

BITMAIN S9k Server



BITMAIN S9k Server Installation Guide

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BITMAIN

BITMAIN S9k Server



Product Information

Specifications

- **Model No.:** 120-K
- **Version:** S9k

Product Glance

Value	Min	Typ	Max
SHA256/BTC/BCH	13.50	1148	85.00
1389	12.00		

Detailed Characteristics

Hardware Configuration	Quantity of hash chips	Quantity of hash boards	Networking connection mode
Value	85.00 – 90.07 – 1148 – 11.60 – 1250	13.50 – 12.00 – 95.7 – 1389 – 13.95 – 90.95 – 96.37 – 1344 – 13.00 – 115.9 – 180	3 RJ45 ethernet 10/100M
Server Size (Length*Width*Height, w/o package), mm(2-1)	298.0*129.6*187.5/321.3*129.6*200.0	3.95/4.50	
Environment Requirements	0 – 40	25 – 40 – 25 – 85	
Operation humidity, RH	5% – 95%		
Notes:	(1-1) Refers to PSU power conversion efficiency of 93%. (1-2) Refers to PSU power conversion efficiency of 93%. (1-3) Min condition: 25, minJ/TH, typical hash rate.		

Product Usage Instructions

S9k Server Components

The main components and controller front panel of the S9k server are shown in the figure provided in the manual.

Connecting to the Power Supply

1. Remove the screw at the position indicated by A with a cross screwdriver.
2. Lift the upper cover of the control board upward at the direction indicated by the arrow shown in the figure and then pull it in the upper rear direction.

Frequently Asked Questions (FAQ)

• **Q: Do I need to purchase a separate power supply for the S9k Server?**

A: Yes, you must provide your own ATX power supply for the S9k Server.

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Bitmain

- **Tel:+86-400-890-8855**
- www.bitmain.com.

Overview

The S9k server is Bitmain's newest version in the S9k server series. All S9k servers are tested and configured before shipping to ensure easy set-up.



