



RigRunner User Guide

ePIC UMC OS

Last updated: February 2026

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Introduction

ePIC UMC OS enables users to install ePIC firmware directly onto an **Amlogic** stock control board, offering a flexible alternative to using ePIC UMC boards. This approach allows broader access to ePIC's advanced firmware features while maintaining compatibility with existing equipment without physical access.

UMC OS can be simply installed through **RigRunner** application:

- **RigRunner:** A user-friendly application designed for efficient fleet installation. RigRunner allows users to **scan**, **install**, and **uninstall UMC OS** across multiple rigs with ease, just like ePIC Dashboard, making it a convenient option for managing large deployments without needing command-line expertise.

Users can choose between purchasing a license key or opting for the **1.5%** dev fee option—whichever best aligns with their operational strategy and preferences.

Setup

Requirement

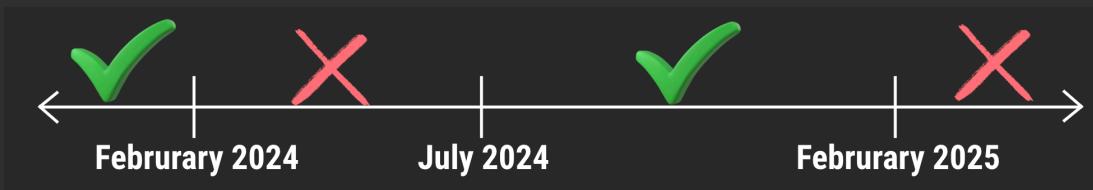
- Compatible stock firmware versions are as follows:

Works

- **February 2024 or prior**
- **July 2024 or newer up to February 2025**

Does NOT work

- **March - June 2024**



Click the model below to find the stock firmware if needed.

[S21x firmware](#)

[S19x firmware](#)

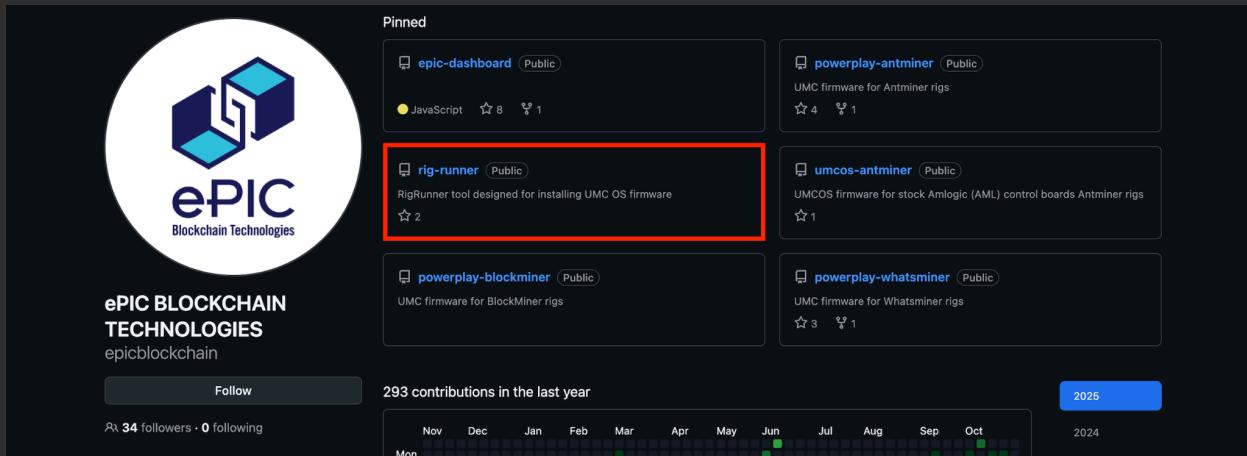
- Miner's IP address
- **RigRunner** installed
 - Download **RigRunner** here: <https://github.com/epicblockchain/rig-runner>
- **UMCOS** firmware downloaded
 - Download UMC OS here: <https://github.com/epicblockchain/umcos-antminer>

RigRunner

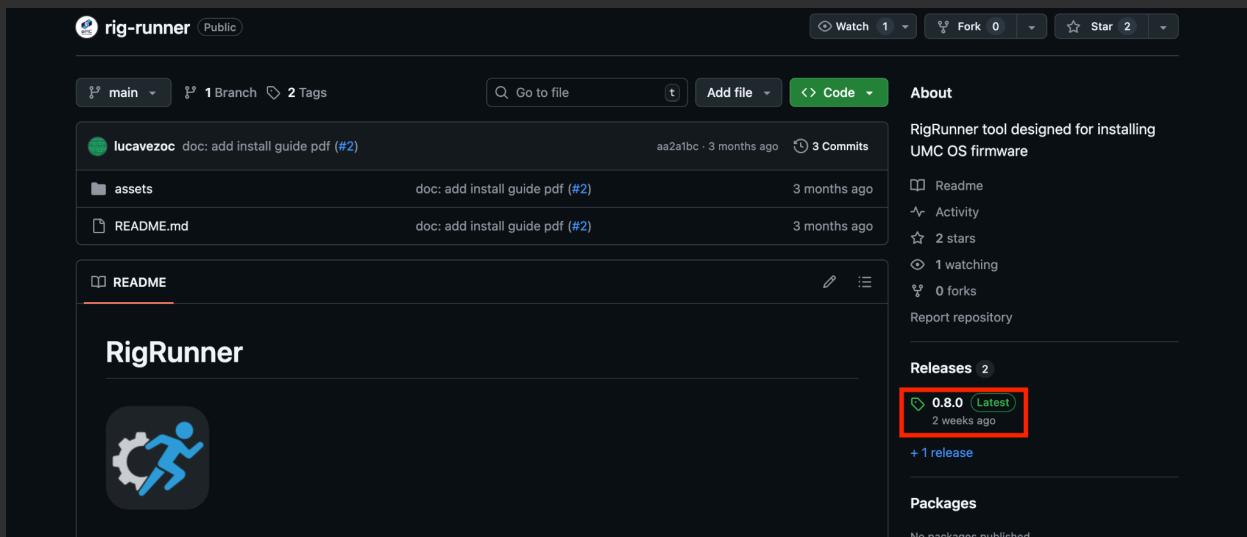


Installation

1. Go to ePIC Github page and click **rig-runner**.



2. Click the latest release on the right-hand panel.





3. Select the installer for your operating system and follow the instructions.

Releases / 0.8.0

0.8.0 Latest

epicblockchain released this 2 weeks ago 0.8.0 aa2a1bc

doc: add install guide pdf (#2)

