AvalonMiner

AvalonMiner 1066 Pro

User Manual

canaan

Overview

Thank you for choosing AvalonMiners. Please read through this user manual carefully before mining as to ensure the correct operation and installation of the products. Please keep the manual properly for future reference.

Product Specification

Model Name	AvalonMiner 1066pro
Hashrate	55TH/s，-3%~+3%
Power Efficiency	63J/T, -5%~+5%@25℃
	65J/T, -5%~+5%@35℃
Power Consumption	3250W, -5%~+8%@Wall-Plug, 185~280V AC 50~60Hz
Power Supply AC Input	185~280V AC 50~60Hz 16A (Max)
Chips	342 x A3205 16nm ASIC
Smart Controller	Canaan Kendryte K210 Artificial Intelligence SOC
Connection	RJ45 Ethernet 10/100M, Daisy-Chain Connection
Air-intake Temperature	-5℃~+35℃
Cooling	4 x 12038 FAN
Noise	75dB（Typical）
Operation Humidity	5%~90% Non-Condensing
Cubic Feet Per Minute	250CFM
Net Weight	11.4kg
Net Dimensions	331mm x 195mm x 292mm
PSU Plug Type	C19

Safety Regulation

Caution: In order to prevent human safety accidents, such as miner and power damage, fall, electric shock and fire, please install and use the miner strictly in accordance with the instructions. It's prohibited to modify the miner or power and replace the components personally.

- Don't use the power supply beyond the rated voltage range.
- Don't put the miner in unstable places.
- When inspecting and repairing the miner or the power supply, please entrust professional personnel for the operation.

When abnormal phenomena of miner or power supply occurs, cut off the power immediately and contact the ***support@canaan.io***.
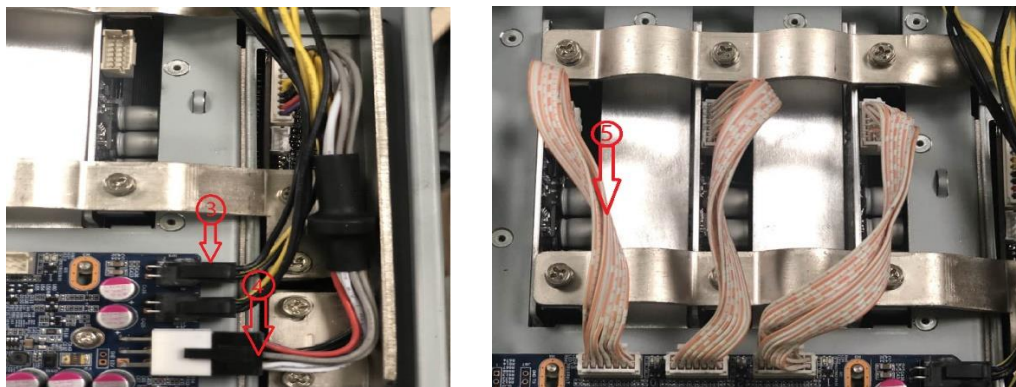
Content

Chapter 1 Hardware Connection

Control Panel

① Network port
② Fan connector, connecting the 4PIN fan cable

Connection of Miner Management board

Open the upper panel and you can see the structure of the entire management module of the miner. The internal interfaces are shown in the figures:

③ Fan connection. Connecting with fan cable(by 4PIN connector).
④ Connection of Power Supply Unit and MM board(by 6PIN connector).
⑤ Connection of Hash Board and MM board(by 2x7PIN connector).

Chapter 2 Button and Light Indicator

Buttons

RESET: System reset button. Please note that system reset will not affect network

connection

FUNC：Functional button. It can be used to reset the miner back to the factory settings, enter the configuration mode, and switch lighting status in operation, etc.

Light Indicator

- The light indicator flashes in red several times after power-on
- After device startup, the indicator lamp turns white for about three secs. During this period, press the FUNC key, then device will enter the configuration mode.
- The indicator lamp is green under normal mining condition.
- The indicator is yellow during system preparation.
- The indicator lamp is red when the system is overheated.
- During system operation, the light indicator turns white by FMS software or manually pressing the FUNC key, and the lamp reset to original color after the button pressed again.

Reset Mining to factory settings: Press the FUNC function key (before the red indicator lamp flashing) when power on for five seconds till the white indicator flickers which means setup finished, and then press the RESET or power to restart.

Chapter 3 Work Mode

The device has two work modes: "Normal Mode" and "Configuration Mode".

Normal Mode

The device runs in this mode most of time, in which network can be using DHCP (dynamic acquisition) or static IP. The default setup is DHCP.

