

## Mining with Red Fury USB ASIC miners

To mine for Bitcoins you will need a few things; a Bitcoin wallet, hardware to hash blocks, software (drivers) to install the hardware, register with a pool to increase luck, and software to communicate the hashing.

### Get a Bitcoin Wallet

In order for any mined Bitcoins to be paid to you, you need a “wallet”. This is a long string of characters and will look something like this:

1H8jRvopuXXeGjL81JoFAc4paBQpjs6kPN

You can register for an online wallet here: <http://blockchain.info/wallet>

Although wallets created online are fine, there have been instances of websites being hacked and people losing their Bitcoins. The recommended way of creating a wallet is to download the original Bitcoin software called “Bitcoin-qt”, so your Bitcoins are stored on your own computer. You can download it from here:

<http://bitcoin.org/en/download>

Be aware that the Bitcoin-qt software needs to download the entire transaction history for every Bitcoin ever made. This can take a few days!! Be patient. Once the database is fully downloaded, it is recommended to run the software every few days to allow it to catch up with all the transactions.

By generating and using a wallet stored on your computer, your Bitcoins will be much safer. ALWAYS BACK-UP YOUR WALLET! If you lose your wallet address, you have LOST any Bitcoins associated with it.

### The Hardware

The [Red Fury USB miner](#) is an ideal device to get into Bitcoin mining. As they are USB, you can run up to 127 devices from one USB port, although you will need a powered USB hub if you intend to run more than a few from the same port.

### The Hardware Driver

Windows may not recognise the Red Fury USB device, and cgminer may say “failed to initialise (incorrect device?)”.

Use free software called “zadig”. This allows you to specify a driver for unsupported hardware. You can download it and get install details from here: <http://zadig.akeo.ie>

Using “zadig” is the recommended, tried and tested way of installing the Red Fury USB driver for Windows. Alternatively you can try Windows drivers from here: <http://minecoin.net/bluefuryredfury-driver-for-windows/>

On a Mac, OSX doesn't immediately understand what the [Red Fury USB](#) hardware is. With the device plugged in (The Red Fury USB device must be plugged in when running the below commands, otherwise you will get an error message), open a Terminal and type the following:

```
sudo kextunload -b com.apple.driver.AppleUSBCDC
```

It will ask for your password to disable the driver, so type it in and press enter.

Then type:

```
sudo kextunload -b com.apple.driver.AppleUSBCDCACMData
```

The drivers will be disabled. Don't worry. You haven't made any permanent changes to your Mac. These drivers will re-enable when your Mac is restarted.

Alternatively, if you use the Asteroid software on a Mac (see below) it will ask you if you wish to disable the drivers before it starts up. Asteroid will re-enable the drivers when the software is closed down.

### Register with a Pool

A pool is simply a collection of people all mining for the same block of Bitcoins. Using combined hashing power increases the chances of finding a block, but decreases the amount you get paid when the block is found (as the Bitcoins are shared between everyone who worked together).

I recommend you register with "Slush's Pool" here: <http://mining.bitcoin.cz> which is one of the original pools when Bitcoin mining started. You can expect a Bitcoin payment every 12-18 hours (as of Jan 2014).

Alternatively try [BTCGuild.com](http://BTCGuild.com) and you'll get much smaller payments almost hourly (as of Jan 2014).

The details you'll require to mine with pools are on their respective websites.

Once registered with a pool, you should log-in to the website and create a "worker". This is simply a way for the website to know which hardware is communicating with their servers. For example if you have two separate Red Fury farms on two separate computers (one at home, one at work), you could register them as two separate workers. You'd then be able to see on the website the exact mining details from each one. The benefit of this is you'll be able to identify a problem, such as if the cgminer software has crashed on one computer, or a hardware failure, etc.

Alternatively you can create a single worker and just run all of your separate machines as the same worker.

## The Hashing Software

The tried and tested software to mine with the [Red Fury USB miners](#) is “cgminer”. It works on Windows, Mac and Linux. Other software works too, but cgminer is the recommended one. The latest version (as of Jan 2014) is 3.11.0.

You can download all versions of cgminer for free from here:

<http://ck.kolivas.org/apps/cgminer/>

You can download precompiled Mac versions for free from here:

<http://spaceman.ca/cgminer/>

Alternatively for Mac, you can use GUI software called Asteroid, and can download it free from here: <http://www.asteroidapp.com>

## Mining

Now that you have everything you need, you can start mining!

