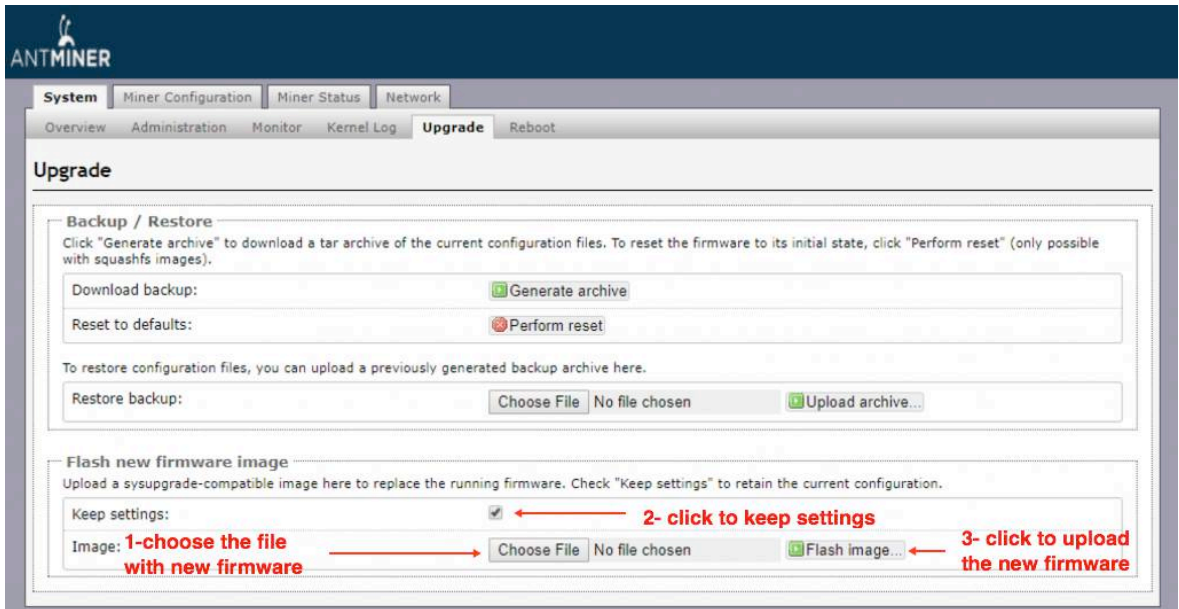


USER MANUAL

FIRMWARE FOR ANTMINER S9, S9i, S9j with AsicBoost

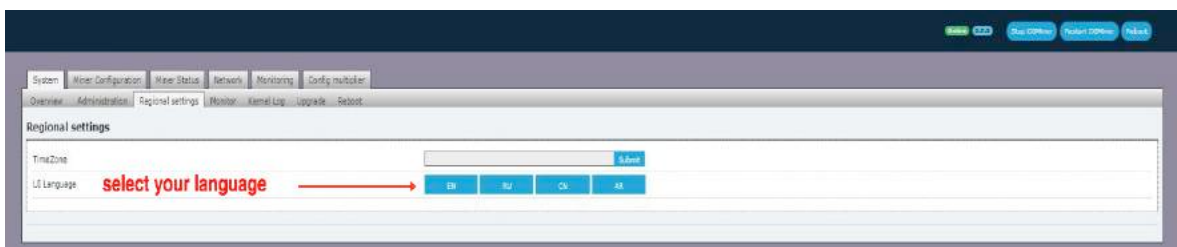
Firmware upload and language selection:

1) Use the web interface of the original BITMAIN firmware, System - Upgrade - Flash new firmware image and select the file with the new firmware, click - keep settings (save pool, worker, password) and click FLASH IMAGE



