# TWOWIN TW-T806 User Guide

Smarter World, Better Life

图为信息科技(深圳)有限公司

TWOWIN INFORMATION TECHNOLOGY Co. Ltd

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# Document Revision Log

## Document Version

Version2.0

| Document Version No. | Revision Date | Revision Content |
|---|---|---|
| V1.0 | 2023/04/16 | Initial release |
| V1.1 | 2023/07/17 | Information update |
| V2.0 | 2024/10/24 | Iterative update |

# Preface

Before using this manual, please carefully read the following license agreement. You may only use the products described in this manual if you agree to the terms of this agreement.

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Contact Information
Technical Support: twowintech Technology
Mobile: +86 15920093612
Tel: +86 755-82840481
Website:https://www.twowintech.com
Address: Room 2512, Changhong Technology Building, 12 Kexin South Road, Nanshan District, Shenzhen, China

# Safety Warnings and Precautions

- Safety Instructions

Before using this product, read this document carefully to understand its basic operation and comply with the safety instructions therein to ensure personal safety and avoid equipment damage. The manufacturer shall not be held liable for any issues related to equipment or personal property damage caused by improper operation.

- Personal Safety

• Wear anti-static workwear and gloves/wrist straps before operating the device. Remove conductive items such as jewelry and watches to prevent electric shock or burns.
• In case of fire, evacuate the building/equipment area immediately, activate the fire alarm, or call the fire department. Under no circumstances should you re-enter a burning building.

- Equipment Safety

• Securely fix the device to the floor or stable objects (e.g., walls or mounting racks) before operation.
• Do not block ventilation openings during system operation.
• Use tools to tighten screws when installing panels.
• Remove all packaging materials from the equipment area after installation.

- Power Requirements

• Input power for the TW-T505 Edge Computing Platform must be stable and reliable, with a power rating of 25W.
• Power range: 12–24 V DC; Current: 5A (MAX).

- Environmental Requirements

• Operating temperature: -20°C to +50°C.
• Ventilation: Ensure proper airflow around the installed platform.

- Grounding Requirements

• The power adapter's supply must be properly grounded. In special cases, use the grounding screw on the platform for grounding.

For grounded devices only:

• Ground the device before installation and remove the ground wire last during disassembly.
• Do not damage grounding conductors.
• Do not operate the device without a grounded conductor.
• Permanently connect the device to protective earth. Check electrical connections before operation to confirm reliable grounding.

- ESD Protection

Electronic components are sensitive to electrostatic discharge (ESD). While key interfaces on circuit boards are ESD-protected, not all components are fully shielded. Follow ESD safety measures when handling circuit boards:
• Store and transport boards in anti-static bags until deployment.
• Discharge body static (e.g., wear grounding wrist straps) before touching the device.

- Operate only in ESD-safe areas.
- Avoid moving the device on carpeted surfaces.

● Basic Installation Requirements

Only trained and authorized personnel may install, operate, or maintain the device.

- Only qualified and trained personnel are allowed to install, operate, or maintain the device.
- Only certified professionals may dismantle safety features or repair the device.
- Replacements or modifications (including software) must be performed by TwoWin-certified personnel.
- Report any faults or errors that may compromise safety to the responsible person immediately.

# Introduction

The TW-T806 is a computing platform designed based on the NVIDIA® Jetson Orin NX series module. It features an integrated Orin NX module, comes pre-installed with the Ubuntu operating system, and delivers 70/100 TOPS of AI processing power. Built with ultra-strong and lightweight aluminum alloy material, it adopts a fanless structure with passive heat dissipation. Its compact size and innovative design, combined with a rich variety of I/O interfaces, make it highly versatile. The platform includes a bottom bracket for convenient on-site installation and ensures stable operation. It is ideal for applications in robotics, unmanned delivery vehicles, low-altitude defense, intelligent inspection, smart buildings, and other autonomous machines, serving as an excellent carrier for deploying AI computing power at the edge for deep learning.

Overview of the TW-T806 Edge Computing Platform

- Embedded NVIDIA® Jetson Orin NX
- M.2 KEY M (NVMe 2280)
- Supports multiple interfaces (e.g., CAN/USB/POE Ethernet/Serial/GPIO, etc.)
- Supports 4G/5G modules
- Supports 4xPoE 1000BASE-T RJ45 ports
- Fanless passive cooling design
- Pre-installed Ubuntu system and Jetpack SDKs
- Wide voltage input: 12-24V DC

# Product Specifications

## Processor and core module

| | |
|---|---|
| Processor | NVIDIA Jetson Orin NX |
| AI | 70/100TOPS |
| CPU | 6-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU<br>1.5MB L2 + 4MB L3 /<br>8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU<br>2MB L2 + 4MB L3 |
| CPU Max Frequency | 2.0 GHz |
| GPU | 1024-core NVIDIA Ampere GPU with<br>32 Tensor Cores |
| GPU Max Frequency | 765 MHz / 918 MHz |
| Memory | 8 GB 128-bit LPDDR5<br>102.4 GB/s / 16 GB 128-bit LPDDR5<br>102.4 GB/s |
| Storage | Supports external NVMe (only supports NVMe solid-state drive storage) |

## Interface

| | Interface | Quantity | Note |
|---|---|---|---|
| Network | Ethernet | 5 | 1*RJ45 Gigabit Independent Network Port<br>4*RJ45 Gigabit Shared Network Ports (Supports PoE 48V) |
| | WIFI | 1 | 2.4G/5.8G Optional Installation |
| | 4G | 1 | Full Netcom Optional Installation (Nano SIM Card) |
| | 5G | 1 | Full Netcom Optional Installation (Nano SIM Card) |
| Video output | HDMI | 1 | HDMI 2.0 Compatible with 1.4 (Output Only) |
| Serial port | COM | 1 | Standard RS485 Serial Port (Configurable to RS232/422) |
| USB | USB | 4 | USB 3.0 TYPE-A 5V@1A |
| | USB-OTG | 1 | USB 2.0 Micro for Firmware Update |
| 14PIN | GPIO | 4 | Bidirectional Input/Output Configurable, No Optocoupler Isolation (3.3V@ 1mA) |
| | CAN | 1 | Supports CAN FD |
| | RS232 | 1 | Standard RS232 Serial Port |
| | 3.3 V | 1 | 3.3V output |
| User Expansion | M.2 | 1 | PCIE NVME 2280 SSD |
| Function Key | Reset KEY | 1 | Button |
| | Recovery KEY | 1 | Button |

## Code

| | |
|---|---|
| Video Encode | 1x 4K60 \| 3x 4K30 \| 6x 1080p60 \| 12x 1080p30 (H.265)<br>1x 4K60 \| 2x 4K30 \| 5x 1080p60 \| 11x 1080p30 (H.264) |
| Video Decode | 1x 8K30 \| 2x 4K60 \| 4x 4K30 \| 9x1080p60\| 18x 1080p30 (H.265)<br>1x 4K60 \| 2x 4K30 \| 5x 1080p60 \| 11x 1080p30 (H.264) |

## Power Supply

| Power Supply | Spec |
|---|---|
| Input Type | 6pin 锁扣端子 DC |
| Input Voltage | Wide input 12-24V DC |
| Typical consumption | 35W |