Configuration Mode

- Press the FUNC key when the lamp is white (about three secs.) after startup, and the device will enter configuration mode.
- In this mode, the IP address is static (address: 192.168.168.168, subnet mask: 255.255.255.0). The built-in Web service of the device can be accessed through PC browser to configure network, mining pool, password and other information.
- Set PC to static IP address: 192.168.168.100 (or any other non-conflicting address with the same segment), subnet mask: 255.255.255.0, connect to the same network with the device (under the same switch or router, or directly connect PC to the device network).
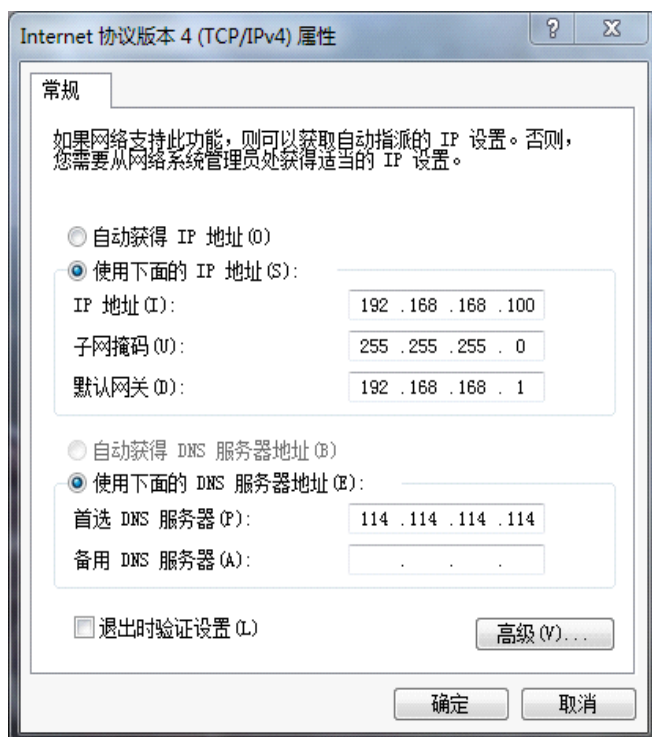
- Please right click to open network & internet settings.

- Go to "change adapter options" to disable WLAN and enable Ethernet.

Then use browser to access http://192.168.168.168/ to configure the device(Modify static IP, etc.). After configuration, nothing will take effect unless miner rebooted. Users are free to either click Reboot key on the left part of the interface or power off manually.
Note: please do remember to switch internet connection, otherwise there won't be access to internet for miners.
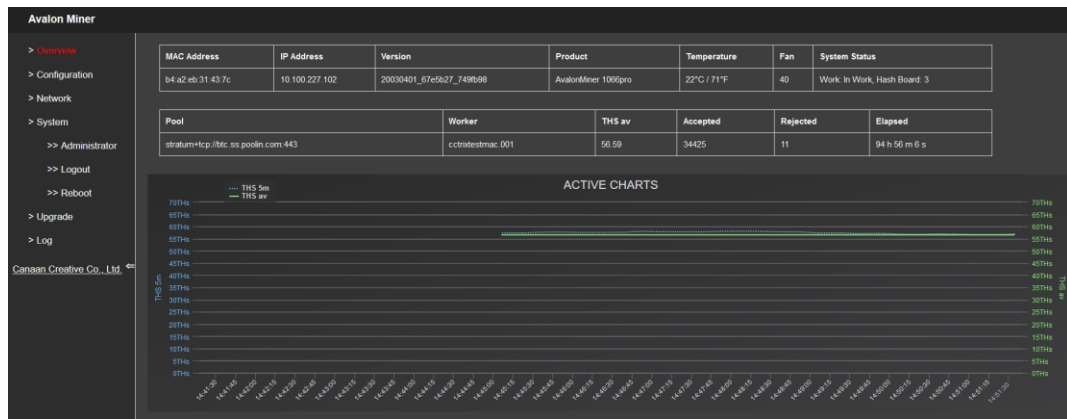Please input the IP address modified into the browser. The indicator lamp will turn green under correct operations.

Chapter 4 System Setting

Access the device's built-in Web service through browser and enter the device interface after login.

User Login

Default username: root, default password: root, it can enter the Overview page after login.

Network Setting

Click the Network in the configuration menu and set it to DHCP (dynamic acquisition) or IP(Static).

Note: After pressing the save button，please remember to restart the miner to make sure your network setting effective. To restart it, users can click Reboot on the left, or press RESET button (on the miner), or power off and on.

Mining Pool Setting

The below figure is the factory settings. There are two modes here: Normal Mode and High-Performance mode. When using the high-performance mode, please be noted to use high consumption power supply for output in case of any hardware damage.