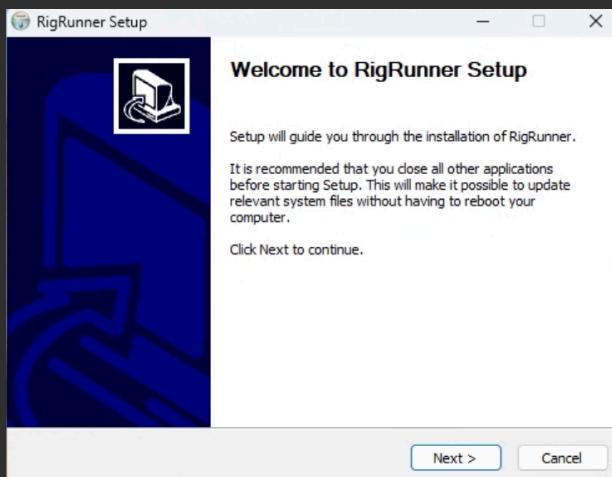
▼ Assets 6

| | | | | |
|-------------------------------|--------------------------------------|--|---------|-------------|
| RigRunner_0.8.0_amd64.deb | sha256:6e6cb9f9f51dee3480b741877... | | 10.2 MB | 2 weeks ago |
| RigRunner_0.8.0_x64-setup.exe | sha256:ed2e72a30eb0687b55855da632... | | 6.46 MB | 2 weeks ago |
| RigRunner_0.8.0_x64.dmg | sha256:fec80654dfe81046f3713e0982... | | 11.2 MB | 2 weeks ago |
| RigRunner_0.8.0_x64_en-US.msi | sha256:c8946de755de70473475945c01... | | 9.09 MB | 2 weeks ago |
| Source code (zip) | | | | Nov 3, 2025 |
| Source code (tar.gz) | | | | Nov 3, 2025 |

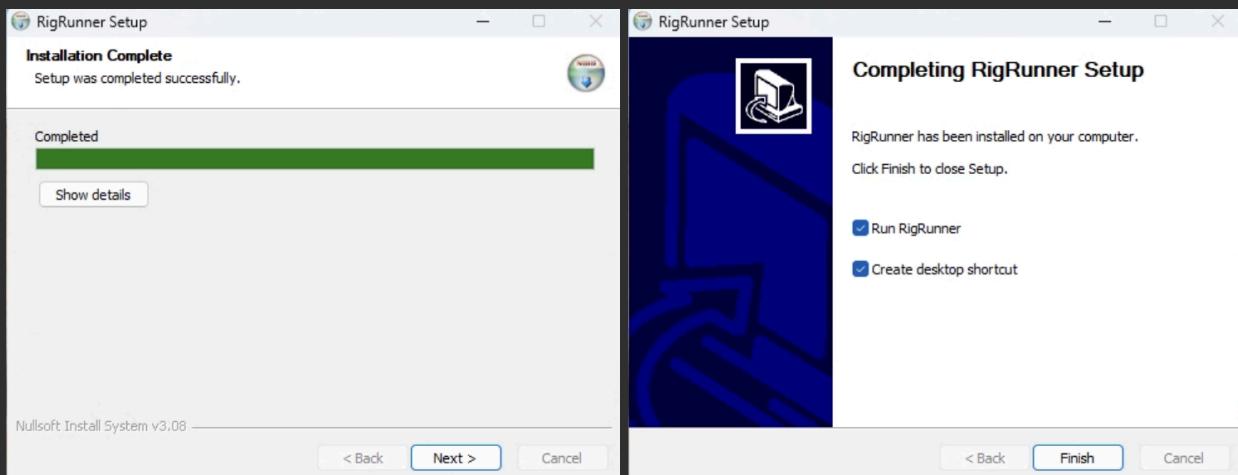
For Windows

RigRunner_<version>_<arch>-setup.exe

1. Click to download the .exe file and run the installer.



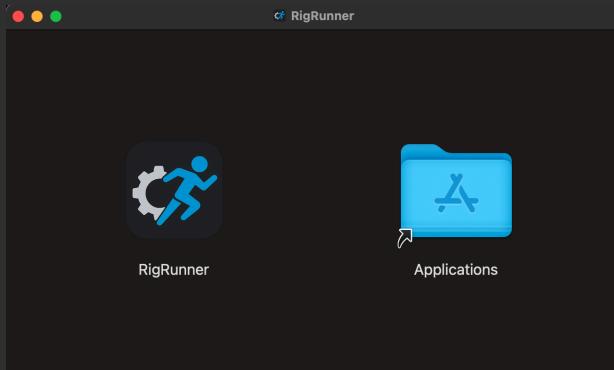
2. Follow the instructions to complete RigRunner setup.