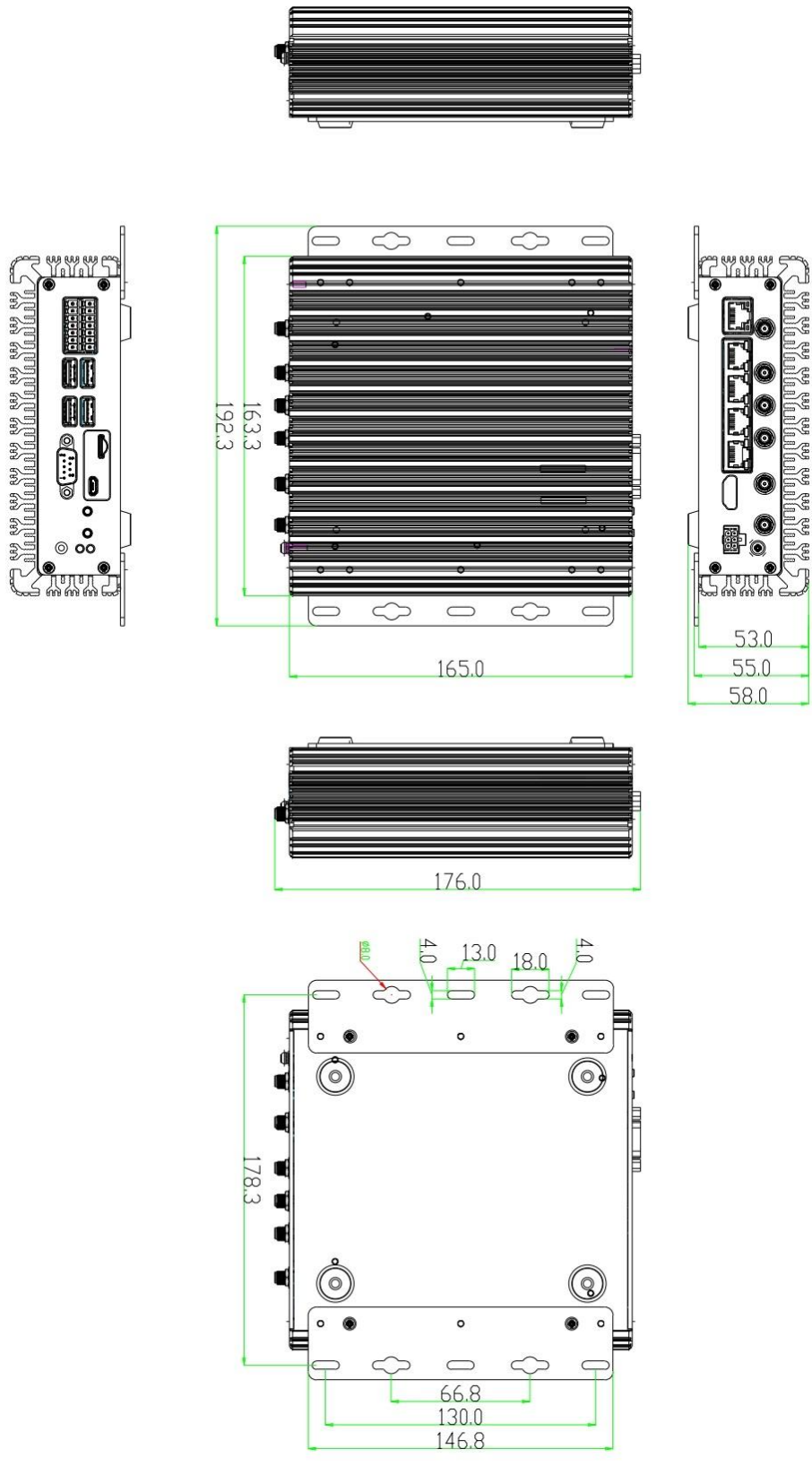
## Structure

| Mechanical | Spec |
|---|---|
| Dimensions (W×D×H) | 192.3mm×176mm ×58mm |
| Weight | 1.5Kg |

## Environment

| Environmental | Spec |
|---|---|
| Operating Temperature | -20℃-60℃ |
| Storage Humidity | 10%-90% non-condensing |

## Size and Dimension



# Service & Support

## Technical Support

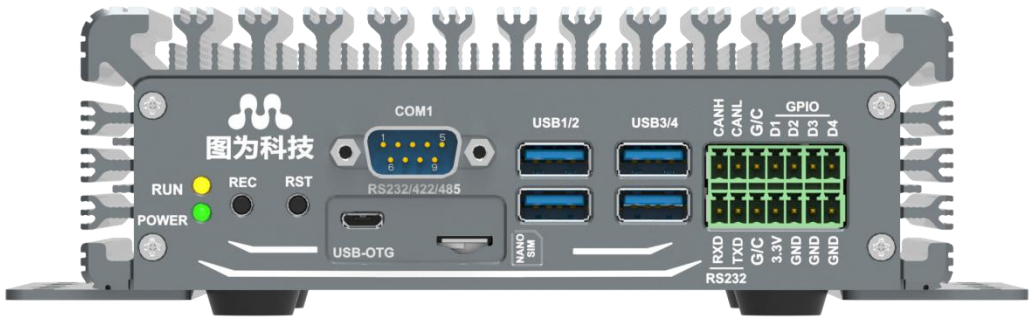
If you encounter problems, or you think your product has defects, please visit our website with your questions, browse our FAQ column to find solutions to common problems, you can also contact us by phone or WeChat, we will promptly make the appropriate arrangements according to your needs, for you to solve the problem.

## Warranty

Warranty period: Twowin equipment warranty period of one year from the date of purchase. Warranty regulations: the warranty period products, if there is a failure of non-man-made damage to the figure for the warranty will be free of charge. Please contact us through the purchase platform customer service dialogue and telephone for warranty assistance (for details, please refer to the warranty regulations of Twowin Information Technology (Shenzhen) Co.)

# Interface Description

## Front Interface




TW-T806 Front Interface Diagram

| Interface | Interface Name | Interface Description |
|---|---|---|
| RST | Reset Button | Used alone for reset and reboot; used in combination with REC to enter RECOVER mode |
| REC | Recovery Button | No function when used alone; used in combination with RST to enter RECOVER mode |
| SIM | SIM Card Slot | Install the SIM card in the direction shown in the diagram |
| COM1 | RS485 | Standard RS485 serial port (/dev/ttyTHS0) |
| USB-OTG | Micro USB Port | Used for flashing firmware |
| POWER_LED | Power Status Indicator | When powered on: the indicator light is solid green |
| RUN_LED | Running Status Indicator | After entering the system: the indicator light is solid green |
| USB | 4xUSB | USB3.0 port (5V@1A) |
| 14PIN 接口 | Multi-function Interface | CAN/GPIO/RS232/3.3V/GND |

RECOVER Mode:

This is the mode required for flashing the system, primarily used for installing the system. The method to enter the recover mode on this device is as follows:

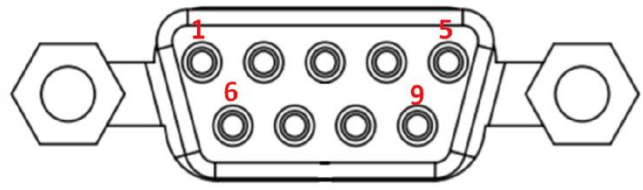
First, press and hold the REC button, then press and hold the RST button without releasing the REC button. After 2 seconds, release the RST button, and finally release the REC button.

On the host terminal, enter `lsusb` to check if "nvidia corp" is listed. If it is, it indicates a successful entry into the mode.

# Serial Port Description

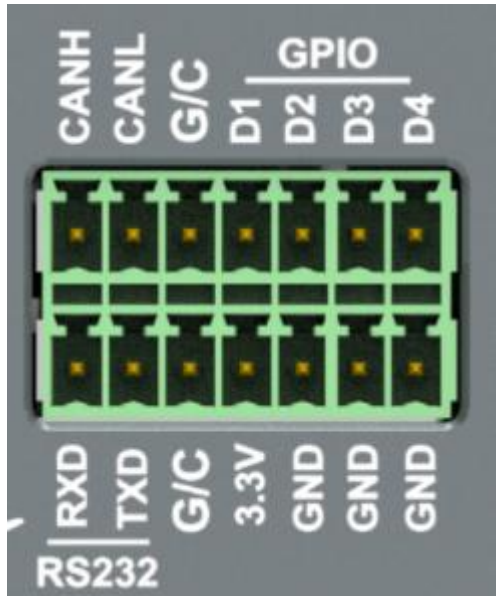
## COM1

RS485




| RS-485 Connector PIN Definition | | | |
|---|---|---|---|
| PIN# | Definition | PIN# | Definition |
| 1 | A | 2 | B |
| 3 | NC | 4 | NC |
| 5 | GND | 6 | NC |
| 7 | NC | 8 | NC |
| 9 | NC | | |

14PIN Multi-functional Connector:




| Multi-Functional Connector PIN Definitions | | | |
|---|---|---|---|
| PIN# | Definition | PIN# | Definition |
| RXD | RS232 /dev/ttyTHS1 | CANH | MTTCAN With 120Ω Termination Resistor |
| TXD | | CANL | |
| G/C | / | G/C | / |
| 3.3V | 3.3V@1A | D1 | GPIO-TTL3.3V (GPIO 461 PR.05) |
| GND | Ground | D2 | GPIO-TTL3.3V (GPIO 389 PG.06) |
| GND | Ground | D3 | GPIO-TTL3.3V (GPIO 460 PR.04) |
| GND | Ground | D4 | GPIO-TTL3.3V (GPIO 474 PY.04) |

GPIO Test:

