crix Documentation

Release 1.0

Baryshnikov Aleksandr, Blockwise LTD

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Contents:

This official client of CRIX.io crypto exchange.

Environment requirements:

- python 3.5+
- requests 2.*

For several operations like create/cancel orders you should also be registered in the exchange and got BOT API token and secret.

To access historical data you should get explicit permission by exchange support.

CHAPTER 1

Installation

- over pip: `pip install crix`
- manually: `pip install git+https://github.com/blockwise/crix-client-py.git#egg=crix`

CHAPTER 2

Rate limit

Currently for BOT API there is a rate limit about 100 requests/second, however several functions in the library can use multiple requests inside as noted in their documentation.

CHAPTER 3

Sample usage

3.1 Unauthorized (public) access

```
import crix

client = crix.Client(env='prod')

# get all symbols
for symbol in client.fetch_markets():
    print(symbol)

# get some order book
depth = client.fetch_order_book('BTC_BCH')
print(depth)
```

3.2 Authorized (clients-only) access

Warning: BOT API token and secret are required and should be obtained for each client from the exchange

```
import crix
from crix.models import NewOrder

client = crix.AuthorizedClient(
    env='prod',
    token='xxyyzz',
    secret='aabbcc'
) # replace token and secret value for your personal API credentials
```

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```
# list all open orders
for order in client.fetch_open_orders('BTC_BCH'):
    print(order)

# prepare order
new_order = NewOrder.market('BTC_BCH', is_buy=True, quantity=0.1) # or use NewOrder␣
↪constructor
# place order
order = client.create_order(new_order)
print(order)
```

3.3 Authorized asynchronous access - get balance

```
import crix
from crix.models import NewOrder
from aiohttp import ClientSession


async def run():
   # initialize HTTP(s) session
   async with ClientSession() as session:
      client = crix.AsyncAuthorizedClient(token='xxyyzz',
                                          secret='aabbcc',
                                          env='prod',
                                          session=session) # replace token and secret␣
↪value for your personal API credentials
      # list opened and closed orders
      async for x in client.fetch_orders('ETH_BTC'):
         print(x)