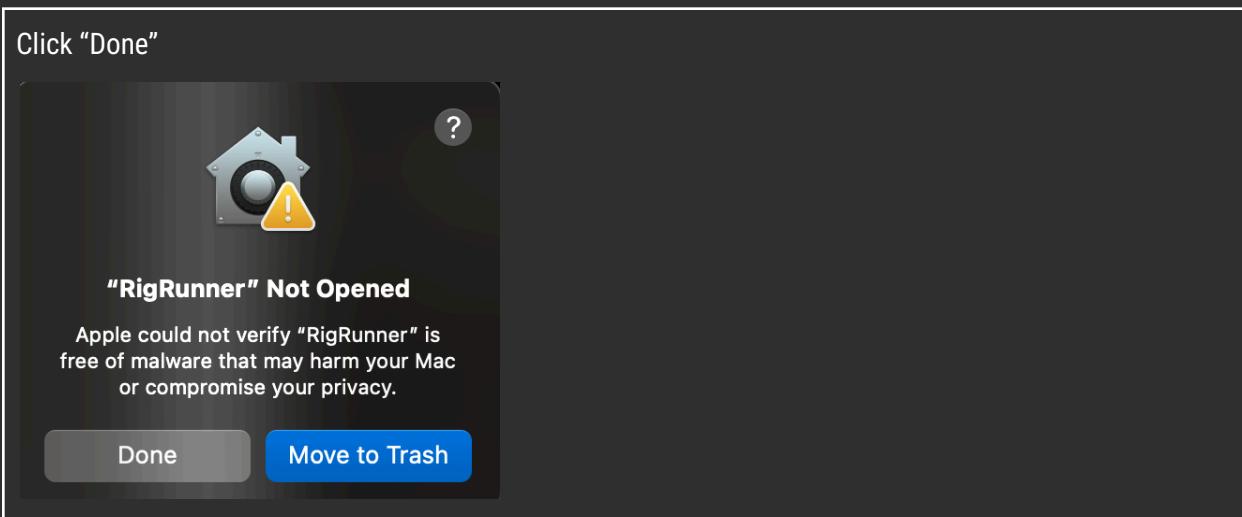
For MacOS

RigRunner_<version>_<arch>.dmg

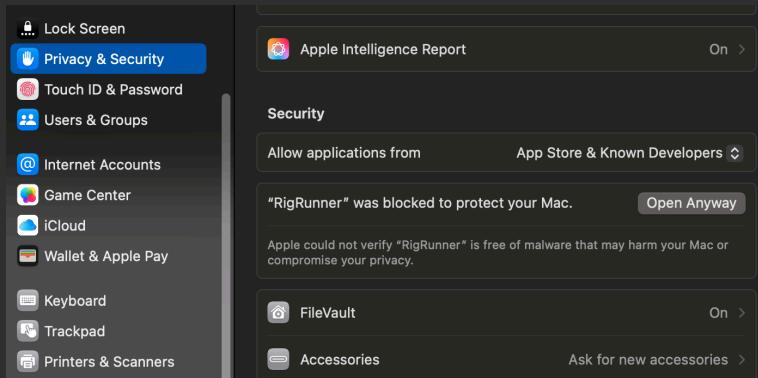
1. Click to download the .dmg file and drag it to the Applications folder.



2. Follow the below instructions.



Navigate to System Settings > Privacy & Security > Scroll down and click "**Allow Anyway**"

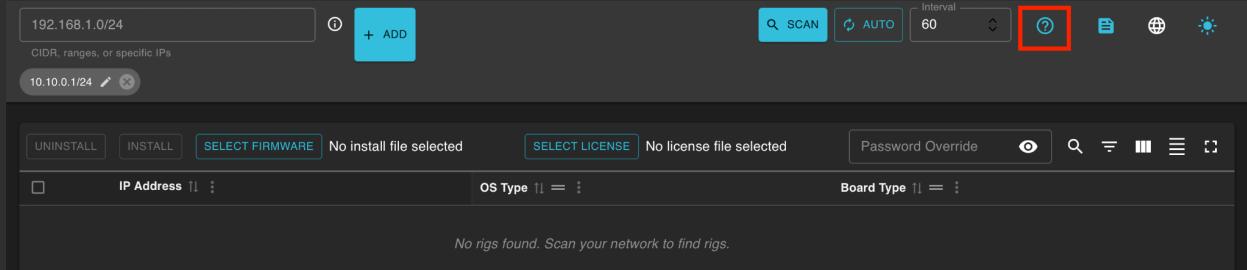


Open the app again and click "**Open Anyway**"



