

dYdX CLI Python Script

Document dated: Jul 17, 2023

Document written by: Lawrence Chiu (lawrence@dydx.exchange)

Version: 1.1

Update History

Version 1.1: Initial Jul 17, 2023. Commands supported: balance, positions, buyquantity, sellquantity, buyusdc, and sellusdc. Note that in the documentation below, the program `alphatradingbotdydx.py` (dev name) is same as `dydxcli.py` (release name on github).

Requirements:

1. Python3 Library: `dydx-v3-python`

Preparation:

1. First you have to create an apikeyfile. It looks like this:

```
pi@raspberrypi:~/extra $ cat dydx12_SAMPLE.py
my_api_network_id = '<FILL THIS OUT>'
my_api_key = '<FILL THIS OUT>'
my_api_secret = '<FILL THIS OUT>'
my_api_passphrase = '<FILL THIS OUT>'
my_stark_private_key = '<FILL THIS OUT>'
my_eth_address = '<FILL THIS OUT>'
my_eth_private_key = '<[OPTIONAL] FILL THIS OUT>'
simpleorderbook = 'y'
pi@raspberrypi:~/extra $
```

a -or- b

Note that you only fill out box a or box b but not both. If you fill out box a, then set the my_eth_private_key to null (two single quotes like this = ""). Or vice versa, if you fill out my_eth_private_key, then set the parameters in box a to null.

Next, You set my_api_network_id to either '5' for testnet or '1' for mainnet.

Then you set my_eth_address to your ethereum address, and

finally, you set simpleorderbook = 'y'. If you run a local dYdX Orderbook websocket implementation on the same server, you can get a performance boost by setting this to 'n' and it'll access the local files instead of calling the API. For your initial testing, please set this to 'y' for simplified operation.

2. Create a directory for each market you are interested in. For our example, we will mkdir BTC-USD, ETH-USD, and SOL-USD.
3. In each of the above directories, create an empty file EXITFLAG.

```
pi@raspberrypi:~/extra $ ls -ald *USD/*
-rw-r--r-- 1 pi pi 0 Jul 17 21:05 BTC-USD/EXITFLAG
-rw-r--r-- 1 pi pi 0 Jul 17 21:05 ETH-USD/EXITFLAG
-rw-r--r-- 1 pi pi 0 Jul 17 21:05 SOL-USD/EXITFLAG
pi@raspberrypi:~/extra $
```

4. You will need the files alphatradingbotdydx.py, dydxob2.py (simpleorderbook), and tydxob2b.py (simpleorderbook for testnet) from the github in the working directory.

Commands:

1. The CLI supports the following commands: balance, positions, buyquantity, sellquantity, buyusdc, and sellusdc. You run the python script with the desired command and any required parameters as shown below:

- a. 'balance': Gets your account equity.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py balance
2000.000000
pi@raspberrypi:~/extra $
```

- b. 'positions': Gets your account positions. In this example, we do not have any positions.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py positions
pi@raspberrypi:~/extra $
```

- c. 'buyquantity': Buys the specified quantity at market.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py buyquantity BTC-USD 0.001
2023-07-17 21:54:36 sendorder()
[{"order": {"id": "5ec191e1b6a58bc3ea275ae6dd119d1c8a598fd9464be53a2177f973441ec5d", "clientId": "5466732315168851", "accountId": "e2f75bea-fee2-55b0-b8de-fe2fa99ad7ba", "market": "BTC-USD", "side": "BUY", "price": "59832", "triggerPrice": None, "trailingPercent": None, "size": "0.001", "reduceOnlySize": None, "remainingSize": "0.001", "type": "MARKET", "createdAt": "2023-07-17T20:54:36.239Z", "unfillableAt": None, "expiresAt": "2023-07-17T20:59:46.686Z", "status": "PENDING", "timeInForce": "FOK", "postOnly": False, "reduceOnly": False, "cancelReason": None}}, {"Date": "Mon, 17 Jul 2023 20:54:38 GMT", "Content-Type": "application/json; charset=utf-8", "Content-Length": "524", "Connection": "keep-alive", "X-Powered-By": "Express", "X-Request-Id": "4c4e001d-88c3-44f1-9a49-494e4f812bcd", "Access-Control-Allow-Origin": "*", "Surrogate-Control": "no-store", "Cache-Control": "no-store, no-cache, must-revalidate, proxy-revalidate", "Pragma": "no-cache", "Expires": "0", "RateLimit-Remaining": "19900", "RateLimit-Reset": "1689627288193", "RateLimit-Limit": "20000", "ETag": "W/\"20c-RSSxxEKKKvKORb5jU/BASWsdovc\"", "X-Response-Time": "68.218", "CF-Cache-Status": "DYNAMIC", "Server": "cloudflare", "CF-RAY": "7e8561983cb016d4-IAM", "alt-svc": "h3=\":443\"; ma=86400"}]
FILLED
pi@raspberrypi:~/extra $
```

The output consists of 3 parts: a) is the api response, b) is the api response headers, and c) is the order status = FILLED in this case.

- d. Check the positions again and you will see 0.001 BTC.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py positions
BTC-USD 0.001
pi@raspberrypi:~/extra $
```

