

Preparation Before Using DJI Terra

2022.07



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For the first-time use

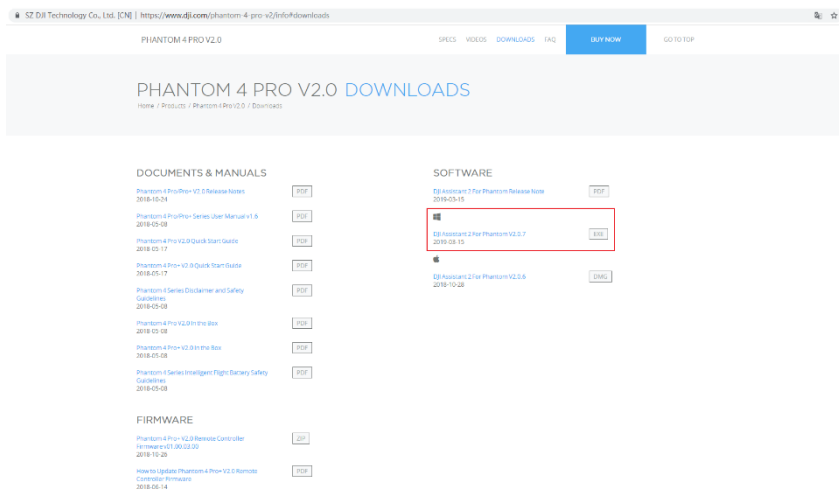
Before using DJI Terra for the first time, manually upgrade the following Phantom 4 Series drones via DJI Assistant 2 For Phantom: Phantom 4 Pro, Phantom 4 Advanced, Phantom 4 RTK, and Phantom 4 Pro V2.0 Series. In some cases, drivers for the remote controller may be required for some PCs.

Aircraft Firmware Upgrade

Currently only the Phantom 4 Pro, Phantom 4 Advanced, Phantom 4 RTK, and Phantom 4 Pro V2.0 series support the 2D Real-time mapping, and require the corresponding firmware upgrade.

Download DJI Assistant 2 For Phantom at the link below

<https://www.dji.com/phantom-4-pro-v2/info#downloads>

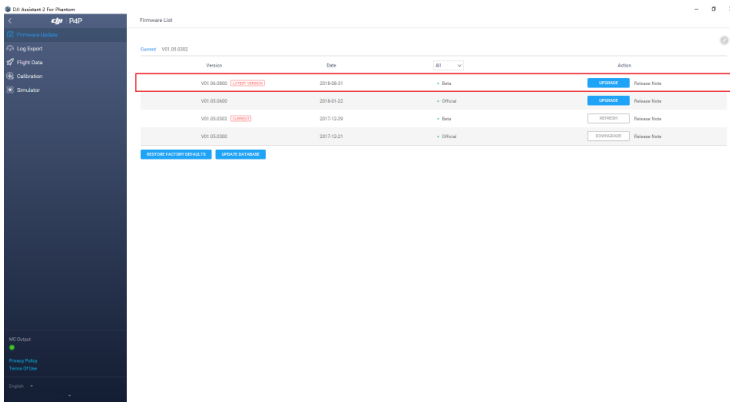


Firmware Upgrade

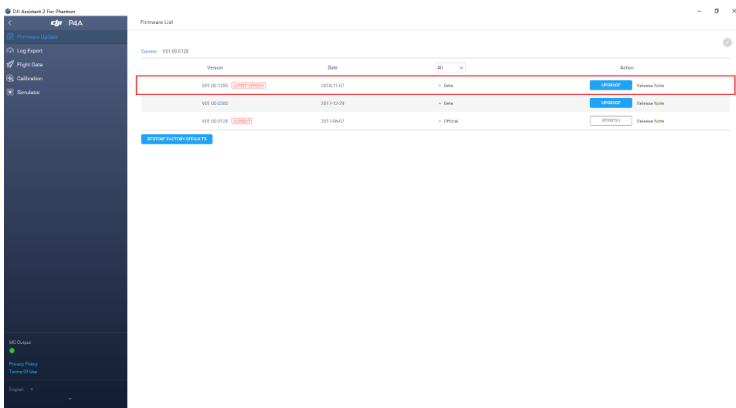
Open DJI Assistant 2 For Phantom, log in with an authorized account, connect your Phantom 4 Series aircraft with PC by using a Micro USB cable, and upgrade the corresponding firmware version for the aircraft.

***NOTE:** Phantom 4 Pro and Phantom 4 Advanced should be upgraded via a specific beta version (please refer to the below pictures). All other aircrafts must be upgraded to the latest version.

Phantom 4 Pro (Beta) Version V01.06.0800



Phantom 4 Advanced (Beta) Version V01.00.1200



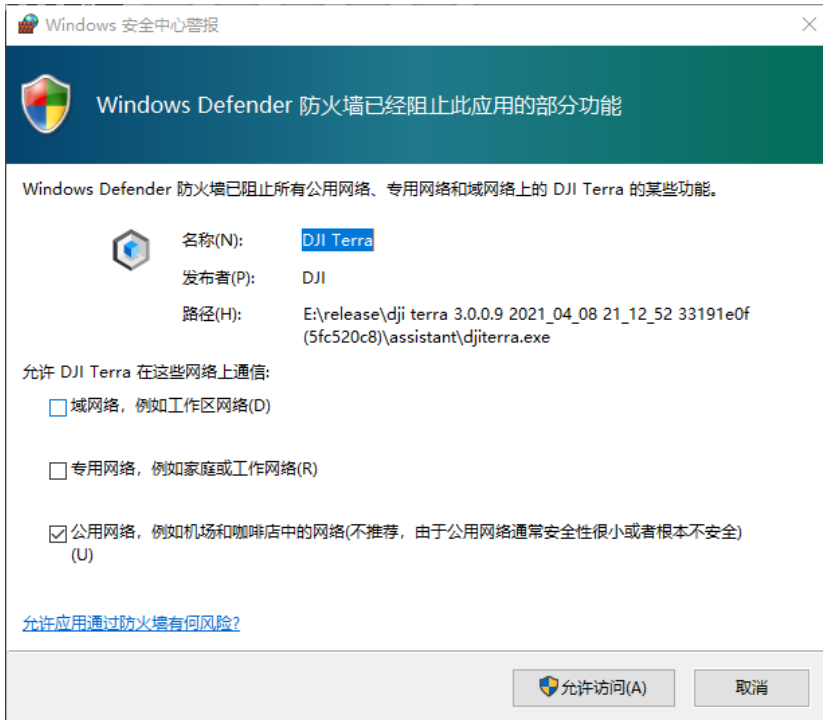
Download and Install DJI Terra

<https://www.dji.com/dji-terra/info#downloads>

Precautions Before Using the Software

Single Device License

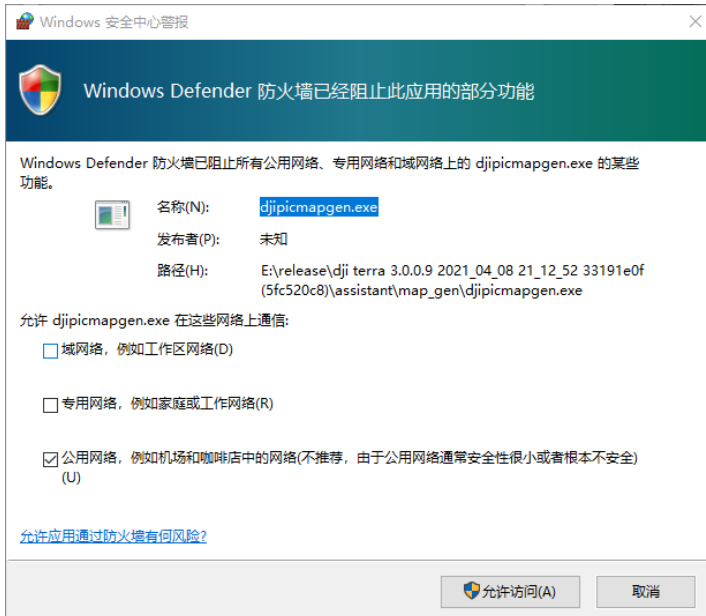
After opening DJI Terra.exe, this dialog box will pop up, click [Allow Access]