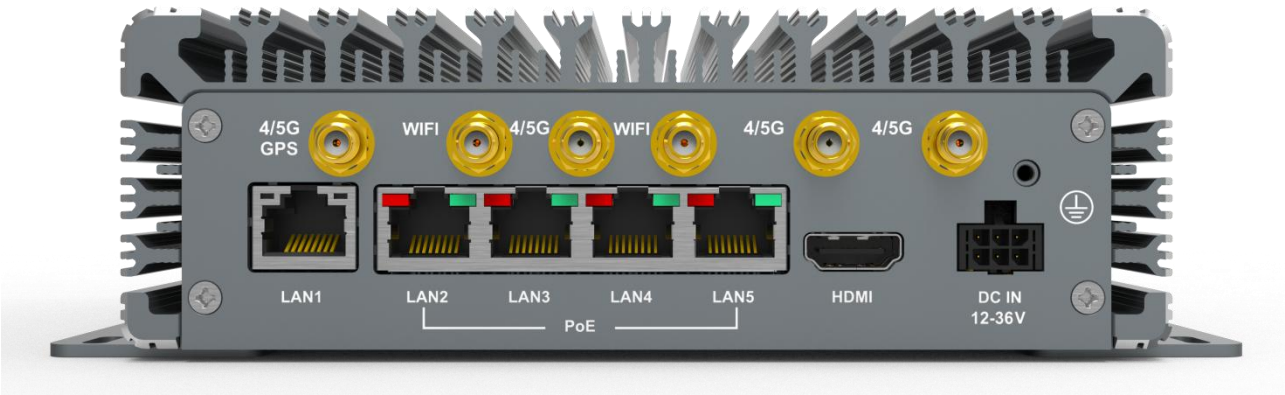
Example: D1 GPIO461

```
sudo cat /sys/kernel/debug/gpio | grep 461    #Check the status of GPIO461

sudo chmod 777 /sys/class/gpio/export
sudo echo 461 > /sys/class/gpio/export
sudo chmod 777 /sys/class/gpio/PR.05/value
sudo chmod 777 /sys/class/gpio/PR.05/direction    #Add GPIO461

sudo echo "in" > /sys/class/gpio/PR.05/direction    #Set GPIO461 as input

sudo echo "out" > /sys/class/gpio/PR.05/direction    #Set GPIO461 as output
sudo echo 0 > /sys/class/gpio/PR.05/value    #Set GPIO461 to output low level
sudo echo 1 > /sys/class/gpio/PR.05/value    #Set GPIO461 to output high level
```

CAN Test:

Refer to the /home/nvidia/twork/can_test file

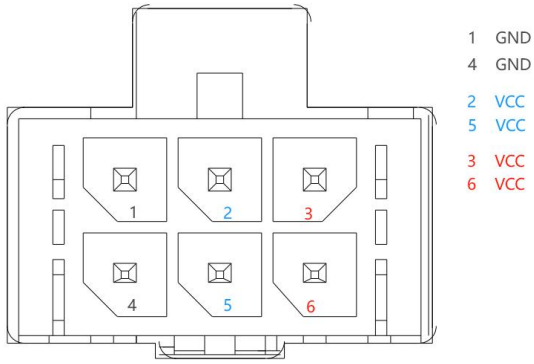
## Rear Interface




TW-T806 Rear Interface Diagram

| Interface | Interface Name | Interface Description |
|---|---|---|
| DC IN | 6PIN Power Interface | 6PIN power input 12-24V |
| WIFI | WIFI Antenna Interface | External WIFI Antenna |
| 4/5G | 4/5G/GPS Antenna Port | External 4/5G Antenna |
| 4/5G GPS | 4/5G/GPS Antenna Port | External antenna port based on the actual selected module |
| LAN1 | Ethernet Gigabit Port | Independent Gigabit Ethernet port, backward compatible with 100Mbps Ethernet port |
| LAN2-LAN5 | POE Ethernet Gigabit | backward compatible with 100Mbps Ethernet port (Single port power: 15W, total power limit for four ports: 30W) |
| HDMI | HDMI Port | Standard HDMI 2.0 port |
| Nut | Grounding Nut | For device grounding |

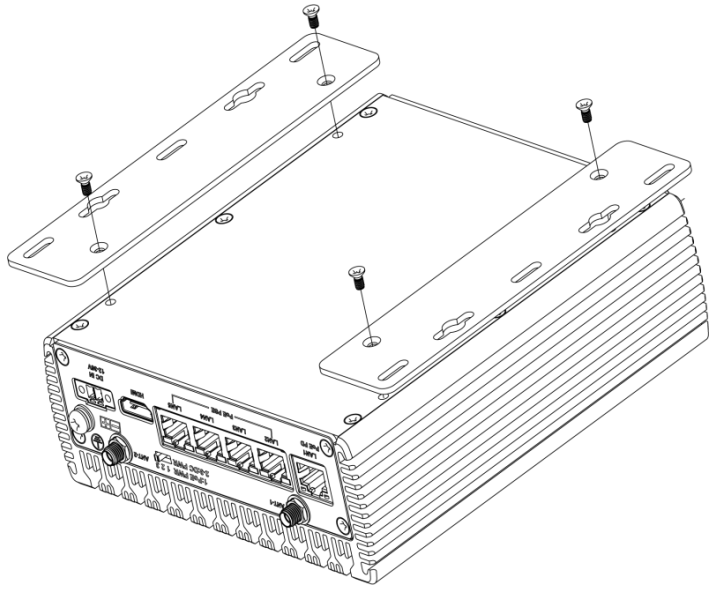
# 6pin power connector pinout




GND connects to the negative pole of the power supply
VCC connects to the positive pole of the power supply
2356 must be connected together

# Installation Method for Expansion Devices

## Mounting the Box Bracket

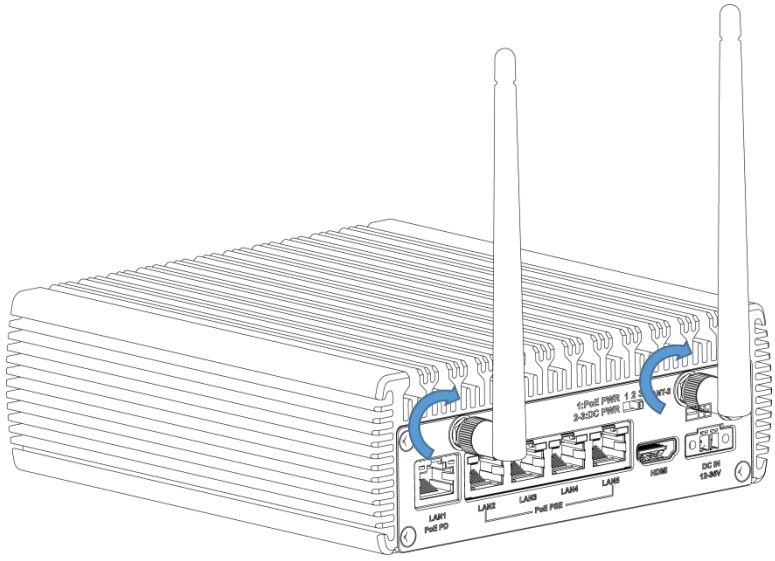


(Image for reference only)

Box Bracket Installation

The box allows it to be installed in any convenient space within the working environment while maintaining a ventilated surrounding.

1. Install the brackets by using six screws to secure the brackets to the box base plate through the holes on each bracket.
2. Fix the box at the desired location where you wish to mount it.




(For illustration purposes only)

Wifi, 4/5G Antenna Installation

# Feature Introduction

## System Overview

The TW-T806 device operates on the Ubuntu system. The default username is `nvidia`, and the password is `nvidia`.

