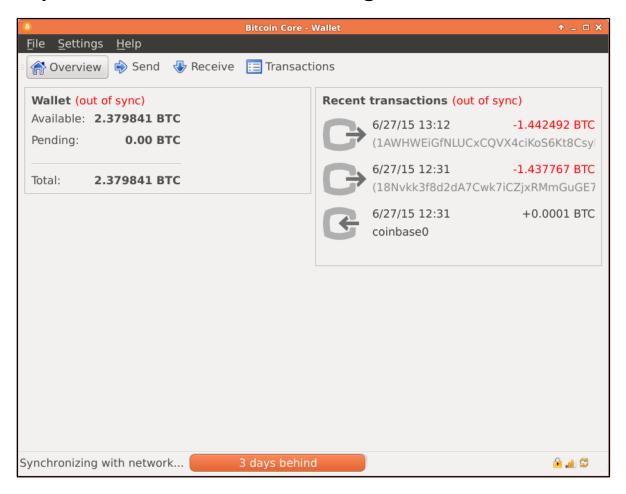
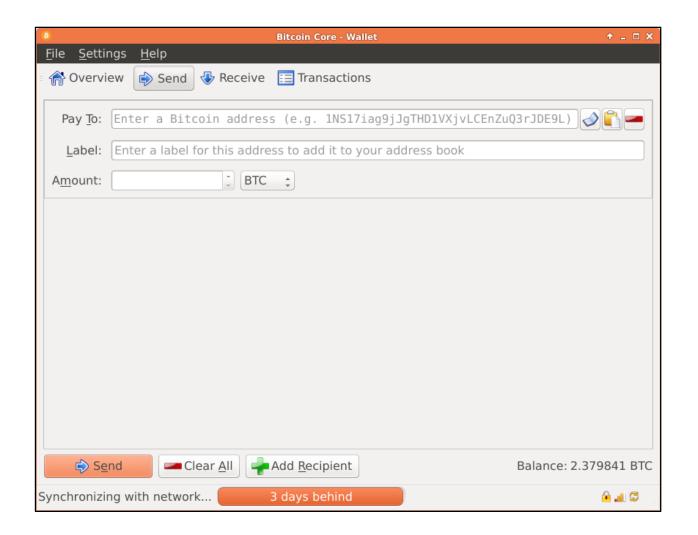
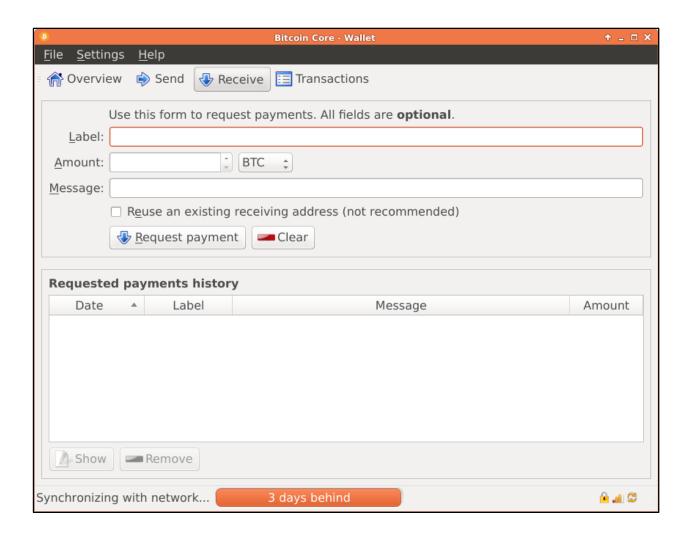
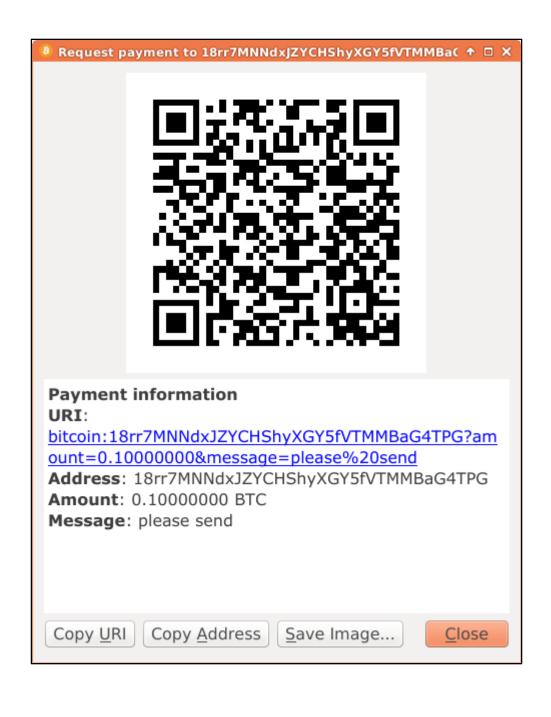
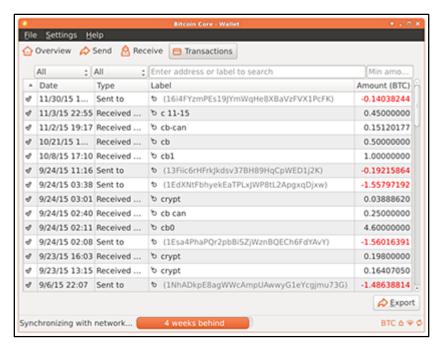
Chapter 1 Bitcoin Wallets and Mining Software