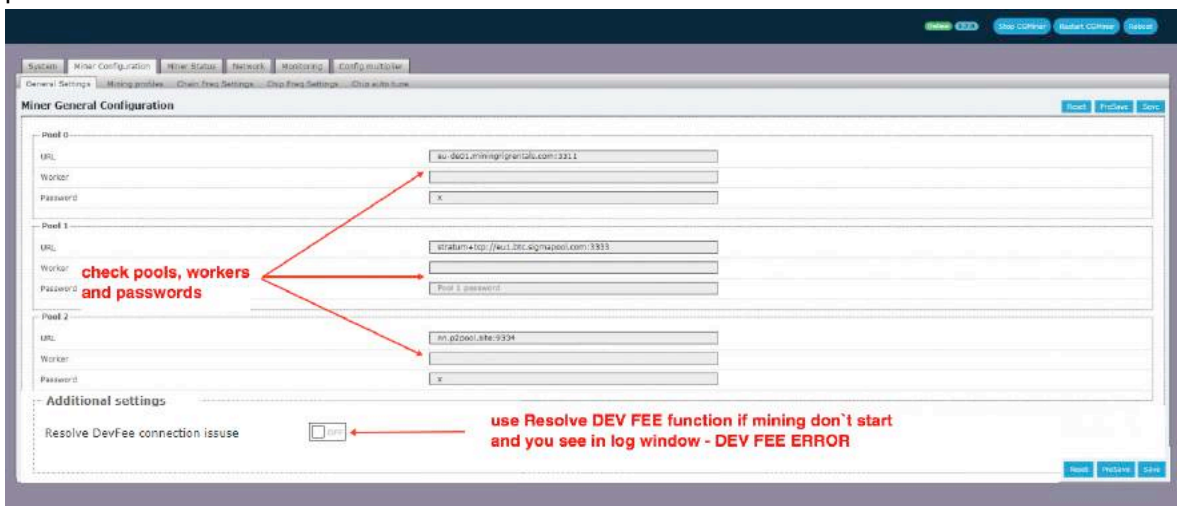
2) Next, write only the IP address of your ASIC in the browser (example 192.168.1.1) and if you see the original BITMAIN firmware, press CTRL+F5 and the cache will be updated.

3) Choose System - Regional settings -UI language and select your language RU-EN-CN-AR)



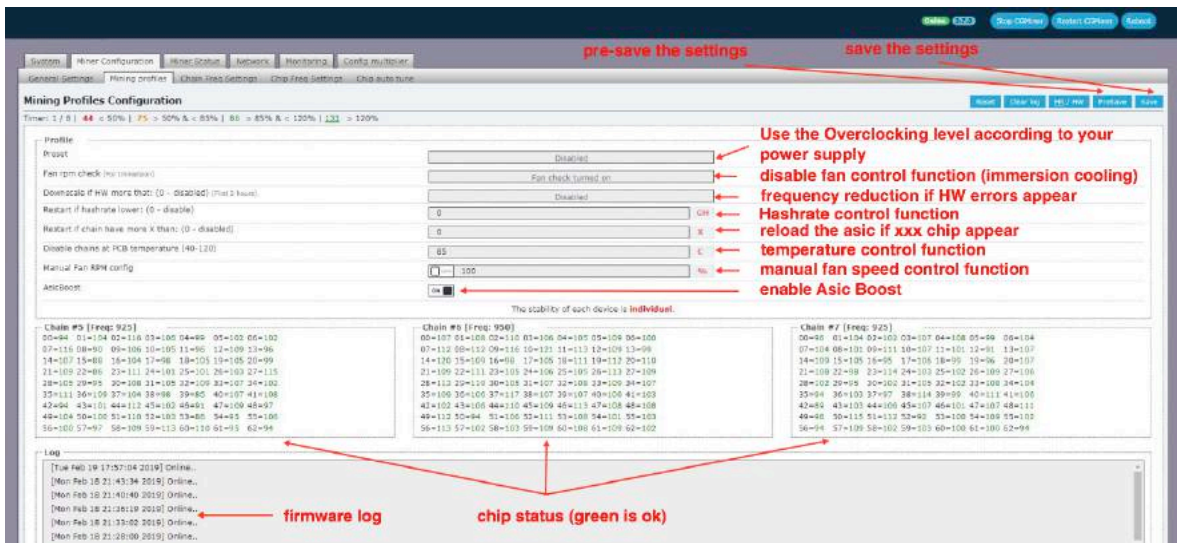
Overclocking and downvolt using the profile (auto mode for beginners)

1) Choose the Miner Configuration - General settings and check the settings of pools, workers and passwords



2) Choose the Miner Configuration - Mining Profiles - Preset

Select overlocking or downvolt option from the menu. Use the Overclocking level according to your power supply. We recommend to overlock not more than 16 Th/s with BITMAIN 1600 watt power supply and not more than 17 TH/s with 1800 watt power supply.