Open cgminer. The first time you run it, it will detect you haven't entered any pool details. It will ask for a URL. If you registered with [Slush's Pool](#) the URL is:

stratum.bitcoin.cz:3333

If you registered with [BTCGuild.com](#) the URL is:

stratum.btcguild.com:3333

If you registered with a different pool, the URL details will be on their site. There's a list of alternative pools here: [https://en.bitcoin.it/wiki/Comparison\\_of\\_mining\\_pools](https://en.bitcoin.it/wiki/Comparison_of_mining_pools)

It will then ask for a username, which is the username you registered on the pool. This is where you combine your Pool username with your Worker username. For example if you registered as “DaveOnEbay”, and created a pool worker called “MyPC” then your username would be “DaveOnEbay.MyPC”

It will then ask for a password, which is either the password you used to register on the pool. Alternatively most passwords are null, so you can enter anything and it will accept.

Your [Red Fury USB](#) device will be identified and you'll start mining. The screen should look something like the next image:

```
cgminer version 3.9.0 - Started: [2014-01-26 22:04:14]
-----
(5s):11.56G (avg):10.97Gh/s | A:1783 R:25 HW:213 WU:159.5/m
ST: 2 SS: 0 NB: 2 LW: 2701 GF: 0 RF: 0
Connected to stratum.bitcoin.cz diff 8 with stratum as user
Block: 26c1efcc... Diff:2.19G Started: [22:12:27] Best share: 12.8K
-----
[P]ool management [S]ettings [D]isplay options [Q]uit
BF1 0: | 2.350G/2.100Gh/s | A:343 R: 0 HW:36 WU: 33.1/m
BF1 1: | 2.089G/2.367Gh/s | A:334 R: 6 HW:56 WU: 33.6/m
BF1 2: | 2.382G/2.332Gh/s | A:367 R: 0 HW:23 WU: 33.1/m
BF1 3: | 2.307G/2.292Gh/s | A:284 R: 8 HW:24 WU: 32.7/m
BF1 4: | 2.460G/2.418Gh/s | A:455 R:11 HW:75 WU: 34.87m
-----
[2014-01-26 22:04:14] Network diff set to 2.19G
[2014-01-26 22:15:17] Accepted 1f1aa8c7 Diff 8/8 BF1 4
[2014-01-26 22:15:18] Accepted 02c99690 Diff 92/8 BF1 4
[2014-01-26 22:15:18] Accepted 1ae8fbcc Diff 10/8 BF1 2
[2014-01-26 22:15:22] Accepted 1f503ed7 Diff 8/8 BF1 1
[2014-01-26 22:15:22] Accepted 1945175b Diff 10/8 BF1 4
[2014-01-26 22:15:22] Accepted 11218571 Diff 15/8 BF1 2
[2014-01-26 22:15:22] Accepted 1c45f920 Diff 9/8 BF1 2
[2014-01-26 22:15:24] Accepted 05671f6e Diff 47/8 BF1 1
[2014-01-26 22:15:24] Accepted 1e322390 Diff 8/8 BF1 4
[2014-01-26 22:15:27] Accepted fd887b73 Diff 258/8 BF1 2
```

This image shows cgminer is running correctly. The above image shows five [Red Fury USB miners](#) hashing at a combined speed of almost 11 billion hashes per second (10.97GH/s). It also shows which pool you are connected to (stratum.bitcoin.cz, ie Slush's Pool) and your username (redacted from above image).

Once this is all connected you should tell cgminer to save this configuration. If you don't and the program closes, you will need to type in all of your pool details again. The steps to save the configuration are the same on both PC and Mac:

Run cgminer, press "S" for Settings, then press "W" for Write Config File, then press Enter. This stores your config.

Now you only need to open cgminer and it'll start hashing with your details as soon as it loads. You can also configure cgminer to have a "back-up" pool. So if your original pool fails for whatever reason (usually because the pool is down for maintenance), it will automatically switch to your back-up pool and won't lose any mining time:

Press "P" for Pool, then "A" for Add, enter the URL of the back-up pool, the username for the back-up pool and the password for the back-up pool. Now cgminer will switch to your back-up pool if your original pool fails. You can switch between them by going into the same menu ("P").

## BONUS: Litecoin Info

### **Convert Bitcoin into Litecoin**

Litecoin is potentially the silver to Bitcoin's gold. It's suggested that Litecoin may become the successor to Bitcoin.

If your bog standard computer processor isn't fast enough to mine Litecoins directly and you don't have expensive Litecoin mining hardware or an expensive GPU graphics card, I recommend using your Bitcoin hardware instead. Generate smaller amounts (0.01 or more) and trade them.

Using a website such as [CEX.IO](http://CEX.IO) will allow you to openly trade your Bitcoin for other currency. You can mine for Litecoin on your own computer using software such as cgminer or Asteroid, but the amounts generated are truly tiny, unless you have expensive graphics cards.

Currently (as of Jan 2014), you can trade 0.025 Bitcoins for 1 Litecoin.