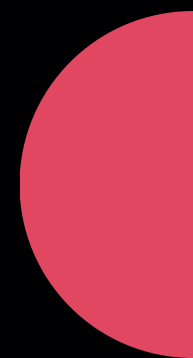
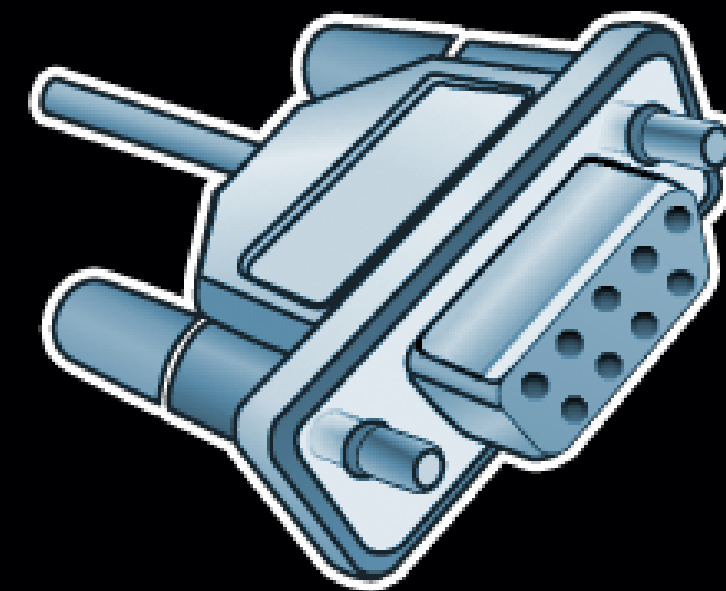


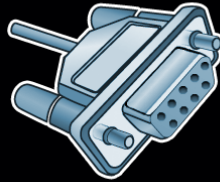
# INC 272

S O F T W A R E   T E S T I N G

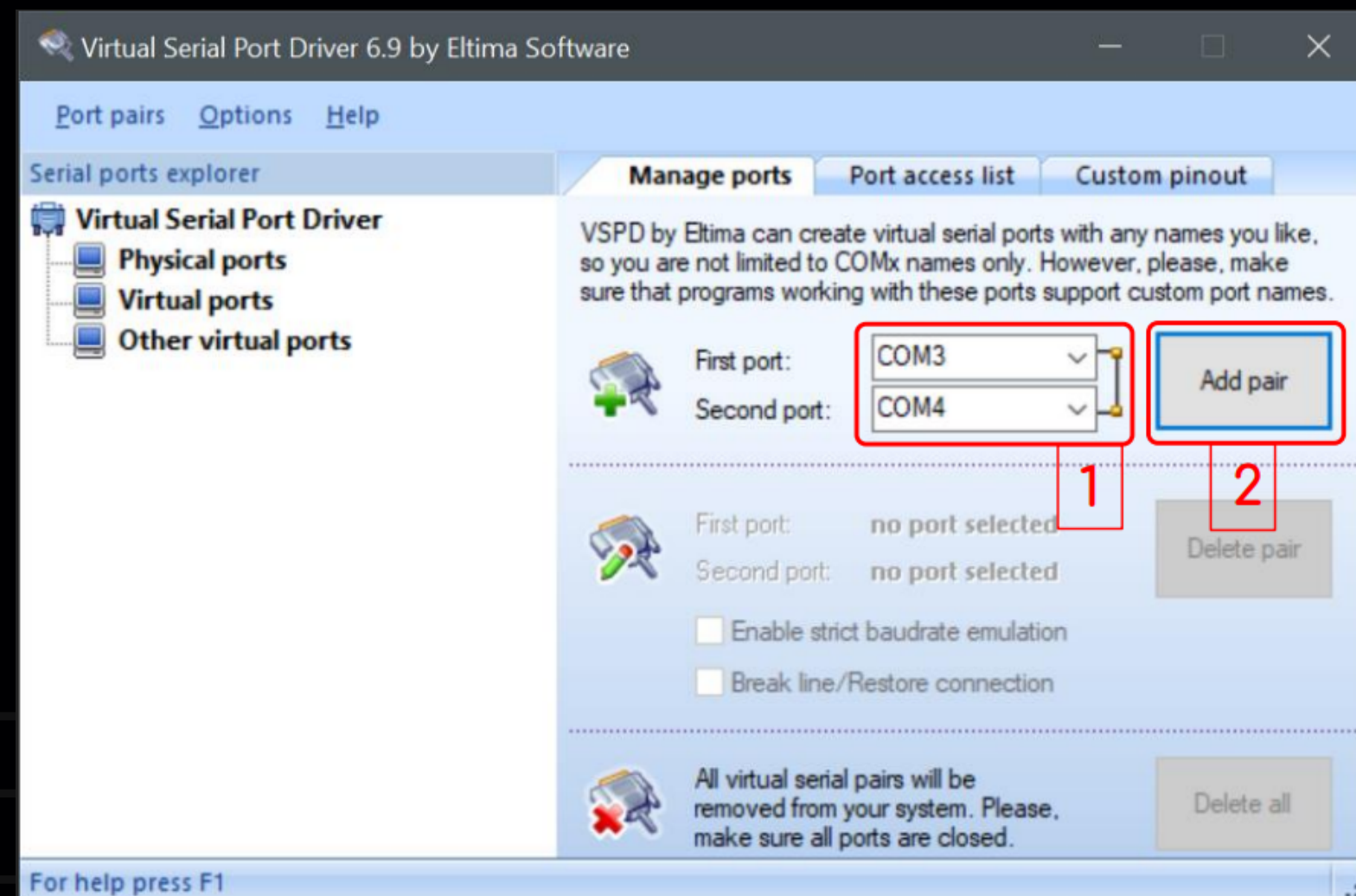
# SETUP THE VIRTUAL SERIAL PORT DRIVER (VSPD)



# SETUP THE VSPD



Run the VSPD (**Run as administrator**) and select **COM3** and **COM4** as the First port and Second port. Then click Add pair button.



NOTE: WE WILL USE THE

- COM3 FOR PROTEUS
- COM4 FOR NODE-RED

THE COM3 AND COM4 ARE CONNECTED. IT MEANS THAT THE PROTEUS AND THE NODE-RED ARE ALSO CONNECTED. THEY CAN EXCHANGE THEIR DATA OVER THE VIRTUAL SERIAL PORT USING UART PROTOCOL.