Note: After pressing the save button, please remember to restart the miner to make sure your mining pool configuration effective. To restart it, users can click Reboot on the menu, or press RESET key (on the miner) or restart the miner physically.
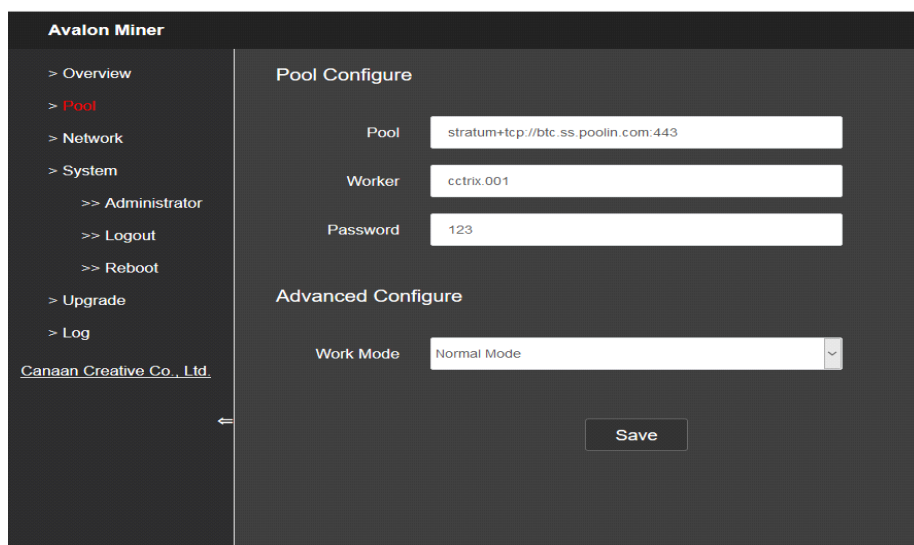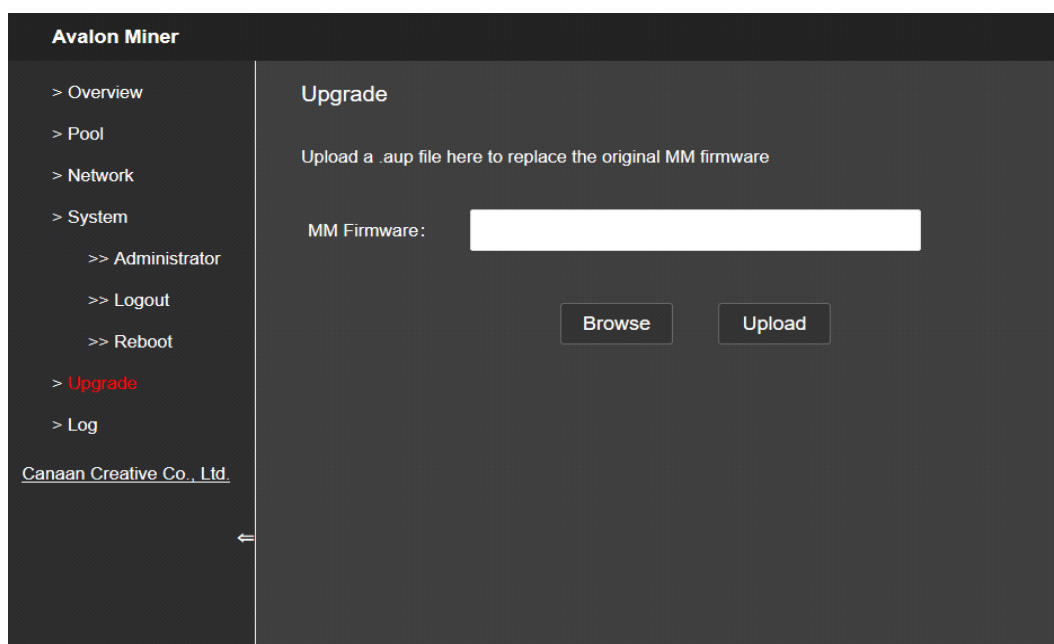
User ID and Password

Default username: root, default password: root
Click Administrator on the menu to set a new password and save it.

Chapter 5 Firmware Upgrade

The upgrade package file's format is *. aup, which can be downloaded through the official website or via customer service.
The device's firmware upgrade can only be implemented through FMS software.

Chapter 6 Factory Reset

Press the FUNC key for five to ten secs (Before the light indicator turning red) when the power is on, and the system will automatically clear the saved configuration, including network, mining pool, password and other information.
After the configuration cleared, the white light indicator will flash frequently indicating that the recovery configuration is successful. After loosening the FUNC button, press the RESET button to restart, or cut off the power supply to restart, and the system will use the default factory configuration to work.