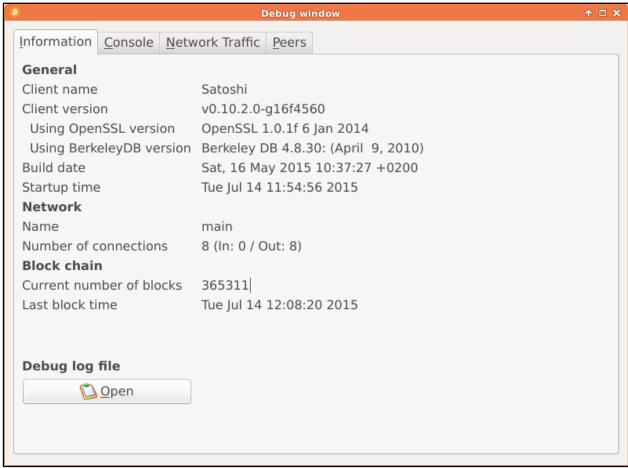


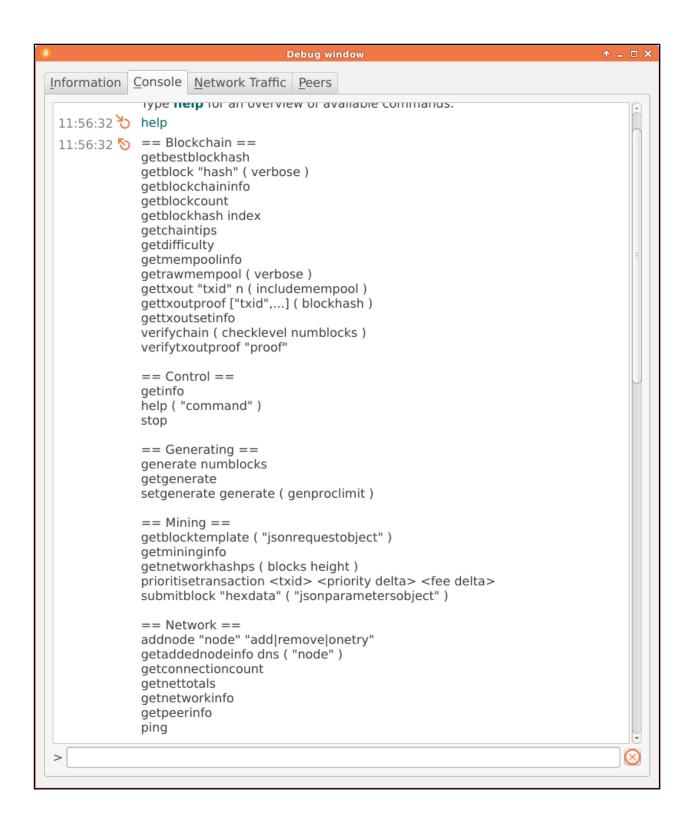




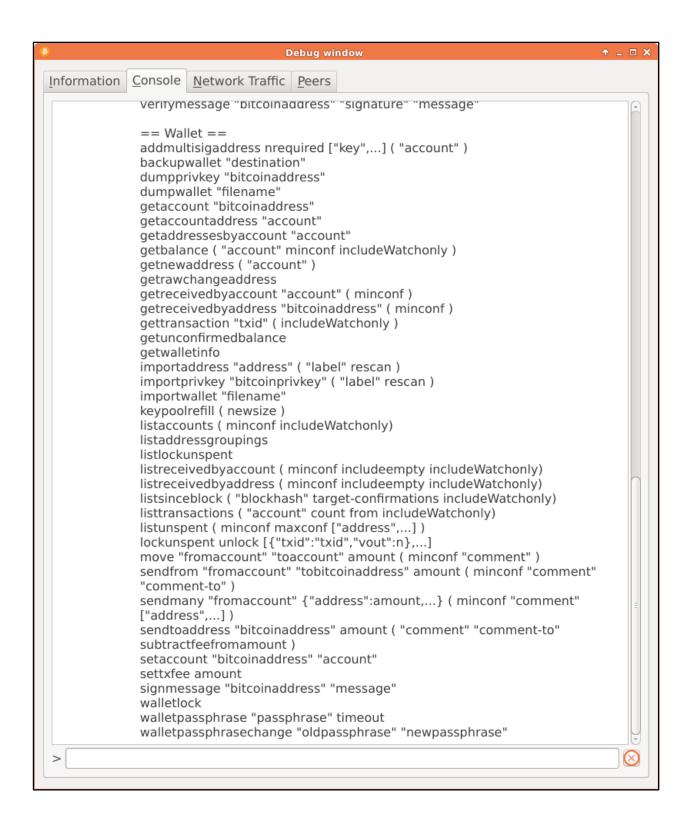




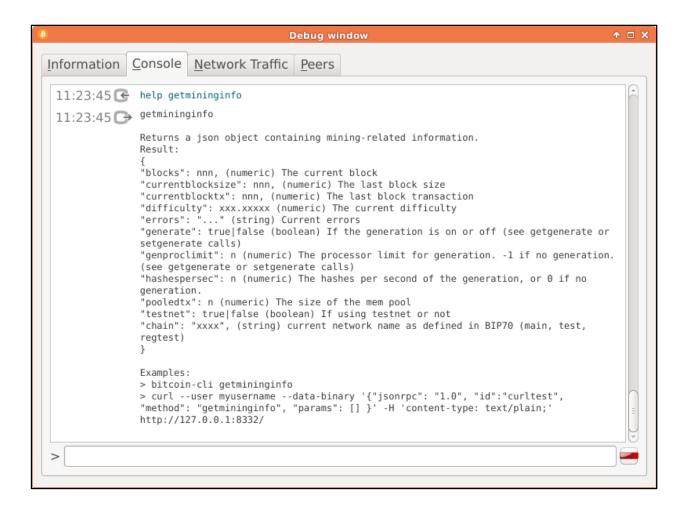




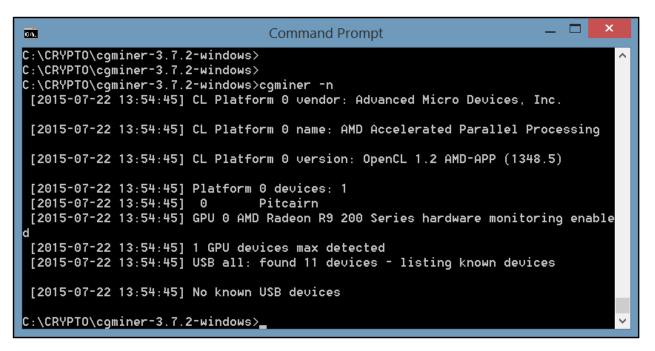




```
Debug window
<u>Information</u> <u>C</u>onsole <u>N</u>etwork Traffic <u>P</u>eers
                     listreceivedbyaddress ( minconf includeempty includeWatchonly)
                     listsinceblock ( "blockhash" target-confirmations includeWatchonly) listtransactions ( "account" count from includeWatchonly)
                     listunspent ( minconf maxconf ["address",...] )
lockunspent unlock [{"txid":"txid","vout":n},...]
                     move "fromaccount" "toaccount" amount ( minconf "comment" )
                     sendfrom "fromaccount" "tobitcoinaddress" amount ( minconf "comment" "comment-to" )
sendmany "fromaccount" {"address":amount,...} ( minconf "comment" )
                     sendtoaddress "bitcoinaddress" amount ( "comment" "comment-to" )
                     setaccount "bitcoinaddress" "account"
                     settxfee amount
                     signmessage "bitcoinaddress" "message"
                     walletlock
                     walletpassphrase "passphrase" timeout
                    walletpassphrasechange "oldpassphrase" "newpassphrase"
  11:19:38 🕒 getmininginfo
 "currentblocksize" : 0,
                     "currentblocktx" : 0,
                     "difficulty": 51076366303.48192596,
"errors": "",
"genproclimit": -1,
"networkhashps": 353872920536823808,
                     "pooledtx" : 44,
                     "testnet" : false,
"chain" : "main",
                     "generate" : false,
                     "hashespersec" : 0
>
```