Front View



Back View

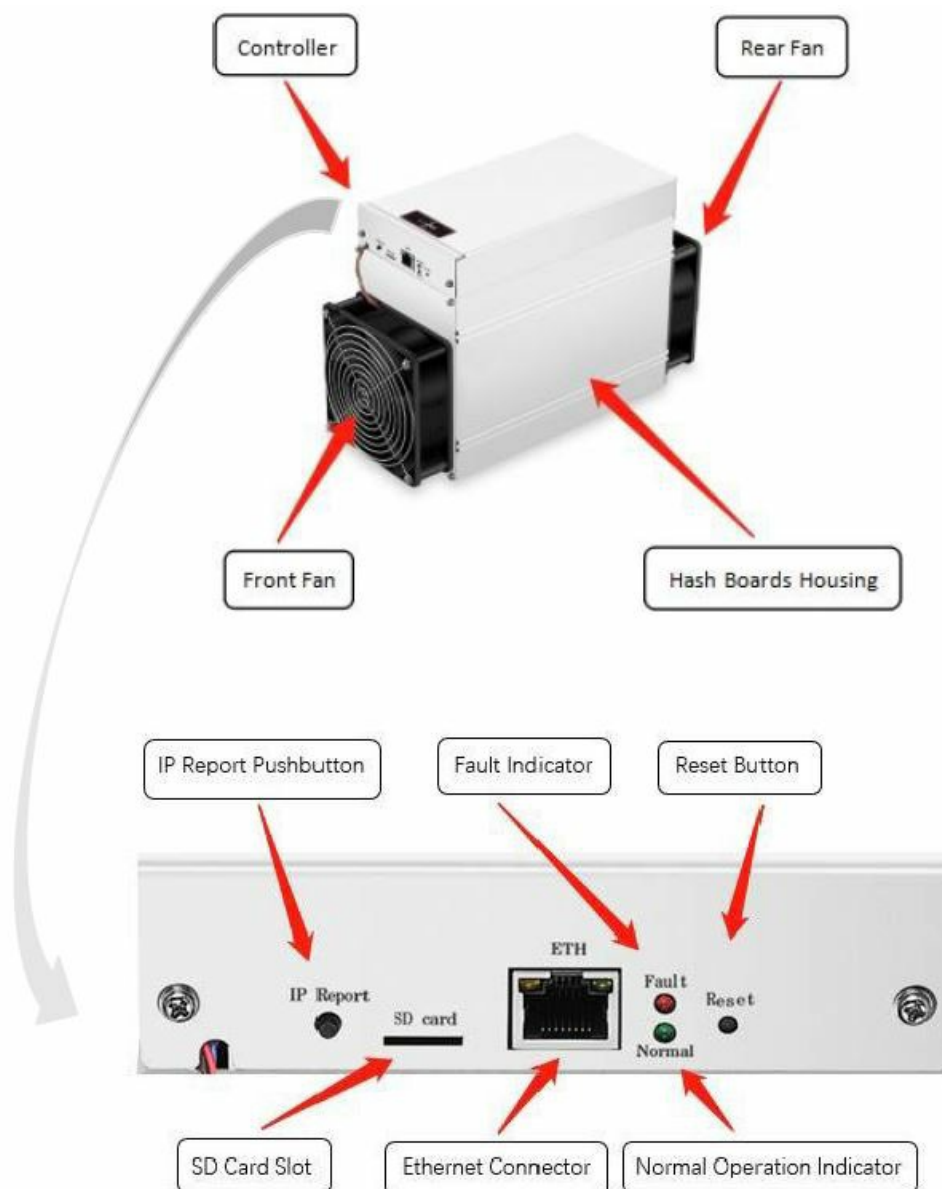


Placement

1. You must provide your own ATX power supply.
2. Please refer to the layout above to place your goods in usage in case of any damage.

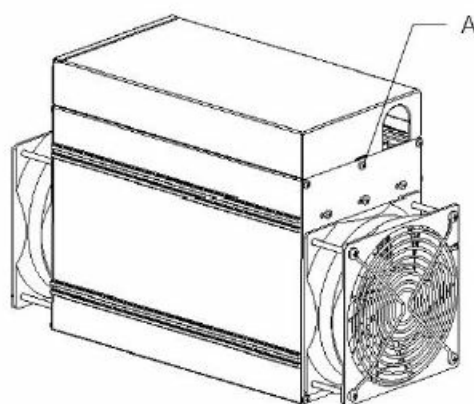
Components

The main components and controller front panel of the S9k server are shown in the following figure:



Connecting to the Power Supply

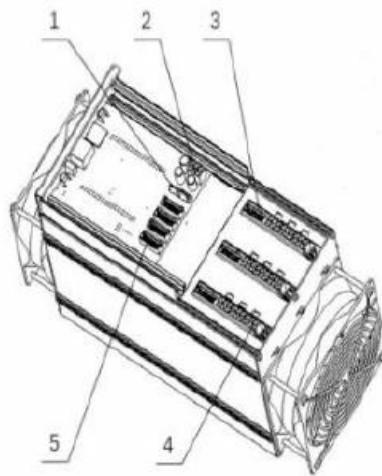
1. Remove the screw at the position indicated by A with a cross screwdriver.



2. Lift the upper cover of the control board upward at the direction indicated by the arrow shown in the figure and then pull it in the upper rear direction.

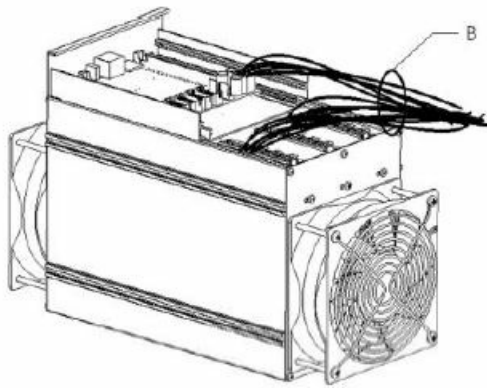


3. The position and name of the socket are shown in the figure below after removing the upper cover of the control board.

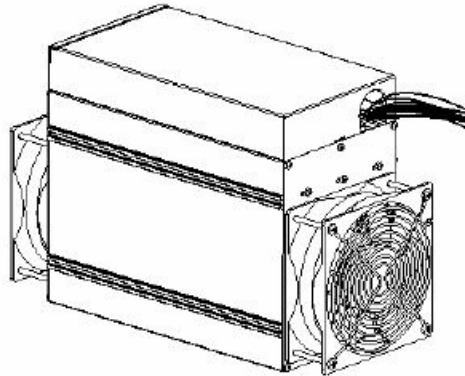


No.	Item	Quantity
1	Fan Socket	2
2	Main Control PSU Socket	1
3	Hashboard Signal Socket	3
4	Hashboard PSU Socket	9
5	Main Control Board PSU Socket	4

4. Connecting the external power supply to the corresponding socket of the server and then bind the cables at the position indicated by B.



