

# Automated trading

Do your first automated trade  
in ~45 minutes

Eric van Riet Paap & Marc Buma

# Automated Trading Workshop - How to participate

WATCH



YOUR NEIGHBOR GO

TRADE



FROM THE COMMAND LINE

TINKER



ENHANCE THE CODE

[ BRING YOUR LAPTOP ! ]

# Who we are

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# Introduction: the application

**buy** and **sell** coins using real **bitcoin**

place orders with two **command line utilities**

store **coin**, **order** and **historical data** in a **mongo** database

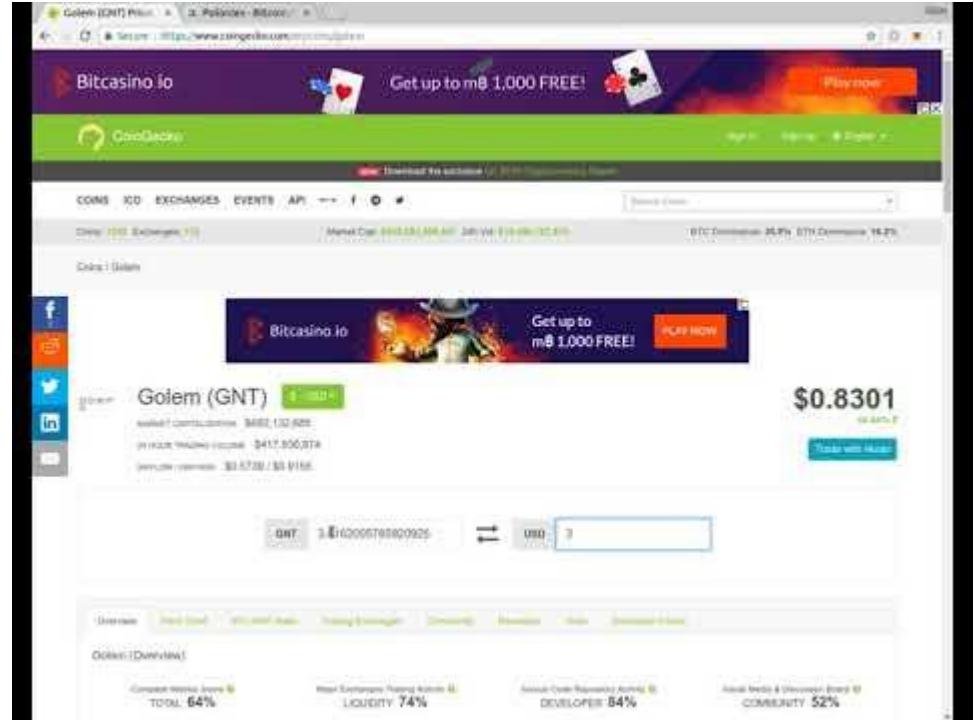
trade over a **REST API** on the **Poloniex** exchange

# Demo - Determine order size / price

## How much GNT and at what price?

<http://coingecko.com> -> amount (GNT)

<http://poloniex.com> -> price (BTC)



# Demo - Trade

```
marco@pyan:/storage/autotrade-master:179x20
INFO main welcome to autotrader
INFO index.exchange initializing poloniex
INFO index.exchange[1] exchange[1] initialized
INFO exchange.balance[poloniex] BTC: currently owning 137.47433663926627 USD / 0.01665513775 BTC
INFO index.balanceDisplay Portfolio value is 137.47433663926627 USD / 0.01665513775 BTC
INFO exchange.balance[poloniex] BTC: currently owning 137.47433663926627 USD / 0.01665513775 BTC
INFO exchange.order[poloniex] starting order 5aeb38b398cd26761831fa4c
INFO exchange.order[poloniex] limit buy 100 SC/BTC at max 0.000003
INFO index.balanceDisplay Portfolio value is 137.47433663926627 USD / 0.01665513775 BTC
INFO index.balanceDisplay poloniex 5aeb38b398cd26761831fa4c [open] - buy 100 SC/BTC [price:0.000003] [5/3/2018, 8:28:35 PM]
INFO exchange.balance[poloniex] BTC: currently owning 134.4036141220045 USD / 0.01635909775 BTC
INFO exchange.balance[poloniex] SC: currently owning 2.783279303122175 USD / 0.00029432105 BTC
INFO exchange.balance[poloniex] Current total balance is 137.3868929583167 USD / 0.0166544100 BTC
INFO exchange.order[poloniex] order reported closed on exchange [5aeb38b398cd26761831fa4c]
INFO index.balanceDisplay Portfolio value is 137.3868929583167 USD / 0.0166544100 BTC
INFO index.balanceDisplay poloniex 5aeb38b398cd26761831fa4c [done] - buy 100 SC/BTC [price:0.000003] [5/3/2018, 8:28:35 PM]
INFO exchange.balance[poloniex] BTC: currently owning 134.4036141220045 USD / 0.01635909775 BTC
INFO exchange.balance[poloniex] SC: currently owning 2.773874970311621 USD / 0.00029352684375 BTC
INFO exchange.balance[poloniex] Current total balance is 137.3774919231964 USD / 0.01665442459375 BTC

marco@pyan:/storage/autotrade-master:120x20
marco@pyan:/storage/autotrade-master node buy.js --coin SC --amount 100 --price 0.000003
{ symbol: 'SC/BTC',
  amount: 100,
  price: 0.000003,
  orderPrice: undefined,
  e: 'poloniex',
  t: 1525364975710,
  type: 'buy',
  status: 'new' }
marco@pyan:/storage/autotrade-master node sell.js --coin SC --amount 50 --price 0.0000075
```