Our company has not set up a root username or password. If you need to access the root user, please execute the following commands:

```bash
sudo -s
```

Enter the password: `nvidia`

**Note: Since the interface driver on this device is developed by our company and differs from the interface driver of the NVIDIA development board, using the `upgrade` command will upgrade the kernel and overwrite the device tree. If you must use `upgrade` for updates, please run the following command before proceeding:**

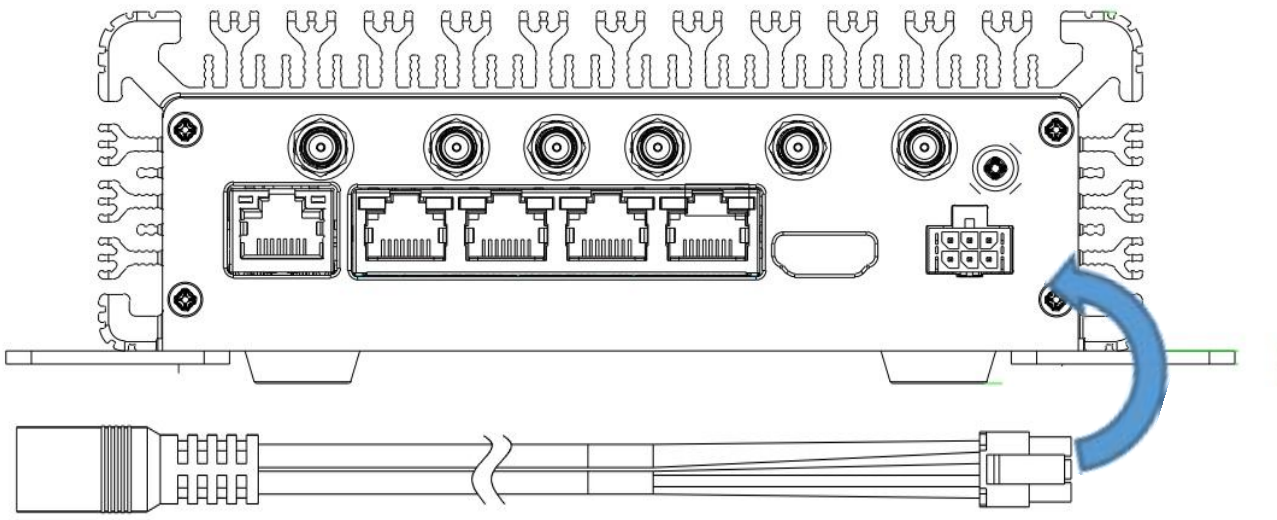
**sudo mv /etc/apt/sources.list.d/nvidia-l4t-apt-source.list /etc/apt/sources.list.d/nvidia-l4t-apt-source.list.bak**

**sudo apt-get update**

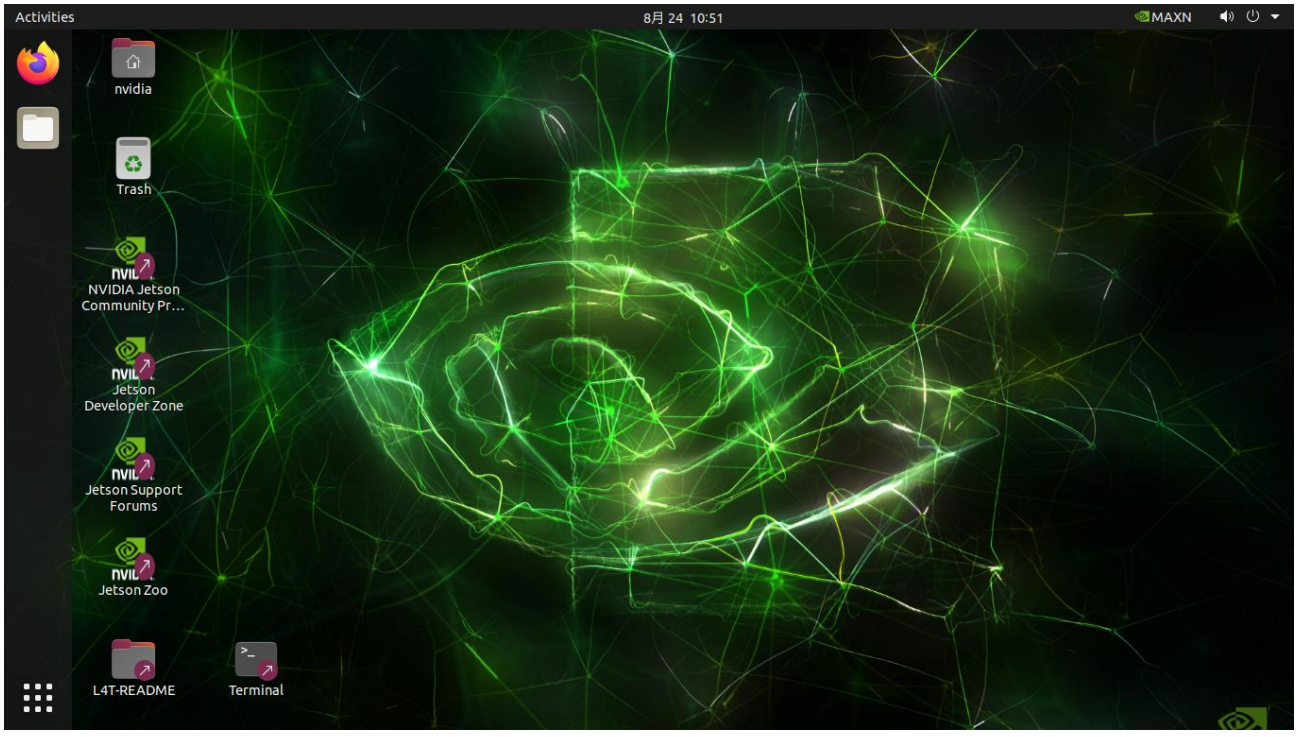
**sudo apt-get upgrade**

## Power On/Off

Power On: The TW-T806 device is set to power on automatically by default when connected to a power source. To turn on the device, insert the power cable by connecting the 6-pin port to the device as shown in the figure below. The DC female connector should be properly connected to the power adapter.



Connect the monitor to the device via the HDMI interface, and the desktop upon startup is as shown in the figure:




Startup Desktop

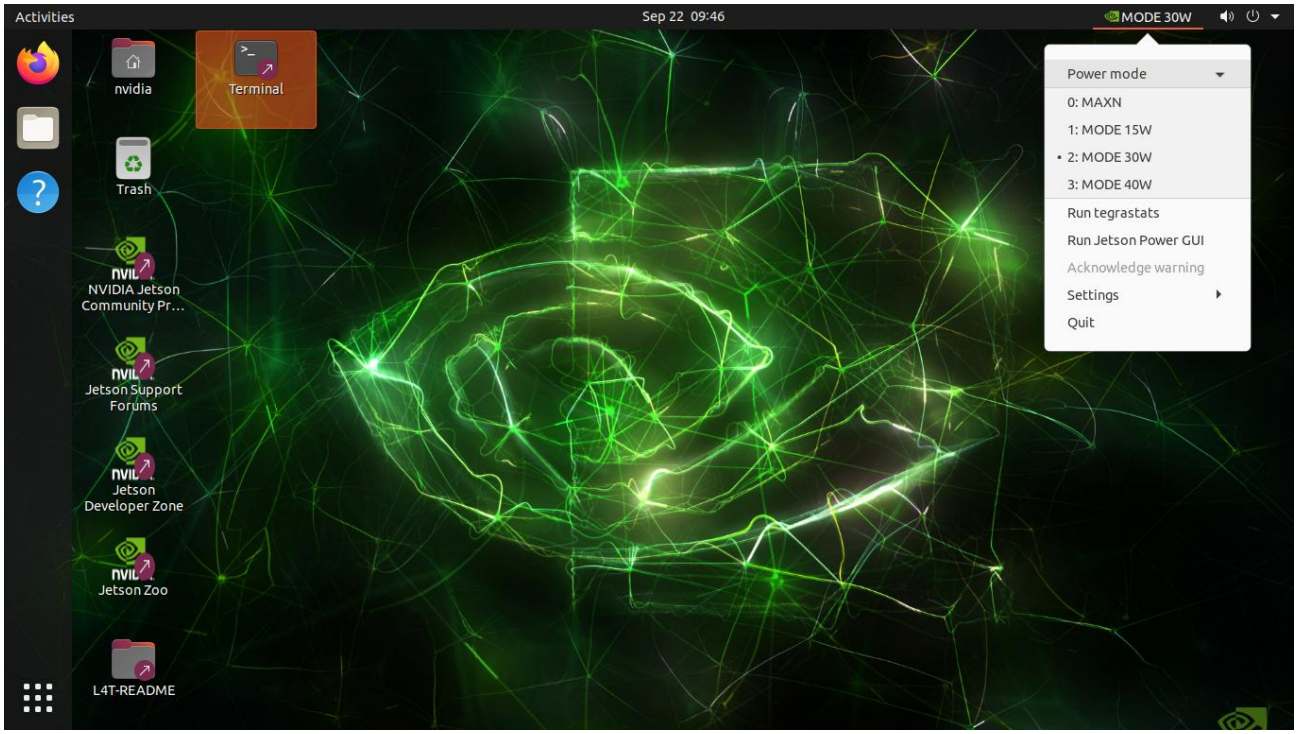
Shutdown: Press and hold the POWER button to shut down, or execute shutdown within the system to perform a software shutdown.