5. Put the upper cover of the control board back in place and fix the screw at the position indicated by A. Note that the bundled cables shall be placed into the U-shaped hole.



Warning: Energy Hazards!

- Please be sure to follow the manual for installation.
- Risk of injury due to energy hazard exists inside.
- Be sure to close the metal cover before powering on the equipment, otherwise there is a risk of injury.
- Be sure to use an external power supply which was approved according to IEC 60950-1:2005 + A1 + A2 or IEC 62368-1:2014. The external power supply shall provide SELV output and be evaluated.

Specifications

- **Model No.:** 120-K
- **Version:** S9k

Product Glance	Value
Crypto Algorithm/Coins	SHA256/BTC/BCH
Hashrate, TH/s	13.50
Reference power on the wall, Watt	1148
Reference power efficiency on wall @25°C, J/TH	85.00
Adapted AC/DC output requirement, Watt/ Volt	1389/12.00

Detailed Characteristics	Value		
	Min	Typ	Max
Hashrate & Power			
Hashrate, TH/s		13.50	13.95
Power efficiency on wall @25°C, J/TH⁽¹⁻¹⁾	85.00		90.95
Power efficiency on wall @40°C, J/TH⁽¹⁻²⁾	90.07		96.37
Reference power on the wall, Watt⁽¹⁻³⁾	1148		1344
DC input voltage range, Volt⁽¹⁻⁴⁾	11.60	12.00	13.00
DC input current range, Amp⁽¹⁻⁵⁾		95.7	115.9
Adapted AC/DC output power requirement, Watt⁽¹⁻⁶⁾	1250	1389	
Hardware Configuration			
Quantity of hash chips	180		
Quantity of hash boards	3		
Networking connection mode	RJ45 ethernet 10/100M		
Server Size (Length*Width*Height, w/o package), mm⁽²⁻¹⁾	298.0*129.6*187.5/321.3*129.6*200.0		
Net weight, kg⁽²⁻²⁾	3.95/4.50		
Noise, dBA @25°C⁽²⁻³⁾			76
Environment Requirements			
Operation temperature,°C	0	25	40
Storage temperature,°C	-40	25	85
Operation humidity, RH	5%		95%

Notes:

- (1-1) Refers to PSU power conversion efficiency of 93%.
- (1-2) Refers to PSU power conversion efficiency of 93%.
- (1-3) Min condition: 25°C, minJ/TH, typical hash rate.
 - Max condition: 40°C, max J/TH, max hash rate.
 - Refers to PSU power conversion efficiency of 93%.
- (1-4) Caution: Wrong input voltage may probably cause server damage.
- (1-5) Typ condition: min reference power, typical DC input voltage.
 - Max condition: max reference power, min DC input voltage.
- (1-6) Min condition: 40°C, max J/TH, max hash rate, PSU output power should be no less than the min value to make sure mining is stable.

Typical condition: (typical power) = (min power)/90%, leave power output margin for PSU.

Caution: It is strongly recommended that using typical power can make sure your server works well. You can

use one PSU to power multiple boards. Do not attempt to power one board with more than one PSU. All PCI-E ports are required to plug in while powering up the board.