Instruction

1. Open the **RigRunner** application. Refer to the interactive user guide for more details.



2. Enter your IP address(s) to detect miners on your network.

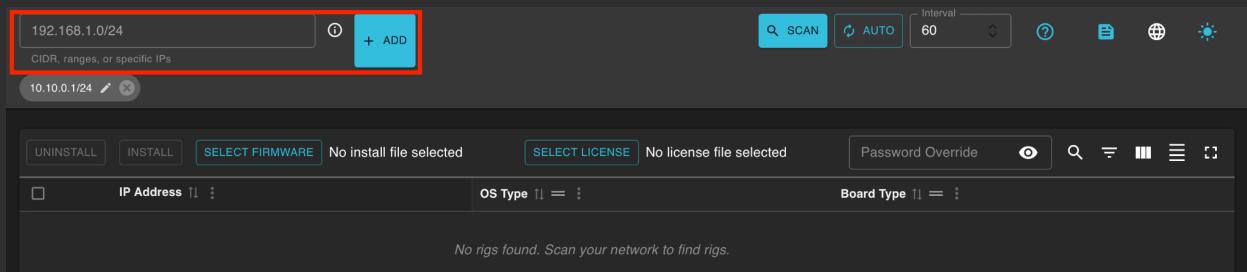
For example

All 256 addresses: **192.168.1.0/24**

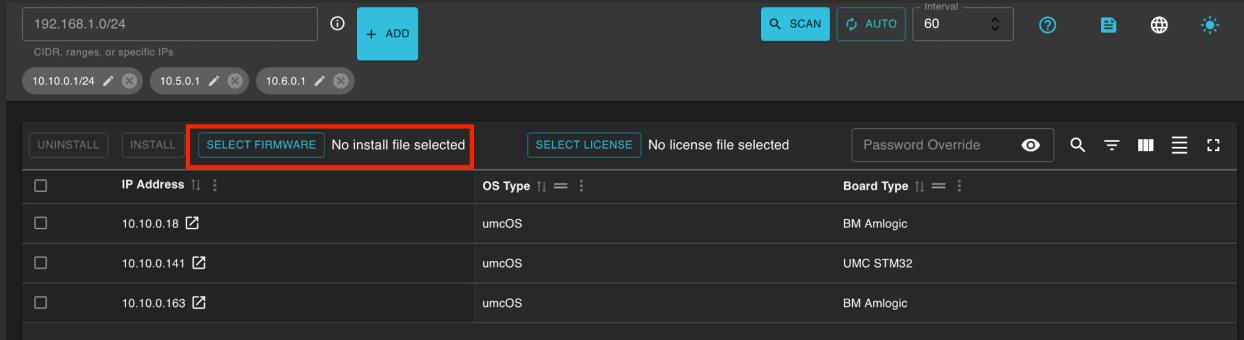
Specific range: **192.168.1.1-254**

Multiple IPs: **192.168.1.10,20,30**

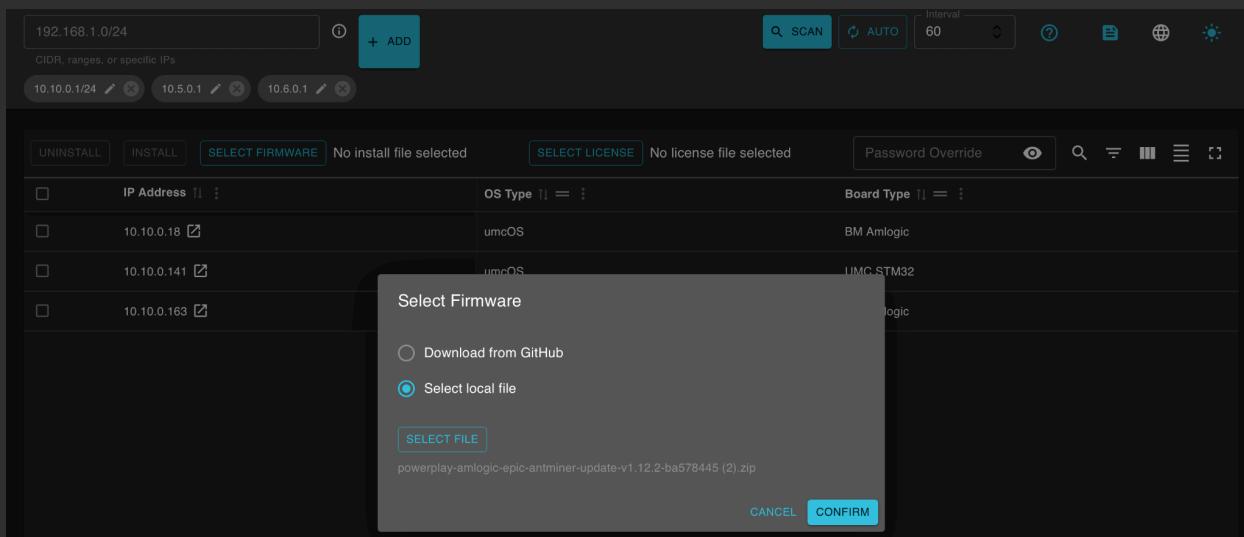
Single IP: **192.168.1.100**



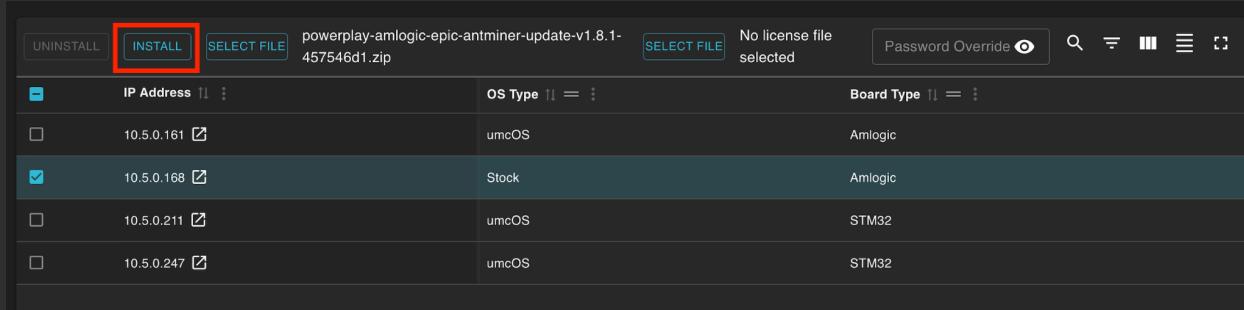
4. Once your miners are detected, click “SELECT FILE” to load the firmware.



5. Load the **UMC OS** firmware directly from ePIC Github or select the .zip from your local folder.
<https://github.com/epicblockchain/umcos-antminer/releases>

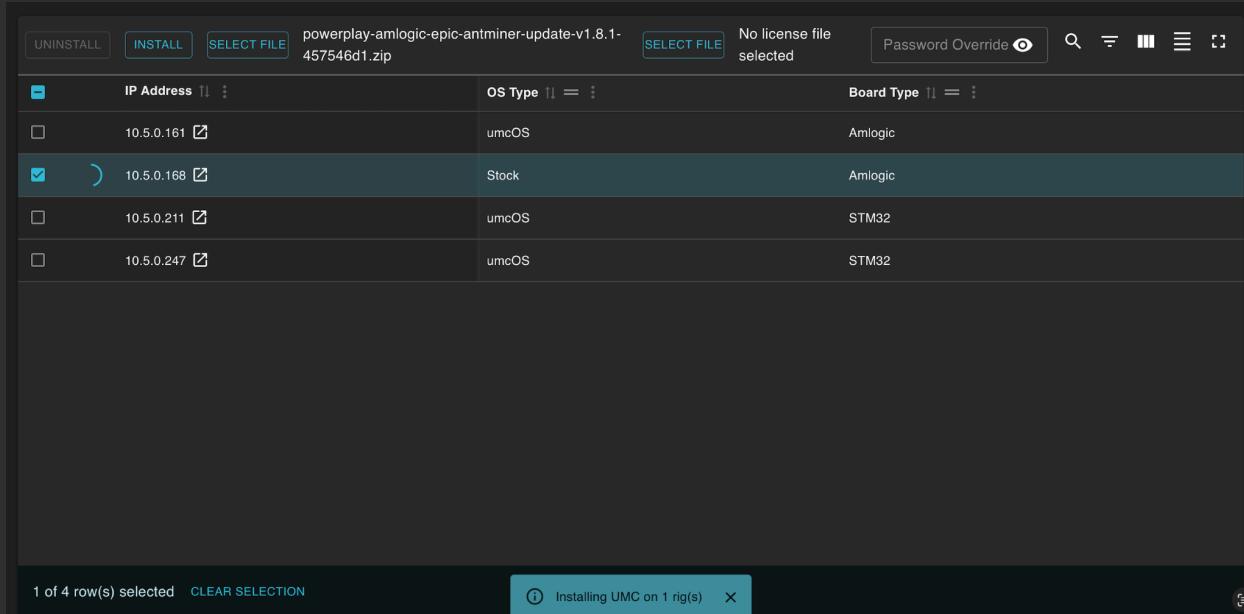


6. Select the miner(s) with Amlogic board type that you wish to install **UMC OS** on, then click "INSTALL"



| IP Address | OS Type | Board Type |
|--|---------|------------|
| 10.5.0.161 | umcOS | Amlogic |
| <input checked="" type="checkbox"/> 10.5.0.168 | Stock | Amlogic |
| 10.5.0.211 | umcOS | STM32 |
| 10.5.0.247 | umcOS | STM32 |

7. Do not close the application during installation. After the installation is complete, refresh the web page to ensure everything is running properly.



