adafruit learning system

# PiMiner Raspberry Pi Bitcoin Miner

Created by Collin Cunningham


Last updated on 2018-08-22 03:36:14 PM UTC

## Guide Contents

## Initial Setup & Overview

WARNING - this project is for historical reference only. The mining process has changed considerably since this guide written and project code will need to be overhauled before use.

First off, if you're wondering what bitcoins are, Learn more here (https://adafru.it/cgM).

Building this project will allow you to use a Raspberry Pi as a 'headless' controller and status monitor for your USB bitcoin mining devices. The project incorporates an LCD to display hashrate, error rate, share data, network difficulty, mining duration, & current exchange rates.


## What you'll need:

- Raspberry Pi (http://adafru.it/998)+ SD Card running Raspbian (http://adafru.it/1121) configured for network access
- Adafruit 16x2 LCD + Keypad Kit (any color style will work) assembled & installed
- I2C, & Adafruit Pi Code libraries installed on Pi (https://adafru.it/aTI)
- USB Bitcoin Mining Device
- Powered USB Hub (needed for USB powered miners) (http://adafru.it/961) - most hubs can power up to 4 of these miners (others may use more or less current). You can always get more hubs, one for every 4 miners!
- Mining Pool Account (Login/Password)
- Your Computer (for configuration and setup)

Before you start this tutorial you'll need a fully working Pi with network setup and also an assembled Adafruit LCD Pi Plate.

For help with initial setup, check out the following tutorials:

- Lesson 1. Preparing an SD Card for your Raspberry Pi (https://adafru.it/aWq)
- Lesson 2. First Time Configuration (https://adafru.it/aUa)
- Lesson 3. Network Setup (https://adafru.it/aUB)
- Lesson 4. GPIO Setup (https://adafru.it/aTH)
- Adafruit 16x2 Character LCD + Keypad for Raspberry Pi (https://adafru.it/cgw)

When you've got all that working, come back here!

## A note about USB mining devices

At the time of this writing, dedicated bitcoin mining hardware can be somewhat hard to find, but they are becoming more common as next generation ASIC-based devices are released. A number of open source projects and related info can be found in the BitcoinTalk forums (https://adafru.it/cgx).

For this tutorial I'll be using ASICMiner Block Erupter USB devices. Though this tutorial uses details specific to the Block Erupter USB, a few small modifications should make it work with any hardware compatible with cgminer v3.1.1

## Install Software

### cgminer

Cgminer (https://adafru.it/diY) is a cross-platform program for mining crypto-currency with support for SHA-256 (https://adafru.it/cgB) and scrypt (https://adafru.it/cgC) algorithms, as well as drivers for a broad range of mining hardware.

To install cgminer on the Pi, we'll first need to connect to the Pi via ssh (https://adafru.it/aWc) or console cable (https://adafru.it/aUA).

Once you're logged in, ensure all preexisting software is up to date by entering the following:

```
sudo apt-get update
```

After the update has completed, Install the all of cgminer's software dependencies by entering:

```
sudo apt-get install libusb-1.0-0-dev libusb-1.0-0 libcurl4-openssl-dev libncurses5-dev libudev-dev
```

Once dependencies are installed, download the cgminer software using:

```
cd
```

```
wget http://ck.kolivas.org/apps/cgminer/3.1/cgminer-3.1.1.tar.bz2
```

Note: this is not the latest version of cgminer, at the time of this writing, the current version (3.3.1) has issues communicating with Block Erupter USB on Raspbian

After the download is complete, decompress it by entering the following:

```
tar xvf cgminer-3.1.1.tar.bz2
```

Move to the decompressed cgminer directory:

```
cd cgminer-3.1.1
```

Configure the software for use with Block Erupter USB devices:

```
./configure --enable-icarus
```

Note: Other device types will require specific "--enable" parameters, see cgminer's README files for more info