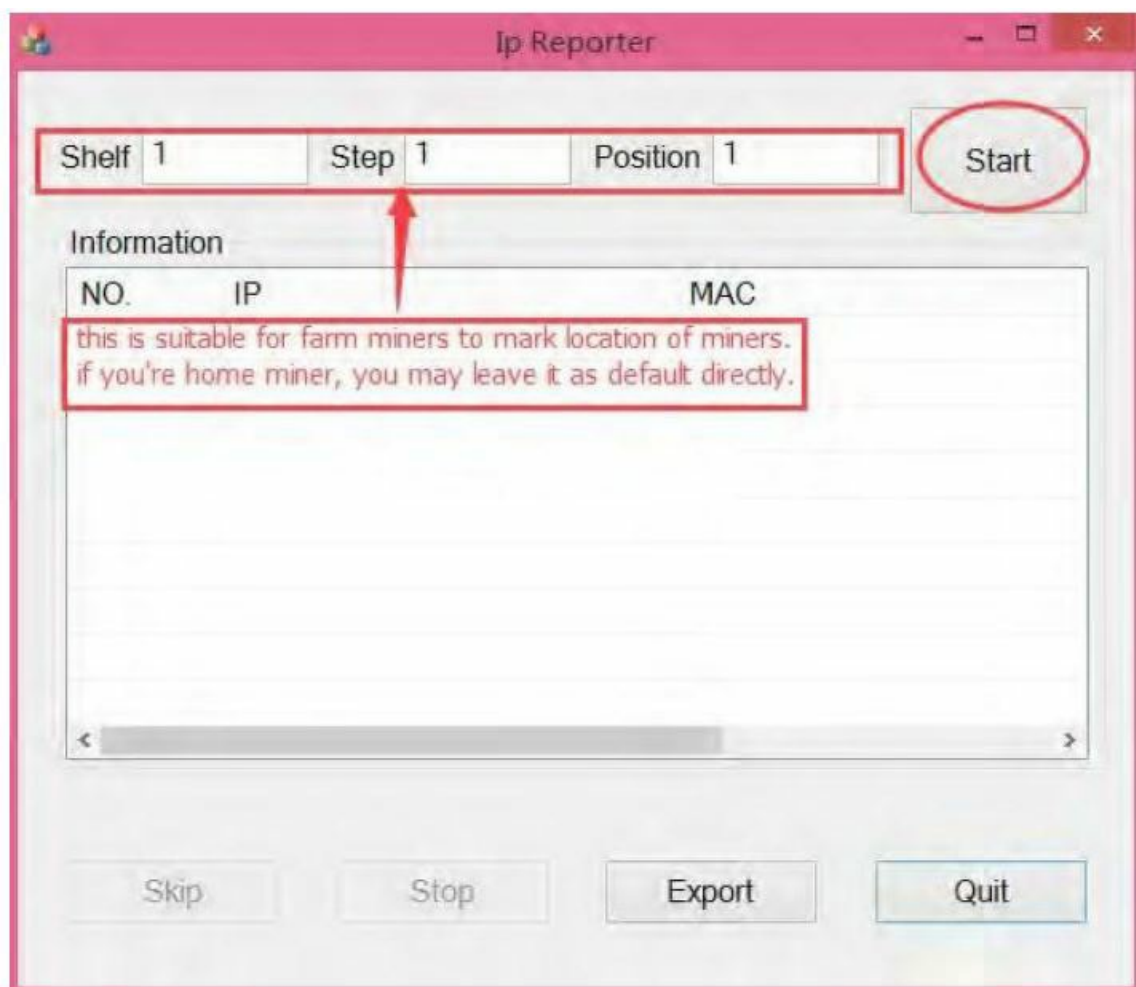
- (2-1) Domestic and international versions.
- (2-2) Domestic and international versions.
- (2-3) Max condition: Fan is under max RPM(rotation per minute).

Setting Up the Server

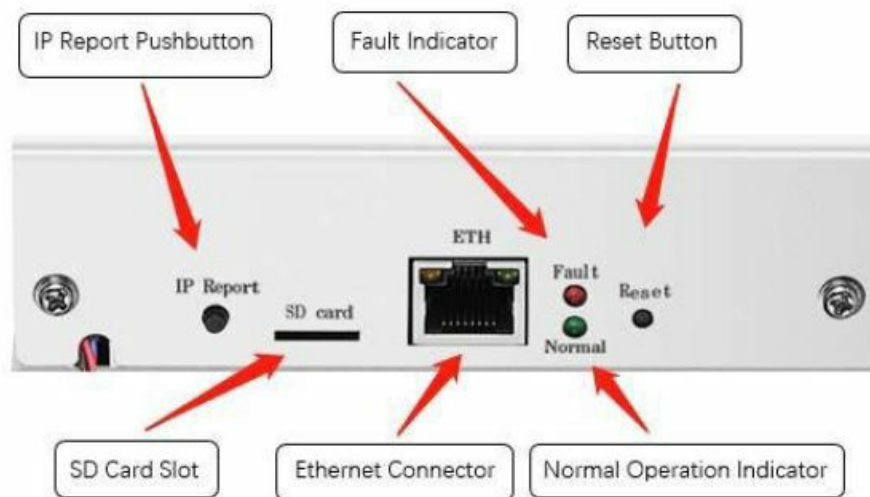
To set up the server:

The file IPReporter.zip is supported by Microsoft Windows only.