1 of 4 row(s) selected [CLEAR SELECTION](#)

Installing UMC on 1 rig(s)

Demo

Click [here](#) to watch our demo video on ePIC Github.

ePIC Webdash

Control Panel

| | |
|--|---|
|  RESET TO DEFAULT | Sets the machine back to stock mode with reinstallation of the system |
|  STOP MINING  START MINING | Stops/starts the miner |
|  RESTART | Restarts mining software without rebooting the miner |
|  REBOOT | Shuts down the miner and turns back on |
|  LOCK | Locks/unlocks the Webdash for security |

Unlocking Miner: To access Webdash, the default password is ***letmein***

Dashboard

View the status of a miner in real-time

Configuration options



Real-time mining status



Pool status

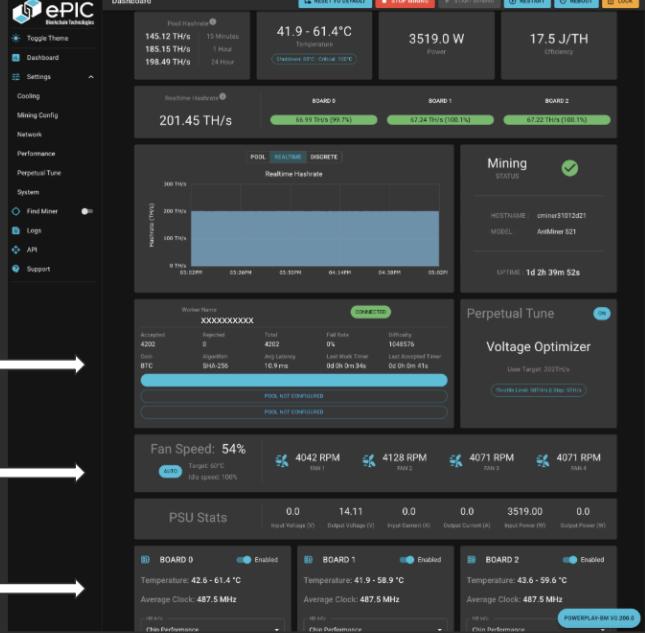


Fan status



Hasboard information



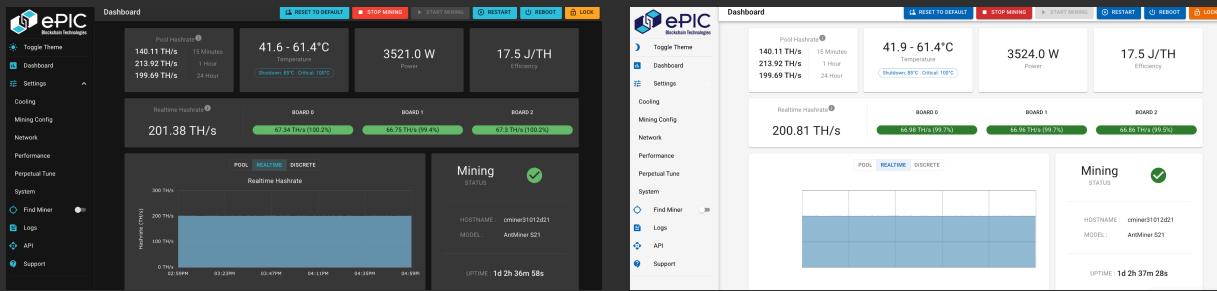


The dashboard provides a comprehensive overview of the miner's performance and system health. Key metrics include:

- Real-time Hashrate:** 201.45 TH/s
- Power:** 3519.0 W
- Efficiency:** 17.5 J/TH
- Temperature:** 41.9 - 61.4°C
- Pool Hashrate:** 145.12 TH/s (15 Minutes), 185.15 TH/s (1 Hour), 198.49 TH/s (24 Hour)
- Mining Status:** Enabled, Hostname: eminer91012021, Model: Antminer S21, Uptime: 1d 2h 39m 52s
- Perpetual Tune:** Accepted: 4200, Injected: 4002, Total: 4002, Full rate: 0%, Difficulty: 1046576, Target: 60.9 ms, Last Sync: 0d 0h 0m 34s, Last Throttled: 0d 0h 0m 43s
- Voltage Optimizer:** User Target: 205TH/s, Throttle Limit: 0TH/s (Step 0ms)
- Fan Speed:** 54% (4042 RPM, 4128 RPM, 4071 RPM, 4071 RPM)
- PSU Stats:** Input Voltage (V), Output Voltage (V), Input Current (A), Output Current (A), Input Power (W), Output Power (W)
- Hasboard Information:** BOARD 0 (Temperature: 42.6 - 61.4 °C, Average Clock: 487.5 MHz), BOARD 1 (Temperature: 41.9 - 58.9 °C, Average Clock: 487.5 MHz), BOARD 2 (Temperature: 43.6 - 59.6 °C, Average Clock: 487.5 MHz)

Toggle Theme

Customize Webdash colour scheme to your preference



Dark Mode

Light Mode

Settings

Configure cooling, tuning and, networking options

Cooling

TEMPERATURE

Temperature Guards
Manually set the temperature guards. Shutdown temperature is the temperature at which the miner will shut down and can self-restart to check if temperature has cooled. Critical temperature is the temperature at which the miner stays idle.

60°C 110°C

85 °C 100 °C
Shutdown Critical

APPLY

TEMPERATURE

When the shutdown temperature is reached, the miner will throttle down and restart automatically. When the critical temperature is reached, the miner will remain idle.