Cluster License

Control Device

When using cluster reconstruction for the first time, import photos and click [Start Reconstruction]. When the reconstruction starts after the photo processing is completed, this dialog box will pop up, click [Allow access]

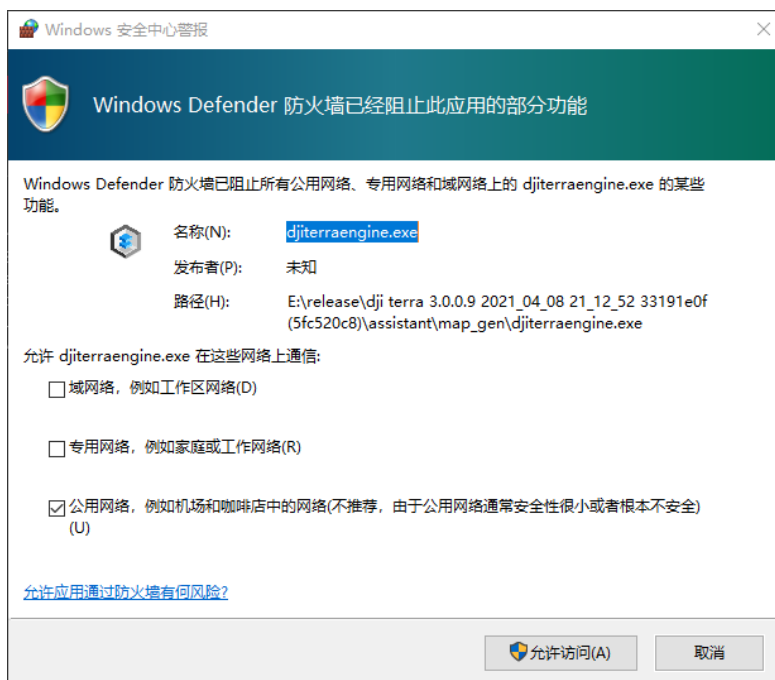


If you did not click [Allow Access] in the above dialog box, you need to go to this settings page to find the djpicmapgen application, and tick all the check boxes (private, public) on the right

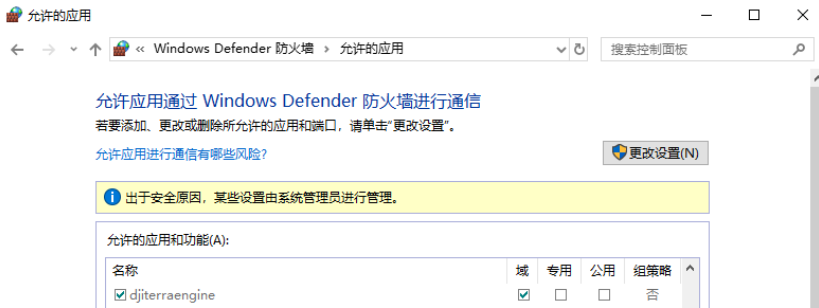


Worker Device

After opening DJITerraEngine.exe, this dialog box will pop up, click [Allow Access]





If you did not click [Allow Access] in the above dialog box, you need to go to this settings page to find the djiterraengine application, and tick all the check boxes (private, public) on the right

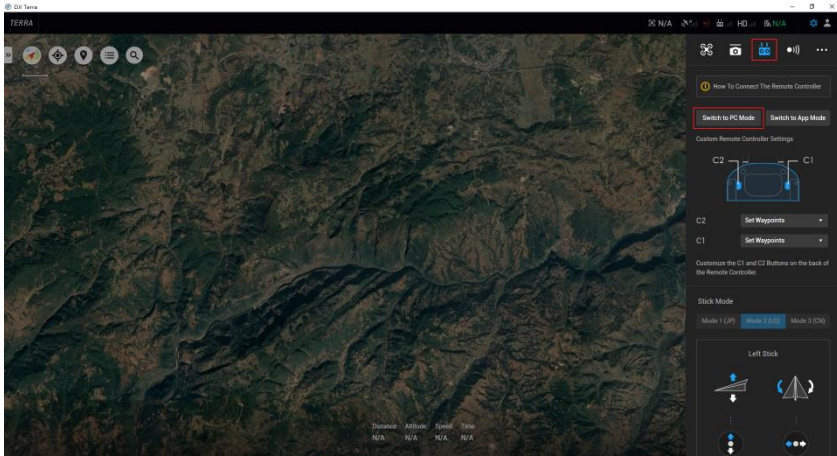


Remote Controller Settings

Mode Switching

Users of the Phantom 4 RTK or Phantom 4 Pro V2.0 Series can skip this step. All other Phantom 4 Series users are required to follow the steps below:

1. Close DJI Assistant 2 For Phantom, open DJI Terra and login your DJI account.
2. Turn on the remote controller, use a Micro USB cable (Android charging cable) to connect the remote controller (Micro USB port) with a computer (USB port).
3. Enter  >  on DJI Terra, select “Switch to PC Mode” .



4. Remove the Micro USB cable and restart the remote controller.

Install Remote Controller Driver

While using DJI Terra, some remote controllers may require you to install the corresponding driver.

Phantom 4 Pro V2.0 / Phantom 4 Pro+V2.0 / Phantom 4 RTK remote controller

NOTE:

When using Phantom 4 Pro V2.0, please make sure to connect the remote controller with the PC first, then turn on the remote controller. Otherwise, DJI Terra cannot recognize the device.

For Phantom 4 Pro + V2.0 and Phantom 4 RTK, if there is no image transmission window shown on the map, you need to install a driver.

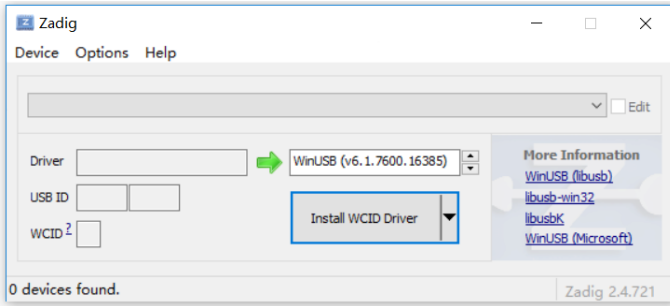
1. Download and install the driver.

<https://github.com/pbatard/libwdi/releases/download/b721/zadig-2.4.exe>

2. Switch on Phantom 4 RTK remote controller, using USB-C cable to connect remote controller with the PC (Phantom 4 Pro + V2.0 using Micro USB cable).