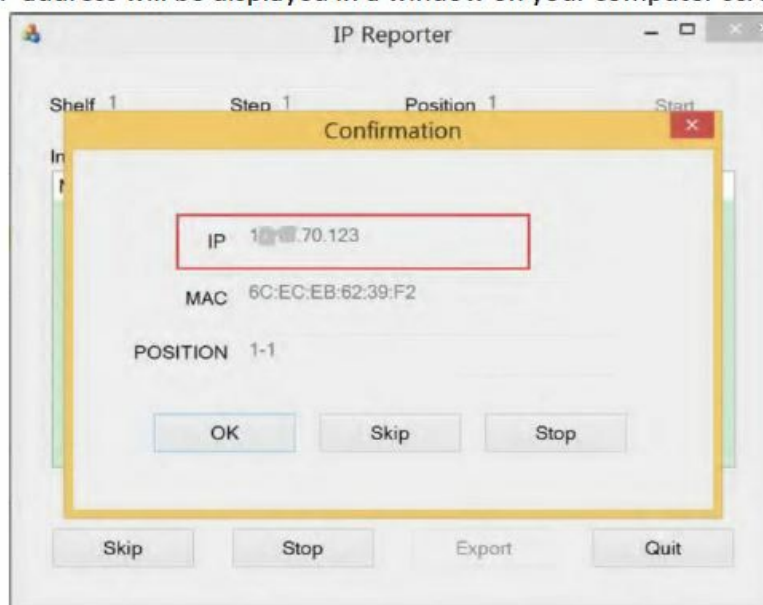
1. Go to the following site: <https://shop.bitmain.com/support/download>.
2. Choose 'Others' and download the following file: IPReporter.zip.
3. Extract the file.
 - The default DHCP network protocol distributes IP addresses automatically.
4. Right-click IPReporter.exe and run it as Administrator.
5. Select one of the following options:
 - Shelf, Step, Position – suitable for farm servers to mark the location of the servers.
 - Default – suitable for home servers.
6. Click Start.



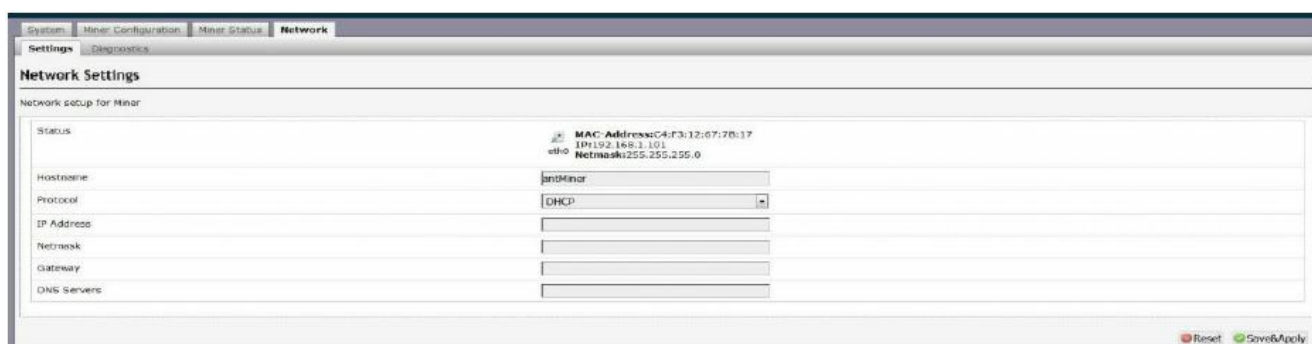
7. On the controller board, click the IP Report button. Hold it down until it beeps (about 5 seconds).



The IP address will be displayed in a window on your computer screen.



8. In your web browser, enter the IP address provided.
9. Proceed to login using root for both the username and password.
10. In the Network section, you can assign a DHCP IP address (optional).
11. Click Save & Apply.



Configuring the Server

Setting Up the Pool

To configure the server:

1. click General Settings.