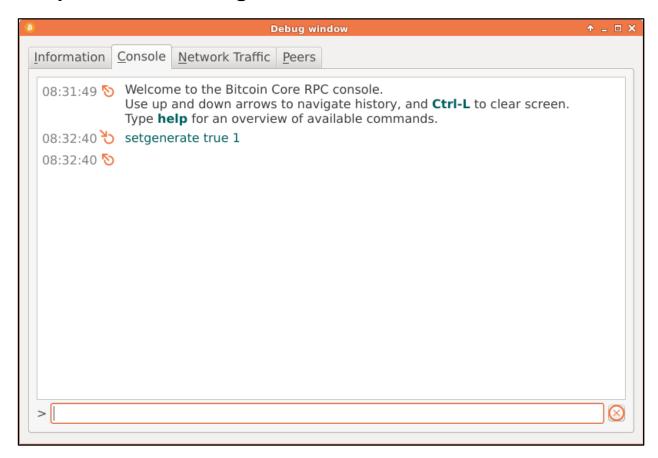


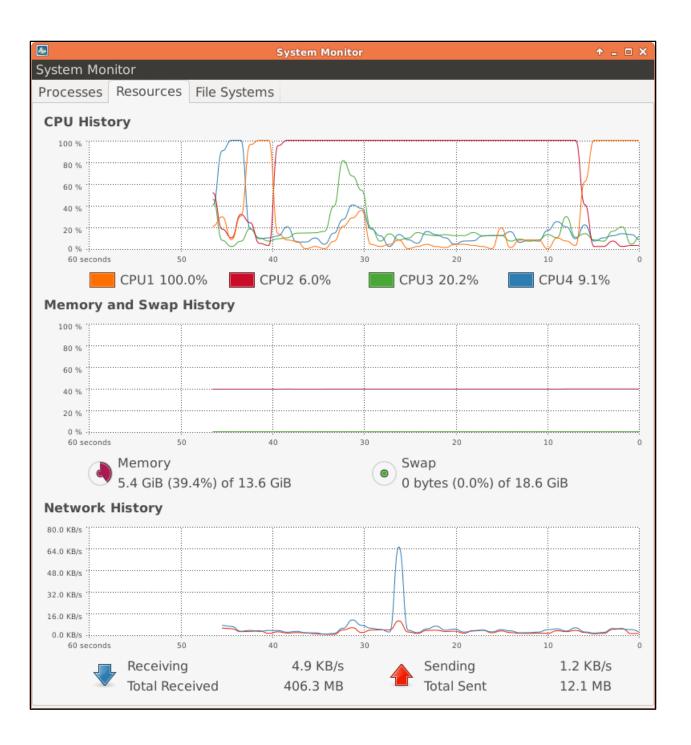
```
Debug window
Information Console Network Traffic Peers
 11:23:11 G getblockchaininfo
 11:23:11 🕞 {
               "chain" : "main"
               "blocks" : 365307,
"headers" : 365307,
               "bestblockhash" :
               "000000000000000000eecb8c5dabfede194627d53fddfdb685103e5317a7e175e".
               "difficulty" : 51076366303.48192596,
               "verificationprogress": 0.99999694,
               11:23:29 A help getblockchaininfo
 11:23:29 😝 getblockchaininfo
               Returns an object containing various state info regarding block chain processing.
               Result:
               "chain": "xxxx", (string) current network name as defined in BIP70 (main, test,
               reatest)
               "blocks": xxxxxx, (numeric) the current number of blocks processed in the server
               "headers": xxxxxx, (numeric) the current number of headers we have validated
               "bestblockhash": "...", (string) the hash of the currently best block
               "difficulty": xxxxxx, (numeric) the current difficulty
               "verificationprogress": xxxx, (numeric) estimate of verification progress [0..1]
               "chainwork": "xxxx" (string) total amount of work in active chain, in hexadecimal
               }
               Examples:
               > bitcoin-cli getblockchaininfo
               > curl --user myusername --data-binary '{"jsonrpc": "1.0", "id":"curltest",
               "method": "getblockchaininfo", "params": [] }' -H 'content-type: text/plain;'
               http://127.0.0.1:8332/
>
```