# Introduction: the toolset

utilizing server side scripts written in **node.js** (we use v9.11.1)

using libraries installed with **npm** (we use v2.17.0)

persisting state and data in **mongodb** (we use v3.6.3)

source code from our **github** repository. Preferably using git tool. (we use v2.17.0)

explore with your favorite **text editor** (**sublime/atom/visual code/vi/...**)

(optionally) use **Robo 3T** to **explore the database** (we use v1.2)

# Get Connected!



SSID: The Hague Tech

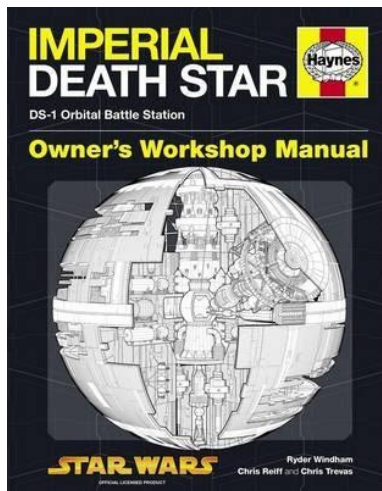
Password: onceuponatime

Security: WPA2 Personal



Get your workshop instructions here

[bit.ly/in45-workshop](http://bit.ly/in45-workshop)



# Installing node.js (and get npm for free)

Install:

follow instructions @ <http://bit.ly/in45-nodejs>

Test:

create file ***index.js***

add content:

```
console.log ('Welcome to Node.js!');
```

run file (from command line / shell):

```
node test.js
```

# Installing mongodb

Follow instructions @ <http://bit.ly/in45-mongodb>

Test:

run command (from command line / shell):

**mongo**

you should be able to open the mongodb shell

For convenience, you can install Robo 3T @ <http://bit.ly/in45-robo3t>

# Clone or download repository

Clone repository (from command line / shell):

```
git clone git@github.com:blockchain030/autotrade.git autotrade-master
```

Download (if you don't have git installed)

Download the zipped repository @ <http://bit.ly/in45-github>

Unzip in a folder (from command line / shell):

```
unzip autotrade-master.zip
```

# Finish autotrader installation

Open command window / shell

Go to autotrader directory:

```
cd autotrader-master
```

Install libraries:

```
npm install
```

Test:

```
node index.js
```

```
-> "Welcome to autotrader"
```

# Keys and settings

create a settings file

copy settings/Trade-settings-sample.js -> settings/Trade-settings.js

fill in settings:

exchange: ~~register at poloniex.com and generate an API key/secret~~



Use our API key and secret.

Use a \$5 portfolio so that everyone can do trades

Let's make some profit!

NB. Always use a secondary account while testing!

# Start the traderbot

Open a command window / shell

go to the autotrade folder

launch the traderbot backend

**node index.js**

# Prepare a buy order

Use your designated coin!

Open <http://poloniex.com>, check exchange rates:

Calculate amount of target currency for **~\$3 order** (using coingecko)

Determine desired exchange rate

Examine buy tool (from command line / shell):

**node buy.js**

Execute buy order (from command line / shell)

**Go figure it out yourself :-)**



# Under the hood

sell.js / buy.js -> create orders and queue them

index.js -> This is where it happens!

- monitors the database for new orders

- creates trade orders on the exchange

- monitors the exchange for trade order status changes

# Prepare a sell order

Now sell your designated coin for bitcoin

Open <http://poloniex.com>, check exchange rates

Determine desired exchange rate

Examine buy tool (from command line / shell):

**node sell.js**

Execute buy order (from command line / shell)

**Go figure it out yourself :-)**

# Collecting historical data

we use the excellent ccxt library for this

technical analysis (talib...)

sentiment analysis of social media (solume.io...)

monitor pump & dump channels (telegram...)

# What to do with all that

Testing simple algorithms like detecting continuous quick price increase/drop

Training neural net (Keras, Tensorflow, Theano, LSTM...)

Exploring other methods (xgboost...)

Create ensembles

Iterate to optimize parameters (hyperopt...)

*Q: predict buy/sell or predict prices?*

# When to trust your own money with this

When a black box tells you so

When you are 'sure' about your gut feeling

After a hail merry or two

# Kickstart historical data

**Why?** So you can quickly start validating your trading strategy

**What?** Zipped mongodump containing historic data

**How?** Import in locally running mongodb using mongorestore

Download <https://bit.ly/2lc8tyf> or 'ipfs get

QmT1RSNUHcZ265RxeF3CvRx8ULB9Pd1cu963z8zCa3MHxt -o  
autotrade-master-mongodump.zip'

Rename to autotrade-master-mongodump.zip

Unzip autotrade-master-mongodump.zip

**mongorestore autotrade-master-mongodump/dump**

# That's all!

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