asyncio.get_event_loop().run_until_complete(run())
```

3.3.1 API clients

exception crix.client.**APIError**(*operation*, *code*, *text*)

General exception for API calls

static async_ensure(*operation*, *req*)

Ensure status code of HTTP request and raise exception if needed (asyncio version)

Parameters

- **operation** (str) – logical operation name
- **req** (ClientResponse) – request's response object

code = None

HTTP response code

static ensure(*operation*, *req*)

Ensure status code of HTTP request and raise exception if needed

Parameters

- **operation** (str) – logical operation name
- **req** (Response) – request's response object

operation = None
operation name

text = None
error description

class crix.client.**AuthorizedClient**(*token*, *secret*, *, *env='mvp'*, *cache_market=True*)
HTTP client to the exchange for non-authorized and authorized requests.

Supported environments:

- 'mvp' - testnet sandbox with full-wipe each 2nd week (usually)
- 'prod' - mainnet, production environment with real currency

Expects API token and API secret provided by CRIX.IO exchange as part of bot API.

cancel_order(*order_id*, *symbol*)
Cancel placed order

Parameters

- **order_id** (int) – order id generated by the exchange
- **symbol** (str) – symbol names same as in placed order

Return type *Order*

Returns order definition with filled field (also includes filled quantity)

create_order(*new_order*)
Create and place order to the exchange

Parameters **new_order** (*NewOrder*) – order parameters

Return type *Order*

Returns order definition with filled fields from the exchange

fetch_balance()
Get all balances for the user

Return type List[*Account*]

Returns list of all accounts

fetch_closed_orders(**symbols*, *limit=1000*)
Get complete (filled, canceled) orders for user

Note: One request per each symbol will be made plus additional request to query all supported symbols if symbols parameter not specified.

Parameters

- **symbols** (str) – filter orders by symbols. if not specified - all symbols queried and used
- **limit** (int) – maximum number of orders for each symbol

Return type Iterator[*Order*]

Returns iterator of orders definitions

fetch_history(*begin*, *end*, *currency*)
Get historical minute tickers for specified time range and currency There are several caveats:

- it requires additional permission
- end param should be not more then server time, otherwise error returned
- maximum difference between earliest and latest date should be no more then 366 days
- it could be slow for a long time range
- mostly all points have 1 minute tick however in a very few cases gap can be a bit bigger

Parameters

- **begin** (datetime) – earliest interesting time
- **end** (datetime) – latest interesting time
- **currency** (str) – currency name in upper case

Return type Iterator[*Ticker*]

Returns iterator of parsed tickers

fetch_my_trades(**symbols*, *limit=1000*)
Get all trades for the user. There is some gap (a few ms) between time when trade is actually created and time when it becomes visible for the user.

Note: One request per each symbol will be made plus additional request to query all supported symbols if symbols parameter not specified.

Parameters

- **symbols** (str) – filter trades by symbols. if not specified - used all symbols
- **limit** (int) – maximum number of trades for each symbol

Return type Iterator[*Trade*]

Returns iterator of trade definition

fetch_open_orders(**symbols*, *limit=1000*)
Get all open orders for the user.

Note: One request per each symbol will be made plus additional request to query all supported symbols if symbols parameter not specified.

Parameters

- **symbols** (str) – filter orders by symbols. if not specified - all symbols queried and used
- **limit** (int) – maximum number of orders for each symbol

Return type Iterator[*Order*]

Returns iterator of orders definitions

fetch_order(*order_id*, *symbol_name*)
Fetch single open order info

Parameters

- **order_id** (int) – order id generated by server during 'create_order' phase
- **symbol_name** (str) – symbol name same as in order

Return type Optional[*Order*]

Returns order definition or None if nothing found

fetch_orders(**symbols*, *limit=1000*)

Get opened and closed orders filtered by symbols. If no symbols specified - all symbols are used. Basically the function acts as union of fetch_open_orders and fetch_closed_orders.

Note: Two requests per each symbol will be made plus additional request to query all supported symbols if symbols parameter not specified.

Parameters

- **symbols** (str) – symbols: filter orders by symbols. if not specified - used all symbols
- **limit** (int) – maximum number of orders for each symbol for each state (open, close)

Return type Iterator[*Order*]

Returns iterator of orders definitions sorted from open to close

class crix.client.**Client**(*, *env='mvp'*, *cache_market=True*)

HTTP client to the exchange for non-authorized requests.

Supported environments:

- 'mvp' - testnet sandbox with full-wipe each 2nd week (usually)
- 'prod' - mainnet, production environment with real currency

Disable *cache_market* if latest symbols info are always required

fetch_currency_codes()

Get list of currencies codes in quote_base format (ex. btc_bch)

Return type List[str]

Returns list of formatted currencies codes

fetch_markets(*force=False*)

Get list of all symbols on the exchange. Also includes symbol details like precision, quote, base and e.t.c. It's a good idea to cache result of this function after first invoke

Parameters **force** (bool) – don't use cached symbols

Return type Tuple[*Symbol*]

Returns list of supported symbols

fetch_ohlcv(*symbol*, *utc_start_time*, *utc_end_time*, *resolution=<Resolution.one_minute: '1'>*, *limit=10*)

Get K-Lines for specific symbol in a time frame.

Latest OHLCV ticks representing interval up to current minute (ex: now: 10:15:32, then latest OHLCV with minute resolution will be from 10:14:00 to 10:15:00).

Parameters

- **symbol** (str) – K-Line symbol name

- **utc_start_time** (datetime) – earliest interesting time
- **utc_end_time** (datetime) – latest interesting time
- **resolution** (*Resolution*) – K-line resolution (by default 1-minute)
- **limit** (int) – maximum number of entries in a response

Return type List[*Ticker*]

Returns list of ticker

fetch_order_book(*symbol*, *level_aggregation=None*)

Get order book for specific symbol and level aggregation