Restart: Execute `$ sudo reboot` in the command line to complete the restart; you can also restart by pressing the reset button (a single press is sufficient).

Note: Please do not directly unplug the main power supply to shut down, as this operation carries the risk of damaging the disk.

## Work Mode Switching

Different work modes utilize varying CPU cores and power levels, allowing you to select according to your needs. Click the option indicated by the arrow to choose the mode (the example below illustrates the work mode of the Orin AGX module).



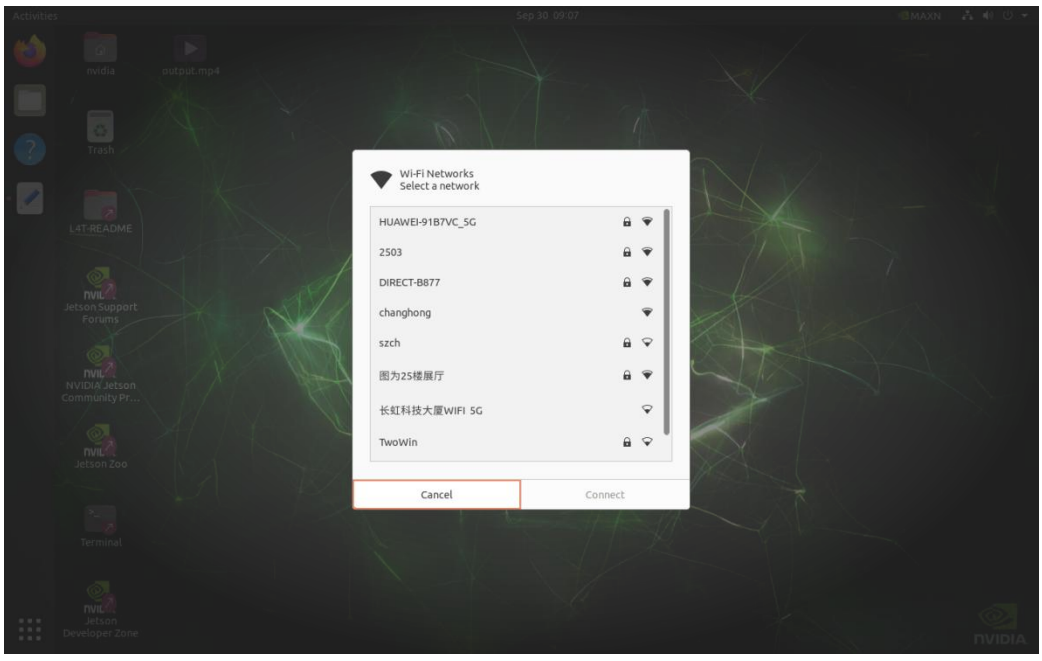
## WIFI Connection (If Equipped)

There are multiple ways to connect to Wifi. Below, we will introduce how to connect to Wifi using the graphical interface, as well as using the nmcli tool in the terminal command line:

1. Connecting to Wifi via Graphical Interface

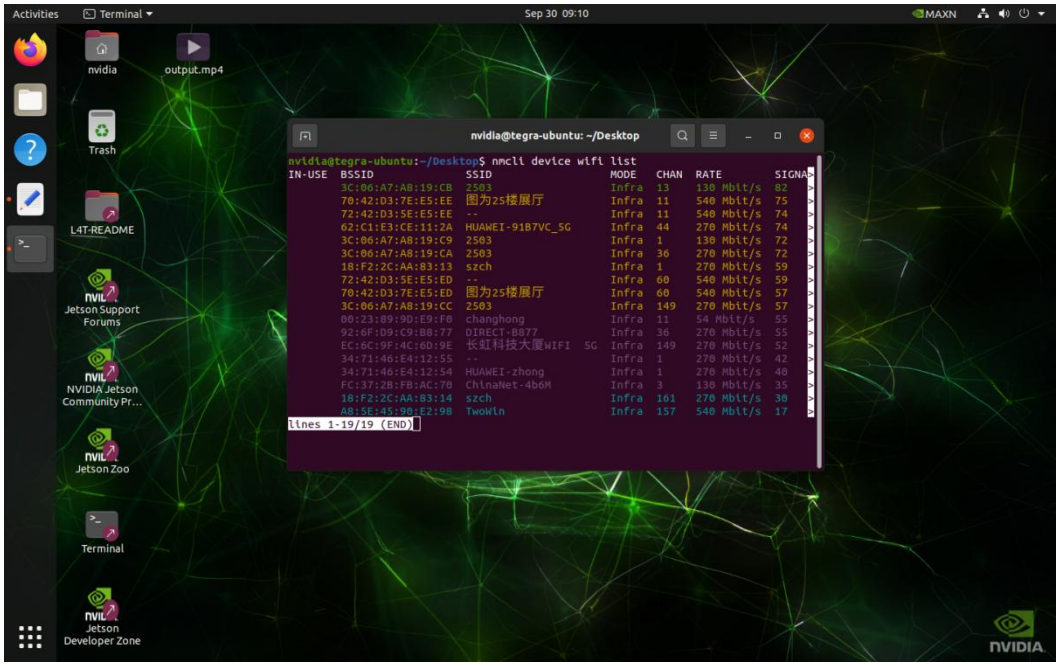
Click on the network icon.

Select the Wi-Fi you wish to connect to, then enter the password.



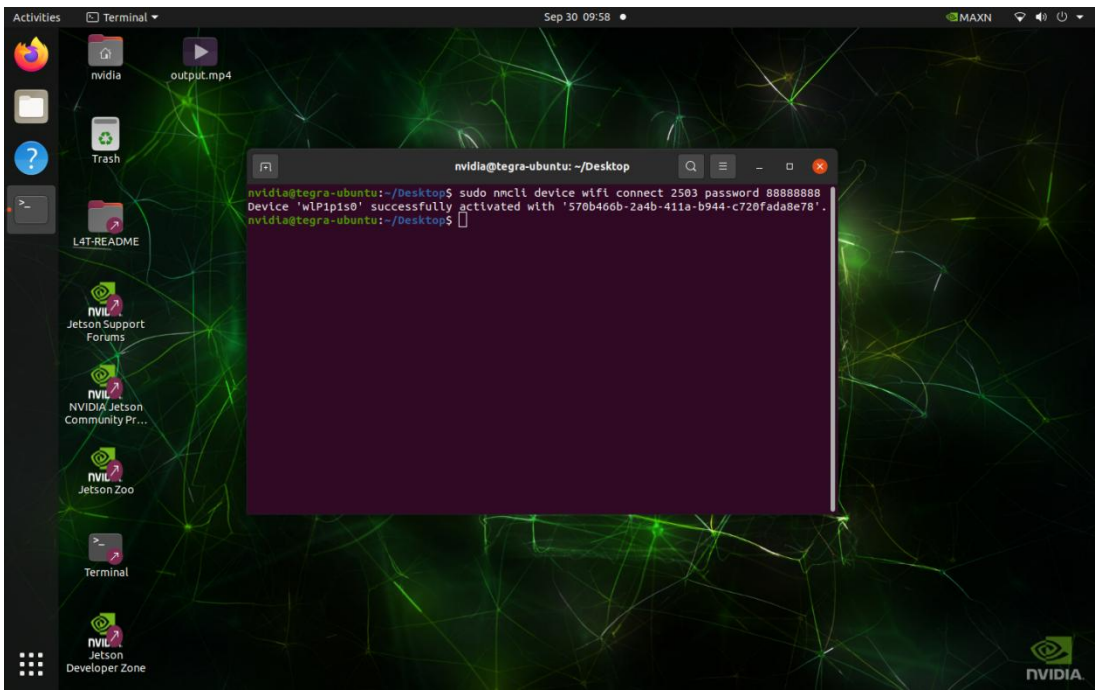
2. Connect to WiFi via Terminal Commands

In the terminal, enter `nmcli device wifi list` to list available WiFi networks:




