Chapter 3

iTester

- The alphabet 'i' in iTester refers to IIT BOMBAY.

- iTester is basically a Linux based PMU connection tester.

- iTester has been created to generate live plots of the data coming from PMU simulators. It also displays the raw hex data packets and their respective decoded values in human readable form

- It gives live plots of various parameters such as Frequency, Magnitude, Angle and Analogs with respect to time.

    iTester has been created in Qt. It has been coded in C++ platform. From the coding point of view iTester actually fetches the raw data from PMU simulator and stores it into a string. The data stored into string is then parsed accordingly. Parsing process is completely done by considering the protocol IEEE Std C37.118.2-2011 for Synchrophasor Data Transfer for Power Systems.

Features : iTester has a very simple and self explanatory user interface. The user interface of iTester comprises of a Digital clock fixed at the top right extreme of the window. There are four kinds of plotting areas in the iTester application. Each plot has its own essence. Plots of frequency, magnitude, angle, analogs with respect to time can be obtained by virtue of this application. Five types of buttons are present there. Each button has its own unique functionality. Description of various buttons is given below:

- Connect button: connects to the port address entered.

- View configuration frame button: Displays the Configuration Frame.

- Rescale Button: rescales the window to according to the intercept values of max and min.

- Preset button: resizes the window to its original size

- Exit button: closes the application.

iTester supports an interactive way of visualizing a live plot through zooming. Zoom in and zoom out feature enables a user to get a better interpretation of a live plotted data.It has a feature of displaying the packets received into hexadecimal format. iTester has a separate window for displaying the complete information of a data frame into proper human readable form.
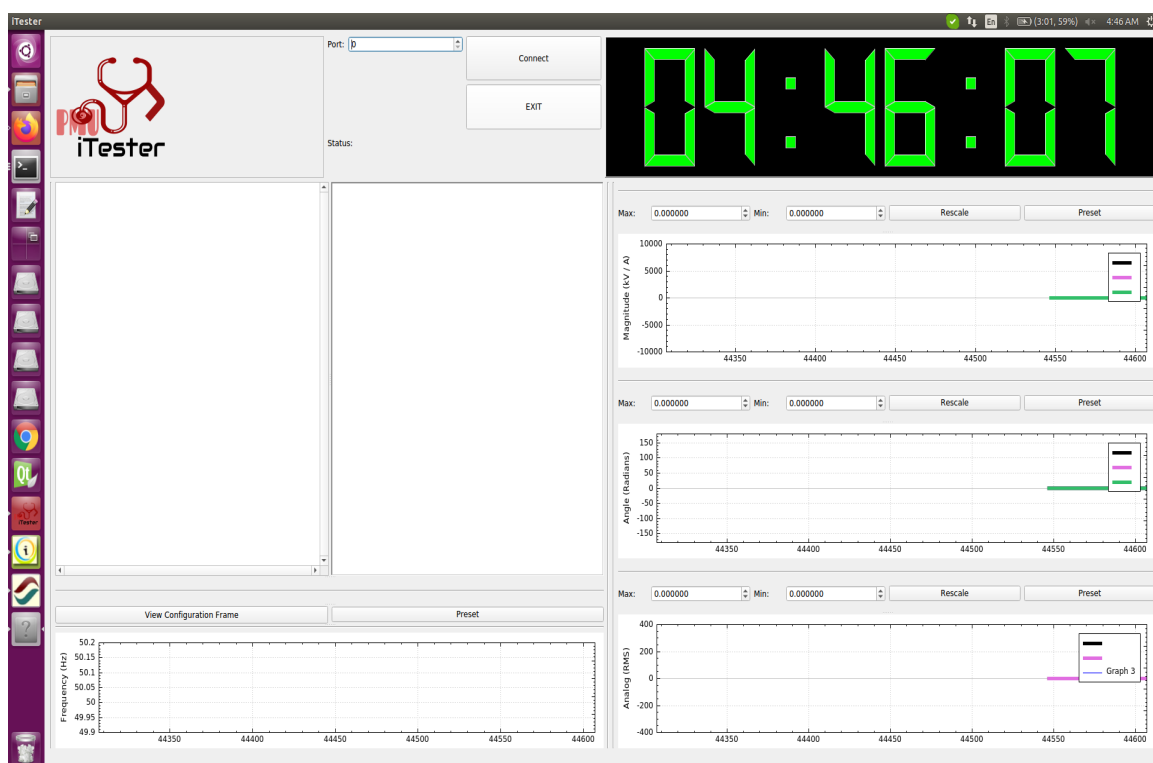

Figure 3.1: ScreenShot of iTester

3.1 Interfacing iTester with PMU and iPDC

Certain sequence of steps has to be followed in order to interface iTester with PMU and iPDC.