Chapter 7 Warranty

After the miner having run for some time, such miner glitches as loosened connection or abnormal damage shall be taken into consideration. For this, users are free to troubleshoot it themselves after consulting our professional engineers. If the device is damaged within the scope of warranty, contact our after-sales personnel for quick repairs.

We guarantee a 180-day warranty of the product since the date the customer receives the goods, but the followings will invalidate the warranty:

- Any physical damage caused by self-disassembly of the products or other causes (including but not limited to breakage, fragmentation, parts or components missing, etc.)
- Damage caused by lightning, voltage surge, etc.
- Burn marks on the PCB or the chips burnt down.
- Damage caused by water intake and immersion
- PCBs are damped and corroded
- Over the warranty period

Unfortunately, if the above circumstances occur, we can still provide fee-based maintenance services for the devices, and users can also contact after-sales personnel to purchase the parts to repair by themselves.

Chapter 8 Trouble Shooting

Boot Failure

- **Failures**

  ✗ The fan of the miner does not work or the light indicator does not light up.

- **Possible root cause**

  ✦ The fan cable comes loose;

  ✦ The cable of the power supply with the control board disconnected;

  ✦ The AC power input disconnected;

  ✦ The power module has fault;

  ✦ The control board has fault;

  ✦ The power output is with short-circuit protected.

- **Trouble shooting guide**

✓ Power on the miner and plug in the network cable connected to the switch (or router). Check whether the link light of the network port is flashing. If the light of the network port is off, it means that the MM control panel is out of power. Then It is necessary to check whether the power cable is connected, replace the power supply or check whether there is a short circuit of the power output.

✓ If the mesh light is on, but the LED light on the MM control panel is off, then the MM control panel needs to be replaced.

✓ If the LED on MM board is on but the fan doesn't work, please check the fan cable or replace the fan.

Cannot Mine

• **Failures**

✗ The mining pool cannot be connected for a long time (more than 5 minutes) after booting up (the miner lights up yellow for a long time, does not turn green, and has no hash rate).

✗ The mining pool can be connected after the miner is turned on (the miner LED is green), but it has no hash rate.

• **Possible root cause**

✦ Mine pool configuration error;

✦ Network configuration error;

✦ The miner cannot access the external network;

✦ No main output for the power supply of the miner (wiring error, overload, short circuit or damage);

✦ Miner hash board is not working;

✦ Miner overheating protection.

• **Trouble shooting guide**

✓ If you cannot use the PC to connect to the miner through the network, you can try to reset the factory settings after confirming that the network environment is normal, the network cable is firmly connected, and the miner is turned on normally. For the method of resettting factory settings, see Appendix 1.

✓ Check the current version of the miner's firmware. It is recommended to use FMS to update to the latest version. For the upgrade method, see Appendix III

✓ Check the status of the hash board

✓ Click Overview to check the working status shown as ② in the figure below. Normally, it should be In Work. If OverHot indicates overheating shutdown, you need to check the fan and ambient temperature as follows.

✓ Check the number of Hash Boards shown as ③ in the figure below. The value

should be 3. If the value is 1 or 2, you need to contact our after-sales personnel to deal with it. If it is 0, you need to check the power status according to the following.
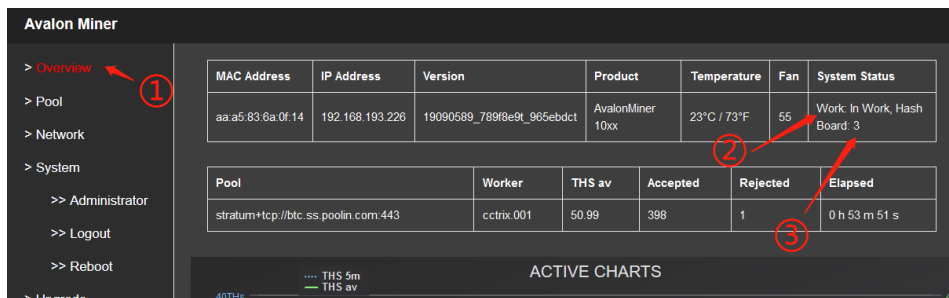
✓ Check the power, temperature, network status and fan status