**Note: if you use COM3 and COM4, can be changed to other ports, e.g.; COM8 and COM9.**

# PROTEUS SERIAL PORT SIMULATION CIRCUIT

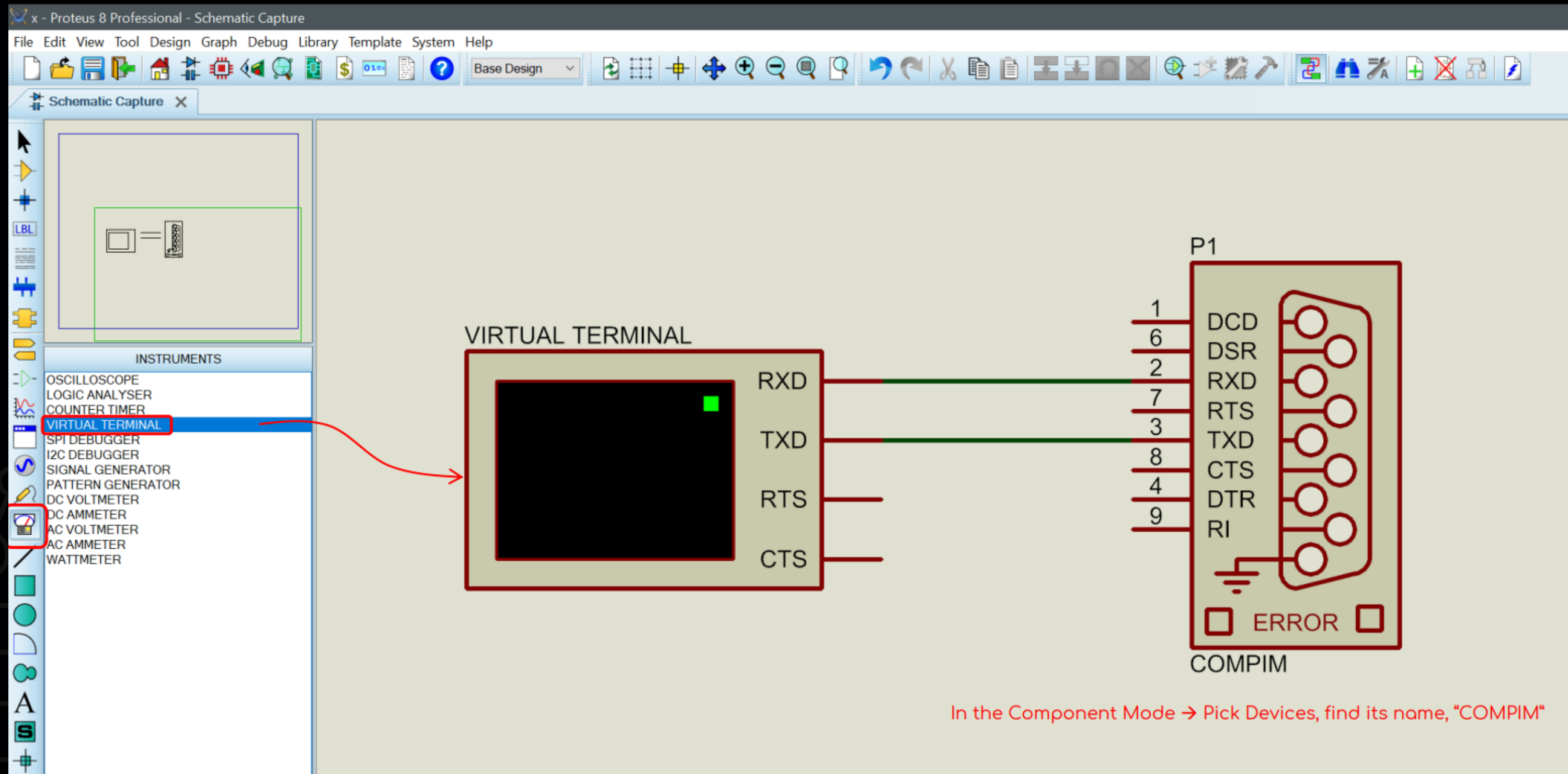




# PROTEUS SERIAL PORT SIMULATION CIRCUIT



Run the Proteus (**Run as administrator**) and complete the simulation circuit

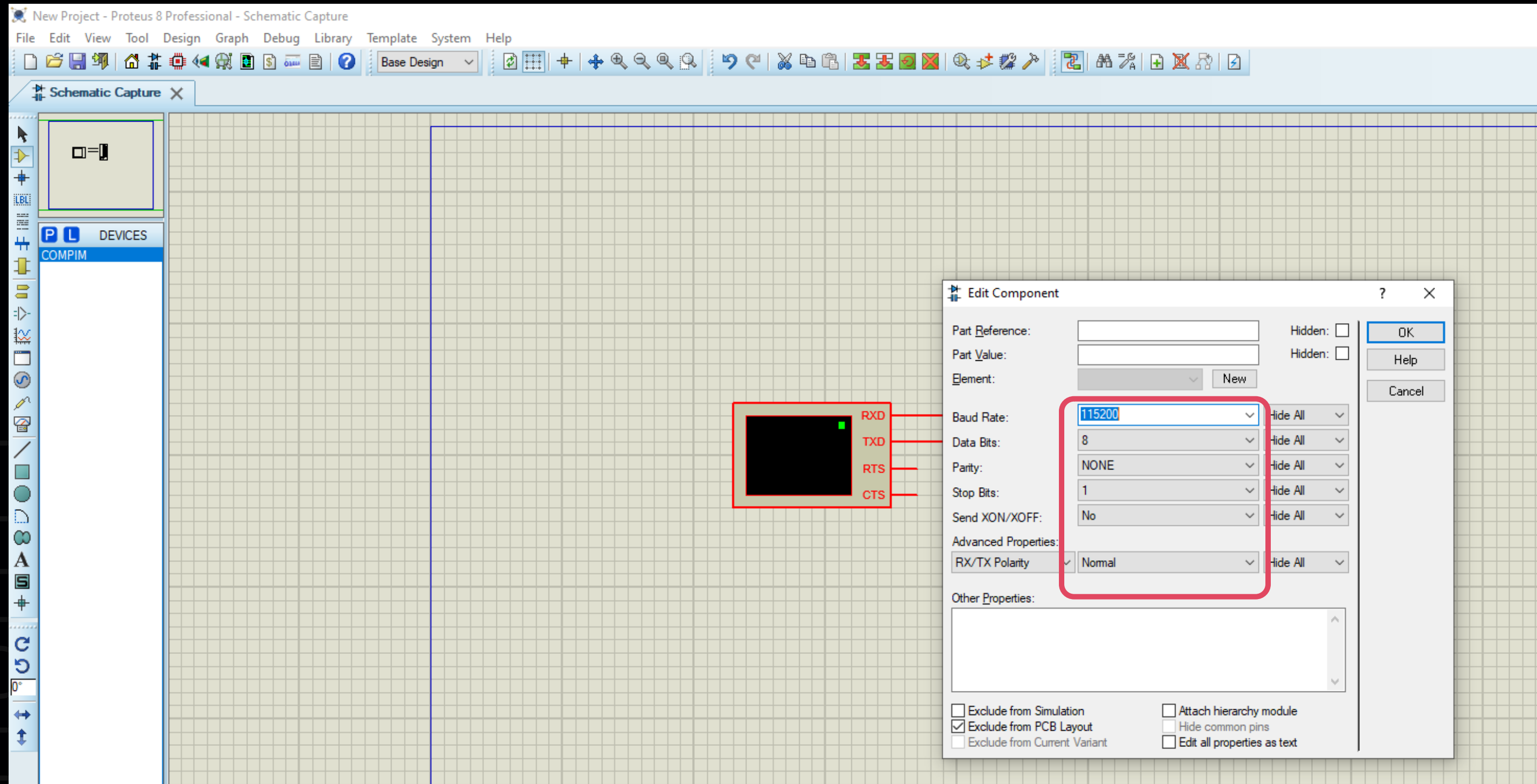


In the Component Mode → Pick Devices, find its name, "COMPIIM"

