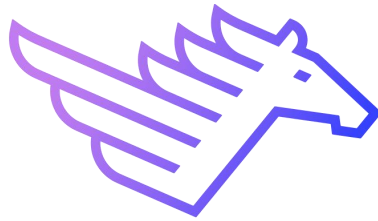


Whatsminer API V1.3.11



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1. Summary

This article describes how to use the mining machine API. The intended audience is mine management software developers.

Using WhatMinerTools gain privilege to the miner. The function of remote batch management can be realized through API.

Follow these steps:

1. Change the default password(admin)
2. Turn on the API



2. Writable API

2.1 Update pools information

Json:

```
{
  "token": "str",
  "cmd": "update_pools",
  "pool1": "str",
  "worker1": "str",
  "passwd1": "str",
  "pool2": "str",
  "worker2": "str",
  "passwd2": "str",
  "pool3": "str",
  "worker3": "str",
  "passwd3": "str"
}
```

2.2 Restart btminer

Json:

```
{
  "token": "str",
  "cmd": "restart_btminer"
}
```

2.3 Power off miner

This operation simply stops mining and turns off the power output of the power board.
There was no power outage on the control board

Json:

```
{
  "token": "str",
  "cmd": "power_off",
  "respbefore": "str" // "false"/"true"
}
```

2.4 Power on miner

This operation simply starts mining and turns on the power output of the power board.

Json:

```
{
  "token": "str",
  "cmd": "power_on",
}
```

2.5 Manage led

Recovery to automatic control:

Json:

```
{
  "token": "str",
  "cmd": "set_led",
  "param": "auto"
}

{
  "token": "str",
  "cmd": "set_led",
  "color": "str",
  "period": inter,      //flash cycle ms
  "duration": inter,   //led on time in cycle(ms)
  "start": inter       //led on time offset in cycle(ms)
}
```

2.6 Switch power mode

Json:

```
{
  "token": "str",
  "cmd": "set_low_power"
}
```

2.7 Firmware upgrading

Upgrade flow:

Client -> whatsmminer(text flow): "update_firmware"

Json:

```
{
  "token": "str",
  "cmd": "update_firmware"
}
```

Whatsminer -> client(text flow): "ready"

Json:

```
{
  "STATUS": "S",
  "When": 1594179080,
  "Code": 131, "Msg": "ready",
  "Description": "whatsminer v1.3"
}
```

Client -> whatsminer(binary flow): file_size(4Byte) file_data

file_size: size of upgrade file, send integer to stream as little endian.

file_data: file binary flow

Check upgrading by the value of "Firmware Version" returned by summary.

2.8 Reboot system

Json:

```
{
  "token": "str",
  "cmd": "reboot"
}
```

2.9 Restore to factory setting

Json:

```
{
  "token": "str",
  "cmd": "factory_reset"
}
```

2.10 Open or close SSH servers

Json:

```
{
  "token": "str",
  "cmd": "ssh_open"
}
```

```
{
  "token": "str",
  "cmd": "ssh_close"
}
```

✚

2.11 Modify the password of admin account

The maximum password length is 8byte

Notice: you must regain token form whatsmineer for encrypted transmission

Json:

```
{
  "token": "str",
  "cmd": "update_pwd",
  "old": "str",
  "new": "str"
}
```

2.12 Modify network configuration

Notice: after modify configuration whatsmineer machine will be reboot.

Json:

```
{
  "token": "str",
  "cmd": "net_config",
  "param": "dhcp"
}
```

Json:

```
{
  "token": "str",
  "cmd": "net_config",
  "ip": "str",
  "mask": "str",
  "gate": "str",
  "dns": "str", // "114.114.114.114 192.168.0.1" Divide by a space
  "host": "str"
}
```

2.13 Download logs

Download flow:

Client -> whatsmineer(text flow):

Json:

```
{
  "token": "str",
  "cmd": "download_logs"
}
```

```
}
```

Whatsminer -> client(text flow):

Json:

```
{  
  "STATUS": "S",  
  "When": 1603280777,  
  "Code": 131,  
  "Msg": {"logfilelen": "str"},  
  "Description": "whatsminer v1.3"  
}
```

Whatsminer -> client(binary flow):

The whatsminer sends the file contents after 10ms delay.