Click the Log in the menu as below.
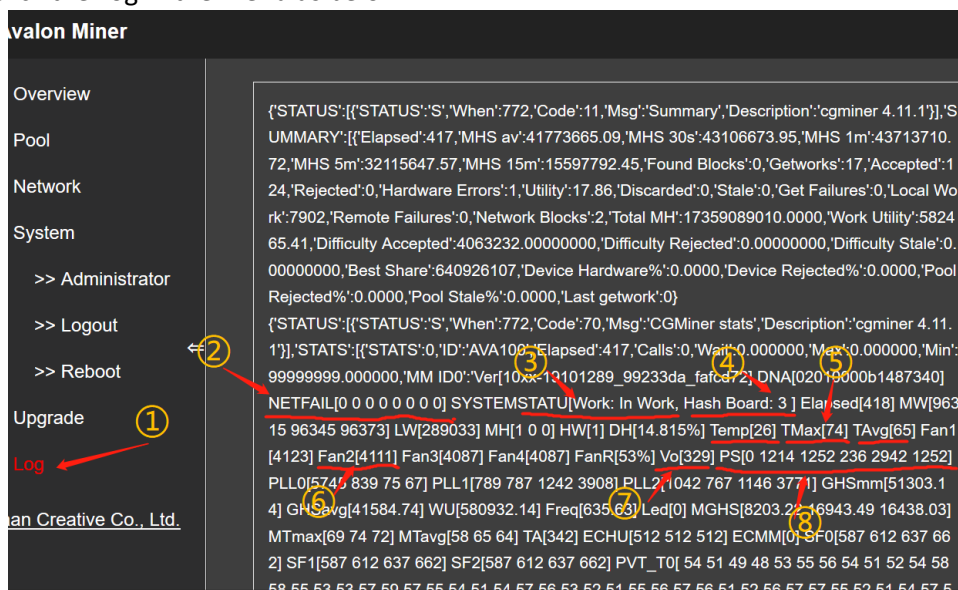
Check the following fields in the right field:

- NETFAIL (as shown in ②) : records the time of disconnection from the ore pool (if it has not been disconnected or never connected to the ore pool, this is all 0).In the record, the odd term (items 1, 3, and 5) is the time of disconnection from the pool, and the even term (items 2, 4, and 6) is the time of recovery from the pool. If only the odd term has data and the even term is 0, it means that the connection with the pool is disconnected and not recovered (usually because of the excessive traffic of the pool server, the connection can be broken. If frequent occurrence occurs for a long time, the other mining pool can be replaced).

- SYSTEMSTATU: records the current working state, normally In Work (shown In ③).Where Hash Board (as shown in ④) is the number of working Hash boards, which should be 3 for 1066 Pro. If it is 1 or 2, we need to contact the after-sales service. If it is 0, you need to further check the state of the power supply.

- Temp is the ambient temperature and cannot exceed 35℃

- TMax is the highest chip temperature, which cannot exceed 85℃.

- TAvg is the average chip temperature.

- If you see any of the above temperature terms exceeding the maximum level (Temp over 35, Tmax over 85, TAvg over 68), you need to check the fan speed (as shown in⑥). If the fan speed is normal, it is necessary to reduce the indoor temperature and ensure good ventilation around the miner.

- Vo (as shown in⑦) is the average chip voltage, which is normally 32x.

- PS (as shown in⑧) is the state of power supply. The meanings of items 1-6 are as follows:

  - Item 1: error code. 0 as a normal value. Other values indicate power failure or output short circuit.

  - Item 2: voltage supplied to control panel. The normal value is 12xx.

  - Item 3: the voltage supplied to the HASH plate, normally between 1200 and 1400.

  - Item 4: the current from the power supply to the hash board, which is related to the output power and voltage.

  - Item 5: the power output from the power supply to the hash board is 3300 for the 1066 Pro model.

  - Item 6: the expected output voltage from the power supply to the hash board, which is configured by the control board.

If the 6 parameters in the PS field of the power supply are all 0, it means that the control panel cannot communicate with the power supply. Please check the line connection. If the connection is correct, the power supply PSU needs to be replaced.