```
import os
import crix

client = crix.AuthorizedClient(token=os.getenv('TOKEN'),
                               secret=os.getenv('SECRET'),
                               env='mvp')
# get all symbols
symbols = client.fetch_markets()
for symbol in symbols:
    # get order book for symbol
    order_book = client.fetch_order_book(symbol.name)
```

Parameters

- **symbol** (str) – interesting symbol name
- **level_aggregation** (Optional[int]) – aggregate by rounding numbers (if not defined - no aggregation)

Return type *Depth*

Returns order depth book

fetch_ticker()

Get tickers for all symbols for the last 24 hours

Return type List[*Ticker24*]

Returns list of tickers

fetch_trades(*symbol*, *limit=100*)

Get last trades for specified symbol name. OrderID, UserID, Fee, FeeCurrency will be empty (or 0)

Parameters

- **symbol** (str) – symbol name
- **limit** (int) – maximum number of trades (could not be more then 1000)

Return type List[*Trade*]

Returns list of trades

3.3.2 API models

class crix.models.**Account**(*id*, *user_id*, *balance*, *locked_balance*, *currency_name*, *deposit_address*)

balance

Return type Decimal

currency_name

Return type str

deposit_address

Return type str

static from_json(*info*)
Construct object from dictionary

Return type *Account*

id

Return type int

locked_balance

Return type Decimal

user_id

Return type int

class crix.models.**Depth**(*symbol_name*, *is_aggregated*, *last_update_id*, *level_aggregation*, *asks*, *bids*)

asks

Return type typing.List[*crix.models.Offer*]

bids

Return type typing.List[*crix.models.Offer*]

static from_json(*info*)
Construct object from dictionary

Return type *Depth*

is_aggregated

Return type bool

last_update_id

Return type int

level_aggregation

Return type int

symbol_name

Return type str

class crix.models.**NewOrder**(*type*, *symbol*, *price*, *quantity*, *is_buy*, *time_in_force*, *stop_price*, *expire_time*)

expire_time

Return type typing.Union[datetime.datetime, NoneType]

is_buy

Return type bool

static limit(*symbol*, *is_buy*, *price*, *quantity*, ***args*)
Helper to create basic limit order

Parameters

- **symbol** (str) – symbol name as defined by the exchange
- **is_buy** (bool) – order direction
- **price** (Union[Decimal, float, str]) – order price
- **quantity** (Union[Decimal, float, str]) – number of items in the order
- **args** – additional parameters proxied to the NewOrder constructor

Return type *NewOrder*

Returns new order

static market(*symbol*, *is_buy*, *quantity*, ***args*)
Helper to create basic market order

Parameters

- **symbol** (str) – symbol name as defined by the exchange
- **is_buy** (bool) – order direction
- **quantity** (Union[Decimal, float, str]) – number of items
- **args** – additional parameters proxied to the NewOrder constructor

Return type *NewOrder*

Returns new order

price

Return type Decimal

quantity

Return type Decimal

stop_price

Return type typing.Union[decimal.Decimal, NoneType]

symbol

Return type str

time_in_force

Return type *TimeInForce*

to_json()
Build JSON package ready to send to the API endpoint

Return type dict

type

Return type *OrderType*

class crix.models.**Offer**(*count*, *price*, *quantity*)

count

Return type int

static from_json(*info*)
Construct object from dictionary

Return type *Offer*

price

Return type Decimal

quantity

Return type Decimal

class crix.models.**Order**(*id*, *user_id*, *type*, *symbol_name*, *is_buy*, *quantity*, *price*, *stop_price*, *filled_quantity*, *time_in_force*, *expire_time*, *status*, *created_at*, *last_updated_at*)

created_at

Return type datetime

expire_time

Return type typing.Union[datetime.datetime, NoneType]

filled_quantity

Return type Decimal

static from_json(*info*)