2.14 Set_target_freq

```
{  
  "cmd": "set_target_freq",  
  "percent": "str", //range: -10 ~ 100  
  "token": "str"  
}
```

2.15 Enable_btminer_fast_boot

```
{  
  "cmd": "enable_btminer_fast_boot",  
  "token": "str"  
}
```

2.16 Disable_btminer_fast_boot

```
{  
  "cmd": "disable_btminer_fast_boot",  
  "token": "str"  
}
```

2.17 Enable_web_pools

```
{  
  "cmd": "enable_web_pools",  
  "token": "str"  
}
```

2.18 Disable_web_pools

```
{  
    "cmd": "disable_web_pools",  
    "token": "str"  
}
```

2.19 Set_hostname

```
{  
    "cmd": "set_hostname",  
    "hostname": "str",  
    "token": "str"  
}
```

2.20 Set_zone

```
{  
    "cmd": "set_zone",  
    "timezone": "CST-8",  
    "zonename": "Asia/Shanghai",  
    "token": "str"  
}
```

2.21 Load_log

```
{  
    "cmd": "load_log",  
    "ip": "str",  
    "port": "str",  
    "proto": "str",          //tcp/udp  
    "token": "str"  
}
```

2.22 Set_power_pct

```
{  
    "cmd": "set_power_pct",  
    "percent": "str",        //range: 0 ~ 100  
    "token": "str"  
}
```

2.23 Pre_power_on

```
{
```

```

"cmd": "pre_power_on",
"complete": "str", //true/false
"msg": "str", // "wait for adjust temp"/"adjust complete"/"adjust continue"
"token": "str"
}

```

- The miner can be preheated by "pre_power_on" before "power on", so that the machine can quickly enter the full power state when "power on" is used. You can also use this command to query the pre power on status. Make sure power_off btminer before pre_power_on.

3. Readable API

3.1 API summary

Contains error code, fan speed, power info, etc.

Json:

```

{
  "cmd": "summary"
}

```

[MHS av] => 67761775.18	Average hash rate of miner(MHS)
[Fan Speed In] => 6060	Air outlet fan speed(RPM)
[Fan Speed Out] => 6000	Air inlet Fan speed(RPM)
[Power] => 3470	Input power(W)
[Uptime] => 91051	System up time(second)
[Power Fanspeed] => 9060	Power fan speed
[Error Code Count] => 1	Error code number
[Error Code 0] => 250	Error code value
[Power Mode] => Low	Power mode (Low/Normal/High)
[Firmware Version] => '20200207.23.1'	Firmware version
[MAC] => C4:05:08:00:02:3B	Network MAC address
[Factory GHS] => 44397	Factory hash rate(GHS)

3.2 API pools

Contains pool miner information.

Json:

```

{
  "cmd": "pools"
}

```

[POOL] => 0	
[URL] => stratum+tcp://btc.ss.poolin.com:443	Pool address and port
[Status] => Alive	Pool status
[Priority] => 0	Pool priority(0 highest)
[Accepted] => 4615	Accepted nonces by the pool
[Rejected] => 3	Rejected nonces by the pool
[User] => microbtinit	Miner name
[Last Share Time] => 1587278148	Last nonce submission time
[Stratum Active] => true	Pool stratum status
[Stratum URL] => btc-vip-3dcoa7jxu.ss.poolin.com	Pool address
[Stratum Difficulty] => 262144.00000000	Pool difficulty
[Pool Rejected%] => 0.0667	Pool rejection percent
[Current Block Height] => 626663	Current Block Height
[Current Block Version] => 536870912	Current Block Version

3.3 API edevs/devs

Contains information for each hash board.

Json:

```
{
  "cmd": "edevs"
}
```

```
{
  "cmd": "devs"
}
```

[Slot] => 0	Hash board slot number
[Temperature] => 71.50	Board temperature at air outlet (°C)
[Chip Frequency] => 608	Average frequency of chips in hash board (MHz)
[MHS av] => 30991182.21	Average hash rate of hash board (MHS)
[PCB SN] => Z5M1ES94100115K90371	PCB serial number

3.4 API devdetails

Json:

```
{
  "cmd": "devdetails"
}
```

[DEVDETAILS0] =>	
[Model] => M20SV10	Miner type

3.5 API get_psu

Contains power information.