✓ Check whether the configuration of mine pool, miner and miner's code is correct. Click the menu to check the configuration of ①Pool, ②Worker and ③Password. Then, click the Save button to Save the Settings.
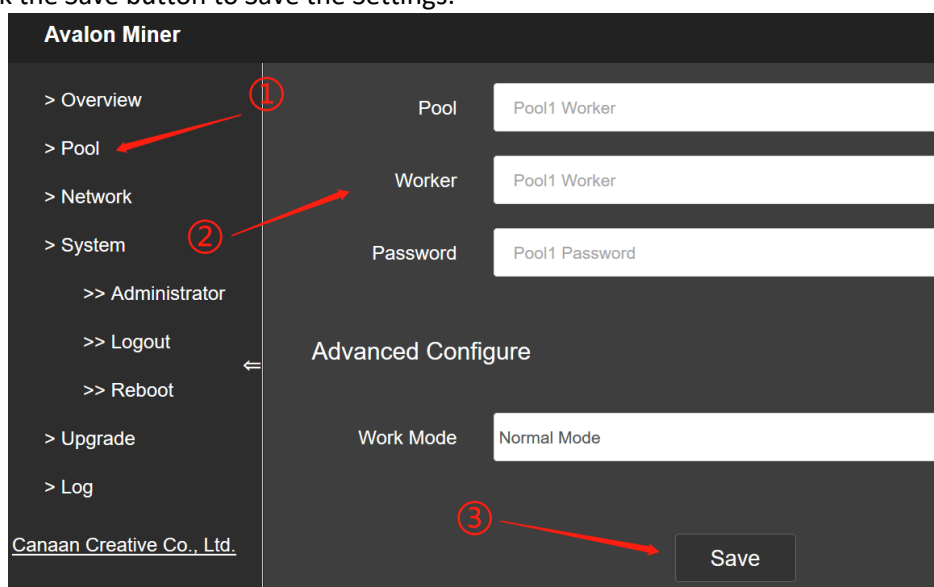
✓ Check your network Settings

- Click on the NetWork in menu and the default configuration is DHCP mode. If all the data is empty, press F5 to refresh the page.
- If you use static IP, you need to pay attention to the configuration of DNS. The wrong DNS configuration will make miners not able to access the pool.
- The commonly used DNS address in China is 114.114.114.114, and the commonly used DNS address outside China is 8.8.8.8.

Note: after modifying the configuration, you need to click the save button to save the configuration.
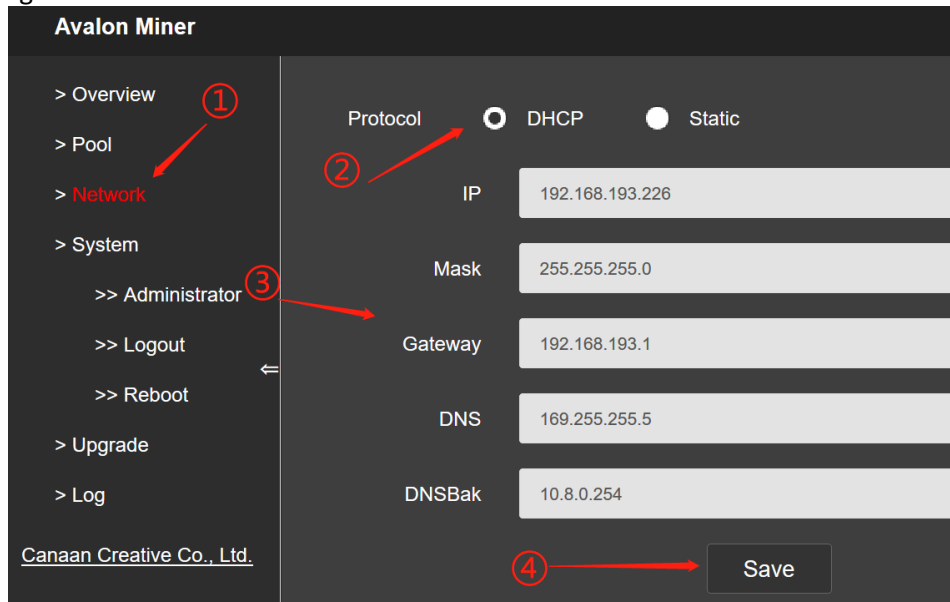
APPENDIX

Appendix I Restore factory settings

• **Method 1:**

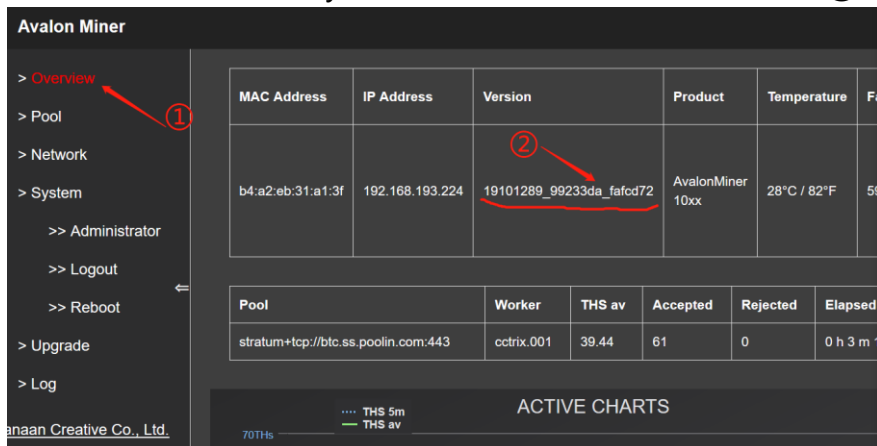| Steps	Remark
Ensure the miner is power off	
Keep pressing FUNC button	
Power on the miner	Note: need to keep the func button pressed all the time.
Keep FUNC button pressed until the white LED flashes.	

