BMAC v2:

Binance

Marketdata

Async

Client

43314, 44366, 44984, 45170

By lostleaf, github.com/lostleaf/binance_datatool

1. Binance DataTool & BMAC
2. BMAC
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4. 1: BmacKit
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Binance DataTool & BMAC

Binance DataTool, lostleaf MIT

API API Key

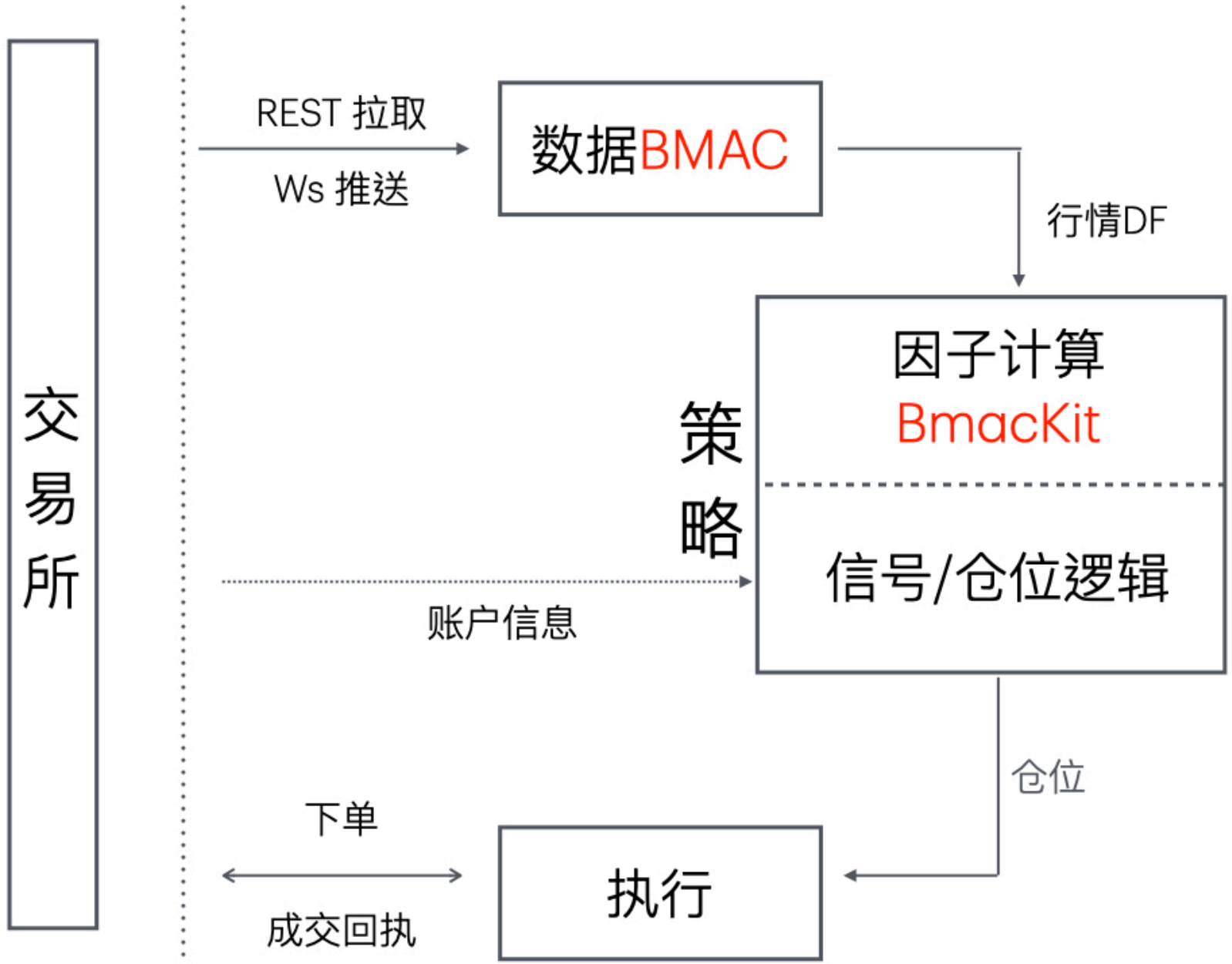
- BMAC WS + REST
- BHDS AWS + REST Typer

