Starter Crypto Currency Mining Rig Manual

version 1.5

Contents

1 Introduction

This manual will go through the important things to know before buying a rig, and also how to set up and use the starter mining rigs. The rigs include everything that's required for mining except the graphics cards themselves. The users are expected to source the graphics cards themselves, and then after a short set up it would be plug and play, and it would start mining automatically when connecting power and Ethernet.

The default setup uses SMOS (Simple Mining OS), mining ETH (Ethereum) using Trex / Team Red miner and HiveOn Pool. This combination was found to be reliable, profitable, and easy to use. I do also offer the rigs set up with HiveOS.

1.1 Specs

Currently I am building all the mining rigs with near identical specs, with a few options for power supply configurations depending on how power hungry the cards you want to use are. All the parts are brand new. Here are the specs of the rigs:

- 2x or 3x PSUs depending on the configuration. More details on PSUs below.
- Gigabyte / MSI / Asus / Asrock ATX AM4 motherboard. The exact model can vary depending on stock
- 6 GPU Aluminium Mining Frame
- AMD Athlon 200GE CPU
- 4GB DDR4 RAM
- 32GB USB Stick
- 6x VER009s Risers
- Arctic Alpine 23 or Stock CPU Cooler

I tend to use two different models of power supplies in my rigs, Antec Neo Eco Gold 700W, which are good quality and great value gold rated power supplies, and I recommend using them up to about 70% load continuously, so up to 490w each. The other model is Antec EAG Gold 750W, which is a very high quality Tier A power supply and is a rebranded Seasonic Focus. I recommend running it up to 80% load continuously, so up to 600w each. You can find what each card uses while mining by just searching it online, but if you have doubts just send me a message.

I can also use any other power supply that you wish, but since I would need to order it and build a rig with it specifically for you I would need a small deposit. No deposits are needed for a standard configuration.

Here are the PSU configurations and prices of the standard rigs, that I try to always keep in stock:

- £550 - 2x Antec NEG 700W (1400W rated total, 980W continuous total) This is the most popular option.
- £590 - 2x Antec EAG 750W (1500W rated total, 1200W continuous total)
- £620 - 3x Antec NEG 700W (2100W rated total, 1470W continuous total)
- £680 - 3x Antec EAG 750W (2250W rated total, 1800W continuous total)

There are also two more models configurations that I sometimes get requests for, however not often enough to keep them in stock. Because of this, I build them to order and I take a small deposit for them, as I do with all custom orders:

- £740 - 3x 850W (2550W rated total, 2040W continuous total)
- £890 - 3x 1000W (3000W rated total, 2400W continuous total)

1.1.1 Stacking Rigs

The rigs are designed to be stack-able with the use of a mounting kit. The mounting kits are available for £10 for a set, and they include all the adapters and bolts required to mount two rigs together.

1.2 Important to know before buying

There are some limitations or things that I think are important to know before buying a rig:

1.2.1 Power limit

Check the previous section for what power supply configurations I offer. You can check the power consumption of each graphics card on the following website:

`https://www.hashrate.no`

It could sometimes be a good idea to get a slightly higher rated power supply configuration than you need. Some coins make the cards use more power, or have ocassional power spikes (Raven specifically).

Also the power supplies are most efficient at 50% load. For example a typical Gold rated power supply would be 90% efficient at 50% load, and 88% efficient at 70 - 80% load. So for example a £550 rig running at the max recommended 980W would use 980W / 0.88 = 1113W from the wall. The £620 rig with the same 980W load would use 980W / 0.9 = 1089W from the wall. This is a 24W difference with the same load. Assuming a typical UK electricity cost of £0.18 per kWh, this difference will cost an extra 0.18 * 0.024 = £0.00432 per hour, £0.104 per day, and £3.11 per month. It would take 22 months to make up the £70 difference between the two rig configurations just from the difference in efficiency.

1.2.2 Fees

SMOS has a 2$ per month per rig fee, and it comes with one month free. This is paid by sending crypto (usually LTC) to a wallet address shown on their website. HiveOS has no fees for up to 4 rigs, but afterwards it is 3$ per month per rig for all rigs, including first 4.

The HiveOn pool has no fees, and has a payout of 0.1 ETH. This means that every time you reach 0.1 ETH, then the amount earned will be transferred to your walled. There are other pools with lower payouts, such as Ethermine with 0.01 ETH, which means that you'll get paid out more often, but they charge transaction fees so the amount earned will be less or equal to HiveOn.

If you use a Binance wallet for your mining, trading and withdrawing, there is a £1.50 fee per transaction to withdraw GBP to an UK bank account. If you use Coinbase, there are no fees to withdraw, but they do have a slightly larger spread for currency conversions.