• **Method 2**

Steps	Remark
Power on the miner	
Keep pressing FUNC button	
Press the reset button and release	Note: need to keep the func button pressed all the time.
Keep FUNC button pressed until the white LED flashes	

Appendix II How to check the firmware revision

There are 2 methods to check the firmware revision

• Check the revision from the FMS menu:

Click Overview in menu, you can find the firmware revision in ②.
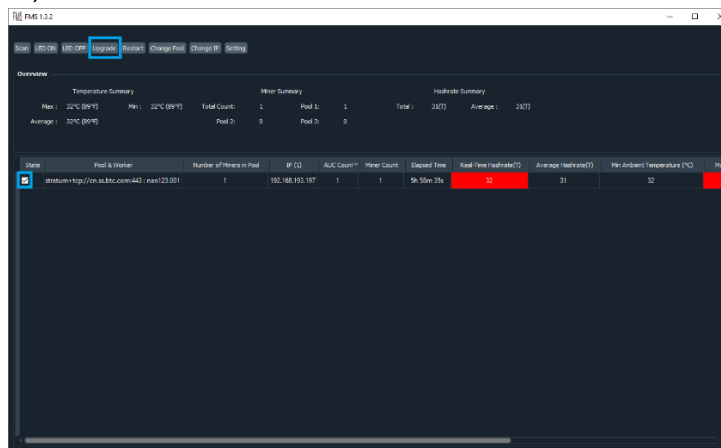
- Check in FMS overview page:
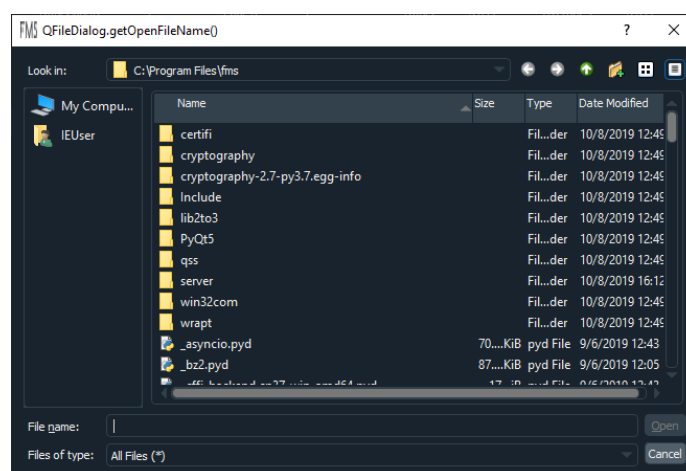
Find the firmware revision from ①
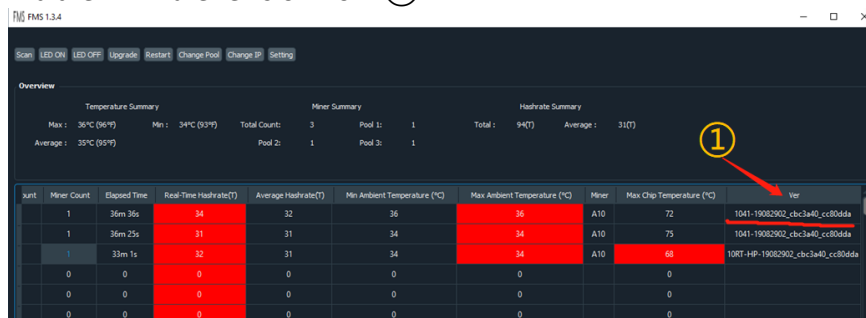
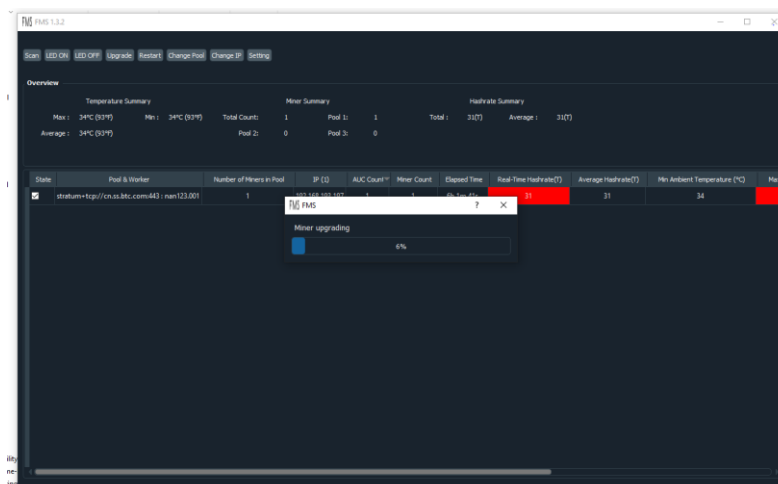# Appendix III Method to batch upgrade the firmware by FMS