Construct object from dictionary

Return type *Order*

id

Return type int

is_buy

Return type bool

last_updated_at

Return type datetime

price

Return type Decimal

quantity

Return type Decimal

status

Return type *OrderStatus*

stop_price

Return type Decimal

symbol_name

Return type str

time_in_force

Return type *TimeInForce*

type

Return type *OrderType*

user_id

Return type int

class crix.models.**OrderStatus**
An enumeration.

cancel = 2

complete = 1

new = 0

class crix.models.**OrderType**
An enumeration.

limit = 0

market = 1

stop_loss = 2

stop_loss_limit = 3

stop_loss_range = 4

take_profit = 5

take_profit_limit = 6

class crix.models.**Resolution**
An enumeration.

day = 'D'

fifteen_minutes = '15'

five_minutes = '5'

four_hours = '240'

half_an_hour = '30'

hour = '60'

one_minute = '1'

two_hours = '120'

week = 'W'

class crix.models.**Symbol**(*name*, *base*, *base_precision*, *quote*, *quote_precision*, *description*, *level_aggregation*, *maker_fee*, *taker_fee*, *min_lot*, *max_lot*, *min_price*, *max_price*, *min_notional*, *tick_lot*, *tick_price*, *is_trading*)

base

Return type str

base_precision

Return type int

description

Return type str

static from_json(*info*)
Construct object from dictionary

Return type *Symbol*

is_trading

Return type bool

level_aggregation

Return type typing.List[int]

maker_fee

Return type Decimal

max_lot

Return type Decimal

max_price

Return type Decimal

min_lot

Return type Decimal

min_notional

Return type Decimal

min_price

Return type Decimal

name

Return type str

quote

Return type str

quote_precision

Return type int

taker_fee

Return type Decimal

tick_lot

Return type Decimal

tick_price

Return type Decimal

class crix.models.**Ticker**(*symbol_name*, *open_time*, *open*, *close*, *high*, *low*, *volume*, *resolution*)

close

Return type Decimal

static from_json(*info*)
Construct object from dictionary

Return type *Ticker*

static from_json_history(*info*)
Construct object from dictionary (for a fixed resolution)

Return type *Ticker*

high

Return type Decimal

low

Return type Decimal

open

Return type Decimal

open_time

Return type datetime

resolution

Return type str

symbol_name

Return type str

volume

Return type Decimal

class crix.models.**Ticker24**(*symbol_name*, *open_time*, *open*, *close*, *high*, *low*, *volume*, *resolution*, *first_id*, *last_id*, *prev_close_price*, *price_change*, *price_change_percent*)

close

Return type Decimal

first_id

Return type int

static from_json(*info*)
Construct object from dictionary

Return type *Ticker24*

high

Return type Decimal

last_id

Return type int

low

Return type Decimal

open

Return type Decimal

open_time

Return type datetime

prev_close_price

Return type Decimal

price_change

Return type Decimal

price_change_percent

Return type Decimal

resolution

Return type str

symbol_name

Return type str

volume

Return type Decimal

class crix.models.**TimeInForce**

An enumeration.

fill_or_kill = 2

good_till_cancel = 0

good_till_date = 3

immediate_or_cancel = 1

class crix.models.**Trade**(*id*, *user_id*, *created_at*, *order_filled*, *is_buy*, *order_id*, *price*, *quantity*, *fee*, *fee_currency*, *symbol_name*)

created_at

Return type datetime

fee

Return type Decimal

fee_currency

Return type str

static from_json(*info*)

Construct object from dictionary

Return type *Trade*

id

Return type int

is_buy

Return type bool

order_filled

Return type bool

order_id

Return type int

price

Return type Decimal

quantity

Return type Decimal

symbol_name

Return type str

user_id

Return type int

CHAPTER 4

Indices and tables

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Python Module Index

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