- e. 'sellquantity': works the same way like buyquantity.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py sellquantity BTC-USD 0.001
2023-07-17 21:59:34 sendorder()
[{"order": {"id": "9e00d17abbfc30210db92789d00d64693937afe8606401298b86ffdc7b22e9", "clientId": "44895220166209312", "accountId": "e2f75bea-fee2-55b0-b8de-fe2fa99ad7ba", "market": "BTC-USD", "side": "SELL", "price": "14959", "triggerPrice": None, "trailingPercent": None, "size": "0.001", "reduceOnlySize": None, "remainingSize": "0.001", "type": "MARKET", "createdAt": "2023-07-17T20:58:35.976Z", "unfillableAt": None, "expiresAt": "2023-07-17T20:59:44.503Z", "status": "PENDING", "timeInForce": "FOK", "postOnly": False, "reduceOnly": False, "cancelReason": None}}, {"Date": "Mon, 17 Jul 2023 20:58:36 GMT", "Content-Type": "application/json; charset=utf-8", "Content-Length": "526", "Connection": "keep-alive", "X-Powered-By": "Express", "X-Request-Id": "fa8a112f-67fb-49a7-bdc5-81c3a70b14f0", "Access-Control-Allow-Origin": "*", "Surrogate-Control": "no-store", "Cache-Control": "no-store, no-cache, must-revalidate, proxy-revalidate", "Pragma": "no-cache", "Expires": "0", "RateLimit-Remaining": "19900", "RateLimit-Reset": "1689627525959", "RateLimit-Limit": "20000", "ETag": "W/\"20e-lj2QOXFUVU7HriSi19gpcwB5q4\"", "X-Response-Time": "32.014", "CF-Cache-Status": "DYNAMIC", "Server": "cloudflare", "CF-RAY": "7e85676639e9fee2-IAM", "alt-svc": "h3=\":443\"; ma=86400"}]
FILLED
pi@raspberrypi:~/extra $
```

- f. Check the positions again and see you have closed the BTC position.

```
pi@raspberrypi:~/extra $ python3 alphatradingbotdydx.py dydx12_test0x04e880.py positions
pi@raspberrypi:~/extra $
```

- g. 'buyusdc' and 'sellusdc': Buys and sells the specified USDC worth at market. These commands are generally used to open a new position because the crypto quantity depends on the price paid for each, whereas the other commands 'buyquantity' and 'sellquantity' are useful for closing an open position since you know the exact quantity.