- Startup FMS, select the corresponding miner in the main page, and click the Upgrade button, as below:

- Select the firmware file to upgrade (.aup) in the popup dialog box, and click open as below：

- There will be progress display during the update process.

At the end of the update, there is a notification of "All upgrades were successful" to indicate the updating success. Otherwise All the IP addresses of the failed upgrades will be listed. For the miners whose upgrade fails, they can be selected according to IP and then restarted by clicking the ⬚Restart button. After waiting for 3 minutes, they can try again to upgrade these miners.

Appendix IV Parameters in Log

字段	名称	备注
Elapsed	Total running time of miner after startup (unit: seconds)	
Ver	Firmware revision	
DNA	Unique ID	
NETFAIL	The time to disconnect from the mining pool and the time to restore the connection after successful connection to the mining pool.	The odd term (items 1, 3, and 5) is the time of disconnection from the pool, and the even term (items 2, 4, and 6) is the time of recovery from the pool.
SYSTEMSTATU	Current status of the system. Including the working status and the quantity of working hashboards.	
DH	Average fault rate. The normal value is between 0.6% to 1.6%.	
Temp	Ambient temperature	
TMax	Maximum temperature of Chip	
TAvg	Average temperature of Chip	
Fan1	Speed of Fan 1	
Fan2	Speed of Fan 2	
FanR	Percentage of Fan speed	
Vo	Average voltage of Chip	
PS	Power status	See Chapter 8
PLL0	The chip quantity in every frequency for the 0th hash board.	e.g. PLL0 [256 589 1259 5786] means there is 256 chips running

		in the 1st frequency…there is 5786 chips running in the 4th frequency.
PLL1	The chip quantity in every frequency for the 1st hash board.	
GHSmm	Hashrate before calibration (unit: GH/s)	Note: actual hashrate = the hash rate before calibration *(1-DH)
GHSavg	Average hashrate for 1 hour	Average hashrate for 1 hour according to actual work submitted to the pool. It's most closed to the 24 hours average hashrate from pool.
WU		
Freq	The equivalent frequency	The chip works at different frequency. The equivalent frequency is the comprehensive equivalent frequency of the whole miner.
Led	Status of white LED	When a particular miner needs to be found, the API is used to light the white LED light of the miner. This is the status of whether the white LED lamp is lit, 1 means it is lit, 0 means it is not lit.
MGHS	Hashrate for one hash board, unit: GH/s	
MTmax	Chip temperature for one hash board	
MTavg	Average chip temperature for one hash board	
TA	ASIC chip quantity	
SF0	Frequency configuration of hash board 0	e.g. SF0 [500 525 550 575] means frequency 1 is 500MHz, frequency 4 is 575MHz.
SF1	Frequency configuration of hash board 1	
PVT_T0	Temperature list of all the chips for hashboard 0	
PVT_T1	Temperature list of all the chips for hashboard 1	
PVT_V0	Voltage list of all the chips for hashboard 0	
PVT_V1	Voltage list of all the chips for hashboard 1	
PVT_R0	DH list of all the chips for hashboard 0	
PVT_R1	DH list of all the chips for hashboard 1	

Appendix V LED status

1. LED status transition when power on

Status	Red LED flashing	White LED lit	Yellow LED lit	Green LED lit
Duration	1s	1s	Approx. 20-30s	Long lasting

2. LED status

LED Status	Remark
off	Firmware is not running (power off).
Red LED flashing	Flashing for 1s when system startup.
White LED lights	Light for 1s when system startup or using API control for lightening up.
White LED flashing	System enters testing mode (or the status after resetting to factory setup. Need to release FUNC button for reset and the main controlling enter the normal mode.
Yellow LED lights	The system has been startup but didn't connect to the mining pool.
Green LED lights	The system has been startup and connected to the mining pool.

Contact

To get more information about the installation and operation, please log in the official website https://www.canaan-creative.com
or
send email to support@canaan.io