3) If you need to disable the fan control and remove the fans you must enable the Fan RPM check : fan check turn off (only for immersion cooling)

4) If you want to enable hashrate control function you need to set the value at which the firmware will reload the ASIC if the chains does not show the required hashrate, Restart if hashrate lower: 12 000 GH=12 TH/s during mining (example)

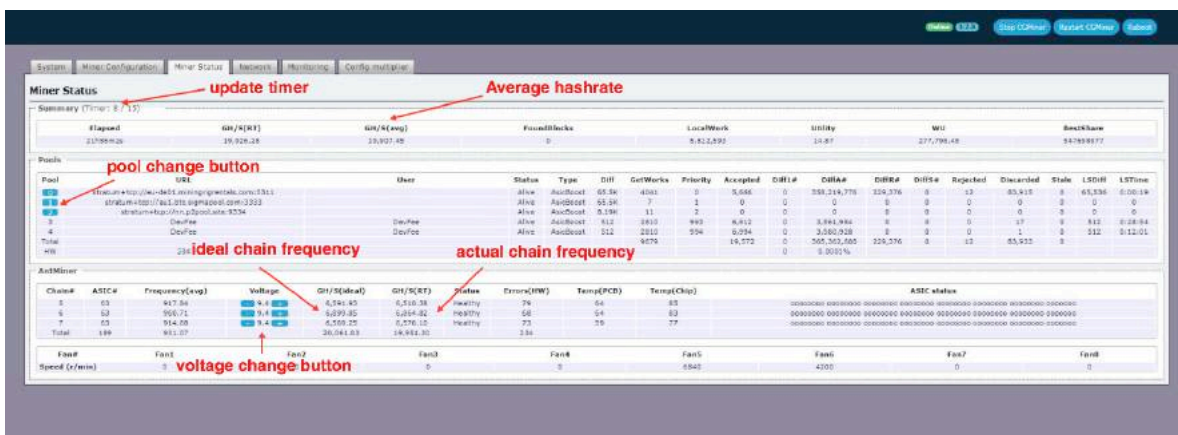
5) If you want to control the overheating of the device, set the maximum temperature at which the firmware will turn off the ASIC: Disable Chains at PCB at temperature: (0 = standard temperature-90C), you can manually set another value

6) Enable the ASIC BOOST function (to reduce consumption), Attention: your pool must support ASIC BOOST technology, otherwise mining will not start.

7) Click the Save button at the bottom or top of the firmware page.

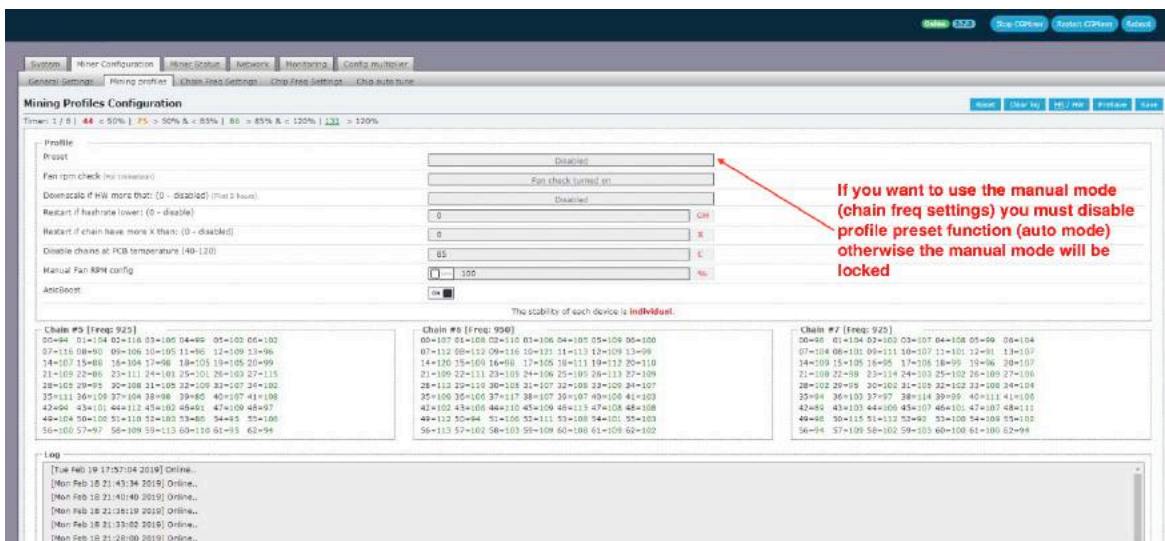
8) Overclocking Program is set, ASIC can be set up to 30 minutes and will be reloaded during the setup process (this is normal)

9) If mining does not start and the logs have the info: DEV FEE ERROR you need to go to the Miner Configuration - General settings and use function: RESOLVE DevFee connection (this option appears after restarting of the ASIC at the beginning of mining)