# PROTEUS SERIAL PORT SIMULATION CIRCUIT



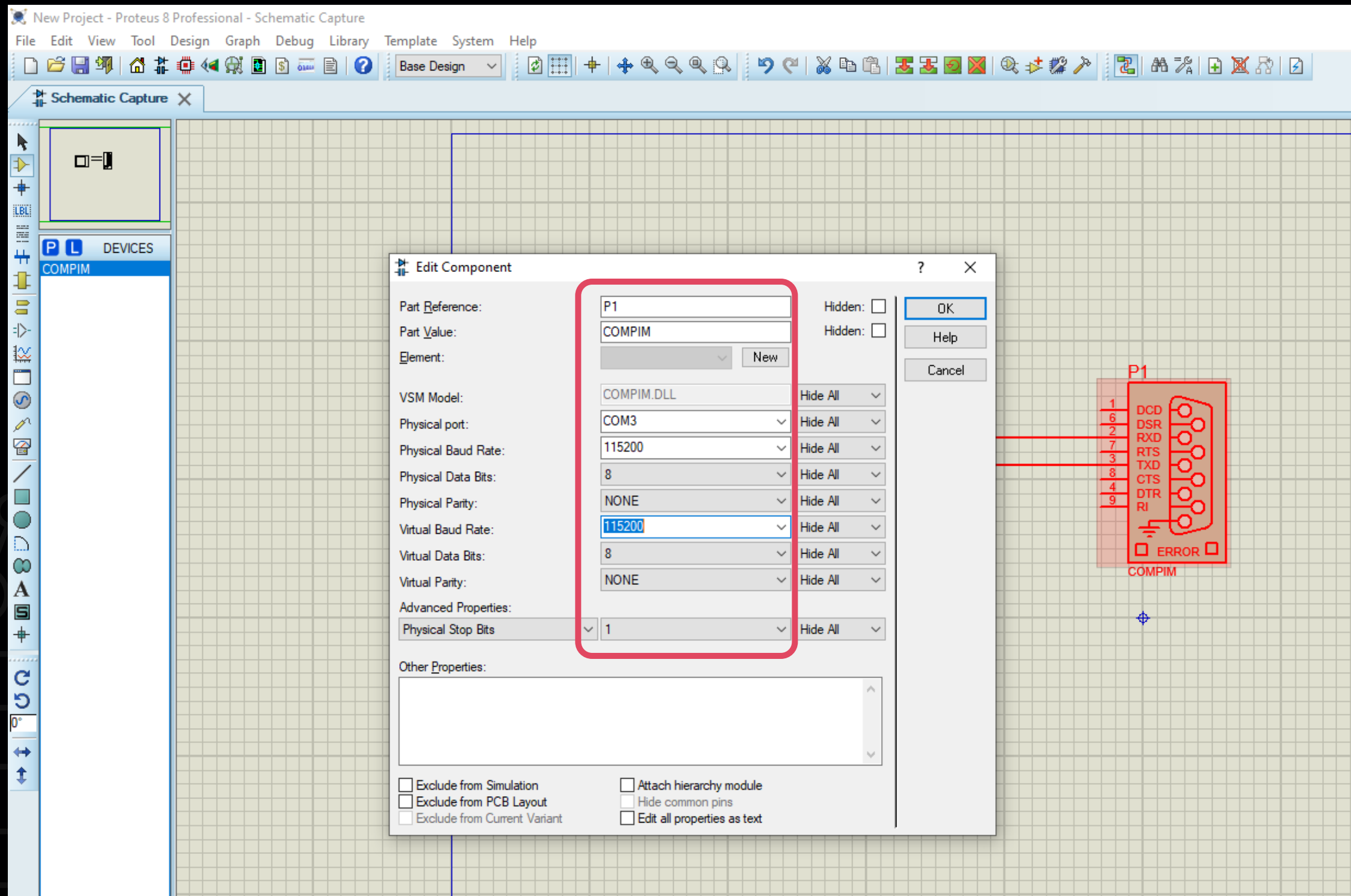
**Double-click on the VIRTUAL TERMINAL and set all parameters as shown in the Edit Component window, then click the OK button.**



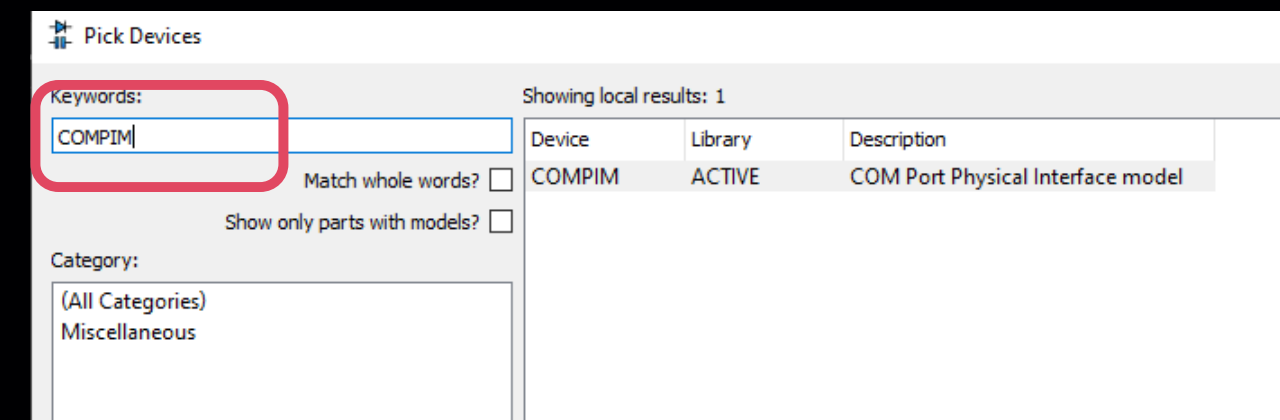
# PROTEUS SERIAL PORT SIMULATION CIRCUIT