```

pi@raspberrypi:~/extra $ python3 alphasatradibotdydx.py dydx12_test0x04e880.py buyusdc BTC-USD 2000
2023-07-17 22:00:47 sendorder()
['order': {'id': '100896e77cead063d2c272b4fc87195dd723258a134493c9c3b397b725ebb3f', 'clientId': '43456683329387704', 'accountId': 'e2f75bea-fee2-55b0-b8de-fe2fa99ad7ba', 'market': 'BTC-USD', 'side': 'BUY', 'price': '59868', 'triggerPrice': None, 'trailingPercent': None, 'size': '0.0668', 'reduceOnlySize': None, 'remainingSize': '0.0668', 'type': 'MARKET', 'createdAt': '2023-07-17T21:00:48.732Z', 'unfillableAt': None, 'expiresAt': '2023-07-17T21:01:57.165Z', 'status': 'PENDING', 'timeInForce': 'FOK', 'postOnly': False, 'reduceOnly': False, 'cancelReason': None}}
[('Date': 'Mon, 17 Jul 2023 21:00:48 GMT', 'Content-Type': 'application/json; charset=utf-8', 'Content-Length': '527', 'Connection': 'keep-alive', 'X-Powered-By': 'Express', 'X-Request-Id': '9f5af1fe-bf29-4413-96b6-719de636ec2a', 'Access-Control-Allow-Origin': '*', 'Surrogate-Control': 'no-store', 'Cache-Control': 'no-store, no-cache, must-revalidate, proxy-revalidate', 'Pragma': 'no-cache', 'Expires': '0', 'RateLimit-Remaining': '19900', 'RateLimit-Reset': '1689627659712', 'RateLimit-Limit': '20000', 'ETag': 'W/"20f-xHBeCshd8b5iHmwE72o/2VvOo"', 'X-Response-Time': '35.243', 'CF-Cache-Status': 'DYNAMIC', 'Server': 'cloudflare', 'CF-RAY': '7e856aa3ef0016b4-IAH', 'alt-svc': 'h3=443; ma=86400'})]
FILED
pi@raspberrypi:~/extra $

```

h. Check the positions again and you will see 0.0668 BTC.

```

pi@raspberrypi:~/extra $ python3 alphasatradibotdydx.py dydx12_test0x04e880.py positions
BTC-USD 0.0668
pi@raspberrypi:~/extra $

```

i. Let's close the position by selling 0.0668 BTC exactly. You can verify the position is closed.

```

pi@raspberrypi:~/extra $ python3 alphasatradibotdydx.py dydx12_test0x04e880.py sellquantity BTC-USD 0.0668
2023-07-17 22:04:35 sendorder()
['order': {'id': '2dd2681aab5f55aae15b7a380db4c7618c113639c583b819b9a66d164714417', 'clientId': '8754370535569486', 'accountId': 'e2f75bea-fee2-55b0-b8de-fe2fa99ad7ba', 'market': 'BTC-USD', 'side': 'SELL', 'price': '14977', 'triggerPrice': None, 'trailingPercent': None, 'size': '0.0668', 'reduceOnlySize': None, 'remainingSize': '0.0668', 'type': 'MARKET', 'createdAt': '2023-07-17T21:04:37.151Z', 'unfillableAt': None, 'expiresAt': '2023-07-17T21:05:45.564Z', 'status': 'PENDING', 'timeInForce': 'FOK', 'postOnly': False, 'reduceOnly': False, 'cancelReason': None}}
[('Date': 'Mon, 17 Jul 2023 21:04:37 GMT', 'Content-Type': 'application/json; charset=utf-8', 'Content-Length': '527', 'Connection': 'keep-alive', 'X-Powered-By': 'Express', 'X-Request-Id': 'c1b90462-3ad2-4d22-9fab-2aec3696079c', 'Access-Control-Allow-Origin': '*', 'Surrogate-Control': 'no-store', 'Cache-Control': 'no-store, no-cache, must-revalidate, proxy-revalidate', 'Pragma': 'no-cache', 'Expires': '0', 'RateLimit-Remaining': '19960', 'RateLimit-Reset': '1689627887129', 'RateLimit-Limit': '20000', 'ETag': 'W/"20f-kmEnatszkckMhdJk7fzxOvxxQqc"', 'X-Response-Time': '37.374', 'CF-Cache-Status': 'DYNAMIC', 'Server': 'cloudflare', 'CF-RAY': '7e8570378bc916c1-IAH', 'alt-svc': 'h3=443; ma=86400'})]
FILED
pi@raspberrypi:~/extra $ python3 alphasatradibotdydx.py dydx12_test0x04e880.py positions
pi@raspberrypi:~/extra $

```