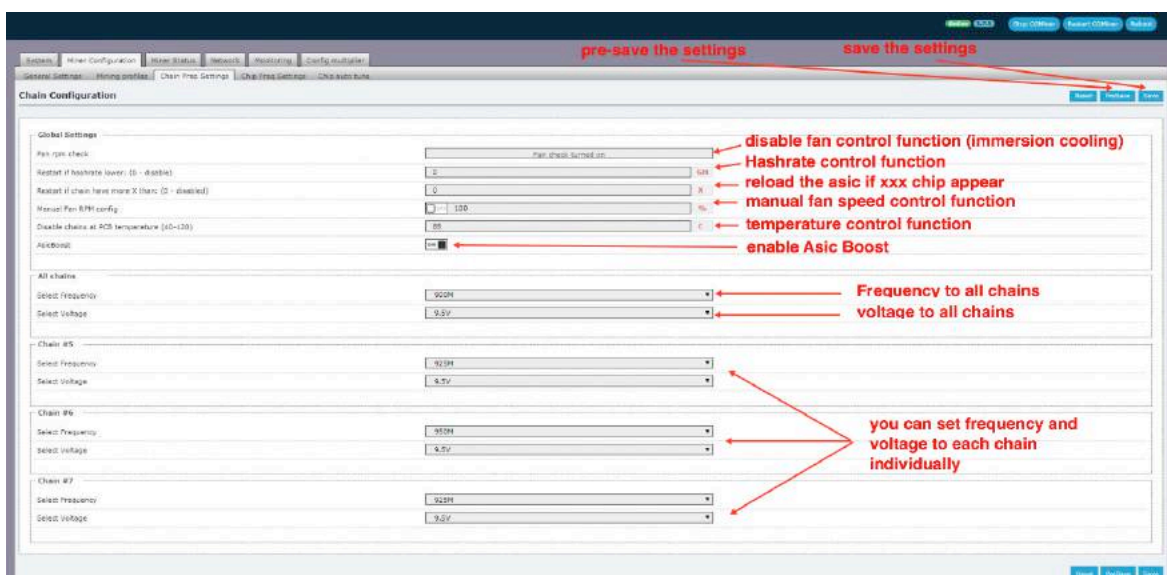


Overclocking and downvolt (manual mode)

- 1) Choose the Miner Configuration - General settings and check the settings of pools, workers and passwords.
- 2) make Sure that the Miner Configuration - MININGS PROFILES - PRESET - SET DISABLE (otherwise, the manual mode will be blocked)