/ Leo

> MIT

BMAC

BmacKit



BMAC

44366

Conda

Binance DataTool `environment.yml`

Conda crypto

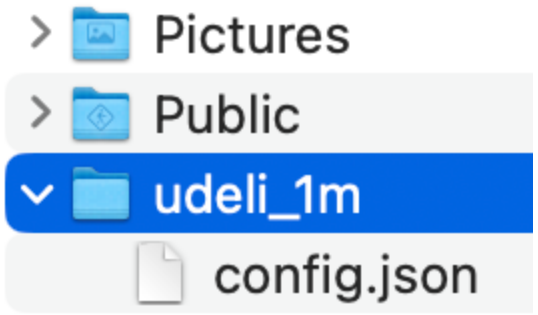
```
conda env create --file environment.yml
conda activate crypto
```

BMAC Python asyncio,

- `aiohttp` : REST API
- `websockets` : WS
- `pandas` : DataFrame
- `fire` :

BHDS `aria2`

`~/udeli_1m` `config.json`



, USDT 1 :

```
{
    "interval": "1m",
    "trade_type": "usdt_deli"
}
```

`python cli.py bmac start`

BMAC

```
python cli.py bmac start ~/udeli_1m
```

1:

499 (zdq 34266) DataFrame

```
================== Start Bmac V2 2024-08-03 12:50:03 ==================
🔵 interval=1m, type=usdt_deli, num_candles=1500, funding_rate=False, keep_symbols=None
🔵 Candle data dir /home/admin/udeli_1m/usdt_deli_1m, initializing
🔵 Exchange info data dir /home/admin/udeli_1m/exginfo_1m, initializing
--------------- Init history round 1 2024-08-03 12:50:30 ---------------
Server time: 2024-08-03 12:50:30.122000+08:00, Used weight: 2
Symbol range: BTCUSDT_240927 -- ETHUSDT_241227
--------------- Init history round 2 2024-08-03 12:50:30 ---------------
Server time: 2024-08-03 12:50:30.261000+08:00, Used weight: 9
Symbol range: BTCUSDT_240927 -- ETHUSDT_241227
--------------- Init history round 3 2024-08-03 12:50:30 ---------------
Server time: 2024-08-03 12:50:30.421000+08:00, Used weight: 14
Symbol range: BTCUSDT_240927 -- ETHUSDT_241227
--------------- Init history round 4 2024-08-03 12:50:30 ---------------
Server time: 2024-08-03 12:50:30.599000+08:00, Used weight: 20
Symbol range: BTCUSDT_240927 -- ETHUSDT_241227
✅ 4 finished, 0 left

✅ History initialized, Server time: 2024-08-03 12:50:30.775000+08:00, Used weight: 25
```

2:

Websocket

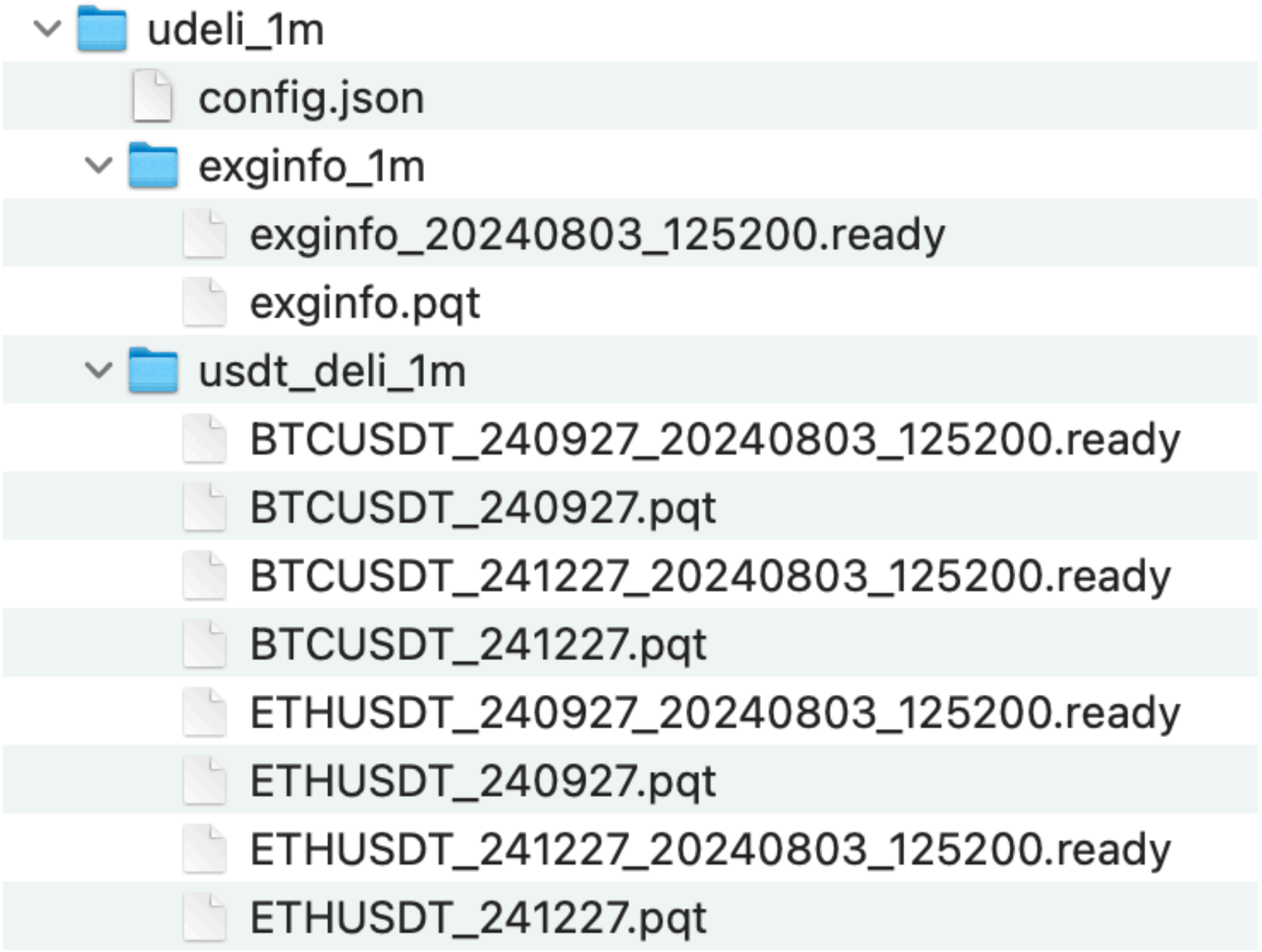
```
Create WS listen group 0, 1 symbols
Create WS listen group 1, 1 symbols
Create WS listen group 3, 1 symbols
Create WS listen group 5, 1 symbols
====== Bmac 1m usdt_deli update Runtime=2024-08-03 12:51:00+08:00 ======
✅ 2024-08-03 12:51:00.000132+08:00, Exchange infos updated

2024-08-03 12:51:00.046084+08:00, 0/4 symbols ready
2024-08-03 12:51:01.006133+08:00, 1/4 symbols ready
2024-08-03 12:51:02.008255+08:00, 1/4 symbols ready
2024-08-03 12:51:03.009653+08:00, 1/4 symbols ready
✅ 2024-08-03 12:51:04.010863+08:00, all symbols ready

🔵 Last updated ETHUSDT_241227 2024-08-03 12:51:03.067731+08:00
====== Bmac 1m usdt_deli update Runtime=2024-08-03 12:52:00+08:00 ======
...
```