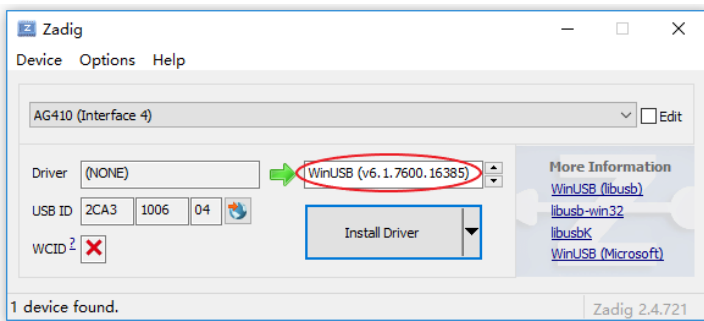
3. Run zadig-2.4.exe.

4. Click **Options > List All Devices**



5. Select **AG410 (Interface 4)** under the drop down list.

6. Select **WinUSB** on the right side of green arrow, then click **Install Driver**.



7. The driver will be successfully installed.

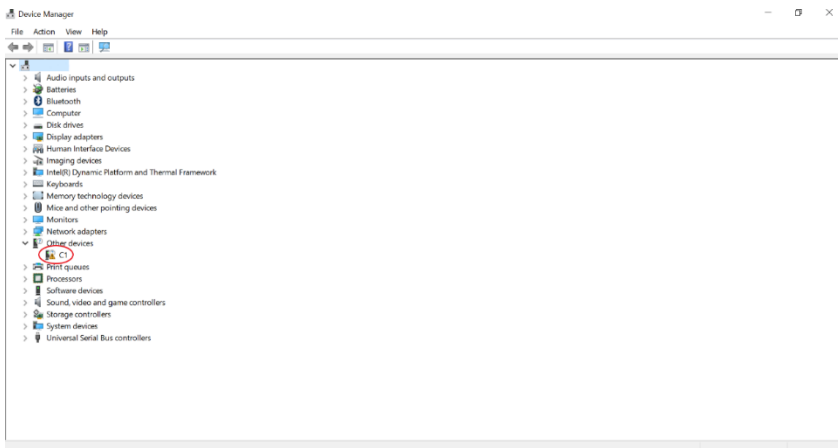
8. Restart DJI Terra.

Phantom 4 Pro / Phantom 4 Advanced remote controller

Please refer to the following steps to check if the driver for the remote controller is properly installed.

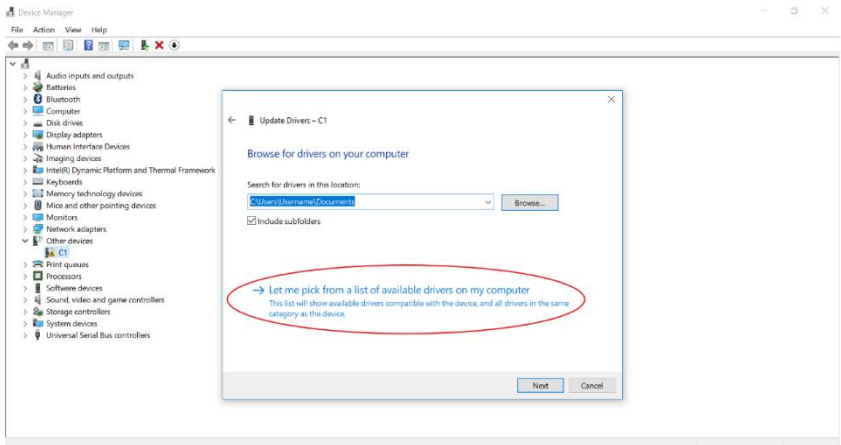
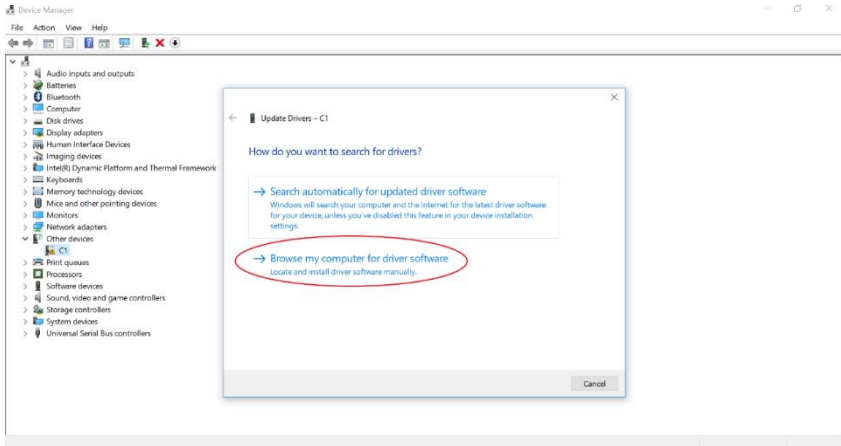
How to Check the driver

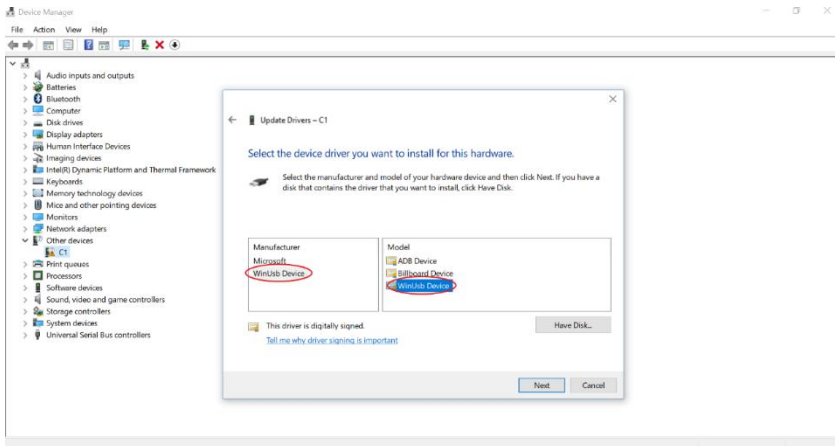
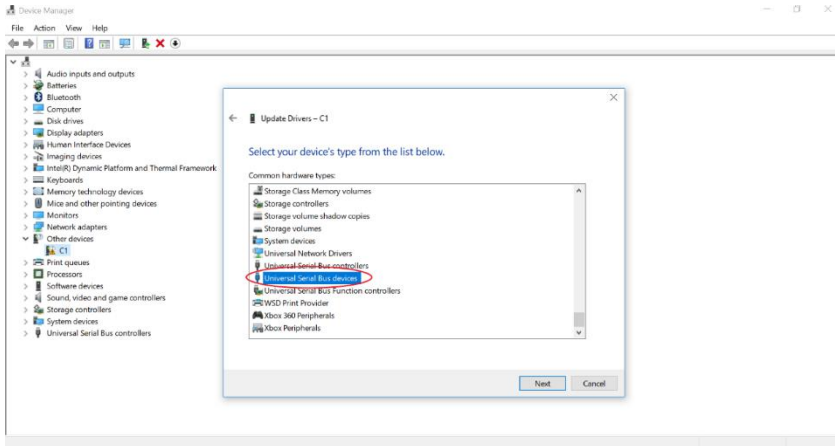
1. Use a double USB cable to connect the remote controller with the PC.
2. Go to Device Manager; the C1 device with the exclamation mark indicates a driver problem, meaning you need to install the driver. If there is no exclamation mark, you can skip the following steps.