Note: It is recommended to keep the shutdown temperature below 95°C for safety

FANS

Fan Speed
AutoFan
Set the operating temperature of autoFan: 45°C 75°C
Set the fan speed when idle: 60 °C 100 %

APPLY

FANS

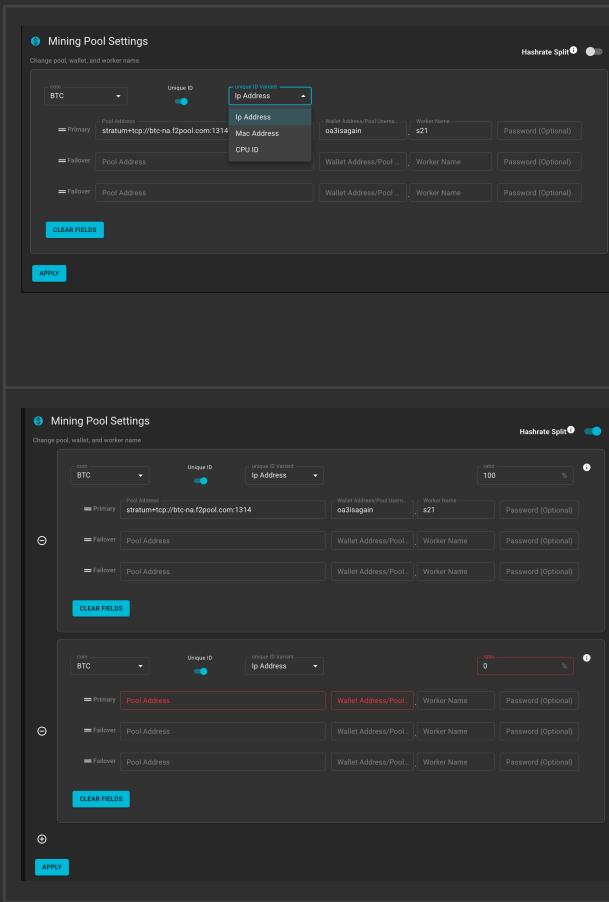
Manually adjust the fan speed or enable **AutoFan**. The operating temperature can be set for AutoFan and specify the fan speed when idle.

Minimum Working Fans Required
Get the minimum number of fans required to be running: 0 100

APPLY

Minimum Working Fans Required
Note: Enabling AutoFan is recommended for better efficiency and safety.

Mining Config



The screenshot shows the 'Mining Pool Settings' section of the ePIC Mining Config interface. It includes fields for pool type (BTC), unique ID (Ip Address), and hashrate split (100%). It also shows three backup pool addresses and their respective wallet addresses and worker names.

Mining Pool Settings

Fill in the main pool information along with 1-2 backup pools in case of disconnection from the pool.

Then click "Apply".

"Unique ID" will append a unique miner ID to the end of the worker name if enabled, in the format: *Worker_address.Worker_name-unique_ID*

Hashrate Split

Fill in the pool information along with 1-2 backup pools.

Set up to four groups, ensuring the total ratio equals **100**.

Note: If you split three groups equally as 33:33:33, the first group will receive the remainder, making the final distribution 34:33:33 instead.

Network

 Network settings

DHCP

| | |
|--------------------------|----------------------------------|
| IP Address 10.5.0.172 | MAC Address 60:17:A0:9A:16:27 |
| DNS 10.5.0.1 | DNS2 (optional) |
| Mask 255.255.255.0 | Gateway 10.5.0.1 |

APPLY

DHCP is enabled by default.
To set a **Static IP**, disable the DHCP toggle and enter the IP address, DNS, Mask and Gateway, then hit "APPLY".

Note: ePIC dashboard(management tool) does NOT support setting static IPs across multiple miners.

Performance

 **Tune**

Change Clock or Voltage settings

Presets (Optional)

| | | |
|----------|----------|---------|
| 50 Mhz | 1400 Mhz | 489 MHz |
| 11.877 V | 15.182 V | 14.11 V |

APPLY

 **Advanced settings**

Overdrive mode
May provide better efficiency when overclocking (BM1366 ASIC chips only)

Disabled

APPLY

Tune

Manually change the **clock** or **voltage** of the miner. Presets are only available in S19J, S19J Pro, S19J Pro+, S19 XP, S19K Pro, S21, S21 Pro, S21 XP and T21

Advanced Settings

Overdrive Mode provides the advantage of overclocking during Voltage Optimizer.

Only available in S19K Pro and S19 XP

Perpetual Tune

Algorithms

RESET PERPETUAL TUNE STOP PERPETUAL TUNE

Voltage Optimizer

Maintain the target hashrate by perpetually adjusting voltage for efficiency. The system automatically throttles down the user-specified target hashrate when the rig temperature is within 2°C of the shutdown temperature. Conversely, the target is throttled up to the user-defined hashrate when the rig temperature is 7°C lower than the shutdown temperature.

Target: 202 TH/s Min Throttle: 50 TH/s Throttle Step: 5 TH/s

60TH/s 300TH/s

Chip Tune

Maintain the target hashrate by adjusting individual chip clocks to squeeze more performance while perpetually optimizing voltage for efficiency.

Board Tune (Experimental)

Maintain the target hashrate by perpetually adjusting board clocks to improve performance while optimizing voltage for efficiency. Tuners faster than chip tune while providing improved performance compared to Voltage Optimizer.

APPLY

Voltage Optimizer

Set the target hashrate, minimum throttle and throttle steps.

Voltage Optimizer maintains the target hashrate by adjusting **voltage**.

< 30 minutes to tune.

Note: When the miner's temperature is within 2°C of the shutdown temperature, it will throttle down. It will throttle back up once the miner's temperature drops 7°C below the shutdown temperature.

Algorithms

RESET PERPETUAL TUNE STOP PERPETUAL TUNE

Voltage Optimizer

Maintain the target hashrate by perpetually adjusting voltage for efficiency. The system automatically throttles down the user-specified target hashrate when the rig temperature is within 2°C of the shutdown temperature. Conversely, the target is throttled up to the user-defined hashrate when the rig temperature is 7°C lower than the shutdown temperature.

Target: 202 TH/s Min Throttle: 50 TH/s Throttle Step: 5 TH/s

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Maintain the target hashrate by perpetually adjusting board clocks to improve performance while optimizing voltage for efficiency. Tuners faster than chip tune while providing improved performance compared to Voltage Optimizer.

APPLY

Chip Tune

Set the target hashrate, minimum throttle and throttle steps. Please note that the hashrate on the dashboard will be -10TH.

Chip Tune maintains the target hashrate by adjusting **individual chip clocks** while perpetually optimizing voltage.

< 60 minutes to tune.

Note: When the miner's temperature is within 2°C of the shutdown temperature, it will throttle down. It will throttle back up once the miner's temperature drops 7°C below the shutdown temperature.

Algorithms

RESET PERPETUAL TUNE STOP PERPETUAL TUNE

Voltage Optimizer

Maintain the target hashrate by perpetually adjusting voltage for efficiency. The system automatically throttles down the user-specified target hashrate when the rig temperature is within 2°C of the shutdown temperature. Conversely, the target is throttled up to the user-defined hashrate when the rig temperature is 7°C lower than the shutdown temperature.