**Double-click on the COMPIM and set all parameters as shown in the Edit Component window, then click the OK button.**

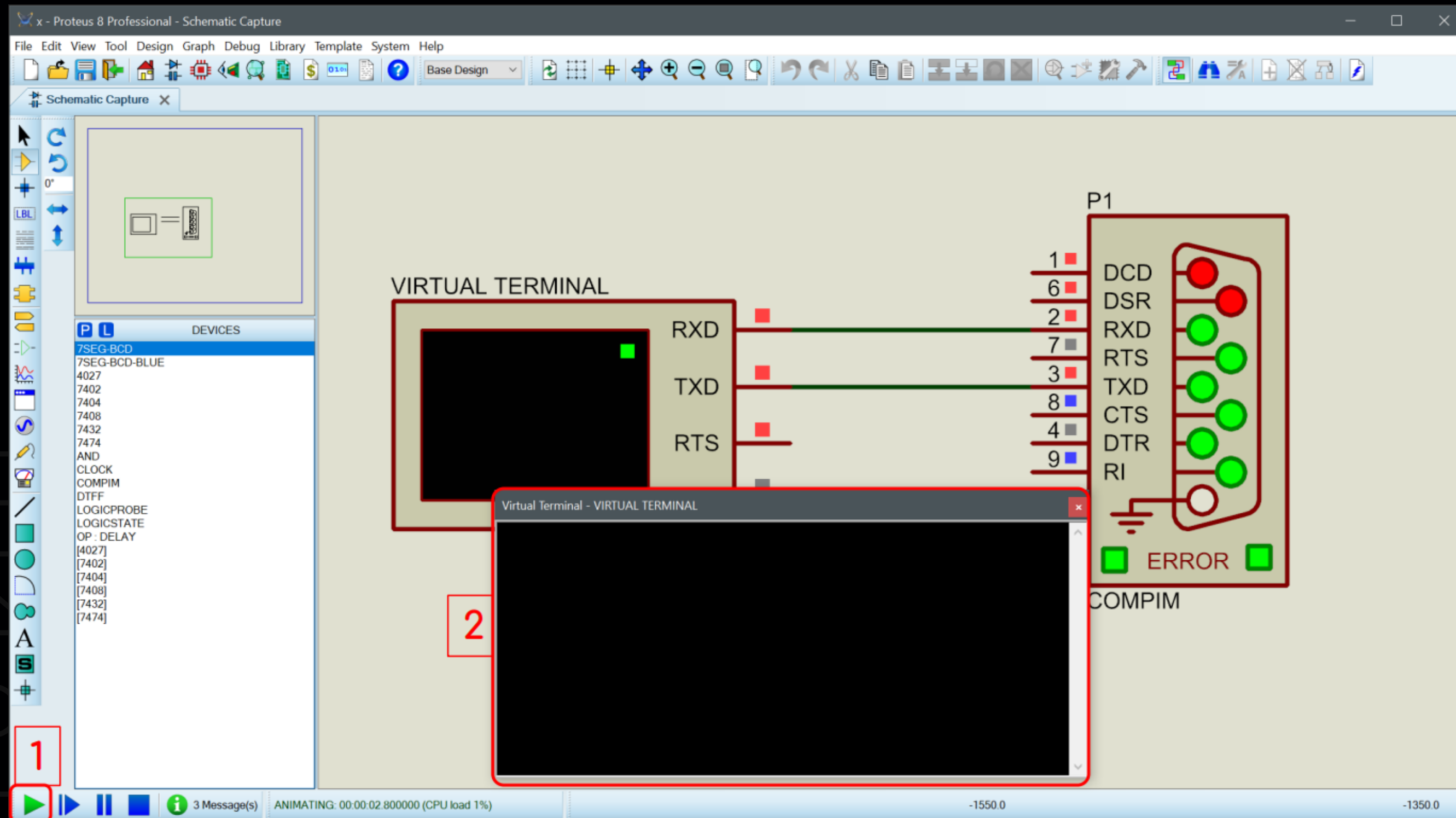


**Search Component: Press **P** and key "**COMPIM**" in Keywords.**



# PROTEUS SERIAL PORT SIMULATION CIRCUIT

Click the Run button, the Virtual Terminal (black window) will show on the screen

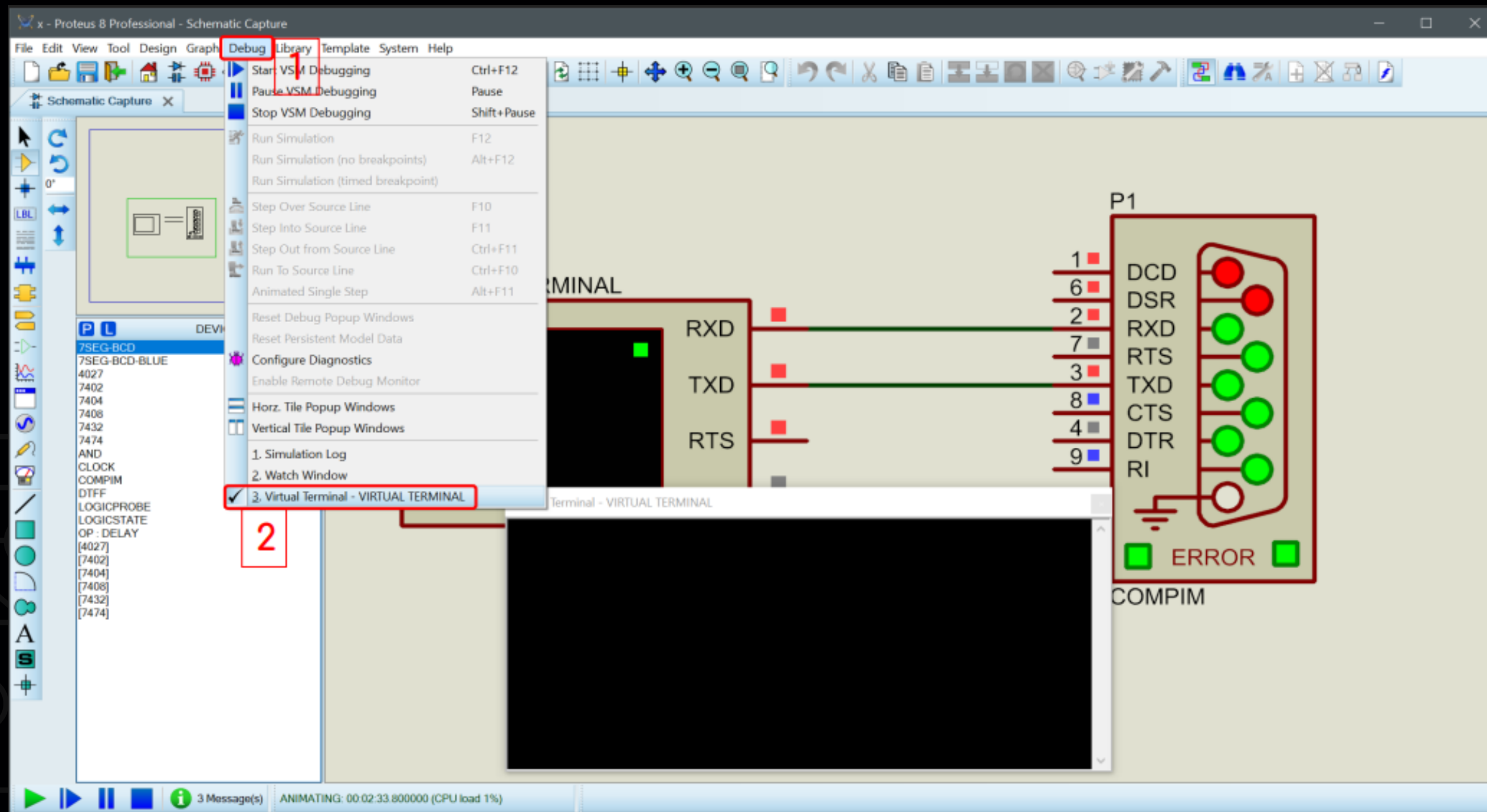




# PROTEUS SERIAL PORT SIMULATION CIRCUIT



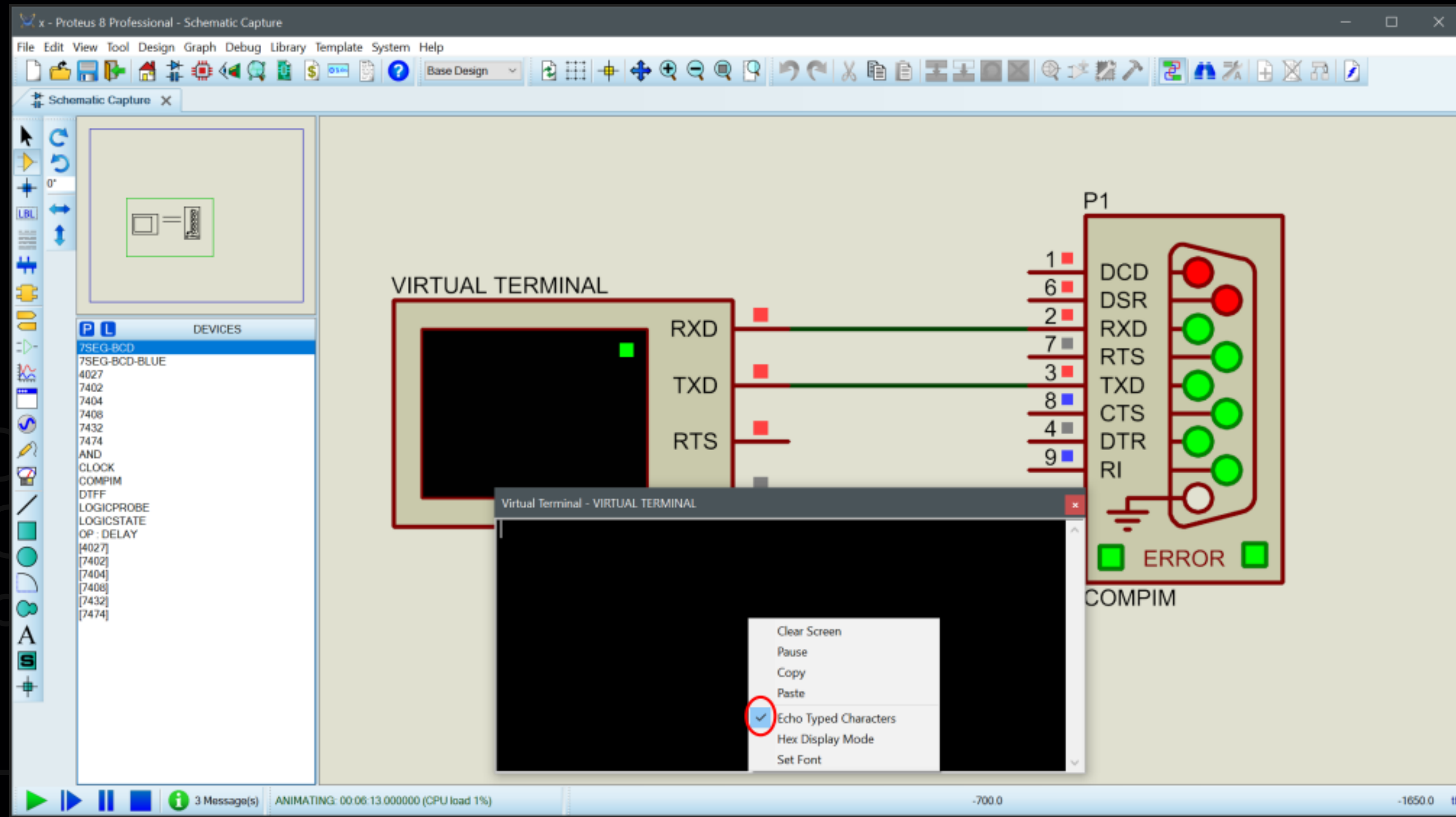
If the Virtual Terminal is not shown (it may be closed previously), click the **Debug** menu and click **Virtual Terminal**.