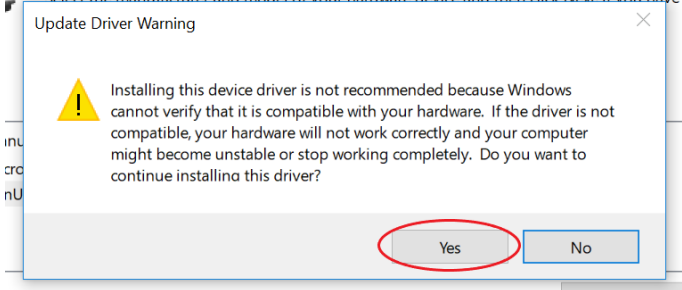
Install driver

1. Right click the C1 device and select update driver, then follow the steps illustrated in the pictures below.

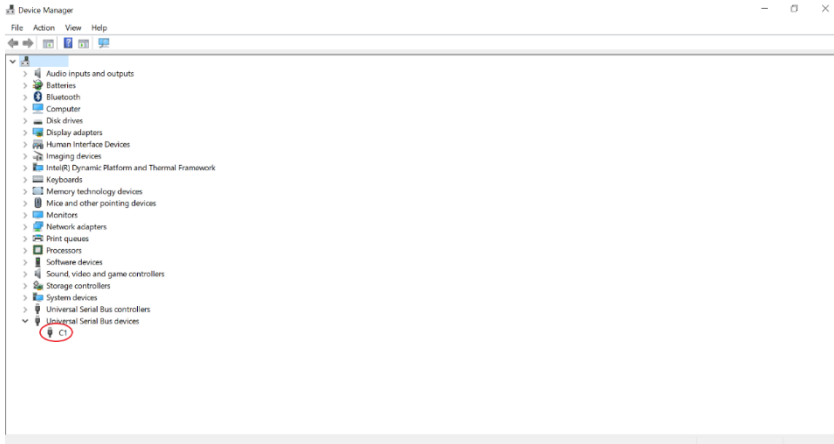




Select the manufacturer and model of your hardware device and then click Next. If you have



2. Once the driver is installed, the exclamation mark will disappear and DJI Terra is ready to use.



Guidelines for DJI Terra Offline License

Install CodeMeter Software

Click to download the [Wibu installation](#) file. Run the installation file and follow the onscreen instructions to install CodeMeter. Or, after installing DJI Terra, go to its installation folder, then go to CodeMeter > Installer and run CodeMeterRuntime.exe.

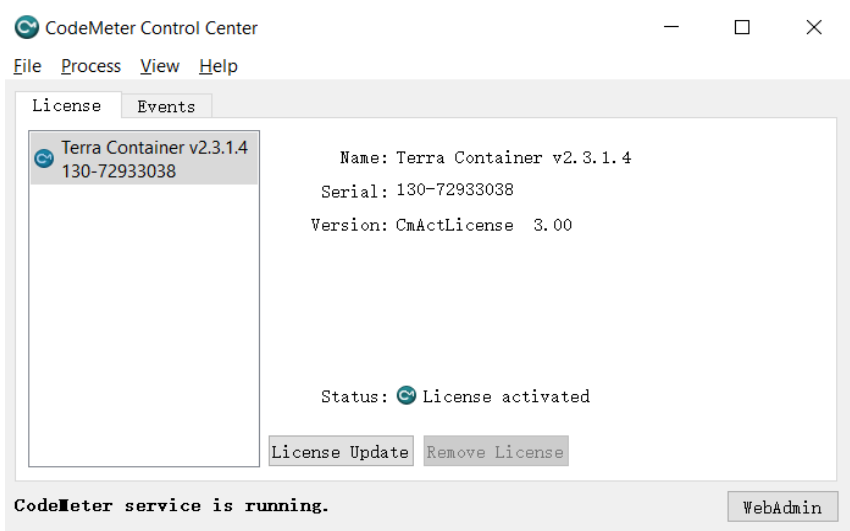
Create a License Request (.WibuCmRaC file)

1. Install [DJI Terra](#). Go to the installation folder and then go to CodeMeter > LIF. Double-click to import Terra_license.WibuCmLIF and wait for the process to complete. The figure below shows the notification for successful LIT file import.



2. Launch CodeMeter, follow the instructions below, and a RAC file will be generated.

a. Click License Update.



b. Select Create License Request and click Next.

Please select the desired action

Create license request

Choose this option if you want to create a license request file in order to send it to the vendor of the software.

Import license update

Choose this option, if you received a license update file from the software vendor and want to import this file.

Create receipt

Choose this option if you want to confirm the successful import of a license update file for the software vendor.

Next >

Help

c. Specify a file name as illustrated and click Commit.

Please select the file name

Select a file name for storing the license request file. Then click on 'commit' to create the file. You can then send this file to the vendor by email.

Commit

Help

Please note:

- The RAC file must be generated to the device that will be bound with DJI Terra. Otherwise, the license request may not be generated correctly.
- After generating the RAC file, do not change the device's motherboard, CPU, or hard drive. Otherwise, the authorization license will become invalid.

License Exchange

Single Device License

First-time Exchange

1. Go to the [License Exchange](https://terra-license.djiservice.org/) page (<https://terra-license.djiservice.org/>) and enter your email, your dealer's email, exchange code, and the license request (the .WibuCmRaC file).

2. Click Next to complete license exchange. Wait for an email notification indicating license exchange was successful.

The screenshot shows a web interface for license exchange. At the top, there are two tabs: "Single Device License Exchange" (active) and "Cluster License Exchange". A language dropdown menu is set to "English". The form contains the following fields and options:

- Email:** A text input field with the placeholder text "Email is used to receive notifications".
- Supplier Email:** A text input field with the placeholder text "Email where exchange code was purchased".
- Exchange Type:** Two radio button options: "First-time Exchange" (selected) and "Permanent License Upgrade".
- Exchange Code:** A text input field.
- License File:** A blue button with a cloud upload icon and the text "Upload".

A "Next" button is located at the bottom right of the form area.

- Email: the email used to receive the license file. After successful exchange, the license file will be sent to this mailbox;
- Supplier Email: the dealer’ s mailbox. After the dealer places an order with DJI to purchase the software, DJI will send the exchange code to the dealer’ s mailbox. Here, you need to fill in the dealer’ s mailbox for receiving the exchange code;
- Exchange Type: select “First-time Exchange” here, if it is to extend the “Update Validity Period” , check the “Permanent License Upgrade” .
- Exchange Code: please contact your dealer for the corresponding exchange code.

3. After the license exchange is completed, the recipient's mailbox will receive the successfully exchanged license file (.WibuCmRaU file) in a few minutes.

Permanent License Upgrade and Renewal

It is the one-year period from the first date of binding any permanent license after purchase, during which you can update to any version released in that period for free and use all functions included in the license. When the free update expires, you need to follow the steps below to perform the permanent license upgrade and renewal.

1. After purchasing the permanent license upgrade and renewal license from the dealer, click to go to the [License Exchange](https://terra-license.djbservice.org/) page (https://terra-license.djbservice.org/), and follow the prompts to enter the email, supplier email, exchange code, and master ID (You can find the master ID in the email that you first received to activate the license; if you can't find it, contact your dealer or DJI Support).