Connect to WiFi

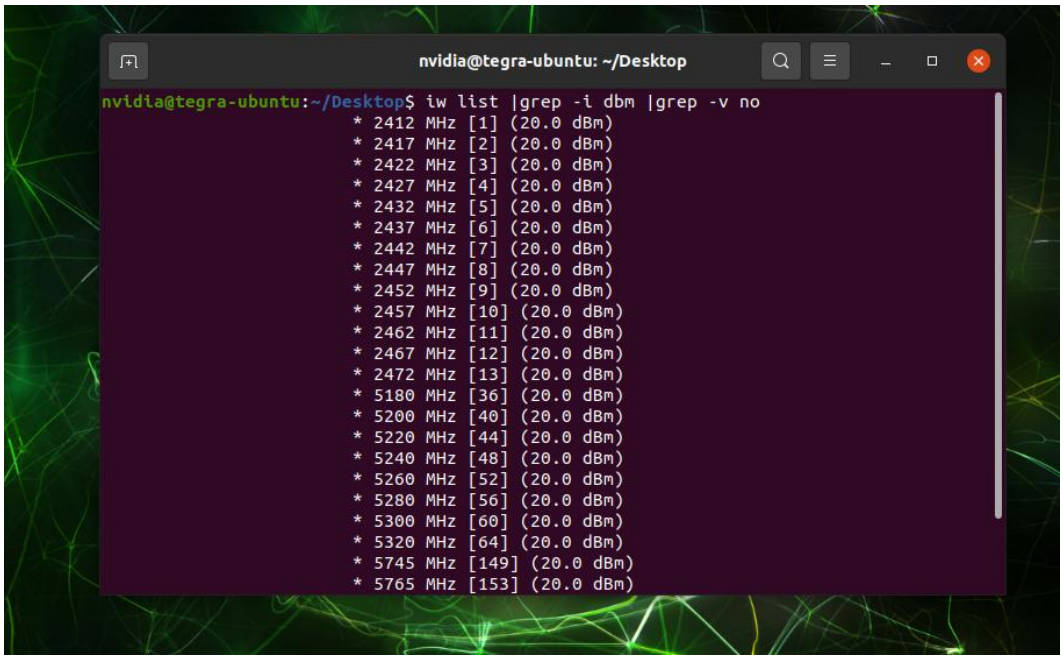
In the terminal, enter: `sudo nmcli device wifi connect MyWiFiSSID password MySecretPassword`




At this point, you can use the WiFi network.

3. Configure the WiFi as a hotspot.

iw list | grep -i dbm | grep -v no # View currently available channels

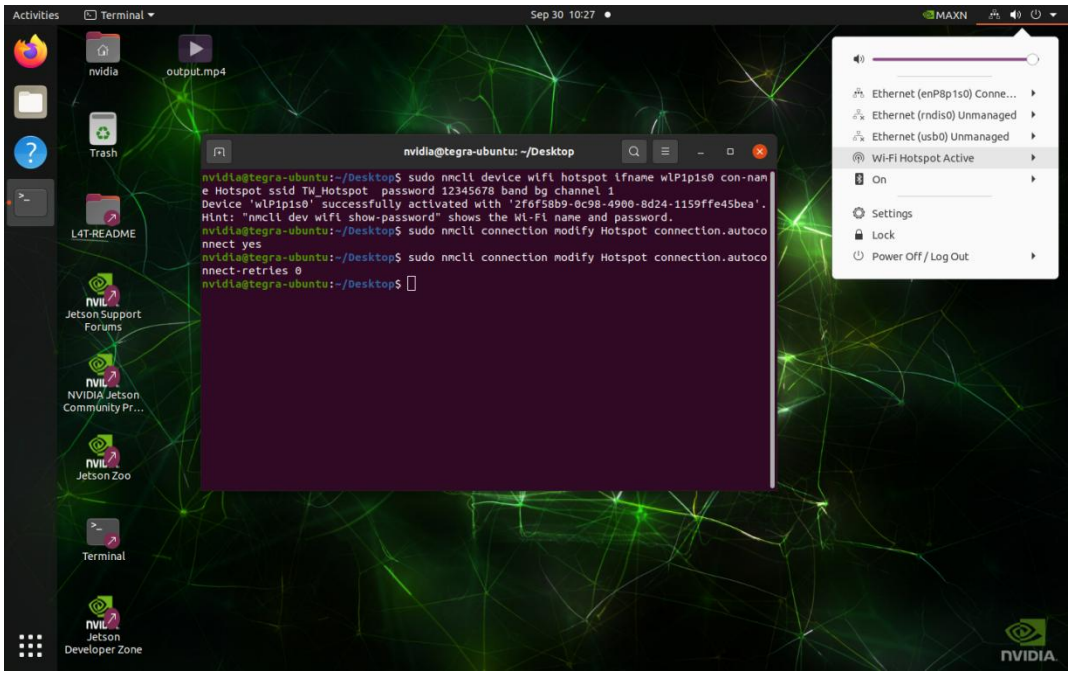



Creating a hotspot using the nmcli tool:

sudo nmcli device wifi hotspot ifname wlP1p1s0 con-name Hotspot ssid TW_Hotspot password 12345678 band bg channel 1

sudo nmcli connection modify Hotspot connection.autoconnect yes

sudo nmcli connection modify Hotspot connection.autoconnect-retries 0



# 4G Dial-Up Internet (if equipped)

Using the nmcli tool for dial-up

1. Check existing connections and delete the configuration of the connection with TYPE set to gsm. If it does not exist, skip this operation.

nmcli connection

sudo nmcli connection delete uuid xxxxx(Please fill in according to the actual ID number)

```
nvidia@nvidia-desktop:~$ nmcli connection
NAME                    UUID                                  TYPE      DEVICE
l4tbr0                  6a8f933c-73bb-42fa-9794-f5d611110faf  bridge    l4tbr0
docker0                 9d20eaac-a33c-420f-8ead-b66c47ed81d3  bridge    docker0
China Mobile Internet   60246731-703a-49ca-b80e-355ed602a237  gsm       --
Wired connection 1      d34ebb2e-8acb-3470-a3c1-cad4d96aa268  ethernet  --
Wired connection 2      b4cce976-8a88-3d15-aa55-b2076a71d671  ethernet  --
Wired connection 3      3e8d52cf-6e7d-3d27-a9ba-8ec330fe03d8  ethernet  --
netplan-eth0            626dd384-8b3d-3690-9511-192b2c79b3fd  ethernet  --
netplan-wlan0-图为2404  ffb0da53-9a6f-3fd3-8e7d-d153624e1f6d  wifi      --
图为2404                22db099b-8736-4527-ba75-c067465ce787  wifi      --
nvidia@nvidia-desktop:~$ sudo nmcli connection delete uuid 60246731-703a-49ca-b80e-355ed602a237
Connection 'China Mobile Internet' (60246731-703a-49ca-b80e-355ed602a237) successfully deleted.
nvidia@nvidia-desktop:~$ nmcli connection
NAME                    UUID                                  TYPE      DEVICE
l4tbr0                  6a8f933c-73bb-42fa-9794-f5d611110faf  bridge    l4tbr0
docker0                 9d20eaac-a33c-420f-8ead-b66c47ed81d3  bridge    docker0
Wired connection 1      d34ebb2e-8acb-3470-a3c1-cad4d96aa268  ethernet  --
Wired connection 2      b4cce976-8a88-3d15-aa55-b2076a71d671  ethernet  --
Wired connection 3      3e8d52cf-6e7d-3d27-a9ba-8ec330fe03d8  ethernet  --
netplan-eth0            626dd384-8b3d-3690-9511-192b2c79b3fd  ethernet  --
netplan-wlan0-图为2404  ffb0da53-9a6f-3fd3-8e7d-d153624e1f6d  wifi      --
图为2404                22db099b-8736-4527-ba75-c067465ce787  wifi      --
nvidia@nvidia-desktop:~$
```

2. Create a 4G Dial-Up Connection

sudo nmcli connection add type gsm ifname '*' con-name twgsm

Some SIM cards require the addition of APN parameters to be successfully created. Add the parameter `gsm.apn <apn_name>` at the end.