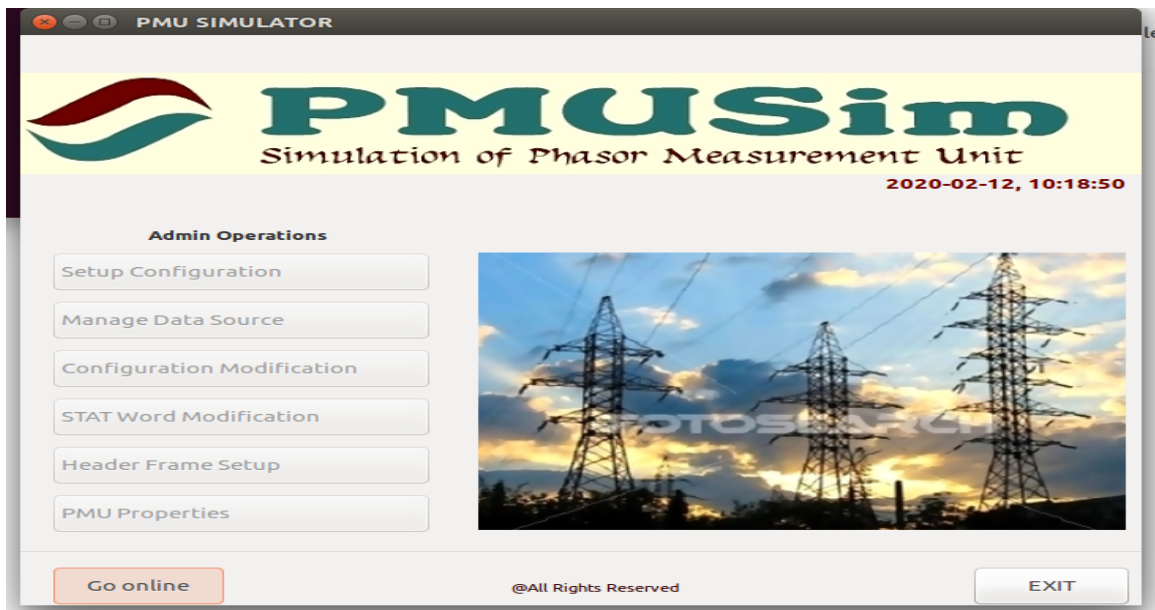- Open PMU Simulator and configure it.

Figure 3.2: ScreenShot of PMU Simulator

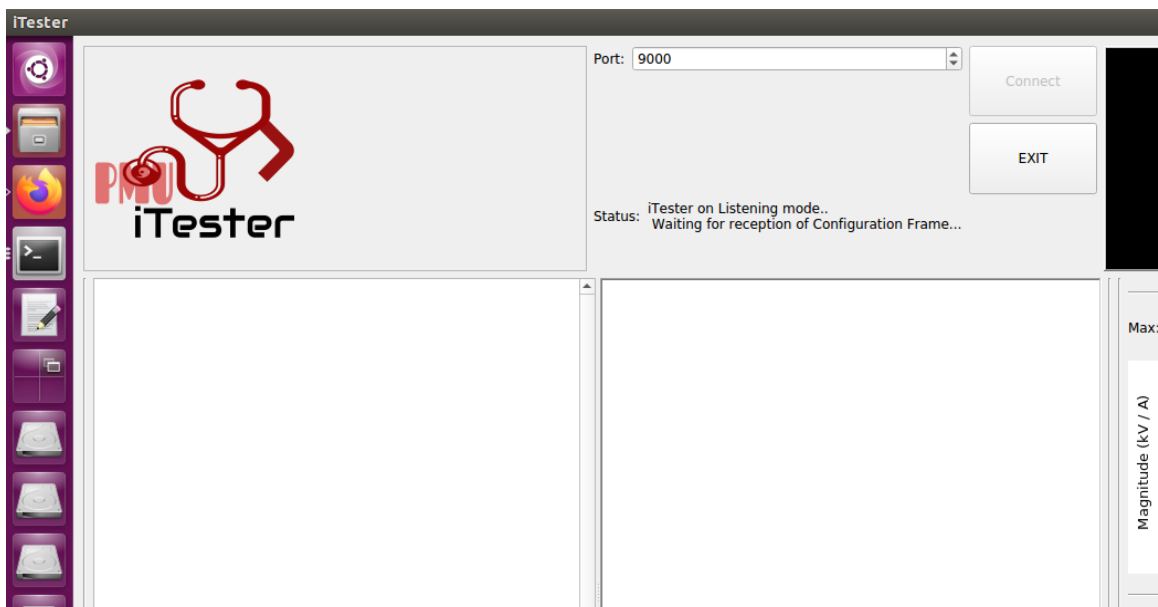- Open iTester and put it on listening mode by entering the address of DBServer that is 9000.