The screenshot shows a web interface for license exchange. At the top, there are two tabs: "Single Device License Exchange" (highlighted in blue) and "Cluster License Exchange" (grey). In the top right corner, there is a language dropdown menu set to "English".

The main form area contains the following fields and options:

- Email:** A text input field with the placeholder text "Email is used to receive notifications".
- Supplier Email:** A text input field with the placeholder text "Email where exchange code was purchased".
- Exchange Type:** Two radio button options: "First-time Exchange" (unselected) and "Permanent License Upgrade" (selected).
- Exchange Code:** A text input field.
- Master ID:** A text input field with a question mark icon to its left.

In the bottom right corner of the form, there is a blue "Next" button.

2. Click “Next” to complete the license exchange, and wait for the email notification for successful exchange.

Cluster License

First-time Exchange

1. Click to go to the [License Exchange](https://terralicense.djisservice.org/) page (https://terralicense.djisservice.org/), follow the prompts to enter the email, supplier email, exchange code, additional node package exchange code (if any), and upload the license request file (.WibuCmRaC file).

For example:

(1) To exchange the 3-node cluster license, you can directly enter an

exchange code for the cluster license (3-node).

(2) To exchange the 10-node cluster license, you need to enter an exchange code for the cluster license (3-node) and 7 exchange codes for the additional node package.

2. Click “Next” to complete the license exchange, and wait for the email notification for successful exchange.

The screenshot shows a web interface for license exchange. At the top, there are two tabs: 'Single Device License Exchange' (inactive) and 'Cluster License Exchange' (active). To the right of the tabs is a language dropdown menu set to 'English'. Below the tabs, the form is organized into several sections:

- Email:** A text input field with the placeholder text 'Email is used to receive notifications'.
- Supplier Email:** A text input field with the placeholder text 'Email where exchange code was purchased'.
- Exchange Type:** Three radio button options: 'First-time Exchange' (selected), 'Add Device', and 'Permanent License Upgrade'.
- Exchange Code:** A single text input field.
- Exchange Code (Cluster Expansion Pack):** A text input field with a plus sign icon to its right, indicating it can be expanded to multiple entries.
- License File:** A blue button with a cloud upload icon and the text 'Upload'.

A 'Next' button is positioned at the bottom right of the form area.

Add Device

1. Follow the prompts to enter the email, supplier email, additional node package exchange code, and master ID (You can find the master ID in the email that you first received to activate the license; if you can't find it,

contact your dealer or DJI Support).

The screenshot shows a web interface for a license exchange. At the top, there are two tabs: 'Single Device License Exchange' (inactive) and 'Cluster License Exchange' (active). A language dropdown menu is set to 'English'. The form contains the following fields and options:

- Email:** A text input field with the placeholder text 'Email is used to receive notifications'.
- Supplier Email:** A text input field with the placeholder text 'Email where exchange code was purchased'.
- Exchange Type:** Three radio button options: 'First-time Exchange', 'Add Device' (which is selected), and 'Permanent License Upgrade'.
- Exchange Code (Cluster Expansion Pack):** A text input field with a '+' icon on the right side.
- Master ID:** A text input field with a question mark icon to its left.

A 'Next' button is located at the bottom right of the form area.

Permanent License Upgrade and Renewal

1. Follow the prompts to enter the email, supplier email, exchange code, and master ID (You can find the master ID in the email that you first received to activate the license; if you can't find it, contact your dealer or DJI Support).
2. Click "Next" to complete the license exchange, and wait for the email notification for successful exchange.

Single Device License Exchange Cluster License Exchange English ▾

Email

Supplier Email

Exchange Type First-time Exchange Add Device
 Permanent License Upgrade

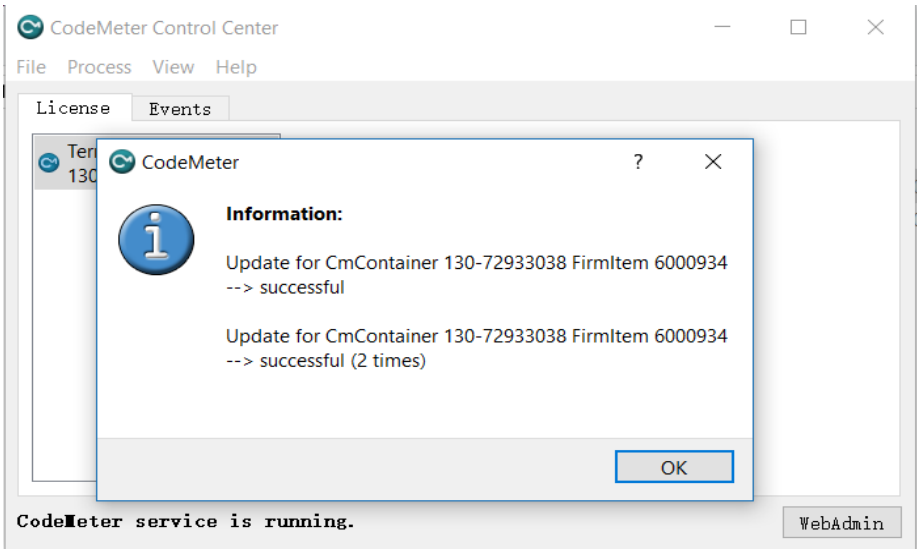
Exchange Code

Master ID [?](#)

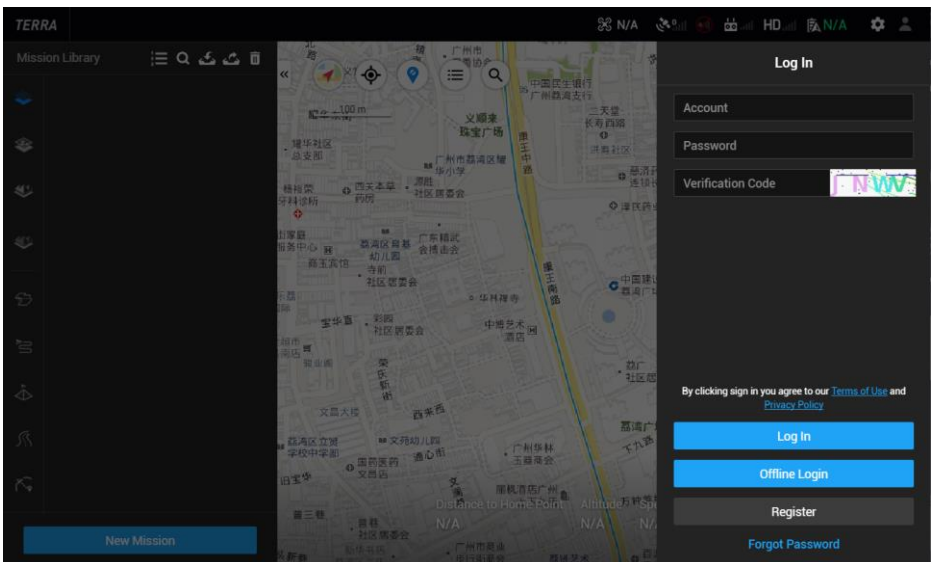
Next

Import Authorization License

1. After receiving the email, download the attached authorization license (a .WibuCmRaU file), copy and paste it onto the device will be bound to DJI Terra, which should be the same device you used to create the license request.
2. Double-click to import the authorization license and wait for the process to complete.