# PROTEUS SERIAL PORT SIMULATION CIRCUIT

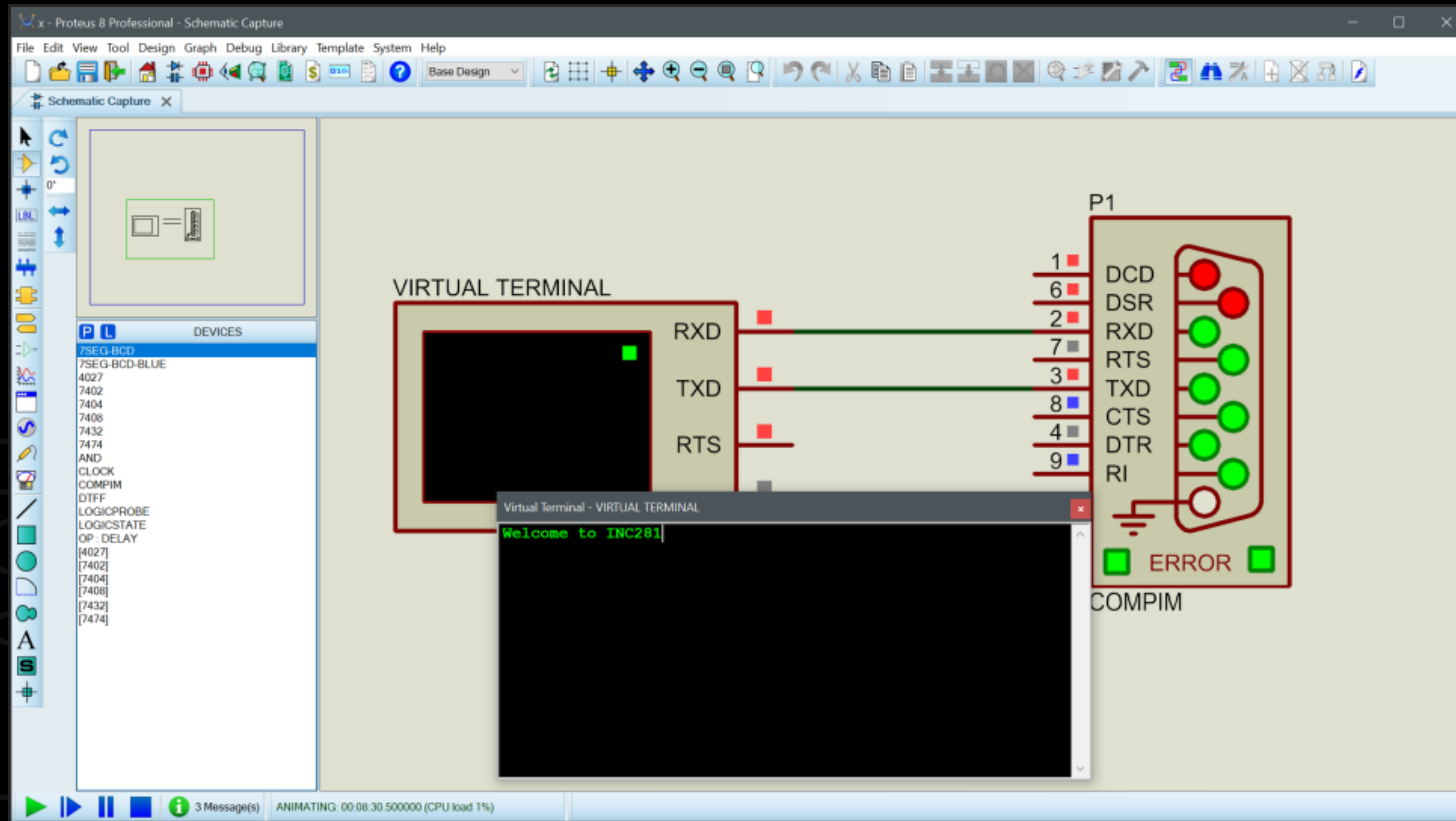
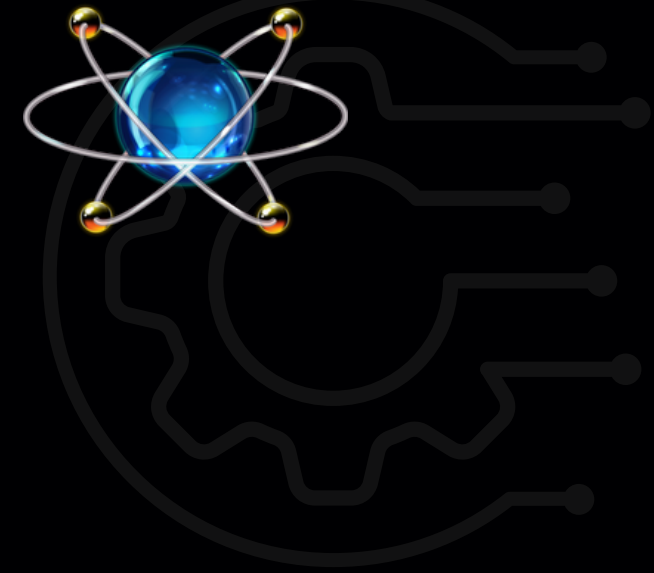


**Right-click on the Virtual Terminal window (black area) and enable the Echo Typed Characters**

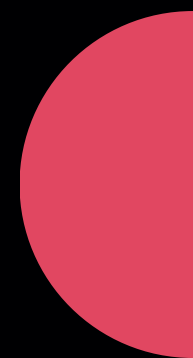
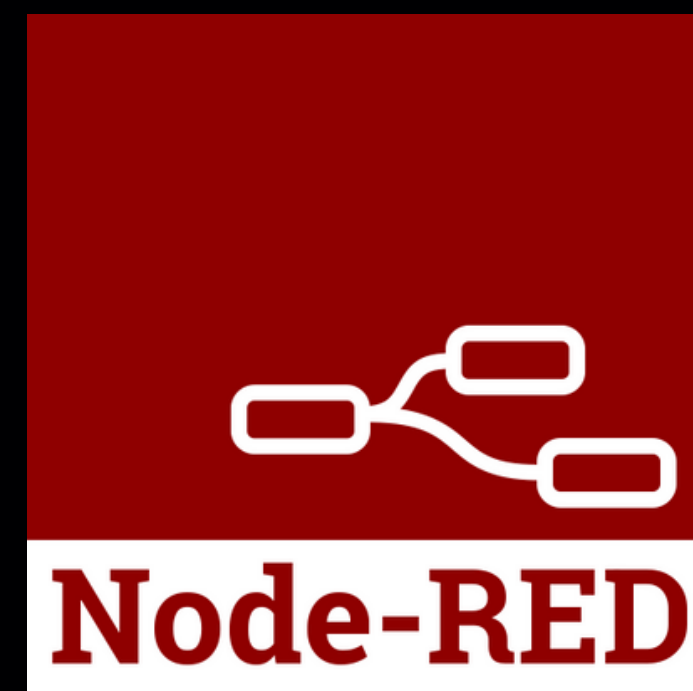


# PROTEUS SERIAL PORT SIMULATION CIRCUIT

Now you can input some characters to the Virtual Terminal, and you can see what key you pressed. All characters from your keyboard will be sent to the serial port through the COMPIM.

