External device serial communication

1.preparation

This section tests the tutorial of Jetson Orin NX serial port sending and receiving on its own. From the figure below, it can be seen that the TXD and RXD pins of the serial port of the Jetson Orin NX correspond to physical pins 8 and 10, respectively.

BCM code	Function	Physical pin		BCM code	Function
	3V3	1	2	5V	
2	SDA	3	4	5V	
3	SCL	5	6	GND	
4	D4	7	8	D14(TXD)	14
	GND	9	10	D15(RXD)	15
17	D17	11	12	D18	18
27	D27	13	14	GND	
22	D22	15	16	D23	23
	3V3	17	18	D24	24
10	D10	19	20	GND	
9	D9	21	22	D25	25
11	D11	23	24	D8	8
	GND	25	26	D7	7
0	D0(ID_SD)	27	28	D1(ID_SC)	1
5	D5	29	30	GND	
6	D6	31	32	D12	12
13	D13	33	34	GND	
19	D19	35	36	D16	16
26	D26	37	38	D20	20
	GND	39	40	D21	21

Wiring:

Jetson Orin NX pin 8（TXD）→Jetson Orin NX pin 10（RXD）

Enable the serial port permission. Please note that this permission will also be disabled after shutdown, and you need to restart it next time

```
sudo chmod 777 /dev/ttyTHS1
```

2.Using routines to test the functionality of serial ports

Download a serial communication case from Github, the source code and explanation can be viewed through this Github connection

```
git clone <https://github.com/JetsonHacksNano/UARTDemo>
```

Enter folder

```
cd UARTDemo
```

If you do not intend to use the serial console on UART, you should disable the serial console (it may not be a personal choice):

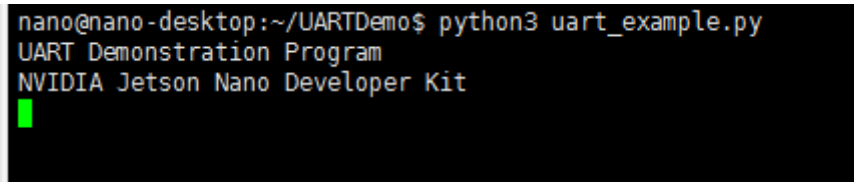
```
systemctl stop nvgetty
systemctl disable nvgetty
udevadm trigger
```

Install the serial module

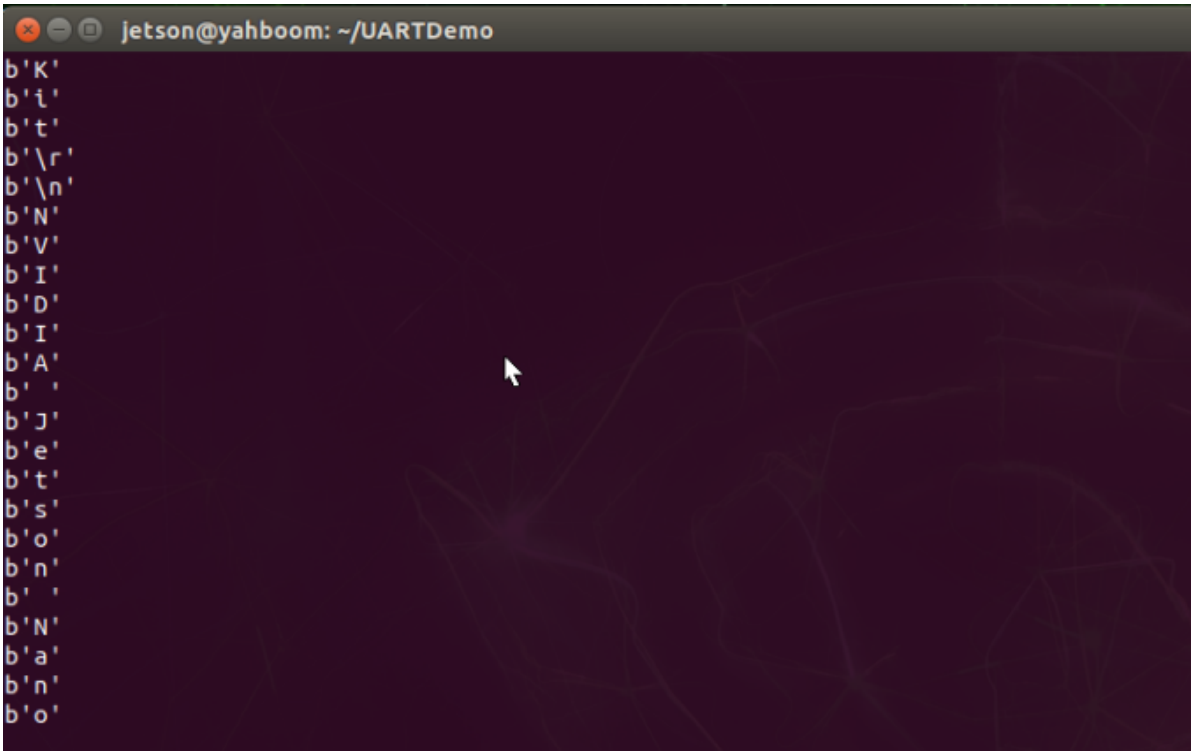
```
 sudo apt-get install python3-serial
```

Terminal input running program:

```
sudo python3 uart_example.py
```



After running, you can see the characters in the "NVIDIA Jetson Orin NX Developer Kit" sent by the Jetson Orin NX loop and displayed on the terminal.