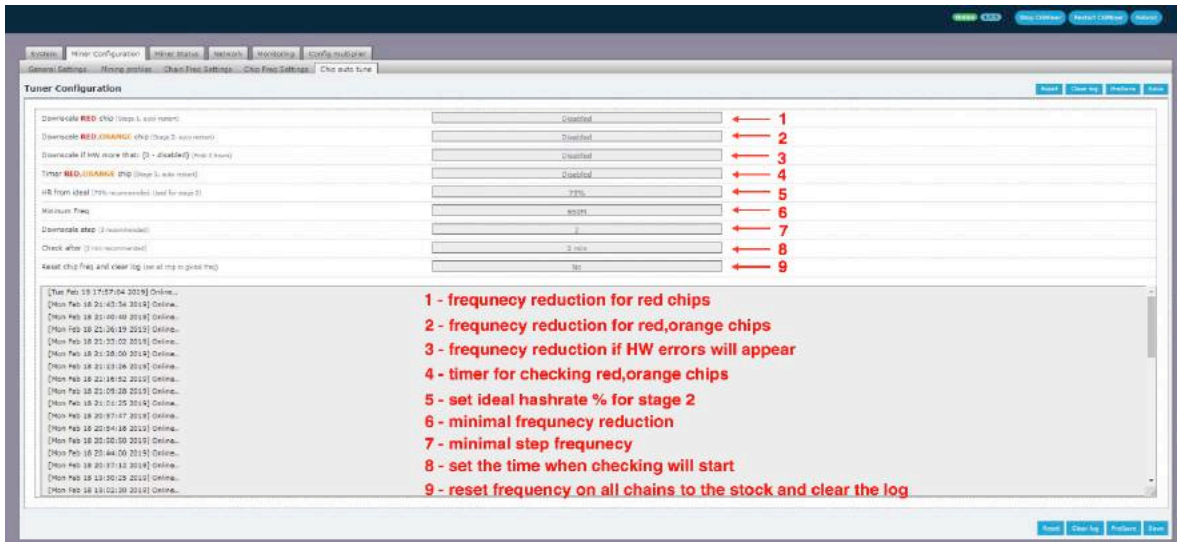


- 3) Choose the Miner Configuration-Chain Freq Settings



- activate the hashrate control function (reload the Asic in the case of falling hash rate): Restart if Hashrate Lower : 12000 GH=12 TH/s (example)
- activate the temperature control function (ASIC will shutdown in case of too high temperature Disable chains at PCB temperature: (0 = standard temperature - 90s), you can set manually different temperature for the chains
- Enable the ASIC BOOST function (reducing the consumption), Attention your pool must support ASIC BOOST technology, otherwise mining will not start.
- Set frequency and voltage to all chains for overclocking or downvolt Asic (ALL CHAINS), also you can set different frequency and voltage to each chain
- Press the **PRESAVE** button located at the bottom and top of the firmware page

4) Next, choose the CHIP AUTO TUNE and turn on :



- Downscale red CHIP (stage 1) - enable
- Downscale red, orange Chip (stage 2) - enable
- Timer Red, Orange-12 Hr
- Minimal frequency - 400

5) Click the **SAVE** button located at the bottom and top of the page

6) The overclocking Program is set, the ASIC can be set up to 30 minutes and will restart during the setup process (this is normal)

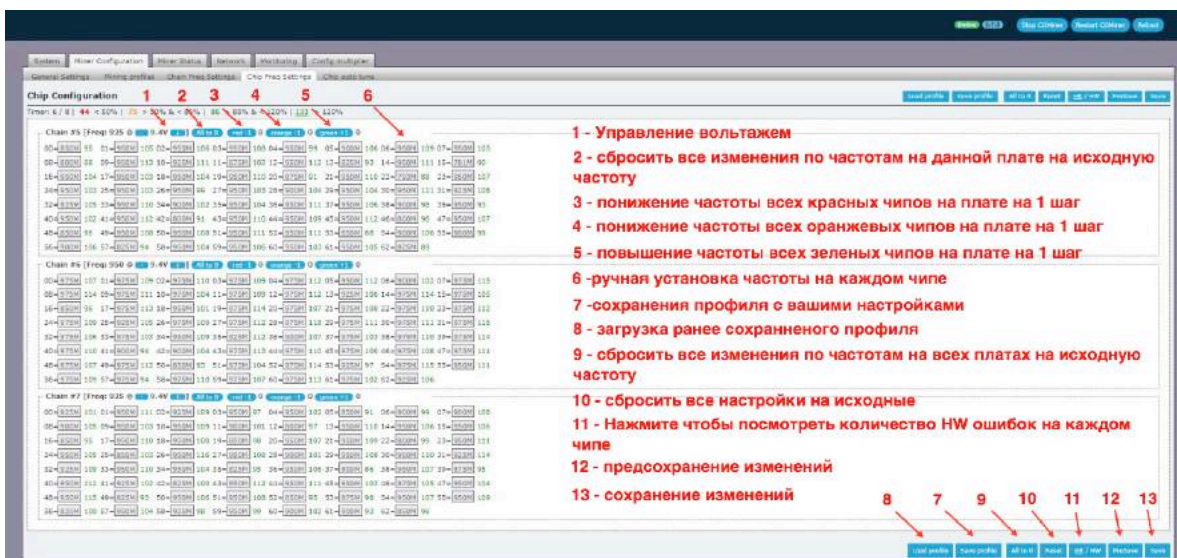
7) You can check the status of the chips in the Miner Configuration - chip Freq Settings

If the AUTO TUNE function is enabled the firmware automatically will tune each chip in the automatic mode and will not be stopped until all the chips will be in the green zone. (the frequency of the red and orange chips will drop)

If you set up the timer (in hours) for stage 3 (AUTO TUNE option) the firmware will check for the appearance of red or orange chips and will drop the frequency until they become green.

Also, you have possibility to change the frequency of each chip manually.

Manual settings allow you to drop the frequency of all the red, orange chips or manually increase the frequency of the green chips to get maximum efficiency from each Asic.