3. When the license is imported successfully, launch DJI Terra, and click Offline Login to start using DJI Terra's paid features offline.



Please note:

1. Under offline login status, DJI Terra cannot use the following networking functions:
 - (1) Unlocking GEO zones;
 - (2) Map loading and location search;
 - (3) When used with aircraft for mission flight, the flight is restricted to a height of 98.4 ft (30 m) and a range of 164 ft (50 m).
2. After the license is activated, the motherboard, CPU, and hard disk of the device cannot be changed, otherwise the license will become invalid.
3. If the license is invalid, please contact DJI Support to apply for license unbinding. You can only apply for license unbinding once a year.

Preparation for Cluster

Server Room Configuration

1. Cabinet: We recommend placing cluster computers in independent cabinets for easier management and heat dissipation.
2. Display: View the operating status of cluster devices and set device parameters.
3. Power supply configuration: Ensure that the facilities of the server room can provide sufficient and stable power supply, depending on the number of cluster devices and the power consumption required by the configuration. For greater stability in power supply and better prevention of power failure, you may opt for UPS as backup.
4. Heat dissipation: A computer generates a great amount of heat during operation, so it is necessary to arrange the layout of the equipment to leave enough space for heat to dissipate. Keep the indoor temperature of the server room below 25 degrees to ensure the stable operation of the computer. We recommend installing air conditioners with the necessary cooling performance as per the number of computers.
5. Fire protection: Sufficient fire extinguishers or fire extinguishing measures that are more advanced need to be put in place to prevent accidents and ensure the safety of the server room.

Equipment Configuration

1. Computer Configuration

Configuration Items	Recommended Configuration
Operating System	Windows 7 or above (64-bit)
RAM	At least 32G, while 64G or above is recommended
Graphics Card	NVIDIA GeForce GTX 2070 and above graphics card are recommended (Computing power must be 3.0 and above) At least 4G discrete graphics RAM AMD graphics cards are not supported
CPU	Intel or AMD mainstream processors
Hard Disk	At least 1T of mechanical hard disk drive
Network	10-Gigabit wired network environment

- (1) Central processing units (CPU): CPU performance affects reconstruction speed significantly, so we recommend using CPUs with more cores and a faster frequency. The Intel Core i7/i9 and AMD Ryzen series are recommended.
- (2) Graphics cards (GPU): Reconstruction speed is greatly impacted by the performance of graphics cards. Currently, the system only supports NVIDIA graphics cards with VRAM of more than 4G. We suggest you use graphics cards with larger graphics VRAM, more cores, a faster frequency and new technology. The 1050Ti, 1080Ti, 2080Ti and 3080Ti series are recommended.
- (3) RAM: The size of RAM determines the number of images that can be processed by aerotriangulation. About 400 images acquired by

Phantom 4 RTK can be processed with every 1GB of free RAM. This may vary according to the specific conditions of the mapped area. At least 32G is suggested, and 64GB or above is recommended.

- (4) Hard disks: Control devices are generally equipped with 1TB mechanical hard disks. We recommend adding a large–capacity solid state disk for storing part of the data and for daily use. Worker devices are generally equipped with 1TB mechanical hard disks. We recommend adding a solid state disk for installing the system and common software. Data can be stored on the disk array server.

The cache directory of the control device and the temporary local directory (a local directory created in the worker device to store temporary files for worker device computation, which can be periodically clean up to avoid affecting the reconstruction) of the worker device are both set on the solid state hard disk, which can improve the reconstruction speed.

2. Network–Attached Server (NAS)

An enterprise–class disk array server is recommended for storing project files and cache files, and providing adequate redundancy and backup. A disk array server is not used for computing, so it has low performance requirements on CPUs, graphics cards and other hardware, while the hard disk performance requirements are high, and because RAM can be used for disk caching to speed up data reading and writing, it is recommended that the RAM be greater than 32G.

The capacity of hard disk can be determined as per the volume of project data, and NAS dedicated hard disk is recommended (Solid state drives can greatly enhance cluster reconstruction speed). A 10-Gigabit network adapter is recommended for NAS devices to enhance throughput. Users with large data usage can opt for a 10TB enterprise disk with a 7200 RPM and a total capacity of more than 100TB.

The storage server is not only used for data preservation, but also the center of cluster data exchange. Its performance greatly affects the reconstruction efficiency, so please consult a professional IT team to choose an efficient storage solution (disk array, caching strategy, etc.).

If conditions do not allow, you can also use a normal computer by setting up a Windows shared folder as the network storage directory. You can also use the local disk of the control device as the network storage directory by setting up a Windows shared folder.

3. Switch

(1) Devices:

- a) One 10-Gigabit switch
- b) Four 10-Gigabit fiber jumpers
- c) 10-Gigabit optical module
- d) One 10-Gigabit network adapter
- e) Several CAT6/CAT6a network cables

(2) 10-Gigabit switch: A 10-Gigabit switch is recommended. 24 or more ports; a 10-Gigabit optical module can be inserted to increase data

transmission speed. Disk array servers are connected to it with 10–Gigabit network adapter, 10–Gigabit fiber jumper, 10–Gigabit optical modules, etc., and cluster worker devices are generally connected with it by network cables.

4. Network Environment

We recommend 10–Gigabit wired network environment (can greatly improve reconstruction efficiency), enterprise–class 10 Gigabit routes and switches with network management functions, with the number of interfaces meeting the needs of cluster computers.

If conditions do not allow, priority is to ensure that the storage device has 10 Gigabit bandwidth to the switch, and secondly, please ensure the bandwidth between the control device and the switch.

Ensure network reliability during use. Network instability, network congestion, and loose network cables will cause reconstruction failure.

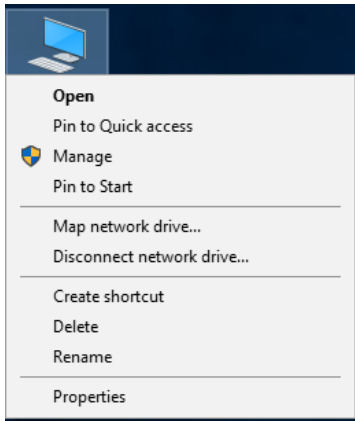
Device Parameter Settings

Computer Name Change

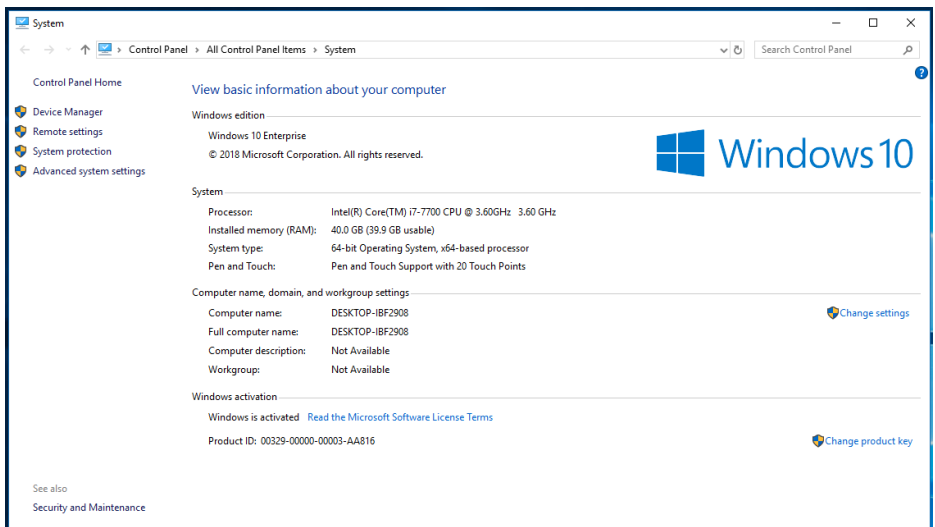
Ensure that the worker device devices participating in the cluster have uniform and standardized naming rules and numbers, it is recommended to use simple letters and numbers. Special names can be used for the control devices.