Json:

```
{
  "cmd": "get_psu"
}
```

3.6 API get_version

Get whatsmminer api version

Json:

```
{
  "cmd": "get_version"
}
```

3.7 Get token

You must use plaintext, and whatsmminer will return plaintext.

Json:

```
{
  "cmd": "get_token"
}
```

Return:

```
{
  "STATUS": "string",
  "When": 12345678, //inter
  "Code": 133,
  "Msg": {"time": "str", "salt": "str", "newsalt": "str"},
  "Description": "string",
}
```

3.8 Status

Get btminer status and firmware version

Json:

```
{
  "cmd": "status"
}
```



}

Return:

```
{
  "btmineroff":"str",          //"/true"/"false"
  "Firmware Version":"str"
}
```

Notice: **whatsminer support 16 IP clients.one IP can get 32 tokens.token keepalive is 30min.**

API:

client -> whatsminer: "get_token"

whatsminer -> client: \$time \$salt \$newsalt

e.g.: "1592555626 BQ5hoXV9 jbzkfQls"

JSON:

client -> whatsminer: {"cmd":"get_token"}

whatsminer -> client: {"time":"str","salt":"str","newsalt":"str"}

e.g.: {"time":"5626","salt":"BQ5hoXV9","newsalt":"jbz kfQls"}

\$time \$salt \$newsalt are separated by space

time: timestamp(sec) (Epoch Time since 1970-01-01 00:00:00 UTC)

salt:

new_slat: new salt for sign

Token calculation method:

get token form whatsminer machine: **time salt newsalt.**

1.calculate key use admin's **password** and **salt.**

3.**timesec** is the last four characters of **time .**

key = md5(salt + password)

sign = md5(newsalt + key + timesec)

The reference code in Ubuntu:

Frist,Get those values from whatsminer: \$time \$salt \$newsalt.

Ubuntu Shell command:

key = `openssl passwd -1 -salt \$salt "\${admin_password}"|cut -f 4 -d '\$`

sign=`openssl passwd -1 -salt \$newsalt "\${key}\${time:0-4}"|cut -f 4 -d '\$`

Default user password: admin:admin



The API command can be used for two joins.

Eg.

```
{
    "cmd": "summary+pools"
}
```

4.Others

The whatsmminer API TCP port is 4028.

Notice: **If no data is received within 10 seconds after the port is opened, it will time out and close.**

Return MSG :

STATUS="",When="",Code="",Msg="",Description=""

STATUS: E (error) S (success)

When: timestamp

Code: type of message

Description: details of the message

JSON API RETURN format:

```
{
    "STATUS": "string",
    "When": 12345678, //inter
    "Code": 133,
    "Msg": "string", //string or object
    "Description": "string",
}
```

Message Code:

14	invalid api command or data
23	invalid json message
45	permission denied
131	command OK
132	command error
134	get token message OK
135	check token error
136	token over max times
137	base64 decode error

4.1 API ciphertext



Notice: readable API supports two-way communication plaintext and ciphertext,
Writeable API only supports ciphertext.

Encryption algorithm:

Ciphertext = aes256(plaintext), ECB mode

Encode text = base64(ciphertext)

Steps as follows:

(1)api_cmd = token,\$sign|api_str

(2)enc_str = aes256(api_cmd, \$key)

(3)tran_str = base64(enc_str)

api_str is API command plaintext

Generate aeskey step:

(1)Get token from whatsminer: \$time \$salt \$newsalt

(2)Generate key:

key = md5(admin_password + salt)

Reference code:

key = `openssl passwd -1 -salt \$salt "\${admin_password}"`

(3)Generate aeskey:

aeskey = sha256(\$key)

e.g.:

set_led|auto ->

token,\$sign|set_led|auto ->

ase256("token,sign|set_led|auto", \$aeskey) ->

base64(ase256("token,sign|set_led|auto", \$aeskey)) ->

enc|base64(ase256("token,sign|set_led|auto", \$aeskey))

Json:

```
{
  "enc":1, //inter
  "data":"base64 str"
}
```

5.The flow