K

ready file

DF

parquet



`interval` K 1m 5m 1h 4h

`trade_type`

- `usdt_spot`：USDT `BTCUSDT` `ETHUSDT`
- `btc_spot`：BTC `ETHBTC`
- `usdt_perp`：USDT `BTCUSDT`
- `coin_perp`： `BTCUSD`

44366

`num_candles`: K 1500 10000

`funding_rate`: False

`keep_symbols`: symbol symbol None

`save_type`: K parquet feather

`dingding`: None

```
"dingding": {
    "error": {
        "access_token": "f...",
        "secret": "SEC..."
    }
}
```

44366

BMAC

43314 35389

Websocket

REST API

35389

-

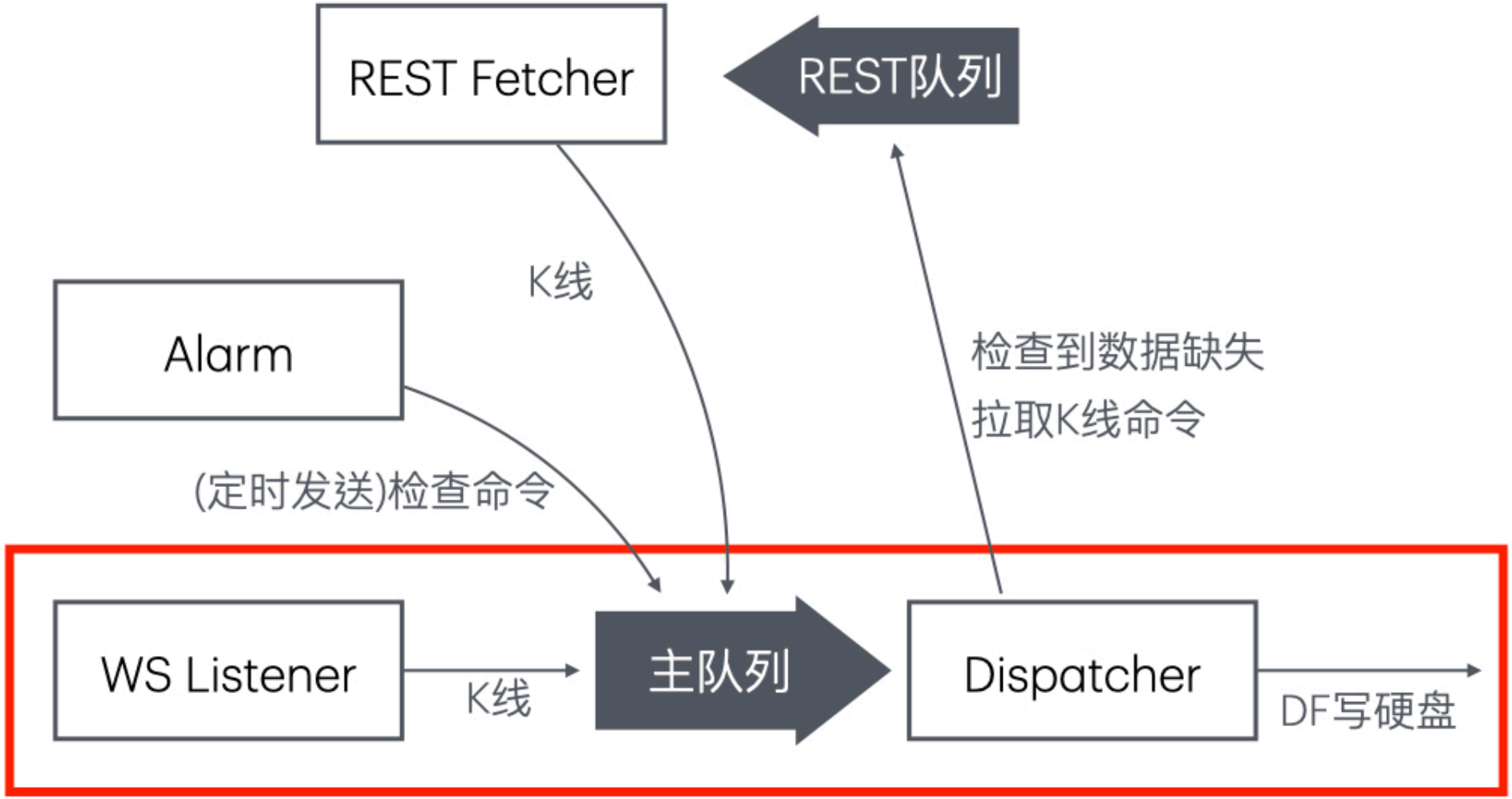
- `CandleListener` : WS , python-binance
- `RestFetcher` : REST API K
- `PeriodAlarm` : ExgInfo Runtime
  `Dispatcher`
- ExgInfo `CandleListener`
-
- K

