
crix Documentation

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Baryshnikov Aleksandr, Blockwise LTD

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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.

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

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, ex-
                              pire_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

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