Target: 202 TH/s Min Throttle: 50 TH/s Throttle Step: 5 TH/s

60TH/s 300TH/s

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APPLY

Board Tune

Set the target hashrate, minimum throttle and throttle steps.

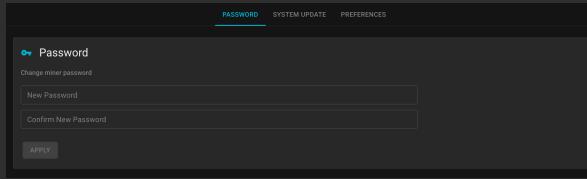
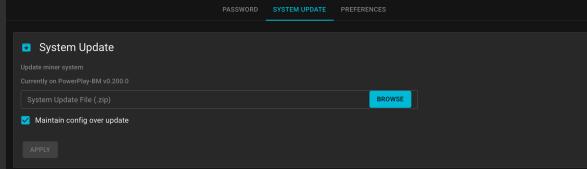
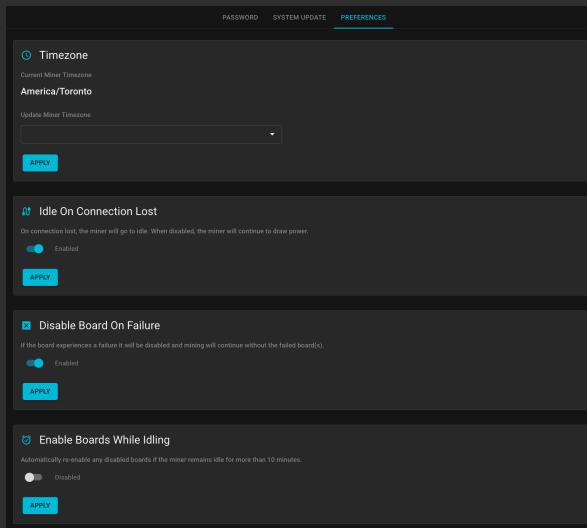
Board Tune maintains the target hashrate by adjusting **board clocks** while optimizing voltage

< 45 minutes to tune.

Note: When the miner's temperature is within 2°C of the shutdown temperature, it will throttle down. It will throttle back up once the miner's temperature drops 7°C below the shutdown temperature.

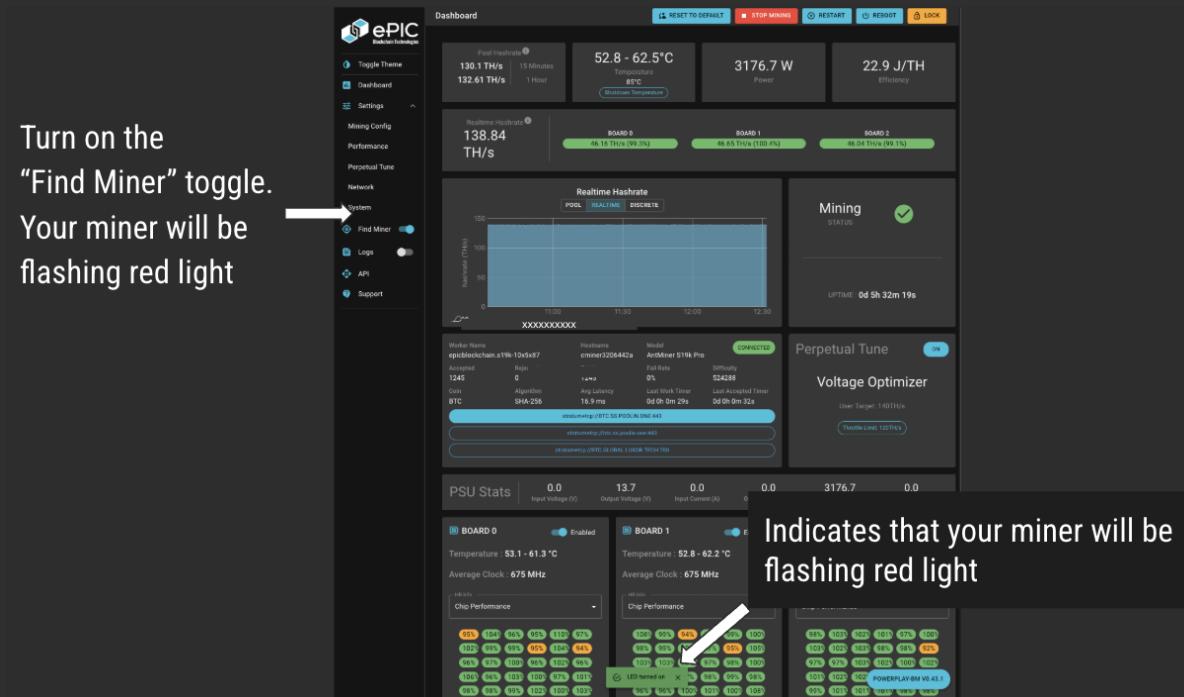
| | Voltage Optimizer | ChipTune | Board Tune |
|---------------------------|--|---|---|
| Adjusting Variable | Voltage | Individual chip clocks | Board clocks |
| Duration | < 30min | < 60min | < 45min |
| Use Case | If you have multiple miners and want long-term stability | If you have a few miners and want to maximize performance in a short period of time | If you have an S21 with mixed hashboards and want to optimize performance |

System

| | |
|---|--|
|  | <h3>PASSWORD</h3> <p>Enter your new password, confirm it then click “APPLY”</p> |
|  | <h3>SYSTEM UPDATE</h3> <ol style="list-style-type: none"> 1. Download the latest release of the UMC OS firmware from ePIC Github 2. Download the .zip file <i>powerplay-amlogic-epic-antminer-update-vxxxxxx.zip</i> 3. Upload it, then click “APPLY” <p>Note: The “Maintain config over update” will save your settings across the update. Your miner will take a few minutes to reboot and recalibrate.</p> |
|  | <h3>Idle On Connection Lost</h3> <p>Enabled means the miner will be stopped and be put in an idle state until network connection is re-established. Disable if consistent power draw is required.</p> <h3>Disable Board On Failure</h3> <p>If the board experiences a failure, it will be disabled and mining will continue without the failed board(s).</p> <h3>Enable Boards While Idling</h3> <p>If the miner remains idle for more than 10 minutes, it will automatically re-enable any disabled boards.</p> |

Find Miner

Turn on the
“Find Miner” toggle.
Your miner will be
flashing red light



The screenshot shows the ePIC Dashboard. On the left sidebar, the 'Find Miner' toggle is turned on, indicated by a green circle. On the right, a red light icon with a 'flashing' effect is displayed next to the text 'Indicates that your miner will be flashing red light'.

