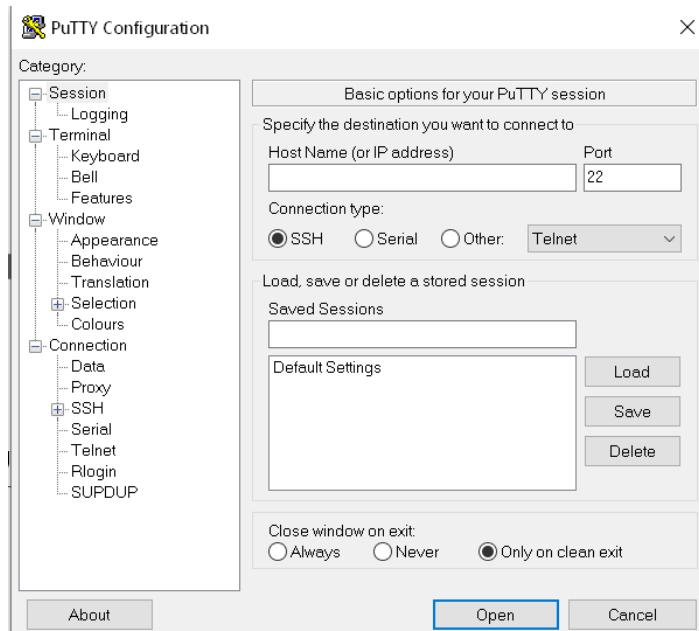
once done with the installations use command:

```
putty
```

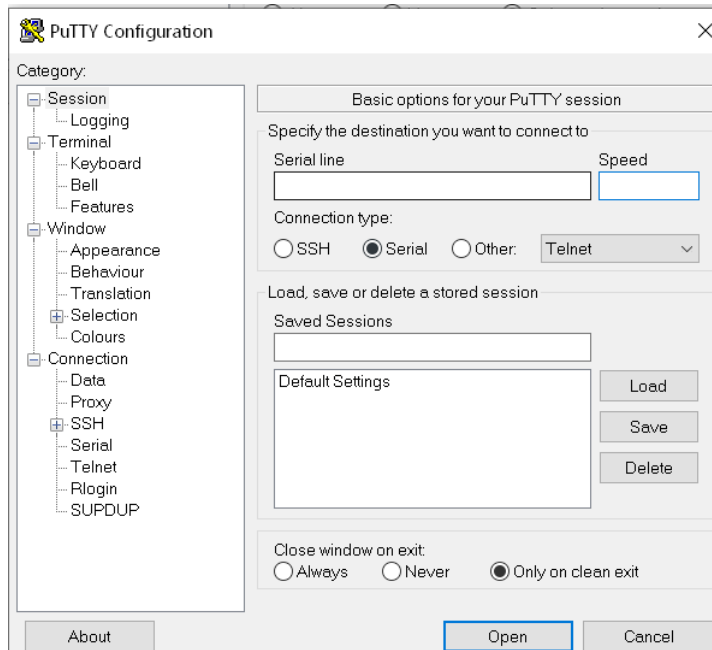
to open start using putty on your linux device.

2 USING PUTTY

Starting putty up you will be greeted with such window

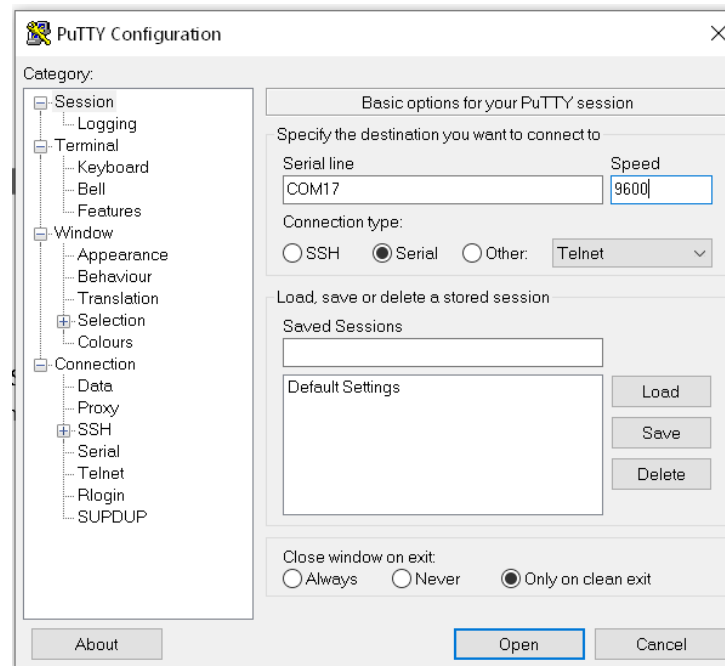


Select Serial:



2.1 WINDOWS USERS:

Go to device manager in settings. And check the comport for the connected UART to serial module.



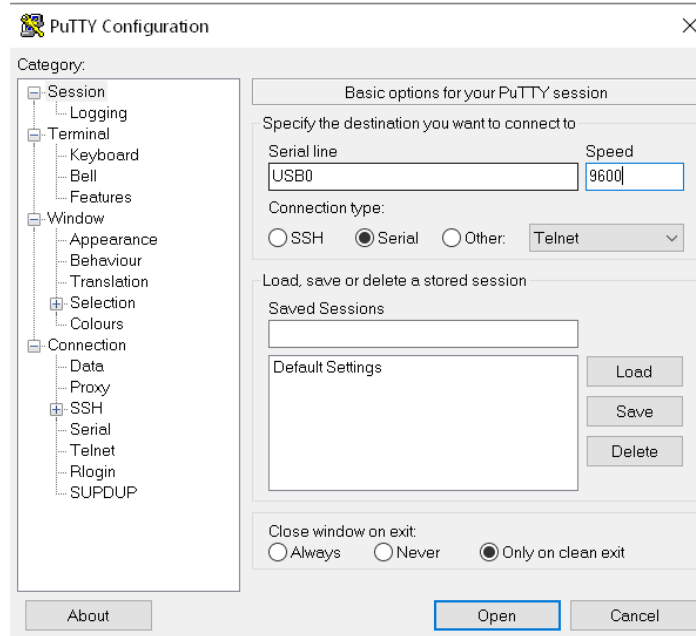
Set putty up as shown in the figure. Set the speed to 9600 as this is the baud rate to be followed. The corresponding baud counter value for code is 10417 for 9600 baud rate.

2.2 LINUX USERS:

Use command:

```
sudo dmesg | grep tty
```

gives you the information of which tty USB(port number) the UART module is connected to write /dev/ttyUBS(portnumber) in putty Serial line text box.



3 CONNECTIONS:

1. Use gnd pin from UART to serial module and connect it with the gnd port of the FPGA.
2. Use JA port for UART communication.
3. Assign one pin as Tx for your own UART.
4. Connect the assigned pin with the RX pin of the UART to Serial module.
5. Once connected turn putty on and follow step 2 onwards.

6. DONOT CONNECT 3.3V OF UART MODULE WITH 3.3V OF THE FPGA.

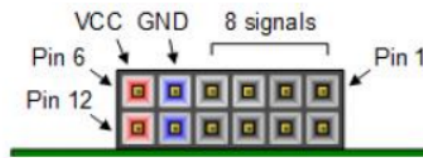


Figure 10.1 Pmod Connectors; Front View, as Loaded on PCB

Pmod JA	Pmod JB	Pmod JC	Pmod JD	Pmod XDAC
JA1: C17	JB1: D14	JC1: K1	JD1: H4	JXADC1: A13 (AD3P)
JA2: D18	JB2: F16	JC2: F6	JD2: H1	JXADC2: A15 (AD10P)
JA3: E18	JB3: G16	JC3: J2	JD3: G1	JXADC3: B16 (AD2P)
JA4: G17	JB4: H14	JC4: G6	JD4: G3	JXADC4: B18 (AD11P)
JA7: D17	JB7: E16	JC7: E7	JD7: H2	JXADC7: A14 (AD3N)
JA8: E17	JB8: F13	JC8: J3	JD8: G4	JXADC8: A16 (AD10N)
JA9: F18	JB9: G13	JC9: J4	JD9: G2	JXADC9: B17 (AD2N)

Table 10.1. Nexys A7 Pmod Pin Assignment

Acknowledgments

The appendix has been written by Mr. Taimoor Hassan.