The screenshot shows the 'Miner General Configuration' window. It has three tabs: 'System', 'Miner Configuration', and 'Network'. The 'Miner Configuration' tab is active. It contains three sections for Pool 1, Pool 2, and Pool 3. Each section has fields for URL, Worker, and Password. Pool 1 URL is 'stratum+tcp://stratum.antpool.com:3333', Worker is 'antminer_1', and Password is '123'. Pool 2 URL is 'stratum+tcp://stratum.antpool.com:443', Worker is 'antminer_1', and Password is '123'. Pool 3 URL is 'stratum+tcp://stratum.antpool.com:25', Worker is 'antminer_1', and Password is '123'. At the bottom right, there are 'Reset' and 'Save & Apply' buttons.

2. Set the options according to the following table:

Option	Description
Pool URL	<p>Enter the URL of your desired pool.</p> <p>The S9k server can be set up with three mining pools, with decreasing priority from the first pool (pool 1) to the third pool (pool 3).</p> <p>The pools with low priority will only be used if all higher-priority pools are offline.</p>
Worker	Your worker ID on the selected pool.
Password	The password for your selected worker.

3. Click Save & Apply to save and restart the server.

Monitoring Your Server

To check the operating status of your server:

1. Click the status marked below.

Here is an example of an S9k-13.5T server:

The screenshot shows the 'Miner Status' page. It has a 'Summary' section with metrics like Elapsed, GH/s(BT), GH/s(avg), Found Blocks, Local Work, Uptime, WU, and BestShare. Below this is a 'Pools' table with columns for Pool, URL, User, Status, DIF, GetWork, Priority, Accepted, Diff, Diff%, Diff#, Diff#, Diff#, Diff#, Rejected, Discarded, State, LSRBT, and LSTime. The 'AntMiner' section shows a table with columns for Chub#, ASIC#, Frequency, GH/s(BT), HW, Temp(PCB), Temp(CHIP), and ASIC status. At the bottom, there are 'Fan#', 'Fan#', and 'Fan#' labels.

Note: The S9k server is with automatic frequency. Firmware will stop running when the Temp(PCB) reaches 85°C or the Temp(Chips) reaches 105°C, there will be an error message “Fatal Error: Temperature is too high!” shown at the bottom of the kernel log page.

2. Monitor your server according to the descriptions in the following table:

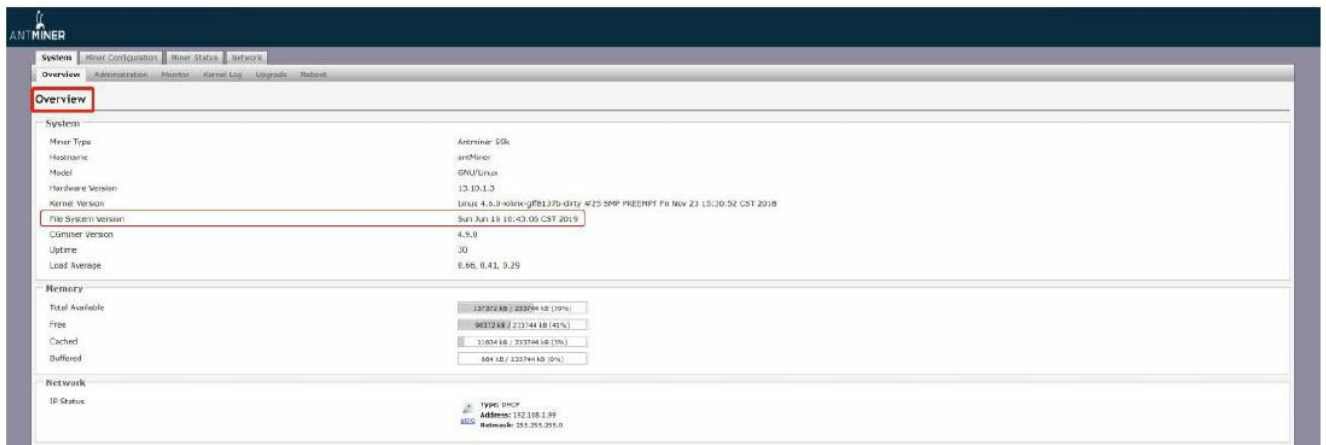
Option	Description
ASIC#	Number of chips detected in the chain.
Frequency	ASIC frequency setting.
GH/S(RT)	The hash rate of each hash board (GH/s).
Temp(PCB)	The temperature of each hash board (°C). (Applied only to servers with fixed frequency).
Temp(Chip)	The temperature of the chips on each hash board (°C).
ASIC status	<p>One of the following statuses will appear:</p> <ul style="list-style-type: none"> ● O - indicates OK ● X - indicates an error ● - - indicates dead

Administering Your Server

Checking Your Firmware Version

To check your firmware version:

1. In System, click the Overview tab.
2. File System Version displays the date of the firmware your server uses. In the example below, the server is using firmware version 20190616.