1.2.3 Mixing graphics cards

The rig is compatible with any graphics cards, as long as you stick to the Power Limits explained in chapter 1.2.1. Only limitation is that when using SimpleMiningOS you can't have Nvidia and AMD GPUs in a rig at the same time. You have to stick to just one type at a time.

HiveOS does allow using both Nvidia and AMD GPUs at the same time.

1.2.4 Graphics cards recommendations

Generally most modern cards that have 6GB or more VRAM are a good choice, with a few exceptions listed below.

A lot of AMD cards can benefit from a modded BIOS to get a higher hashrate, which is generally quite easy to do. Send me a message if you want to check if your gpu would benefit from a modified BIOS.

The RTX 3080 and RTX 3090 tend to often come with pretty low quality thermal pads, which results in memory reaching temperatures of 110°C and the hashrate reducing because of throttling. To get the full hashrate, and improve the longevity of the cards, I recommend replacing the thermal pads with higher quality ones. Around half of the RTX 3080 and 3090 i came across needed the upgrade. If you do it yourself, you can expect to pay around £15 for pads for a card if you get them directly from China, or around £35-40 if buying from UK.

Some Nvidia cards are LHR, which results of them only being able to reach around 70% of their full potential. All RTX 3060, 3070 Ti and 3080 Ti have hashrate limiters built in by default. There are both LHR and non LHR versions of 3060 Ti, 3070, 3080. Generally all new cards except the Founders Editions of these 3 cards are LHR. All of 3090 are non LHR.

1.2.5 Crypto volatility

Something to keep in mind is that Crypto Currencies are volatile, so it is pretty much impossible to predict what the earnings would be like in the future. They can either stay constant, go up, or down. I'd recommend doing your own research before making a decision to buy a rig, the same way you would do with any investments.

1.2.6 Using Wifi instead of Ethernet

By default the rig uses Ethernet to connect to the internet. It is the recommended way for the highest reliability. If you do need to connect it to Wifi, I recommend using a Wifi Range Extender as a Wifi to ethernet converter. A model that I tested and works very well is TP Link TL-WA850RE. It is usually available on Amazon for under £15.

Technically SMOS and HiveOS support USB wifi adapters, but I tried a few of the recommended models and I did get a few dropouts per day even when the rig was only a few meters away from the router, so I would not recommend them.

1.3 Profitability calculator

You can check the expected income and profits you would get from any graphics card using the following website:

`https://whattomine.com/`

It tends to be a bit conservative in terms of the hashrates for each card, so to get a more accurate estimate you can copy the hashrate for each card on hashrate.no.

It also shows the profitability of various crypto coins, so it can be used to see if there are any better coins to mine than Ethereum. Generally Ethereum has been the most profitable one for a long time, so you don't have to check this too often, and if anything happened that would cause another coin to be more profitable, you'd likely head about it in the news.

2 Initial Setup

This chapter will go through the steps of doing the initial setup of the rig. I would usually help out and do the initial setup when you would be collecting the rig, but you can keep this just as a future reference. This section is for SimpleminingOS only.

2.1 Setting up a Simple Mining account

To use the rig, you need a Simple Mining account on their website listed below. The system will be controlled via their website, and it can be accessed either on a phone or on a computer.

`https://simplemining.net/`

2.2 Setting up an Ethereum wallet

You also need an Ethereum wallet to which the rig will mine. If you have a pre-existing one, then you can use that. If not, then there are a variety of types of wallets you could use, eg hot vs cold, software vs hardware etc. I recommend looking up the options before making a decision if you are unsure.

If you are planning to convert to GBP soon after payout, and not to hold Ethereum long term, then I recommend mining directly to a Binance wallet. To make an Binance wallet, first register to your account using the following link:

`https://www.binance.com/en`

After making an account, verify your identity there, using for example your driving licence or passport. Once that's done, go to Wallet - Fiat and Spot. Then press on Deposit, Crypto and search for "ETH". Then make sure that "ERC20" is selected, and the long string of characters is your Ethereum wallet address. Other people can use it to send Ethereum to your account.

Be careful regarding mining directly to wallets from exchanges other than Binance. A lot of them advise against that, and they often change the wallet addresses. Binance is the only one that explicitly allows mining, and I did not have any issue using them for a long time.

2.3 Connecting the rig to the Simple Mining Account

Take the USB stick out of the rig, and plug it into a computer. It contains a few different partitions, one of which can be opened by windows and contains a config.txt. Open it, replace the email address there with the one you used for your Simple Mining account, save, close, and unmount the USB stick. Plug it into the rig, then connect the power and ethernet cables, turn both power supplies on at the same time, and the rig will turn on and will automatically connect to your account.