For China Unicom: `3gnet`

For China Mobile: `cmnet`

For China Telecom: `ctnet`

sudo nmcli connection add type gsm ifname '*' con-name twgsm gsm.apn 3gnet

```
nvidia@nvidia-desktop:~$ sudo nmcli connection add type gsm ifname '*' con-name twgsm
Connection 'twgsm' (ac738f0c-59c8-4c8d-8945-95173781a696) successfully added.
nvidia@nvidia-desktop:~$ nmcli connection
NAME                    UUID                                  TYPE      DEVICE
twgsm                   ac738f0c-59c8-4c8d-8945-95173781a696  gsm       ttyUSB2
l4tbr0                  6a8f933c-73bb-42fa-9794-f5d611110faf  bridge    l4tbr0
docker0                 9d20eaac-a33c-420f-8ead-b66c47ed81d3  bridge    docker0
Wired connection 1      d34ebb2e-8acb-3470-a3c1-cad4d96aa268  ethernet  --
Wired connection 2      b4cce976-8a88-3d15-aa55-b2076a71d671  ethernet  --
Wired connection 3      3e8d52cf-6e7d-3d27-a9ba-8ec330fe03d8  ethernet  --
netplan-eth0            626dd384-8b3d-3690-9511-192b2c79b3fd  ethernet  --
netplan-wlan0-图为2404  ffb0da53-9a6f-3fd3-8e7d-d153624e1f6d  wifi      --
图为2404                22db099b-8736-4527-ba75-c067465ce787  wifi      --
```

3. Configure Connection Properties

```
nvidia@nvidia-desktop:~$ sudo nmcli connection modify twgsm connection.autoconnect yes
nvidia@nvidia-desktop:~$ sudo nmcli connection modify twgsm connection.autoconnect-retries  0
nvidia@nvidia-desktop:~$ sudo nmcli connection modify twgsm connection.autoconnect-priority 0
nvidia@nvidia-desktop:~$ sudo nmcli connection modify twgsm ipv6.method disable
nvidia@nvidia-desktop:~$ sudo nmcli connection modify twgsm connection.metered no
```

sudo nmcli connection modify twgsm connection.autoconnect yes#Turn on automatic connection

sudo nmcli connection modify twgsm connection.autoconnect-retries 0 #Set the number of retries (0 means unlimited)

sudo nmcli connection modify twgsm connection.autoconnect-priority 0 #Setting Connection Priority

sudo nmcli connection modify twgsm ipv6.method ignore #Disable IPv6 (disable IPv4 if using IPv6)

sudo nmcli connection modify twgsm connection.metered no #Turn off data metering

4. Check Dial-Up Status

```
nvidia@nvidia-desktop:~$ ifconfig ppp0
ppp0: flags=4305<UP,POINTOPOINT,RUNNING,NOARP,MULTICAST>  mtu 1500
        inet 10.19.48.238  netmask 255.255.255.255  destination 0.0.0.0
        ppp  txqueuelen 3  (Point-to-Point Protocol)
        RX packets 11  bytes 1031 (1.0 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 12  bytes 509 (509.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

nvidia@nvidia-desktop:~$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0         0.0.0.0         0.0.0.0         U     700    0        0 ppp0
0.0.0.0         192.168.55.100  0.0.0.0         UG    32766  0        0 l4tbr0
169.254.0.0     0.0.0.0         255.255.0.0     U     1000   0        0 l4tbr0
172.17.0.0      0.0.0.0         255.255.0.0     U     0      0        0 docker0
192.168.55.0    0.0.0.0         255.255.255.0   U     0      0        0 l4tbr0
nvidia@nvidia-desktop:~$ nmcli connection
NAME                UUID                                  TYPE      DEVICE
twgsm               7f060dc2-d405-47eb-bbe1-129d12fbf132  gsm       ttyUSB2
l4tbr0              5ce18233-2a87-4670-a59e-79d97ea1b2cb  bridge    l4tbr0
docker0             8286c4c1-7408-4660-838d-159414eaa235  bridge    docker0
Wired connection 1  d34ebb2e-8acb-3470-a3c1-cad4d96aa268  ethernet  --
Wired connection 2  b4cce976-8a88-3d15-aa55-b2076a71d671  ethernet  --
Wired connection 3  3e8d52cf-6e7d-3d27-a9ba-8ec330fe03d8  ethernet  --
netplan-eth0        626dd384-8b3d-3690-9511-192b2c79b3fd  ethernet  --
netplan-wlan0-图为2404  ffb0da53-9a6f-3fd3-8e7d-d153624e1f6d  wifi      --
图为2404            22db099b-8736-4527-ba75-c067465ce787  wifi      --
nvidia@nvidia-desktop:~$
```

The color of the information on the nmcli connection:

Green: Connected

Yellow: Connecting

White: Not Connected

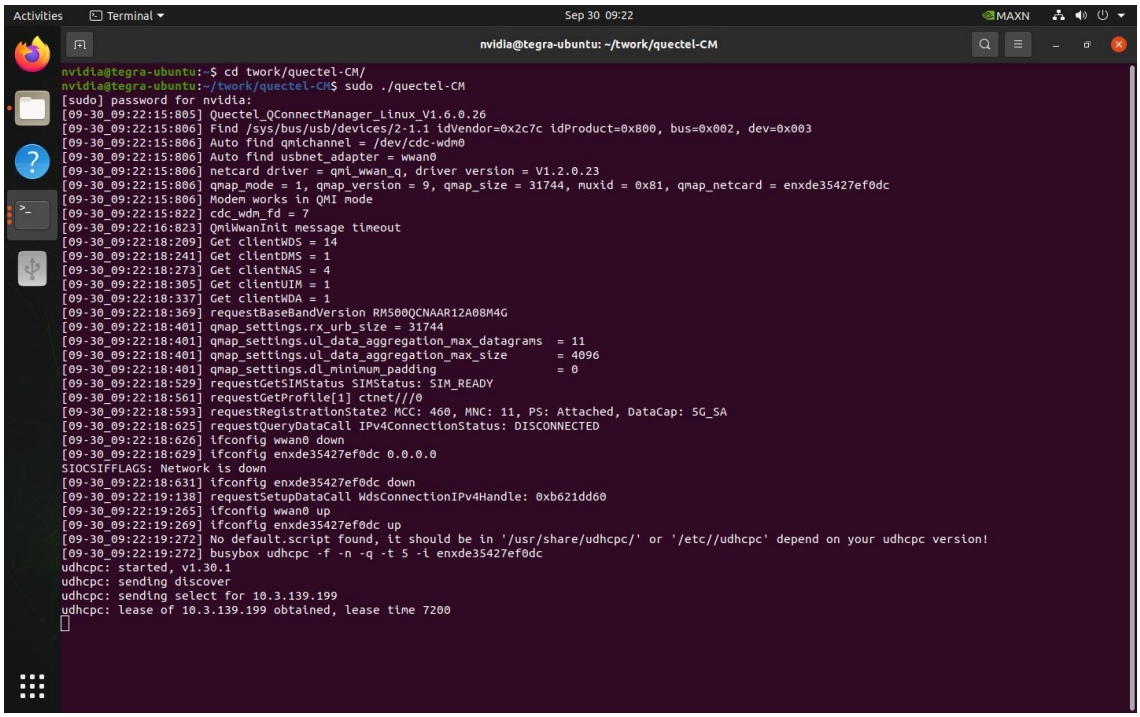
6. Precautions

Some SIM cards (such as IoT cards) may fail to establish a dial-up connection. It is necessary to confirm the status of the card with the card provider. (IoT cards may have regional restrictions, lock-in restrictions, dedicated network restrictions, etc.)

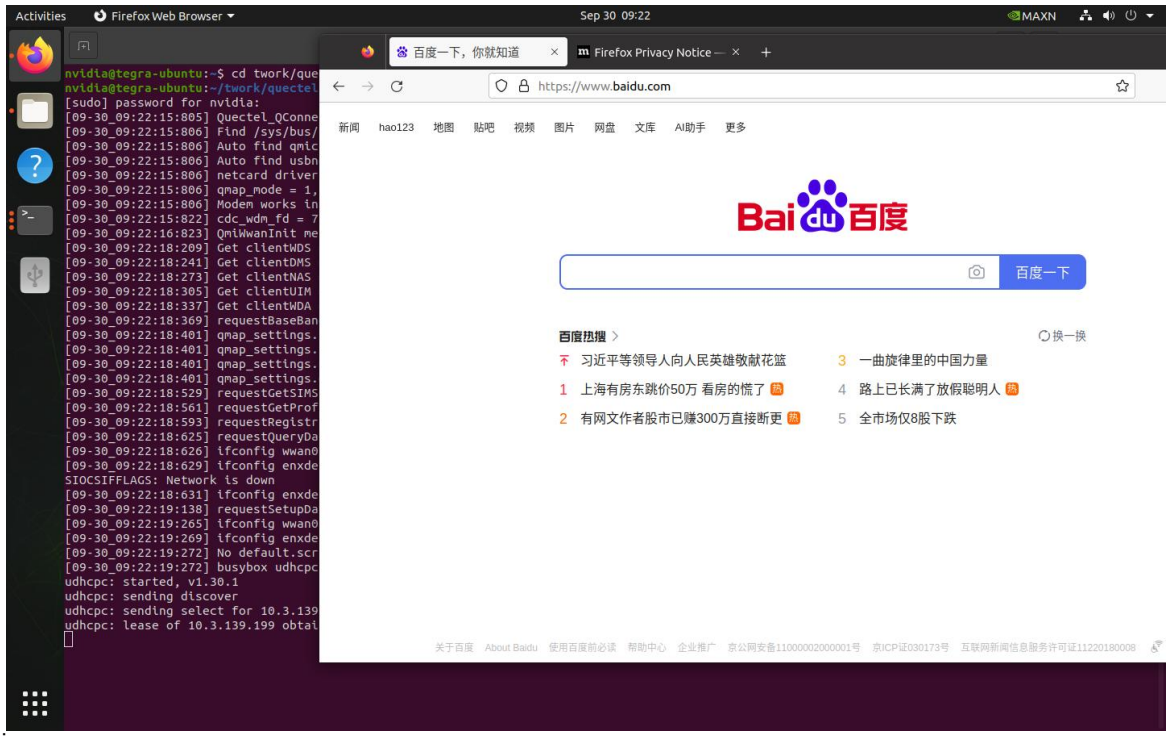
## 5G Dial-Up Internet Access (If Optional)