Computer Name Change Steps

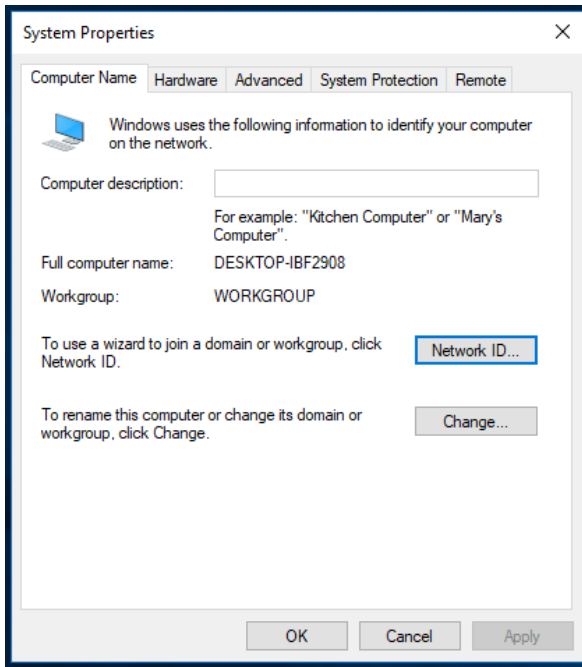
1. In Windows Explorer, or right-click This PC on desktop -> click Properties to enter the system



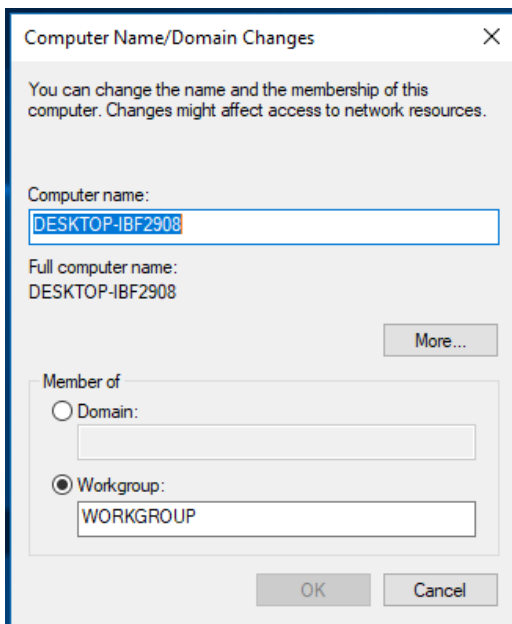
2. Click Advanced System Settings on the left-hand side of the system interface



3. Click Change in System Properties page



4. Fill in the new name in the box under Computer Name and click OK.



5. A pop-up window prompts whether to restart the computer, click OK, and the computer name will be changed after restarting.

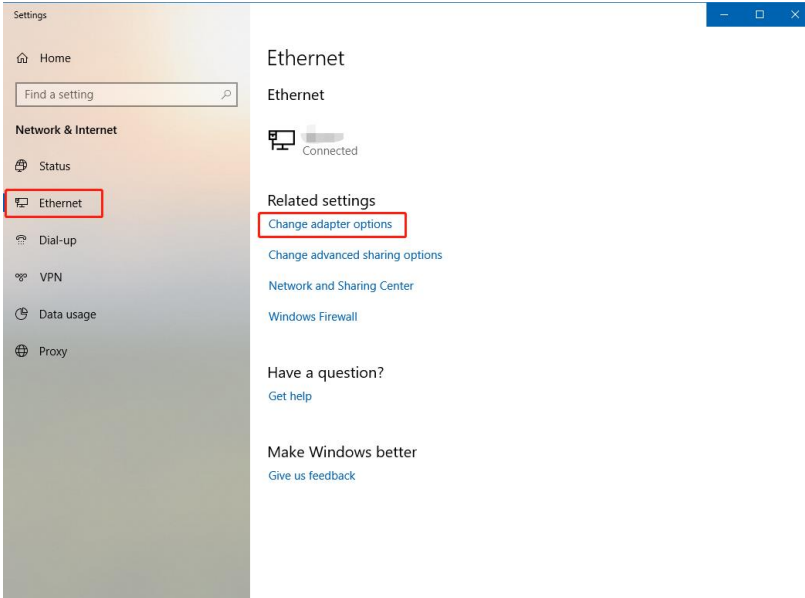
LAN IP Address Settings

Configure IPs through network routing or set static IPs on each computer, ensure that all control devices, worker devices and disk array servers are under the same network segment and have a fixed IP. The 192.168.x.x network segment is recommended, such as 192.168.1.x.

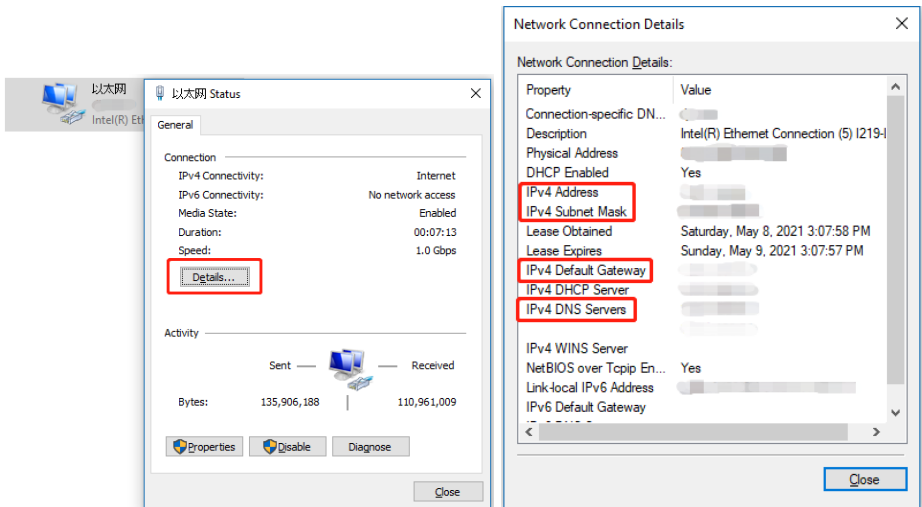
We recommend numbering the worker devices so that they are easier to manage and search. For example: the IP address for worker device No. 1 is 192.168.1.1, and the IP address of worker device No.2 is 192.168.1.2 (i.e., the IP address for worker device No.x is 192.168.1.x).