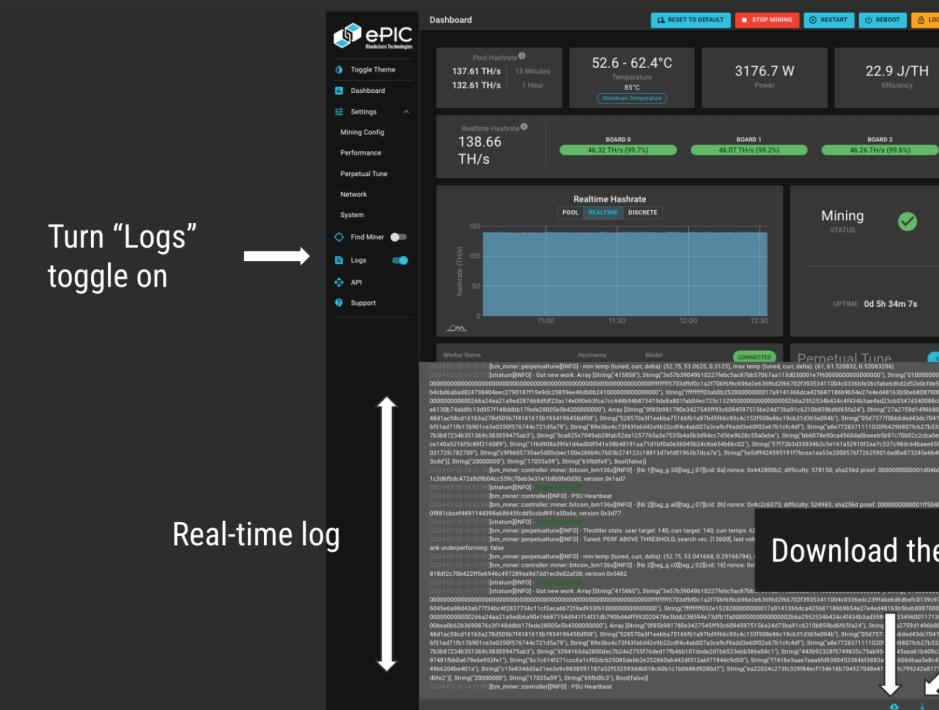
Logs

Turn “Logs”
toggle on

Real-time log

Download the logs

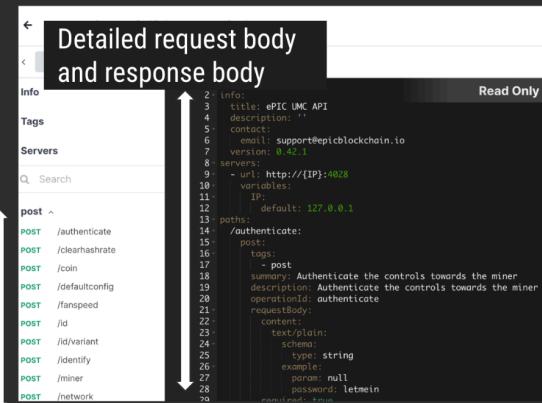
Scroll to bottom
Close the logs



The screenshot shows the ePIC Dashboard. On the left sidebar, the 'Logs' toggle is turned on, indicated by a green circle. Below it, a 'Real-time log' section is shown with a scrollable text area. At the bottom of the log area, there are buttons for 'Download the logs', 'Scroll to bottom', and 'Close the logs'.

API

POST & GET



To GET data from a server, Miner's_IP:4028/GET_command

Servers

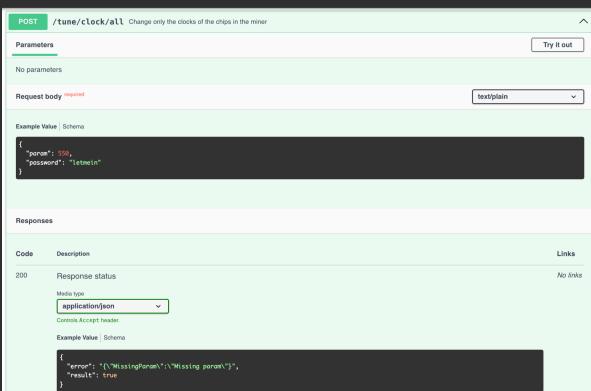
Computed URL:

Server variables

IP

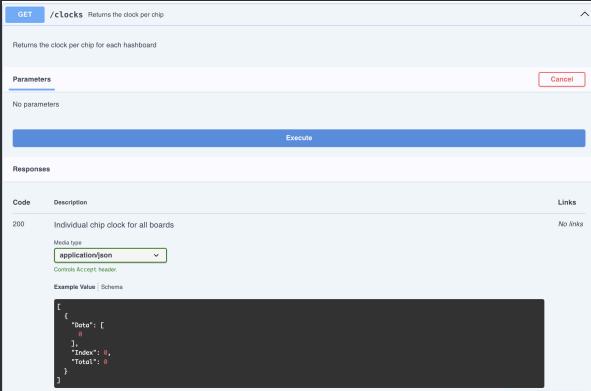
Click [here](#) for ePIC API Documentation

Example



POST: /tune/clock/all
Changing the clocks of the chips in the miner

1. Click "Try it out"
2. Enter the desired value in the Request Body
3. Click "Execute"
4. Check the Response Body



GET: /clocks
Returning the clock per chip

1. Click "Try it out"
2. Click "Execute"
3. Check the Response Body

OR

1. Miner's_IP:4028/clocks
Click "Pretty-print" at the top left corner

FAQ

1. Where can I obtain a license key?
 - a. Contact **license@epicblockchain.io** for licensing options.

2. What happens when the license expires?
 - a. Mining will automatically default to a set dev fee.

Have a question?

Website

<https://epicblockchain.io/support/>

Email

Support@epicblockchain.io

Github

<https://github.com/epicblockchain>

Twitter

<https://twitter.com/ePICBlockchain>

Telegram

https://t.me/epic_umc