We recommend using the following settings for 1600 watt power supply :
Frequency: 750, Voltage: 9.0, avg speed: 16.1 Th/s

We recommend using the following settings for 1800 watt power supply :
Frequency: 800 Volt 9.0, avg speed: 17 Th/s

NOTE: You can use lower voltage modes for better energy saving but some ASIC`s will give much lower hashrate than must be and can be not stable, if this happened you need to raise the voltage of this asics

Downvolt modes:

Frequency: 750, Voltage: 8.8, speed 16.1 Th/s-1450 watt (93 watt - Th/s)

Frequency: 700, Voltage: 8.6, speed 15 Th/s-1300 watt (86 watt - Th/s)

Frequency: 631, Voltage: 8.4, speed 13.5 Th/s-1050 watt (78 watt - Th/s)

Frequency: 550, Voltage: 8.3, speed 11.8 Th/s-880 watt (75 watt - Th/s)

The power consumption in fact may be different and depends on the quality of the Asic and power supply

Upload the firmware, create CONFIG (overclocking and downvolt settings), create workers on the unlimited quantity of ASICS in one network

1) Download the BTC TOOL program (https://url.btc.com/btc-tools-download?_ga=2.39099043.1874240382.1550499030-903294307.1550403289)

The screenshot shows the BTC TOOL interface with a table of ASICs and several control buttons. Red arrows and text annotations highlight key steps:

- 1 - SET THE IP RANGE**: Points to the IP Range field in the top left.
- 2 - SCAN THE IP RANGE**: Points to the Scan button.
- 3 - CLICK FIRMWARE UPGRADE**: Points to the Firmware Upgrade button.
- 4 - SELECT THE ASIC MODEL YOU WANT TO UPGRADE**: Points to the dropdown menu for selecting an ASIC model.
- 5 - SELECT FIRMWARE FILE**: Points to the file selection button.
- 6 - click keep settings (to save pools, workers and passwords)**: Points to the Keep settings button.
- 7 - CLICK UPGARDE ALL AND CONFIRM**: Points to the Upgrade All button.