Locate the 5G dial-up file in the main directory: /home/nvidia/twork/quectel-CM #The path may vary, please check according to the actual path

sudo ./quectel-CM




The appearance of an IP address indicates a successful dial-up connection, and you can now access the internet



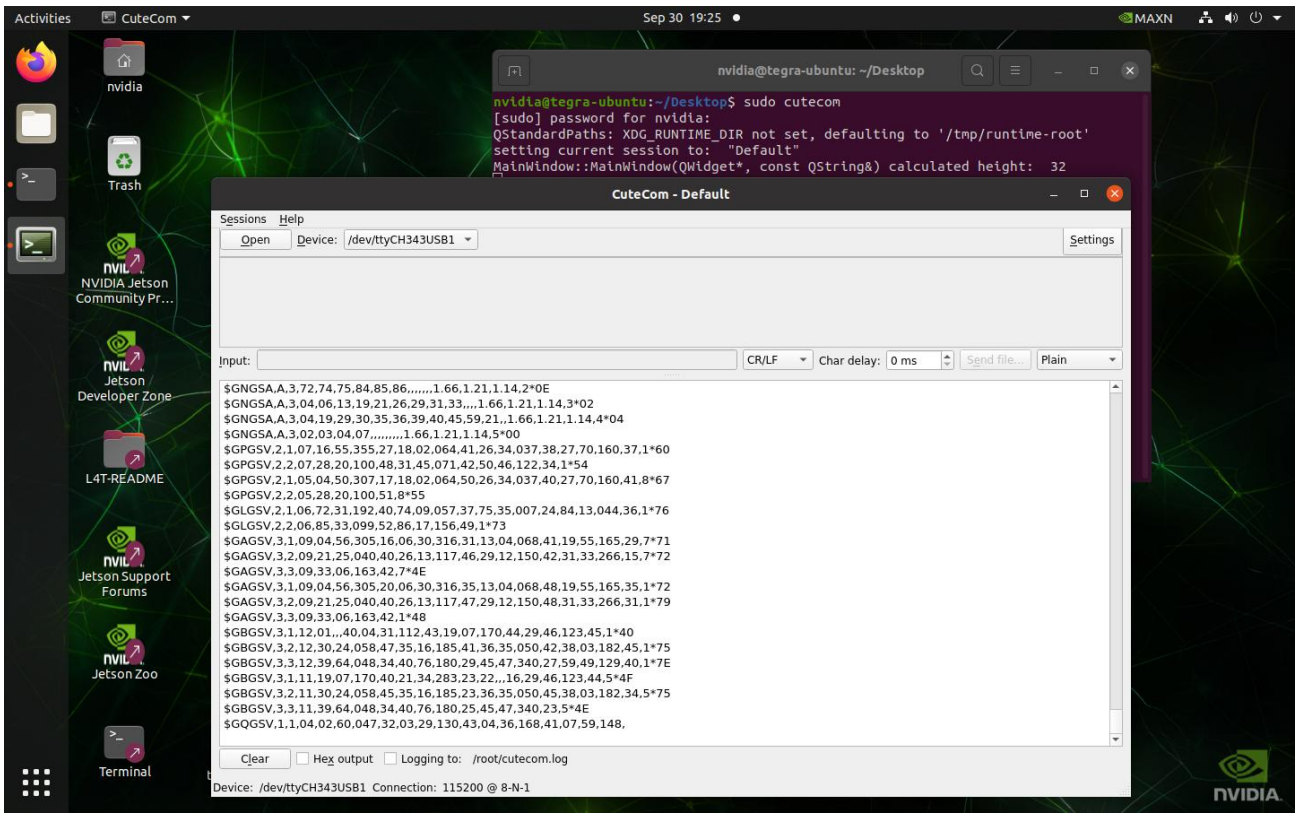

Note: The dialing port cannot be exited. If exited, the dialing process will terminate. It is advisable to choose to perform the dialing in the background beforehand.

# GPS Acquires Positioning Information (If Optional)

If the GPS function is selected, it will occupy the RS232 serial port.
To obtain GPS positioning information, simply open the corresponding serial port to view the output.

sudo cutecom

Select /dev/ttyTHS1 to open the serial port.




(The serial port number in this diagram is illustrated using other GPS products as examples; the actual port should be /dev/ttyTHS1.)

# Warranty Policy of Twowin Information Technology (Shenzhen) Co., Ltd.

Important Notes

Twowin Information Technology (Shenzhen) Co., Ltd. warrants that each embedded product provided is free from material or manufacturing defects to the best of its knowledge and complies fully with the original factory specifications at the time of shipment.

The warranty scope of Twowin covers all original factory products. For issues with dealer-configured accessories, contact the dealer for resolution. All products carry a one-year warranty (starting from the factory shipment date). Lifetime repair services are provided for products beyond the warranty period. Repaired components receive an extended warranty of 12 months. Unless otherwise notified by Twowin, the factory shipment date on the original delivery note shall be deemed the product's shipment date.

How to Obtain Warranty Services

If your product malfunctions during the warranty period, contact Twowin or an authorized dealer to initiate warranty services. When requesting warranty services, present a purchase invoice as proof of entitlement to warranty services (this serves as your legal documentation for claiming warranty services).

Warranty Resolution Measures

When requesting warranty services, you must follow the procedures established by Twowin for issue identification and resolution. You will need to undergo an initial diagnosis via phone or email with Twowin's technical staff. During this process, you must fully complete all details in the provided repair request form to ensure accurate diagnosis of the fault cause and damage location (for out-of-warranty products, a service quotation will be provided for your confirmation).

Twowin reserves the right to either repair or replace the reported product. If the product is replaced or repaired, the replaced "defective" product or repaired components will be returned to Twowin.

Since some repaired products require shipment to the original factory, Twowin strongly advises purchasing transportation insurance to avoid accidental loss/damage. If you decline insurance, Twowin shall not be held liable for any loss or damage during transit.

For warranty-covered products:
The user bears return shipping fees for products sent to Twowin for repair.

Twowin bears return shipping fees for repaired/replaced products delivered to users.

Exclusions from Warranty:
1.Damage due to improper installation, misuse, abuse (e.g., overload), or accidental mishandling.
2.Failures caused by improper maintenance, neglect (e.g., fire, explosion), or natural disasters (e.g., lightning, earthquakes, typhoons).
3.Unauthorized modifications to the product (e.g., circuitry, mechanical components, software, three-proof treatment).

4.Faults arising from:
Voltage irregularities (overvoltage, undervoltage, floating ground voltage).
Bent/pinched pins, incorrect bus connections, component detachment.
Electrostatic discharge, excessive temperature/humidity, poor transportation.
5.Tampering, removal, or alteration of product labels or part numbers.
6.Claims submitted after the warranty period expires.

Special Provisions:

If the same fault recurs in multiple products or the same device, our company reserves the right to require users to provide peripheral devices or technical documentation (e.g., monitors, I/O devices, cables, power supplies, connection diagrams, system architecture) to diagnose root causes.

Failure to comply will result in denial of warranty claims. Repairs will incur market-rate fees and a repair deposit.