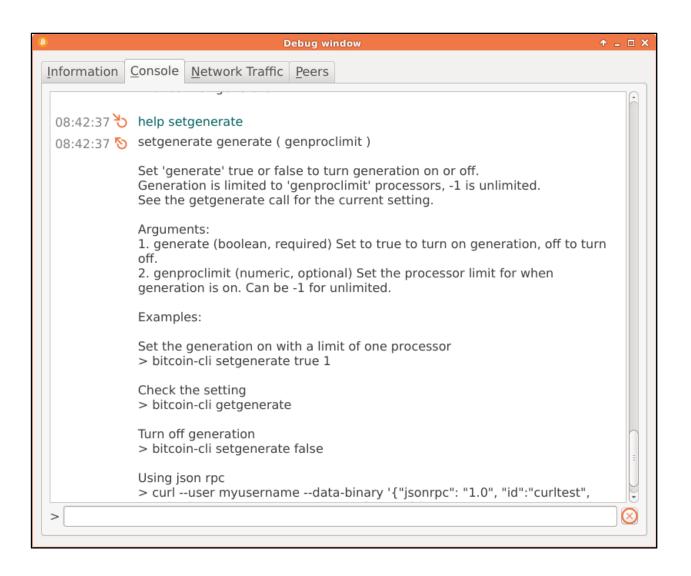


```
Command Prompt - cgminer -c C:\CRYPTO\cgminer-config\cgminer-multi... — 🗖
cgminer version 3.7.2 - Started: [2015-07-22 13:23:30]
(15s):136.7M (aug):350.4Mh/s | A:0 R:0 HW:0 WU:3.9/m
ST: 2 SS: 0 NB: 1 LW: 6 GF: 0 RF: 0
Connected to us-west.multipool.us diff 256 with stratum as user 0xfffff.280x
Block: 1d4d1f7d... Diff:1.9K Started: [13:23:30] Best share: 2
[P]ool management [G]PU management [S]ettings [D]isplay options [Q]uit
GPU 0: 52.0C 1151RPM | 212.8M/613.2Mh/s | A:0 R:0 HW:0 WU: 7.8/m I:13
[2015-07-22 13:23:26] Started cgminer 3.7.2
[2015-07-22 13:23:26] Loaded configuration file C:\CRYPTO\cgminer-config\cgmine
r-multipool-sha256-q6600.conf
[2015-07-22 13:23:29] Probing for an alive pool
[2015-07-22 13:23:29] Pool 0 difficulty changed to 16384
[2015-07-22 13:23:30] Pool 0 difficulty changed to 256
[2015-07-22 13:23:30] Network diff set to 1.9K
```

Chapter 2: CPU Mining







```
File Edit View Search Terminal Help
>>cd Programs/CRYPTO/MINING/
minerd
>>minerd --help
Usage: minerd [OPTIONS]
                          sha256d
  -0, --userpass=U:P
                        username:password pair for mining server
  -p, --pass=PASSWORD
      --cert=FILE
  -x, --proxy=[PROTOCOL://]HOST[:PORT] connect through a proxy
  -s, --scantime=N
                        upper bound on time spent scanning current work when
      --coinbase-sig=TEXT
                        disable getblocktemplate support
                        disable X-Stratum support
                        ignore requests to change the URL of the mining serve
                        disable per-thread hashmeter output
  -P, --protocol-dump
  -B, --background
                        run the miner in the background
      --benchmark
  -c, --config=FILE
                        display version information and exit
```

```
File Edit View Search Terminal Help

[2015-07-31 14:24:11] Binding thread 1 to cpu 1

[2015-07-31 14:24:11] A miner threads started, using 'sha256d' algorithm.

[2015-07-31 14:24:11] Starting Stratum on stratum+tcp://us-west.multipool.us:

9999

[2015-07-31 14:24:11] Binding thread 0 to cpu 0

[2015-07-31 14:24:11] Binding thread 2 to cpu 2

[2015-07-31 14:24:11] Binding thread 3 to cpu 3

[2015-07-31 14:24:12] Stratum requested work restart

[2015-07-31 14:24:13] thread 3: 2097152 hashes, 5466 khash/s

[2015-07-31 14:24:13] thread 0: 2097152 hashes, 5346 khash/s

[2015-07-31 14:24:13] thread 1: 2097152 hashes, 5285 khash/s

[2015-07-31 14:24:13] thread 2: 2097152 hashes, 5095 khash/s

[2015-07-31 14:24:13] thread 2: 2097152 hashes, 5095 khash/s

[2015-07-31 14:24:40] Stratum requested work restart

[2015-07-31 14:24:40] thread 0: 130436820 hashes, 4786 khash/s

[2015-07-31 14:24:40] thread 0: 130436820 hashes, 5081 khash/s

[2015-07-31 14:24:40] thread 2: 138369740 hashes, 5081 khash/s

[2015-07-31 14:25:10] thread 3: 137903896 hashes, 5059 khash/s

[2015-07-31 14:25:10] thread 3: 142947720 hashes, 4782 khash/s

[2015-07-31 14:25:10] thread 1: 155934900 hashes, 5217 khash/s

[2015-07-31 14:25:10] thread 2: 149922832 hashes, 5016 khash/s

[2015-07-31 14:25:10] thread 2: 149922832 hashes, 5016 khash/s
```