Fixed IP Setting Steps

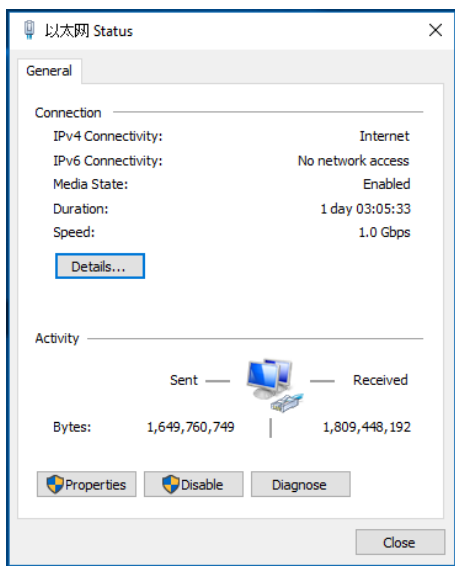
1. Open Windows Settings page, go to Network and Internet settings



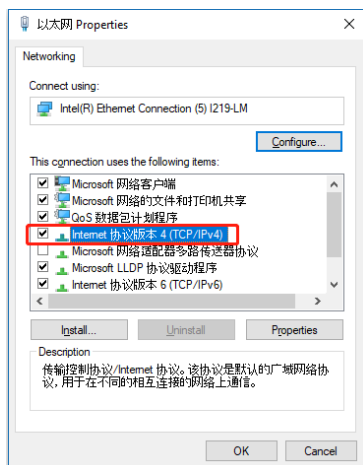
2. On the Change Adapter Options page, double-click the connected Ethernet device, click Details, and record the displayed IP address, subnet mask, default gateway, DNS server and other information.



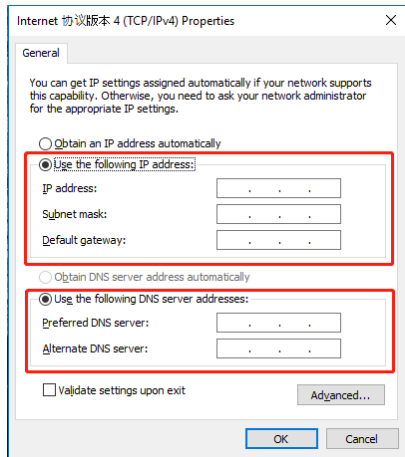
3. On the Ethernet status page, click Properties button below to go to the Ethernet Properties page



4. Double-click Internet Protocol Version 4 (TCP/IPv4) to go to the IP setting page



5. Click “Use the following IP address” , enter the manually set IP address in the IP address field, make sure that the entered IP address is in the same network segment as the recorded IP address (change only the number after the last decimal point), and make sure that the IP address is not duplicated with other devices that are connected to the Internet. Enter the recorded subnet mask, default gateway, DNS server and other information.



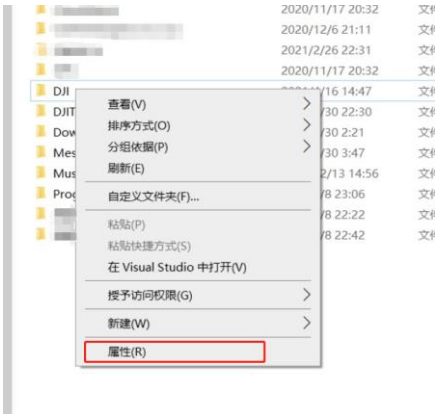
6. Click OK to complete the fixed IP setting.

LAN Shared Folder Settings

Create two new folders on the NAS device or the local disk of any computer device in the local area network, to store the original data and the result files (including temporary output files).

Set Up Shared Disks or Shared Folders for Computers on the LAN

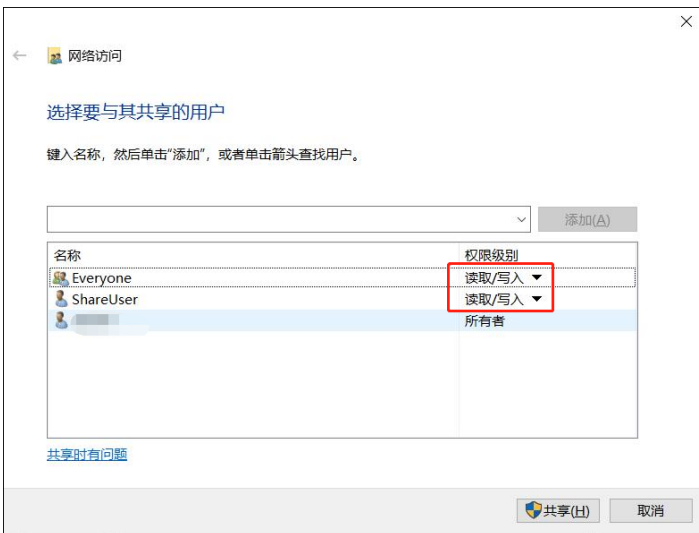
1. Right-click the disk or folder to be shared, and select Properties to go to the folder properties page.



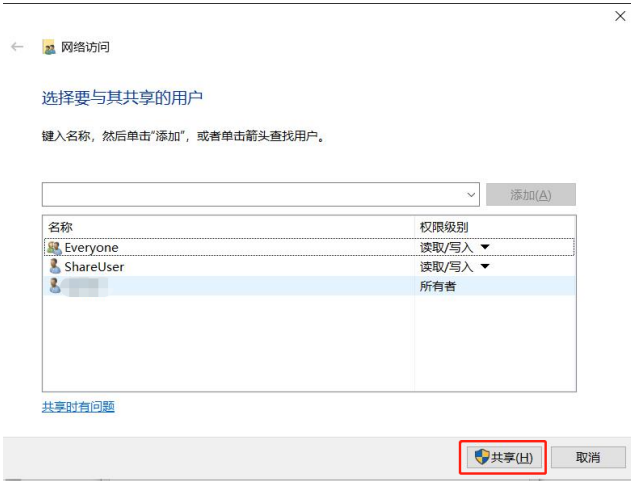
2. Click Sharing tab, and click Sharing button under the network path to go to the sharing setting page.



3. In the pop-up page, select the user name that you want to have access to the shared folder (if you want each computer to have access without a password, select Everyone), and give the user read/write permissions in the permissions column.



4. Click Share button to complete the folder sharing.



Please note:

1. When setting the shared folder permissions, you only need to set read permissions for the folder used to store image data, and set all permissions for the folder used to store the result files. You can test if all permissions are enabled by creating or deleting files in the shared folder by other worker devices.
2. Please use the IP+path format as the file directory path. Unknown network mapping (that is, the local drive letter is not mapped) is not allowed as the file directory path.
3. The temporary local directory needs to have high-speed read and write capabilities. It is recommended to use a local solid-state hard drive. The directory cannot be set on a network drive or NAS device.
4. The shared directory and the temporary local directory cannot be set to the same.

5. The temporary local directories of different worker devices cannot be set to the same, that is, two DJITerraEngine applications cannot be opened on the same device at the same time.

Safety Protection Measures

1. Power Supply and Cabling

The power supply of single device is relatively high at 800W or above. The server room may have dozens of devices operating at the same time, so it is necessary to ensure sufficient and stable power supply in the server room. If UPS (uninterruptible power supply) is used to supply power to the devices, the output power of UPS ($800W \times \text{number of devices}$) needs to be calculated in advance.

2. Cooling Measures

Control the temperature and humidity of the server room. Dozens of computers dissipate a great amount of heat when working at the same time, which results in a higher temperature in the server room. If the temperature is not controlled, it may cause the device to crash and shorten the service life of the device, thus affecting the work efficiency.

3. Fire Protection Measures

Place multiple fire extinguishers or install integrated fire extinguishing devices in the server room. Production safety is the top priority.