- `main_que` : `Dispatcher`

3

1

2



正常数据通路

WS失效: Alarm ->(检查命令)->主队列->Dispatcher(数据缺失)->(K线拉取命令)->REST 队列-> REST (拉取) -> (K线)->主队列->Dispatcher->写入硬盘

1: BmacKit

44984

`factors.PctChg` BMAC

```
import pandas as pd


def signal(*args):
    df: pd.DataFrame = args[0]
    n = args[1]
    factor_name = args[2]
    df[factor_name] = df['close'].pct_change(n)

    return df
```

BmacKit !

BMAC

BmacSingleSymbolCalculator

```
class BmacSingleSymbolCalculator:

    def __init__(self,
                 symbol: str,
                 candle_reader: CandleFileReader,
                 factor_cfgs: list,
                 package: str = 'factor',
                 bmac_expire_sec: int = 40):
        """
        symbol: 标的名称
        candle_reader: K 线存放目录的 CandleFileReader
        factor_cfgs: 因子列表，例如 [('PctChg', 100), ('TrdNumMeanV1', 80)]
        package: 因子包名，默认为 'factor'
        bmac_expire_sec: BMAC 超时时间(秒)，默认 40 秒
        """
        ...

    async def calc_factors(self, run_time: datetime, symbol=None) -> pd.DataFrame:
        """
        run_time: 当前周期时间戳

        返回值: 包含给定 symbol 所有周期所有因子的 DataFrame
        """
```

BmacSingleSymbolCalculator

```
# 导入 BmacKit
from bmac_kit import BmacSingleSymbolCalculator, CandleFileReader, now_time
# 运行周期
TIME_INTERVAL = '5m'
# BMAC 目录
CANDLE_DIR = '../usdt_perp_5m_all_v2/usdt_perp_5m'
# 因子列表
FACTOR_LIST = [('PctChg', 100), ('TrdNumMeanV1', 80)]
```

```
# 当前 run_time
run_time = next_run_time(TIME_INTERVAL)
# 初始化 CandleFileReader
candle_reader = CandleFileReader(CANDLE_DIR, 'parquet')
# 初始化，BmacKit 因子计算器
calc = BmacSingleSymbolCalculator('BTCUSDT', candle_reader, FACTOR_LIST)
# 测试因子计算
df_factor_single = await calc.calc_factors(run_time)
```