Figure 3.3: iTester in Connecting mode

- Open iPDC and load the PMU profile into it so that it can start streaming the data and iTester would be able to receive it.
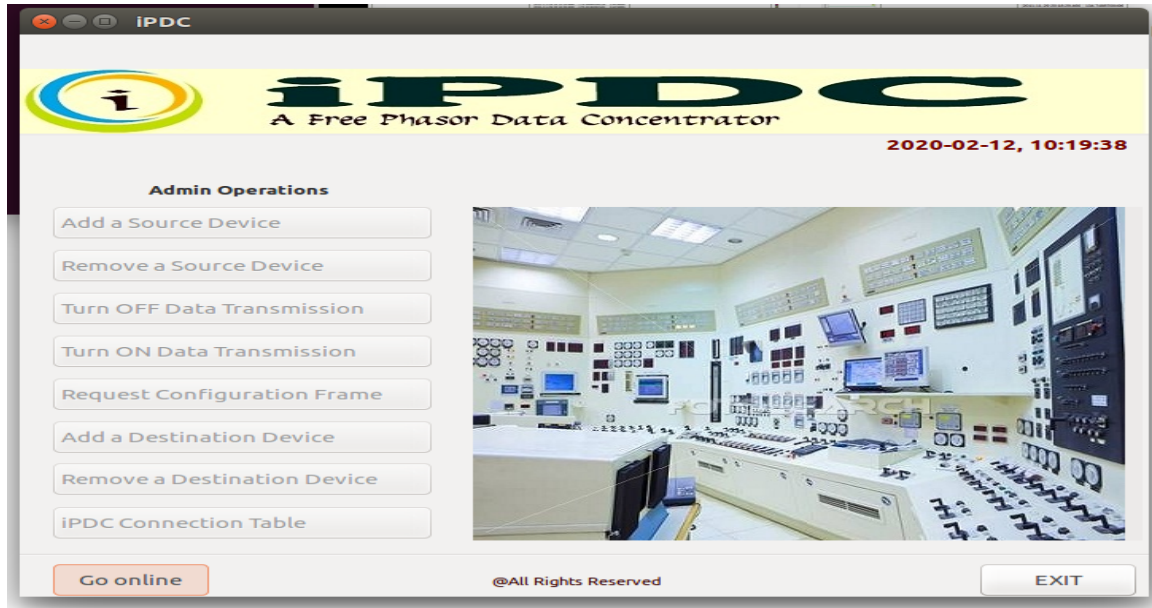
Figure 3.4: ScreenShot of iPDC

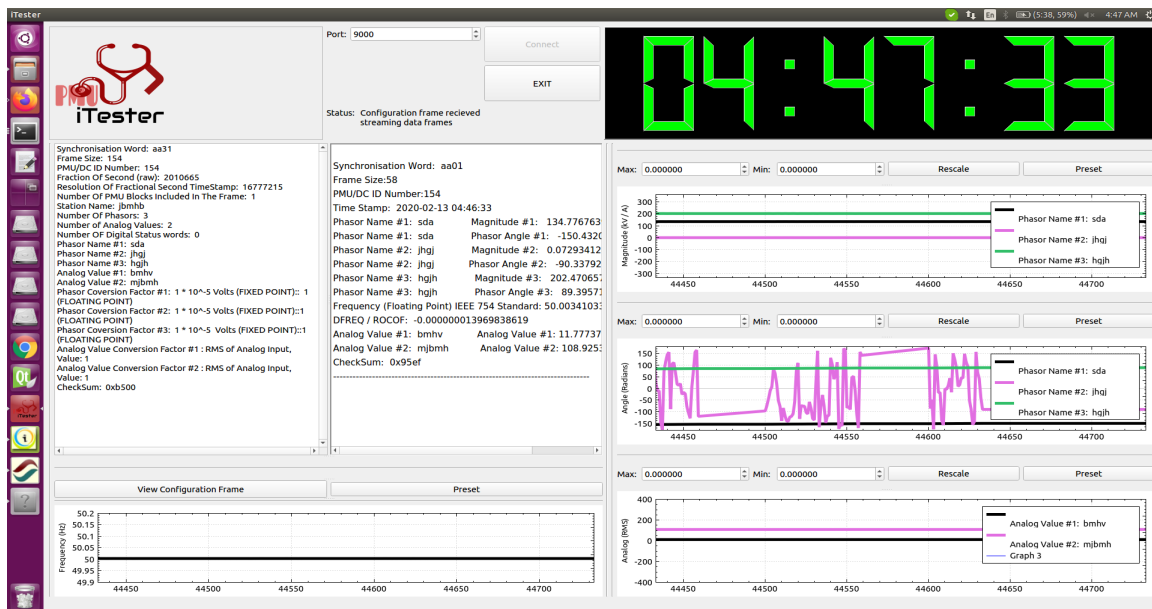- Once the configuration frame is received iTester starts displaying the data as plotting it simultaneously.

Figure 3.5: iTester in Streaming mode