Chapter 3: GPU Mining

```
File Edit View Search Terminal Help

>>lspci | grep VGA

00:01.0 VGA compatible controller: Advanced Micro Devices, Inc. [AMD/ATI] Rich
land [Radeon HD 8670D]

01:00.0 VGA compatible controller: Advanced Micro Devices, Inc. [AMD/ATI] Tahi
ti XT [Radeon HD 7970/8970 OEM / R9 280X]

>>
```

```
File Edit View Search Terminal Help

>>sudo aticonfig --adapter=1 --odgt

Adapter 1 - AMD Radeon R9 200 Series
Sensor 0: Temperature - 37.00 C

>>
```

```
Terminal ↑ - □ X

File Edit View Search Terminal Help

>>cgminer -V

cgminer 3.7.2

>>
```

```
File Edit View Search Terminal Help

>>cgminer -n
[2016-01-07 15:10:18] CL Platform 0 vendor: Advanced Micro Devices, Inc.

[2016-01-07 15:10:18] CL Platform 0 name: AMD Accelerated Parallel Processing
[2016-01-07 15:10:18] CL Platform 0 version: OpenCL 2.0 AMD-APP (1642.5)

[2016-01-07 15:10:18] Platform 0 devices: 2
[2016-01-07 15:10:18] 0 Tahiti
[2016-01-07 15:10:18] 1 Devastator
[2016-01-07 15:10:18] GPU 0 AMD Radeon R9 200 Series hardware monitoring enabled
[2016-01-07 15:10:18] GPU 1 AMD Radeon HD 8670D hardware monitoring enabled
[2016-01-07 15:10:18] 2 GPU devices max detected

>>
```

```
File Edit View Search Terminal Help
 libcurl(GBT+getwork).: Enabled: -lcurl
 OpenCL..... FOUND. GPU mining support enabled
 ADL..... SDK found, GPU monitoring support enabled
 BitForce.FPGAs....: Disabled
 Icarus.ASICs/FPGAs...: Disabled
 ModMiner.FPGAs....: Disabled
 CFLAGS..... -q -02
 LDFLAGS..... -lpthread
 prefix..... /usr/local
```

```
Command Prompt - cyminer - o stratum+tcp://us-west.multipool.us:9999 - u 0xfffff;280x - px - l 11 - thread-con... — X cyminer version 3.7.2 - Started: [2015-08-15 16:58:58]

(5s):381.3M (avg):390.6Mh/s | A:0 R:0 HW:0 WU:5.3/m
ST: 2 SS: 0 NB: 1 LW: 20 GF: 0 RF: 0
Connected to us-west.multipool.us diff 256 with stratum as user 0xffffff.280x
Block: 1fd4930d... Diff:52.7G Started: [16:58:59] Best share: 14

[P]ool management [G]PU management [S]ettings [D]isplay options [Q]uit
GPU 0: 68.0C 1953RPM | 398.4M/406.3Mh/s | A:0 R:0 HW:0 WU:5.3/m I:11

[2015-08-15 16:58:55] Started cgminer 3.7.2
[2015-08-15 16:58:57] Probing for an alive pool
[2015-08-15 16:58:58] Pool 0 difficulty changed to 256
[2015-08-15 16:58:59] Network diff set to 52.7G
```

Chapter 4: FPGA Mining

```
File Edit View Search Terminal Help

>>
>>
>>
>>
>>
>>cd ~/Programs/Cgminer/
>>cd cgminer-4.9.2-x86_64-built/
>>./cgminer -V
cgminer 4.9.2
>>
```



Chapter 5: ASIC Mining

```
File Edit View Search Terminal Help

>>
>>
>>
>>
>>
cd ~/Programs/Cgminer/
>>cd cgminer-4.9.2-x86_64-built/
>>./cgminer -V
cgminer 4.9.2
```