Now log in into the Simple Mining website on a computer or phone, go to Rig List. At the top of the page there is a button that either says "Add Rig", or "Adding rigs allowed for X Min". If it says "Add Rig", press on it, and then press on the blue Allow button in the bottom left. If instead that button says "Adding rigs allowed for X Min", then there is nothing left to do. The rig should show up in the Rig List within about 2-3 minutes at most.

2.4 Setting up the mining configs

2.4.1 Creating a new config

Next step is to actually tell the rig what it will be mining, what miner and pool to use, and what wallet it will be mining to. To do this go to the Simple Mining website, log in, press on the "Group Config" , then on the Green "Add group" button. This will show a list of different miners it can use. Search for the "t-rex" if you are using Nvidia cards, or "team red miner" if you are using AMD cards, press on the plus button

to the left of the name, and this will open a list of miner versions, with the most recent ones at the top. Press on the green "Use" button for the most recent one. If you are on a phone, you might have to go into landscape mode to see the button.

This will open a new menu. For Group Name, you can type in anything. I usually would type in the specific coin it is mining, since this is what this group config will be mining, so in this case it would be "ETH"

The Miner Options will contain what pool it will use and your Ethereum wallet, as well as some other thing. To generate them, go to the link below and choose the required options since it is pretty self explanatory:

`https://www.hashrate.no/options`

Then copy the long string that hashrate.no generated, and replace the original contents of Miner Options in simplemining with what you have just copied. Once that's done, press on the blue "Add group" button in the bottom right.

2.4.2 Applying the config

To apply the config to the rig, go to "Rig List", press on the Green "i" button for the rig, and this will open a page with details about the rig. Press on Actions, Group Config, in the drop down menu select the config created earlier, and then press on Save. Now the rig will start mining if there are graphics cards installed

2.5 Adding graphics cards

Installing graphics cards is easy. While the rig is off, remove the screw from the frame that would hold the gpu, then install the GPU into the PCIe slot of the riser, secure the gpu to the frame using the screw, and then connect the power cable to the graphics card. Now you are ready to turn on the rig. After about 1-2 minutes, go to simplemining website, press on Rig List, press on the green "i" button, and the GPU should show up in the list. Now you should apply the tuning / overclocks which are explained in the next part to get a higher hashrate, reduce the temperature and have the GPU use much less power.

2.6 Tuning the Overclocks

Typical overclocks for mining have the power limit for GPUs vastly decreased to reduce the power consumption and temperature. The memory clock is increased for better performance, and the core clock is either increased or decreased depending on the model of the graphics card. Finding what settings you should use is easy, go to:

`https://www.hashrate.no/`

Then select the graphics cards you are using. Then it will show you the settings you should use for it. To input them, you would go to Rig List, and press on the green "i" button, and then press on the Overclocking button (third from the left, has 3 sliders as its icon). There you would copy the values that you got from hashrate.no, and you would separate them with a comma. The order of the values corresponds to the order of GPUs when pressing the green "i" button. Once the values are set, select "Reboot" and then press save. Now the rig will reboot, and it will start mining with tuned cards.

3 Monitoring

Generally you won't have to monitor the rig too much. Maybe just keep an eye on it a couple times per day initially to make sure it is running fine, but then you can just check it every couple of days.

3.1 Checking rig performance in Simple Mining

You can check the temperatures of the cards, if there were any downtimes, etc in Simplemining, by going into Rig List, and pressing on the green "i" button.

3.2 Checking earnings in HiveON pool

To check the current earnings, you would need to go to the pool website:

`https://hiveon.net/`

In the box, paste your Ethereum address. This only works after about half an hour of mining, as it takes time for your account to get setup. Once logged in you can see your balance, average hashrate and a few other stats.

4 Maintenance

There is generally next to no maintenance required for the rig. If it is in a dusty environment, blow the dust off from the parts every few months using canned air. Do not use a vacuum cleaner for that. Make sure to not let the fans spin when blowing air. Ideally keep them still with a finger while blowing the dust.

5 Contact Details

If you have any questions regarding the rigs, or if have any suggestions, you can contact me through the same method through which you have originally contacted me. If for some reason you are unable to do that, here is my Facebook profile link through which you can send me a message:

`https://www.facebook.com/vykku/`

6 Changelog

Version Number	Date	Changes
1.0	26.04.21	Initial Version
1.1	10.07.21	Added information about triple PSU rigs, HiveOS and LHR cards
1.2	13.09.21	Changed information about PSU options Updated miner and pool recommendations Updated the setup instructions to be more general Fixed formatting errors.
1.3	06.11.21	Updated PSU information and recommendations Made changes to the specs: from used H81 boards to new AM4 boards from LGA1150 Intel Celeron to AM4 Athlon 200GE from 4GB DDR3 to 4GB DDR4 RAM
1.4	08.11.21	Fixed a typo related to PSU quantities
1.5	30.12.21	Added details about stacking mounting kits