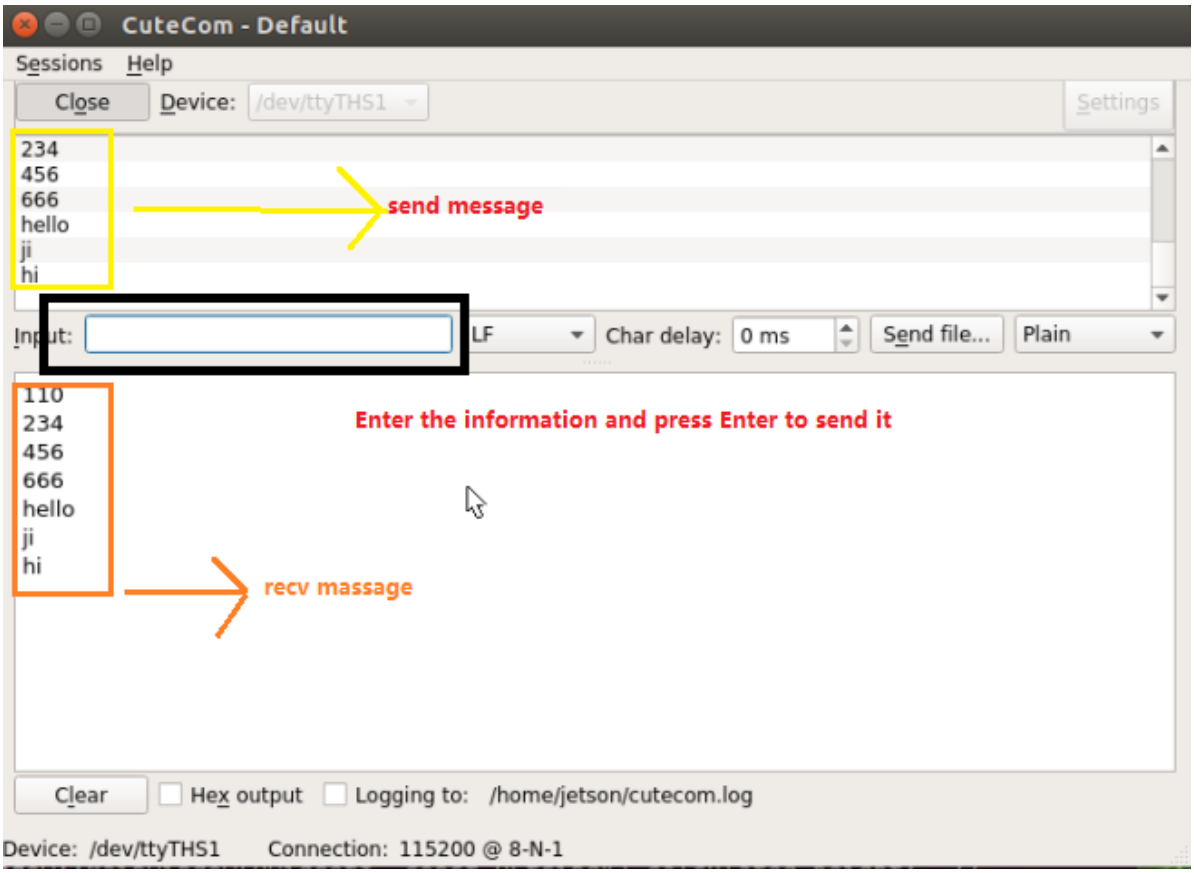


3.Testing using Linux's serial port assistant

1.Testing using Yahboom routines

```
sudo apt install cutecom
sudo cutecom
```

You can see that the cutecom is open
Generally, there is no need for settings. Simply click on **open** to use it, and then input text through Input. Press the Enter key to send the content.
The effect is as shown in the picture:



4.Testing using Yahboom routines

1.Testing using Yahboom routines

```
cd ~/GPIO_test
python3 test_serial_810.py #If there is no such program, transfer it from the
attachment of the data to orin nx
```

The phenomenon can be seen and any message sent can be replied to

5.note

If using a USB to TTL module for communication between a computer and Orin nx, please note the following points
1.DuPont cable should not be too long, as it will cause garbled code
2.The situation of only receiving but not sending is caused by insufficient voltage. Connect the 5V port of the USB to TTL module to the 5V port of the nano
3.If the line is reasonable but garbled, check whether the baud rate, parity, and stop bit are consistent