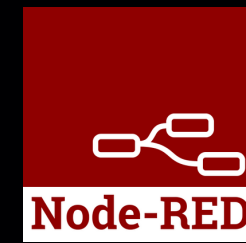


# NODE-RED SERIAL PORT DATA RECEIVING

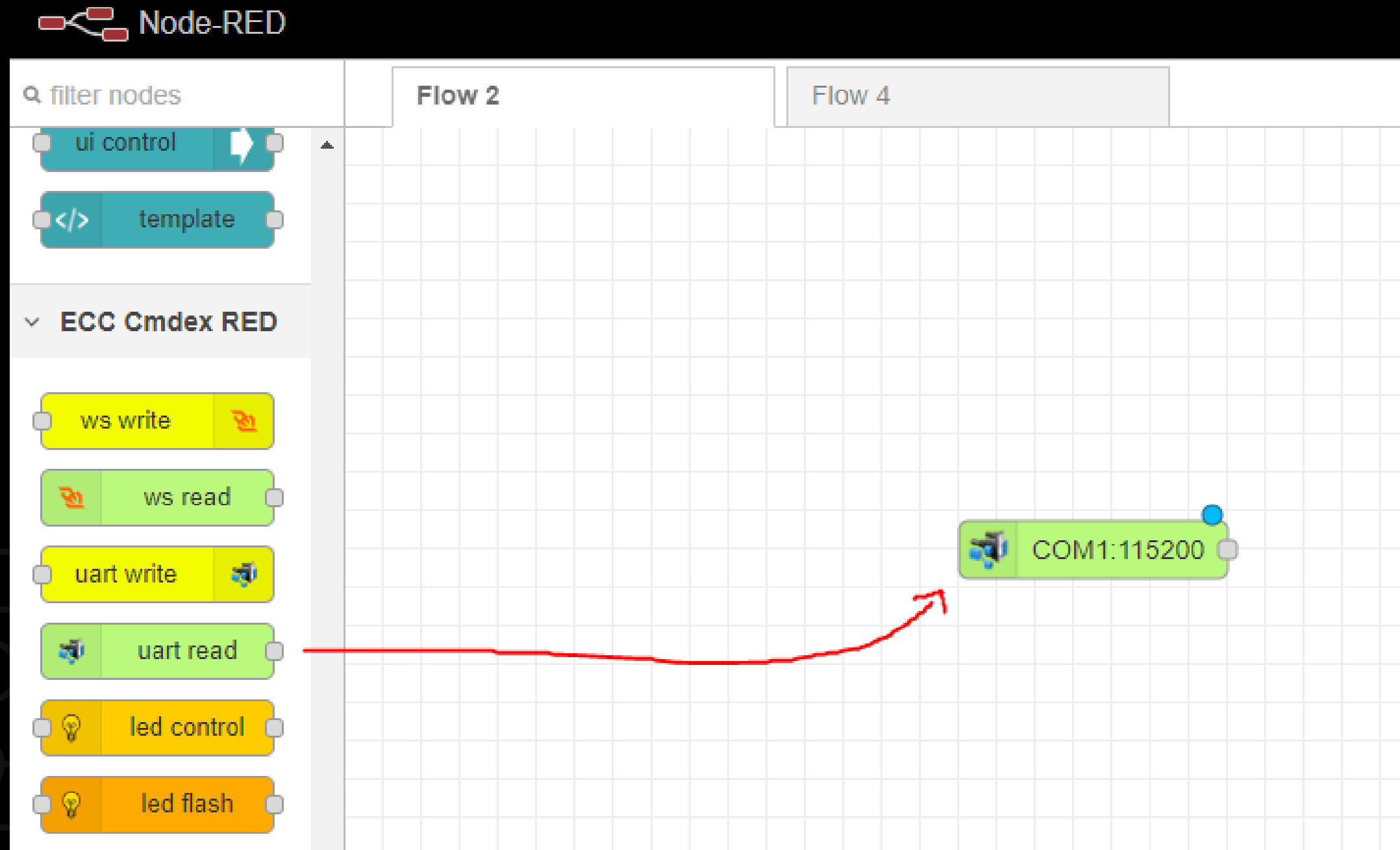




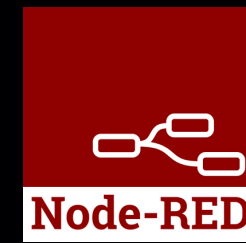
# NODE-RED SERIAL PORT DATA RECEIVING



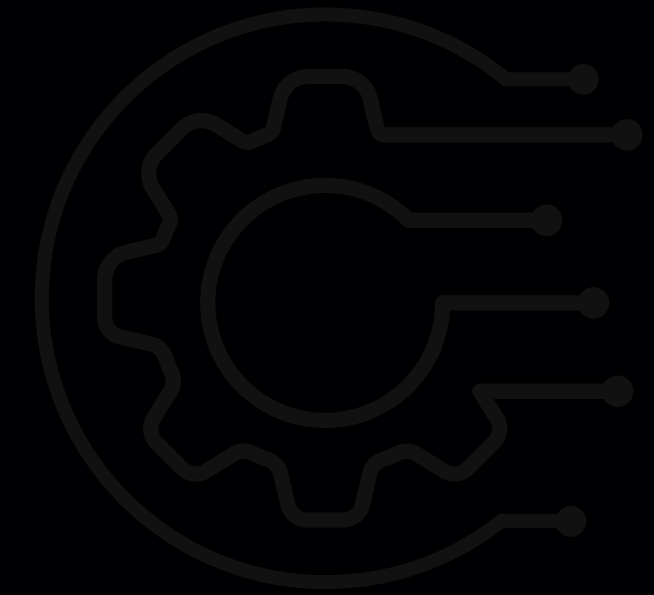
Drag and drop the **uart red** in node into working space



# NODE-RED SERIAL PORT DATA RECEIVING

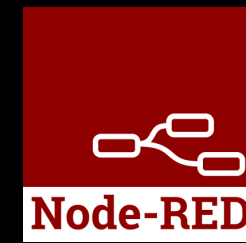


Double-click on the **uart red** node ,Set the properties as shown in the Properties window. Be sure, the Serial Port is COM4 and Baud Rate is 115200. Then, click the Done button.