ID	Status	Type	Hash Rate BT	Hash Rate avg	Temperature	Fan Speed	Elapsed	Pool 1	Worker	Pool 2	Worker	Pool 3	Worker	Firmware	S
192.168.142.10	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 53 / 58	5000 / 4000	34:4h:25m:45s	btcc.btc.com:3333	karpen270	stratum.antpool.com:3333	akn410	btcc.btc.com:3333	karpen270	20190216	None
192.168.142.11	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	88 / 51 / 63	4000 / 3000	34:16h:27m:00s	btcc.btc.com:3333	karpen211	stratum.antpool.com:3333	akn411	btcc.btc.com:3333	karpen211	20190216	None
192.168.142.12	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	88 / 51 / 64	4000 / 3000	34:1h:47m:16s	btcc.btc.com:3333	karpen212	stratum.antpool.com:3333	akn412	btcc.btc.com:3333	karpen212	20190216	None
192.168.142.13	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 59 / 65	4000 / 4000	34:16h:27m:47s	btcc.btc.com:3333	karpen213	stratum.antpool.com:3333	akn413	btcc.btc.com:3333	karpen213	20190216	None
192.168.142.14	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	85 / 67 / 64	2400 / 4000	34:7h:31m:52s	btcc.btc.com:3333	karpen214	stratum.antpool.com:3333	akn414	btcc.btc.com:3333	karpen214	20190216	None
192.168.142.15	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	87 / 64 / 64	3400 / 5000	34:4h:25m:16s	btcc.btc.com:3333	karpen215	stratum.antpool.com:3333	akn415	btcc.btc.com:3333	karpen215	20190216	None
192.168.142.16	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	87 / 58 / 57	3100 / 4000		btcc.btc.com:3333	karpen216	stratum.antpool.com:3333	akn416	btcc.btc.com:3333	karpen216	20190216	None
192.168.142.17	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 53 / 58	5000 / 4000	34:16h:27m:47s	btcc.btc.com:3333	karpen217	stratum.antpool.com:3333	akn417	btcc.btc.com:3333	karpen217	20190216	None
192.168.142.18	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	84 / 64 / 68	4000 / 3100		btcc.btc.com:3333	karpen218	stratum.antpool.com:3333	akn418	btcc.btc.com:3333	karpen218	20190216	None
192.168.142.19	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	82 / 67 / 66	3500 / 4000		btcc.btc.com:3333	karpen219	stratum.antpool.com:3333	akn419	btcc.btc.com:3333	karpen219	20190216	None
192.168.142.20	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	83 / 68 / 69	3800 / 3000		btcc.btc.com:3333	karpen220	stratum.antpool.com:3333	akn420	btcc.btc.com:3333	karpen220	20190216	None
192.168.142.21	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	85 / 64 / 64	5000 / 4000	21h:30m:00s	btcc.btc.com:3333	karpen221	stratum.antpool.com:3333	akn421	btcc.btc.com:3333	karpen221	20190216	None
192.168.142.22	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 62 / 68	3700 / 4000	34:4h:25m:39s	btcc.btc.com:3333	karpen222	stratum.antpool.com:3333	akn422	btcc.btc.com:3333	karpen222	20190216	None
192.168.142.23	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	85 / 67 / 68	4000 / 4000	34:4h:25m:45s	btcc.btc.com:3333	karpen223	stratum.antpool.com:3333	akn423	btcc.btc.com:3333	karpen223	20190216	None
192.168.142.24	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	88 / 62 / 68	3100 / 3000	34:4h:25m:39s	btcc.btc.com:3333	karpen224	stratum.antpool.com:3333	akn424	btcc.btc.com:3333	karpen224	20190216	None
192.168.142.25	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 57 / 63	4000 / 4000	34:4h:25m:40s	btcc.btc.com:3333	karpen225	stratum.antpool.com:3333	akn425	btcc.btc.com:3333	karpen225	20190216	None
192.168.142.26	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	85 / 60 / 63	5000 / 4000	34:4h:25m:39s	btcc.btc.com:3333	karpen226	stratum.antpool.com:3333	akn426	btcc.btc.com:3333	karpen226	20190216	None
192.168.142.27	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	84 / 61 / 68	4000 / 4000	34:4h:25m:32s	btcc.btc.com:3333	karpen227	stratum.antpool.com:3333	akn427	btcc.btc.com:3333	karpen227	20190216	None
192.168.142.28	Success	Antminer S9 (v...)	1490.00 GH/s	1490.00 GH/s	80 / 61 / 67	4200 / 4400	34:4h:25m:40s	btcc.btc.com:3333	karpen228	stratum.antpool.com:3333	akn428	btcc.btc.com:3333	karpen228	20190216	None
192.168.142.29	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	81 / 60 / 67	2700 / 4000	24:16h:27m:47s	btcc.btc.com:3333	karpen229	stratum.antpool.com:3333	akn429	btcc.btc.com:3333	karpen229	20190216	None
192.168.142.30	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	81 / 60 / 67	2700 / 4000	34:26m:25s	btcc.btc.com:3333	karpen230	stratum.antpool.com:3333	akn430	btcc.btc.com:3333	karpen230	20190216	None
192.168.142.31	Success	Antminer S9 (v...)	1490.00 GH/s	1490.00 GH/s	80 / 54 / 68	3400 / 4000	34:16h:27m:42s	btcc.btc.com:3333	karpen231	stratum.antpool.com:3333	akn431	btcc.btc.com:3333	karpen231	20190216	None
192.168.142.32	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	85 / 60 / 68	2700 / 4000	34:4h:25m:42s	btcc.btc.com:3333	karpen232	stratum.antpool.com:3333	akn432	btcc.btc.com:3333	karpen232	20190216	None
192.168.142.33	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	87 / 60 / 68	3500 / 3000	34:7h:11m:42s	btcc.btc.com:3333	karpen233	stratum.antpool.com:3333	akn433	btcc.btc.com:3333	karpen233	20190216	None
192.168.142.34	Success	Antminer S9 (v...)	1500.00 GH/s	1500.00 GH/s	80 / 66 / 67	3300 / 4000	24:7h:58m:47s	btcc.btc.com:3333	karpen234	stratum.antpool.com:3333	akn434	btcc.btc.com:3333	karpen234	20190216	None

2) Use the BTC TOOL and set the IP range of the ASICS
3) Use the UPGRADE function and select the file with the firmware , click keep SETTINGS (to save the POOL settings , workers and passwords), select Antminer S9, S9i , S9j and confirm the upload of the firmware.

4) After the firmware is uploaded use the web interface of any ASIC with new firmware and choose CONFIG MULTIPLIER-CONFIG

The screenshot shows the 'Config multiplier' web interface. It is divided into several sections:

- Pool configuration:** Three pools (Pool 0, Pool 1, Pool 2) are listed. Each pool has fields for URL, Worker, and Password. Red annotations indicate:
 - Pool 0: '1 - click dont change if you don't want to change pools or write the new pools (pool 0, pool 1, pool 2)' pointing to the 'Don't change' buttons.
 - Pool 1: '2 - click dont change if you don't want to change the workers or use the function hostname, ip, worker+hostname, worker + ip for creating individual worker for each asic' pointing to the 'Add hostname', 'Add IP', 'W + hostname', and 'W + IP' buttons.
 - Pool 2: '3 - click dont change if you don't want to change password or write the new password' pointing to the 'Don't change' buttons.
- Profile settings:** A 'Preset' dropdown is set to 'Default'. Other settings include:
 - 'Fan rpm check (for immersion)': 'Fan chips turned on'.
 - 'Restart if fans rpm lower (0 - disabled)': '0'.
 - 'Restart if chain have more 0 than (0 - disabled)': '0'.
 - 'Disable chains at PCB temperature (40-120)': '0.89'.
 - 'Manual Fan RPM config': '1'.
 - 'AsicBoost': 'No'.
- Automatic mode:** A note states 'IF PRESET IS ENABLED, ALL SETTINGS BELOW ARE IGNORED!'.
 - 'All chains': 'Select Frequency' is '700M', 'Select Voltage' is '0.5V'. A note says 'Frequency to all chains voltage to all chains'.
 - 'Chain #5', '#6', '#7': Each has 'Select Frequency' and 'Select Voltage' dropdowns set to 'Use Global'. A note says 'you can set frequency and voltage to each chain individually'.
- Chip auto tune:**
 - 'Downscale RED chip (stage 1, auto restart)': 'Enabled'. Note: 'frequency reduction for red chips'.
 - 'Downscale RED,ORANGE chip (stage 2, auto restart)': 'Enabled'. Note: 'frequency reduction for red,orange chips'.
 - 'Timer RED,ORANGE chip (stage 1, auto restart)': '2 HR'. Note: 'timer for checking red,orange chips'.
 - 'Hit from Ideal (100% recommended, used for stage 2)': '75%'. Note: 'set ideal hashrate % for stage 2'.
 - 'Minimum Freq': '400M'. Note: 'minimal frequency reduction'.
 - 'Downscale step (1 min recommended)': '2'. Note: 'minimal step frequency reduction'.
 - 'Check after (1 min recommended)': '2 min'. Note: 'set the time when checking will start'.
- At the bottom right, there is an 'Apply' button with a note 'click for making the config'.

Create the config :

- if you don't want to change the current pool, worker and password click : DON'T CHANGE , Skip will appear in the fields
 - if you want to change the current POOL write the new POOLS in the field-0,1,2
 - if you want to set all ASICS to different workers, you can select the ADD function (host name, IP, worker + host name, worker + IP) and all ASICS will get different workers
- 5) Set up the overlocking or downvolt settings using PROFILE (automatic mode) or in manual mode (ALL CHAINS)
 - 6)Turn on the hashrate control function (reload the Asic in the case of falling hash rate) and the overheating control function (disable chains at PCB temperature)
 - 7) turn on the ASIC BOOST function
 - 8) turn on AUTO TUNE CHIP :
 - Downscale red CHIP (stage 1) - enable
 - Downscale red, orange Chip (stage 2) - enable
 - Timer Red, Orange-set parameter in hours (for example 3 hours)
 - 9) Click APPLY and specify the name of the CONFIG and click SAVE

10) Choose CONFIG MULTIPLIER - UPLOAD

The screenshot shows the 'Config multiplier' upload interface. It has three input fields at the top: 'IP Range' (with red text '1 - Set the IP range' and an arrow pointing to the value '192.168.1.1'), 'Password' (with red text '2 - Set the password (root - standart)' and an arrow pointing to the field), and 'Config' (with red text '3 - Select the config' and an arrow pointing to a dropdown menu). Below these is a table of ASICs. At the bottom right, there is a red arrow pointing to an 'Apply' button with the text 'Click to upload the config'.

IP	Version	Hostname	Custom FW	Config upload	Restart
192.168.1.137	Antminer S9 (vrsib 3.7.5)	antminer	yes	OK	OK
192.168.1.155	Antminer S9 (vrsib 3.7.5)	antminer	yes	OK	OK
192.168.1.154	Antminer S9 (vrsib 3.7.5)	s41037	yes	OK	OK
192.168.1.132	Antminer S9 (vrsib 3.7.5)	s41063	yes	OK	OK
192.168.1.151	Antminer S9 (vrsib 3.7.5)	s41007	yes	OK	OK
192.168.1.150	Antminer S9 (vrsib 3.7.5)	s41218	yes	OK	OK
192.168.1.149	Antminer S9 (vrsib 3.7.5)	s41076	yes	OK	OK
192.168.1.148	Antminer S9 (vrsib 3.7.5)	s41016	yes	OK	OK
192.168.1.147	Antminer S9 (vrsib 3.7.5)	antminer	yes	OK	OK

- Set the IP RANGE range of the ASIC with new firmware
 - if the ASIC password is standard use the ROOT password, if not use other password
 - select the config you saved earlier and click APPLY at the bottom of the page.
- All Antminer S9, S9i, S9j in the selected IP range will receive the settings from the saved CONFIG.
- All other ASIC models in this IP range will not be affected