BmacSingleSymbolCalculator

```
Next run time: 2024-07-23 14:45:00+08:00
BTC factors calculation finished 2024-07-23 14:45:00.595054+08:00
                              close  PctChg_100  TrdNumMeanV1_80
2024-07-16 08:10:00+00:00  62918.0          NaN     2.460847e-07
2024-07-16 08:15:00+00:00  62952.8          NaN     2.424336e-07
2024-07-23 06:40:00+00:00  66508.6    -0.015038     2.371722e-07
2024-07-23 06:45:00+00:00  66538.2    -0.014128     2.365319e-07
```

WS 1 BTCUSDT

BmacAllMarketCalculator

```python
class BmacAllMarketCalculator(BmacSingleSymbolCalculator):

    def __init__(self,
                 exginfo_reader: CandleFileReader,
                 candle_reader: CandleFileReader,
                 factor_cfgs: list,
                 package: str = 'factor',
                 bmac_expire_sec: int = 40):
        """
        exginfo_reader: exchange info 存放目录的 CandleFileReader
        candle_reader: K 线存放目录的 CandleFileReader
        factor_cfgs: 因子列表，例如 [('PctChg', 100), ('TrdNumMeanV1', 80)]
        package: 因子包名，默认为 'factor'
        bmac_expire_sec: BMAC 超时时间(秒)，默认 40 秒
        """

    async def calc_all_factors(self, run_time: datetime) -> pd.DataFrame:
        """
        run_time: 当前周期时间戳

        返回值: 包含给定全市场 run_time 周期所有因子的 DataFrame
```

BmacAllMarketCalculator

BmacSingleSymbolCalculator

```
# 当前 run_time
run_time = next_run_time(TIME_INTERVAL)

# 初始化 CandleFileReader
exginfo_reader = CandleFileReader(EXGINFO_DIR, 'parquet')
candle_reader = CandleFileReader(CANDLE_DIR, 'parquet')

# 初始化，BmacKit 因子计算器
all_calc = BmacAllMarketCalculator(exginfo_reader, candle_reader, FACTOR_LIST)

# 测试因子计算
df_factor_all = await all_calc.calc_all_factors(run_time)
```

```
====== Bmac 5m usdt_perp update Runtime=2024-07-23 14:45:00+08:00 ======
✅ 2024-07-23 14:45:00.000779+08:00, Exchange infos updated

2024-07-23 14:45:00.055330+08:00, 0/262 symbols ready
2024-07-23 14:45:01.117100+08:00, 55/262 symbols ready
2024-07-23 14:45:02.090554+08:00, 107/262 symbols ready
2024-07-23 14:45:03.135723+08:00, 158/262 symbols ready
2024-07-23 14:45:04.161049+08:00, 211/262 symbols ready
2024-07-23 14:45:05.180591+08:00, 261/262 symbols ready
✅ 2024-07-23 14:45:06.179160+08:00, all symbols ready

🔵 Last updated USDCUSDT 2024-07-23 14:45:05.198896+08:00
====== Bmac 5m usdt_perp update Runtime=2024-07-23 14:50:00+08:00 ======
```

```
All market factors calculation finished 2024-07-23 14:45:05.222374+08:00
                close  PctChg_100  TrdNumMeanV1_80
BTCUSDT     66538.2000   -0.014128     2.365319e-07
ETHUSDT      3440.5600    0.001036     2.112910e-07
LISTAUSDT       0.5491   -0.012232     3.884419e-06
```

2: BMAC X 3

45170

BMAC K v3 data job

5 offset

1. API symbol bmac exginfo
2. API 5 bmac K
3. funding fee

45170

, BMAC v2

WS

IO

/

- ZMQ pub/sub (Domain/TCP Socket)
- Receiver(pub): WS + REST
- Recorder(sub):
- Strategy(sub): ( ) (ZMQ Socket)
- BmacKit: Pandas (JIT)

1

2

Github: lostleaf/binance_datatool

43314 BMAC2.0- asyncio Websocket K

44366 BMAC2.0- BMAC2

44984 BMAC2.0- BmacKit: BMAC

45170 BMAC X 3 bmac_kline: BMAC offset

data job