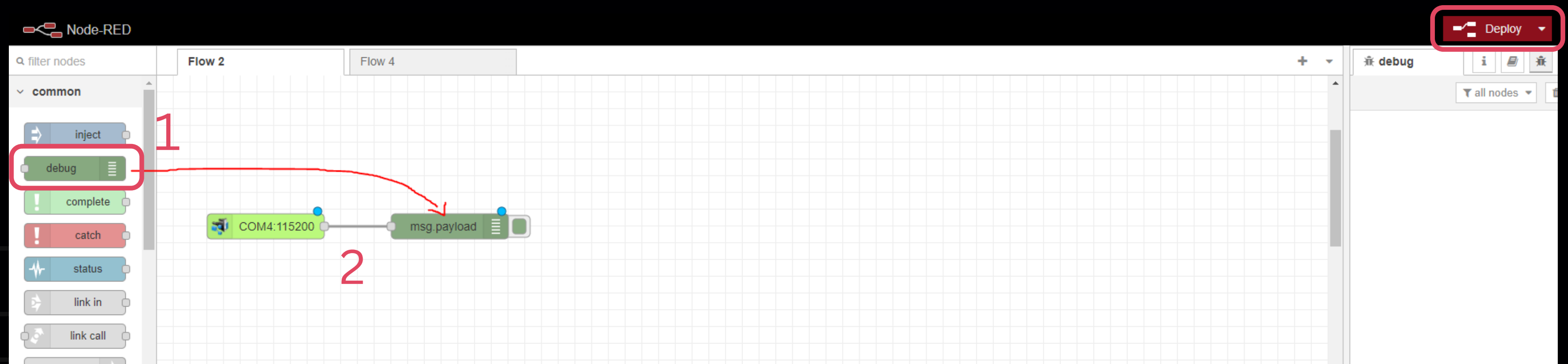


The screenshot shows the Node-RED web interface. On the left, a workspace with a grid background contains a 'uart read' node (labeled 'COM1:115200') which is highlighted with a red rounded rectangle and a large red number '1'. Below this rectangle, the text 'Double-click' is written in red. On the right, the 'Edit uart read node' dialog box is open. It has a 'Delete' button and 'Cancel' and 'Done' buttons at the top. The 'Properties' tab is selected. Inside this tab, the 'Com Port' dropdown is set to 'COM4' and the 'Baudrate' dropdown is set to '115200'. These two settings are enclosed in a red rounded rectangle with a large red number '2'. The 'Name' field at the bottom shows 'COM4:115200'. The 'Done' button is highlighted with a red rounded rectangle and a large red number '3'.

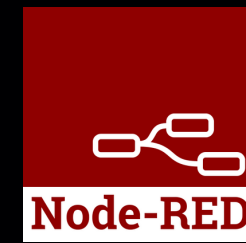
# NODE-RED SERIAL PORT DATA RECEIVING



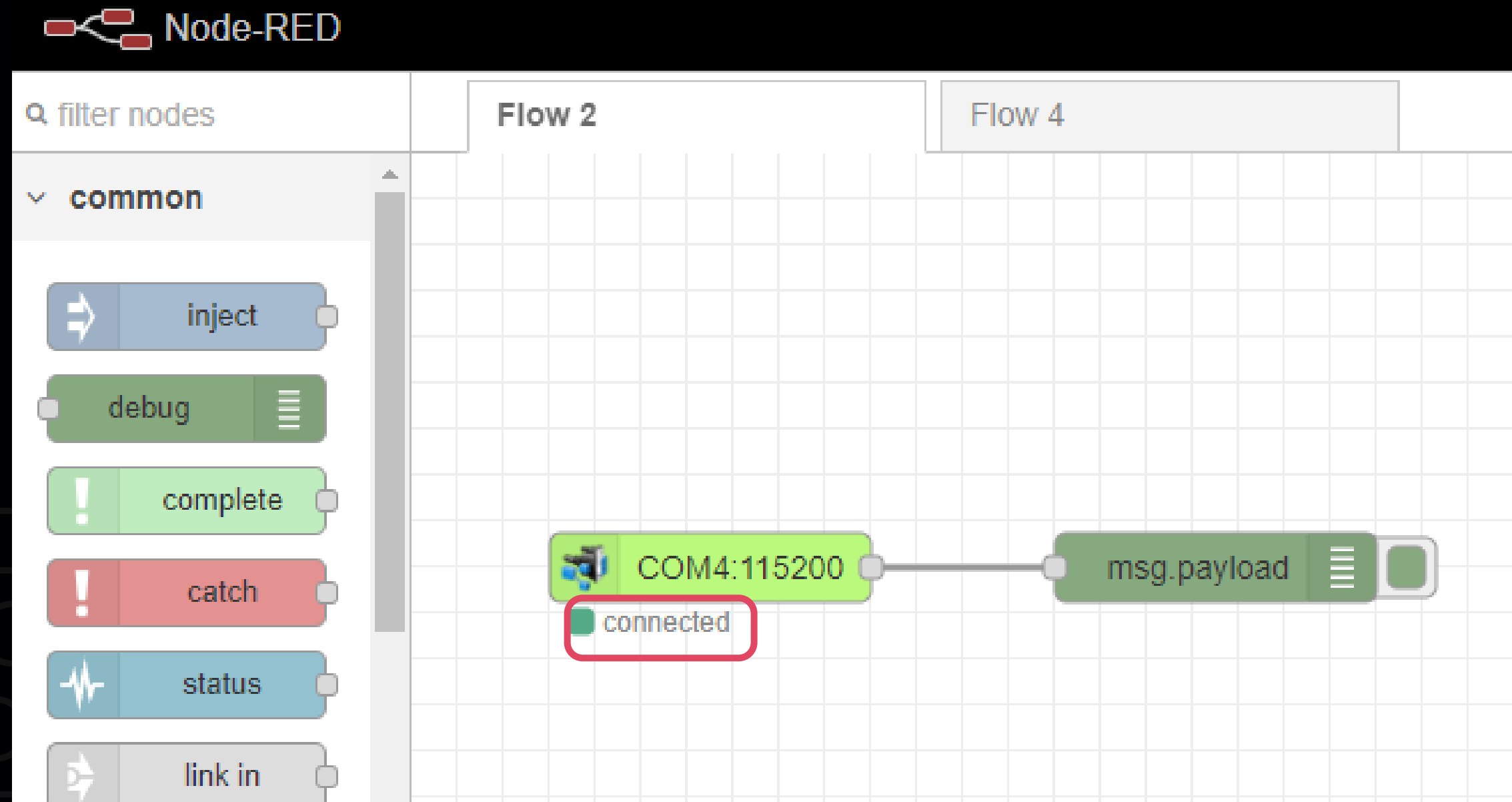
Drag and drop the **debug** node into the working space, and connect the **COM4** node to the msg.payload. Then click the **Deploy** button



# NODE-RED SERIAL PORT DATA RECEIVING



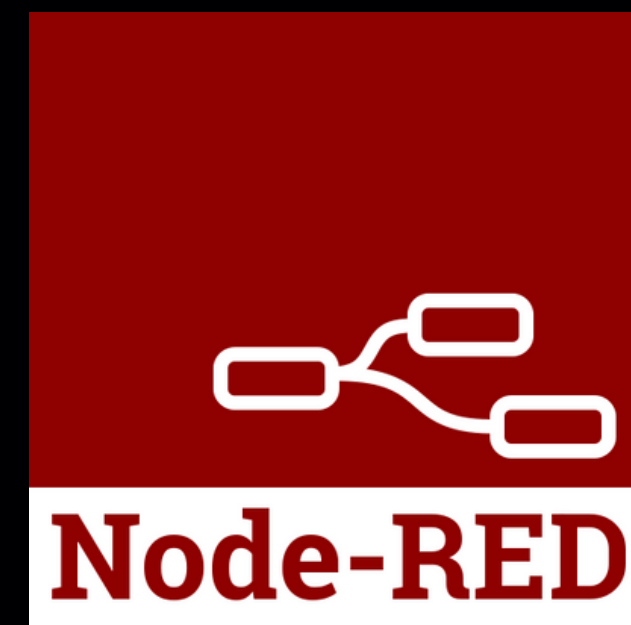
If all previous steps are corrected, the COM4 node (serial in node) shows a green dot with **“connected”**