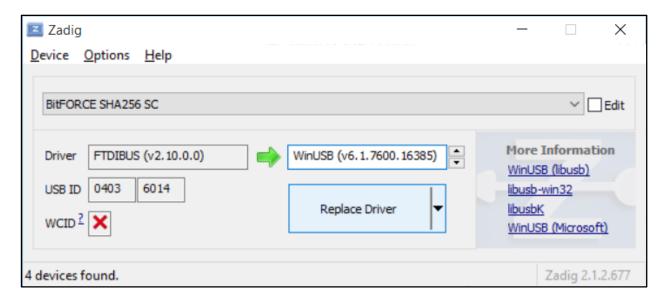
```
File Edit View Search Terminal Help

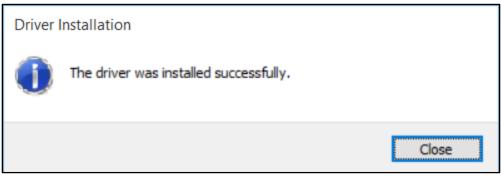
>>cd ~/Programs/Cgminer/cgminer-4.9.2-x86_64-built/
>>./cgminer -n

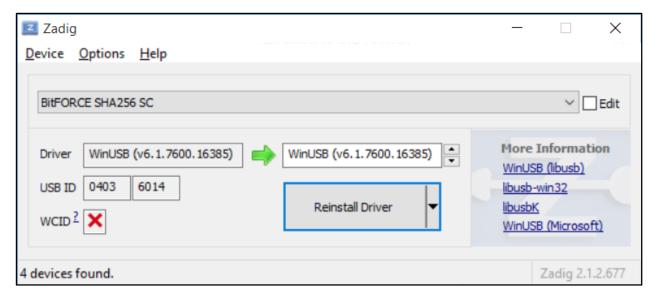
[2015-08-30 15:59:05] USB all: found 13 devices - listing known devices
.USB dev 0: Bus 2 Device 2 ID: 0403:6014

Manufacturer: 'Butterfly Labs'
Product: 'BitFORCE SHA256 SC'

[2015-08-30 15:59:05] 1 known USB devices
>>
```







```
Command Prompt
                                                                        X
                              11,166 linux-usb-cgminer.txt
08/23/2015 09:09 PM
08/23/2015 09:09 PM
                               5,678 MCast.class
08/23/2015 09:09 PM
                              80,998 miner.php
08/23/2015 09:09 PM
                              357,242 NEWS.txt
08/23/2015 09:09 PM
                              48,448 README.txt
08/23/2015 09:09 PM
                              364,544 ssleay32.dll
08/23/2015 09:09 PM
                              19,079 windows-build.txt
08/23/2015 09:09 PM
                               84,992 zlib1.dll
             26 File(s)
                             4,995,476 bytes
              2 Dir(s) 149,735,645,184 bytes free
C:\CRYPTO\cgminer-4.9.2-windows\cgminer-4.9.2-windows>cgminer -n
[2015-08-23 21:13:58] USB all: found 12 devices - listing known devices
.USB dev 0: Bus 2 Device 2 ID: 0403:6014
 ** dev 0: Failed to open, err -12
 [2015-08-23 21:13:58] 1 known USB devices
C:\CRYPTO\cgminer-4.9.2-windows\cgminer-4.9.2-windows>cgminer -n
 [2015-08-23 21:28:33] USB all: found 12 devices - listing known devices
USB dev 0: Bus 2 Device 2 ID: 0403:6014
 Manufacturer: 'Butterfly Labs'
 Product: 'BitFORCE SHA256 SC'
 [2015-08-23 21:28:33] 1 known USB devices
C:\CRYPTO\cgminer-4.9.2-windows\cgminer-4.9.2-windows>
```

```
File Edit View Search Terminal Help

cgminer version 4.9.2 - Started: [2015-08-30 16:03:25]

(15s):53.49G (1m):46.12G (5m):17.54G (15m):6.639G (avg):53.06Gh/s
A:2560 R:0 HW:4 WU:775.4/m
Connected to us-west.multipool.us diff 256 with stratum as user 0xffffff.280x
Block: 960fbdb6... Diff:54.3G Started: [16:03:25] Best share: 6.85K

[U]SB management [P]ool management [S]ettings [D]isplay options [Q]uit
0: BAS FTWVRJIR: max 70C 0.98V | 53.66G / 53.09Gh/s WU:775.4/m

[2015-08-30 16:03:25] Network diff set to 54.3G
[2015-08-30 16:03:29] Accepted 722938c1 Diff 574/256 BAS 0
[2015-08-30 16:03:29] Stratum from pool 0 requested work restart
[2015-08-30 16:03:54] Accepted fbb028b9 Diff 260/256 BAS 0
[2015-08-30 16:03:54] Accepted d348e57f Diff 310/256 BAS 0
[2015-08-30 16:04:18] Accepted a50662a4 Diff 397/256 BAS 0
[2015-08-30 16:04:33] Accepted 79c0e937 Diff 538/256 BAS 0
[2015-08-30 16:04:39] Accepted 099080lc Diff 6.85K/256 BAS 0
[2015-08-30 16:04:58] Accepted 56b80ab9 Diff 756/256 BAS 0
[2015-08-30 16:04:58] Accepted 56b80ab9 Diff 756/256 BAS 0
[2015-08-30 16:05:12] Accepted e5a7b95b Diff 285/256 BAS 0
[2015-08-30 16:05:17] Accepted 1c1169b8 Diff 2.33K/256 BAS 0
[2015-08-30 16:05:27] Accepted ff3e4e82 Diff 257/256 BAS 0
```