Upgrading Your System

Make sure that the S9k server remains powered during the upgrade process. If power fails before the upgrade is completed, you will need to return it to Bitmain for repair.

To upgrade the server's firmware:

1. In System, click Upgrade.

2. For Keep Settings:

- Select the check box to keep your current settings (default).
- Clear the check box to reset the server to default settings.

3. Click the (Browse) button and navigate to the upgrade file. Select the upgrade file, then click Flash Image. A message appears notifying you if the S9k firmware can be upgraded and if yes, will then proceed to flash the image.

4. When the upgrade is completed, the following message appears:

5. Click one of the following options:

- Reboot - to restart the server with the new firmware.
- Go Back - to continue mining with the current firmware. The server will load the new firmware next time when it is restarted.

Modifying Your Password

To change your login password:

1. In the System, click the Administration tab.
2. Set your new password, then click Save & Apply.

Restoring Initial Settings

To restore your initial settings

1. Turn on the server and let it run for 5 minutes.

2. On the controller front panel, press and hold the Reset button for 10 seconds.

Resetting your server will reboot it and restore its default settings. The red LED will automatically flash once every 15 seconds if the reset is operated successfully.

Environmental Requirements

Please run your server by the following requirements

Basic Environmental Requirements:

Climatic Conditions:

Description	Requirement
Operating Temperature	0-40°C
Operating Humidity	10-90%RH (non-condensing)
Storage Temperature	-20-70°C
Storage Humidity	5-95%RH non-condensing
Altitude	<2000m

Site Requirements of the Server Running Room:

- Please keep the server running room away from industrial pollution sources:
- For heavy pollution sources such as smelters and coal mines, the distance should be more than 5km.
- For moderate pollution sources such as chemical industries, rubber and electroplating industries, the distance should be more than 3.7km.
- For light pollution sources such as food factories and leather processing factories, the distance should be more than 2km.
- If unavoidable, the site should be chosen in the perennial upwind direction of the pollution source.
- Please do not set your location within 3.7km from the seaside or the salt lake. If unavoidable, it should be built as airtight as possible, and equipped with air conditioning for cooling.

Electromagnetic Environmental Conditions:

Please keep your site away from transformers, high-voltage cables, transmission lines and high-current equipment, for example, there should be no high-power AC transformers (>10KA) within 20 meters, and no high-voltage power lines within 50 meters. Please keep your site away from high-power radio transmitters, for example, there should be no high-power radio transmitters (>1500W) within 100 meters.

Other Environmental Requirements

The server running room shall be free of explosive, conductive, magnetically conductive and corrosive dust. The requirements of mechanical active substances are shown below:

Requirements of Mechanical Active Substances

Mechanical Active Substance	Requirement
Sand	$\leq 30\text{mg/m}^3$
Dust (suspended)	$\leq 0.2\text{mg/m}^3$
Dust (deposited)	$\leq 1.5\text{mg/m}^2\text{h}$

Requirements of Corrosive Gas

Corrosive Gas	Unit	Concentration
H ₂ S	ppb	< 3
SO ₂	ppb	< 10
Cl ₂	ppb	< 1
NO ₂	ppb	< 50
HF	ppb	< 1
NH ₃	ppb	< 500
O ₃	ppb	< 2
Note: ppb (part per billion) refers to the unit of concentration, and 1 ppb stands for the volume ratio of part per billion.		

Regulations

FCC Notice (FOR FCC CERTIFIED MODELS):

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used per the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



EU WEEE: Disposal of Waste Equipment by Users in Private Households in the European Union

This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Documents / Resources

	<p>BITMAIN S9k Server [pdf] Installation Guide</p> <p>S9k Server, S9k, Server</p>
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References

-  [BITMAIN](#)
-  [BITMAIN](#)
- [User Manual](#)

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