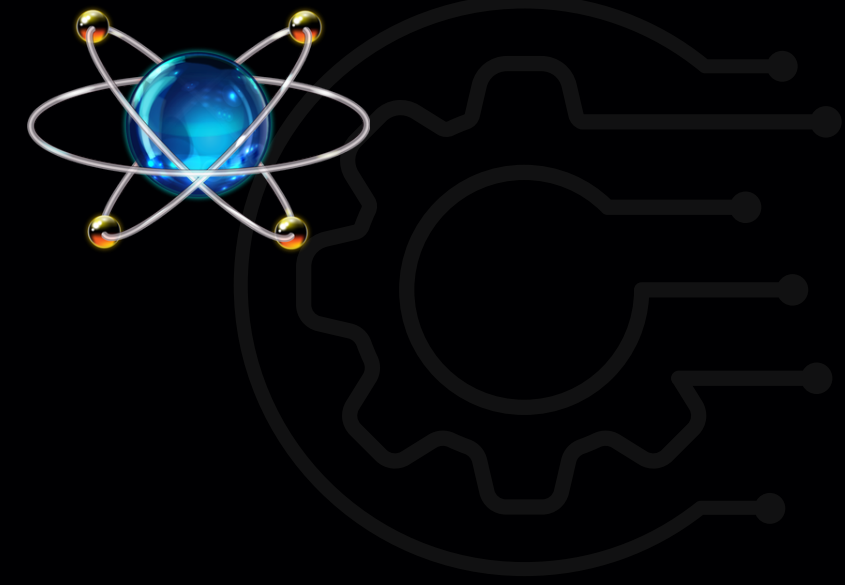




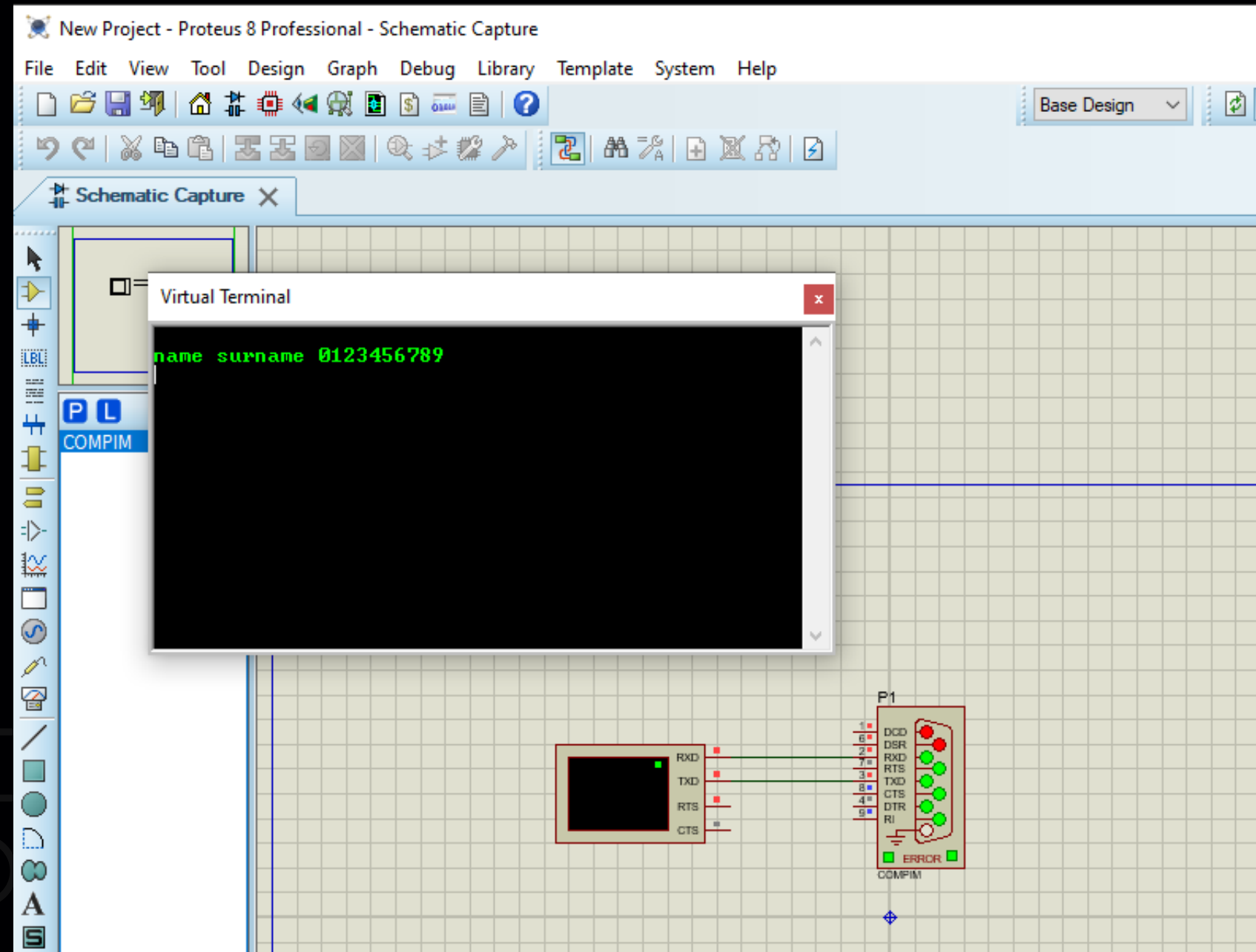
# PROTEUS AND NODE-RED DATA TRANSMISSION



# PROTEUS SERIAL PORT DATA TRANSMISSION

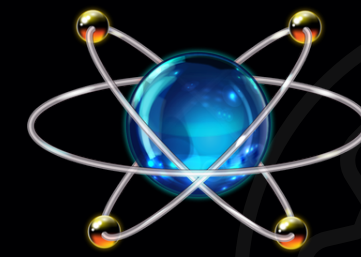


**Restart the simulator (click stop and start), and input your name and student ID into the Virtual Terminal window, then press key **ENTER****



# PROTEUS SERIAL PORT DATA TRANSMISSION

Click the debug tab to check the message sent from the Proteus



The screenshot displays the Node-RED web interface in a browser window. The address bar shows the URL `127.0.0.1:1880/#flow/70145b5f9cec652c`. The interface includes a left sidebar with a 'filter nodes' search bar and a list of common nodes: inject, debug, complete, catch, status, link in, link call, link out, and comment. The main workspace shows 'Flow 2' with a green 'COM4:115200' node (labeled 'connected') connected to an orange 'msg.payload' node. The right sidebar has a 'debug' tab selected, indicated by a red box and the number '1'. The debug console shows a message from node '66555a08bda33c6f' at '1/14/2023, 1:43:43 PM', with the payload `{ cmdex: "name surname 0123456789" }` highlighted by a red box and the number '2'.

# ASSIGNMENT

Instruction:

- The debug window of the Node-RED will show name ,surname and student id from Proteus.

Submission:

- Capture your screen that showing both Proteus and Node-RED applications. Be sure all information is shown .

The image displays two side-by-side application windows. The left window is 'Proteus 8 Professional - Schematic Capture', showing a circuit diagram with a microcontroller (labeled 'COMPI') and a 'Virtual Terminal' window. The terminal window, marked with a red '1', shows the text 'name surname 0123456789' in green. The right window is 'Node-RED', showing a flow diagram with a 'COM4:115200' node connected to a 'msg.payload' node. The 'debug' console, marked with a red '2', shows a message received at 1/14/2023, 1:43:43 PM from node 66555a08bda33c6f, with a payload of { cmdex: "name surname 0123456789" }.