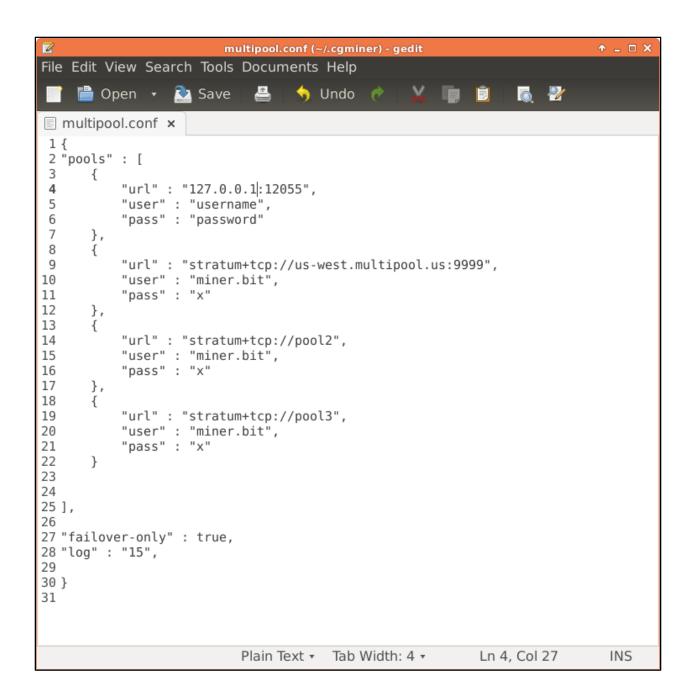
```
П
                                                                              ×
Command Prompt - cgminer -o stratum+tcp://us-west.multipool.us:9999 -O 0xfffff.280x:x
_cgminer version 4.9.2 - Started: [2015-08-23 21:31:24]
(5s):53.31G (1m):53.32G (5m):49.66G (15m):31.50G (avg):53.29Gh/s
A:11008 R:0 HW:26 WU:735.4/m
Connected to us-west.multipool.us diff 256 with stratum as user 0xfffff.280x
Block: 59f3fed9... Diff:54.3G Started: [21:39:11] Best share: 36.6K
[U]SB management [P]ool management [S]ettings [D]isplay options [Q]uit
0: BAS FTWVRJ1R: max 77C 0.98V
                                          52.67G / 53.29Gh/s WU:735.4/m
[2015-08-23 21:40:36] Accepted c64fad1e Diff 330/256 BAS 0
[2015-08-23 21:41:01] Accepted 8638947f Diff 488/256 BAS 0
[2015-08-23 21:41:41] Accepted 280336ea Diff 1.64K/256 BAS 0
[2015-08-23 21:41:54] Accepted c1790063 Diff 339/256 BAS 0
[2015-08-23 21:41:55] Accepted 9930478d Diff 428/256 BAS 0
[2015-08-23 21:42:05] Accepted ddbb6c02 Diff 296/256 BAS 0
[2015-08-23 21:42:22] Accepted a72ee5e3 Diff 392/256 BAS 0
[2015-08-23 21:42:58] Accepted f001745f Diff 273/256 BAS 0
[2015-08-23 21:42:59] Accepted 7c66d667 Diff 527/256 BAS 0
[2015-08-23 21:43:02] Accepted dcd07c3f Diff 297/256 BAS 0
[2015-08-23 21:43:08] Accepted 93d33807 Diff 443/256 BAS 0
[2015-08-23 21:43:47] Accepted deb85d2b Diff 294/256 BAS 0
[2015-08-23 21:44:00] Accepted 01ca73a7 Diff 36.6K/256 BAS 0
[2015-08-23 21:44:00] Accepted 44c97ff1 Diff 953/256 BAS 0
```

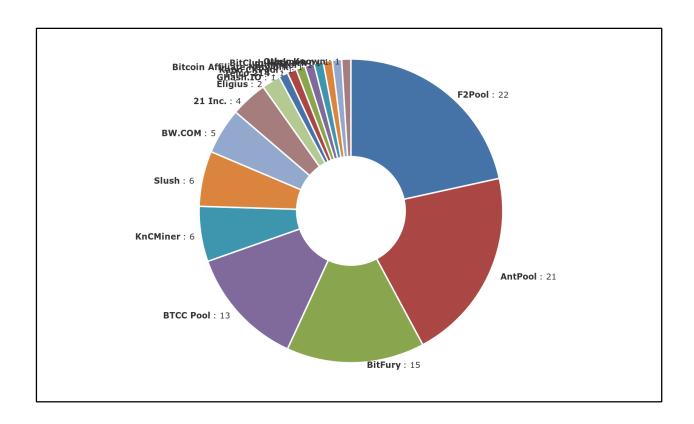
Chapter 6: Solo Versus Pool Mining

```
File Edit View Search Tools Documents Help

Plain Text v Tab Width: 4 v Ln 2, Col 27 INS
```

```
solo.conf (~/.cgminer) - gedit
File Edit View Search Tools Documents Help
    🛗 Open 🔻
                  Save
                                                                🕤 Undo
solo.conf x
 1 {
 2 "pools" : [
 3
      {
           "url" : "127.0.0.1:12055",
 4
           "user" : "username",
 5
           "pass" : "password"
 6
      }
 7
 8
 9
10],
11
12 "log" : "15",
13
14 }
15
                          Plain Text - Tab Width: 4 -
                                                           Ln 3, Col 6
                                                                            INS
```





Chapter 7: Large Scale Mining

