

Binance USDT-M Future Trading Bot — Report

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- Date: 11-08-2025
- Repo: <https://github.com/Srushti88/srushti-binance-bot>

- Objective & Scope

A command-line trading bot for Binance USDT-M Futures (testnet) supporting core order types—Market and Limit—and advanced strategies including Stop-Limit, OCO-style, TWAP, and Grid trading. Features include structured JSON logging and essential input validation for safe and reliable operation.

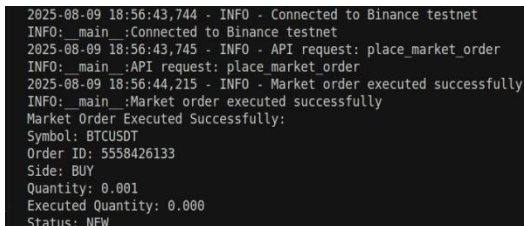
Setup (run once)

- Ensure `.env` exists in project root:
 - BINANCE_API_KEY=...
 - BINANCE_API_SECRET=...`
- Activate environment and set module path:

```
```bash
source venv/bin/activate export
PYTHONPATH=src
```
```

Demonstration (Core and Advanced Orders)

##Market (BUY)



```
2025-08-09 18:56:43,744 - INFO - Connected to Binance testnet
INFO: _main_:Connected to Binance testnet
2025-08-09 18:56:43,745 - INFO - API request: place_market_order
INFO: _main_:API request: place_market_order
2025-08-09 18:56:44,215 - INFO - Market order executed successfully
INFO: _main_:Market order executed successfully
Market Order Executed Successfully:
Symbol: BTCUSDT
Order ID: 5558426133
Side: BUY
Quantity: 0.001
Executed Quantity: 0.000
Status: NEW
```

```
```json
```

```
{ "timestamp": "2025-08-09T18:56:43.744798+05:30", "level": "INFO", "message":
"Connected to Binance testnet", "data": { "server_time": { "serverTime": 1754746003657 },
"connection_status": "success" } }
{ "timestamp": "2025-08-09T18:56:43.745096+05:30", "level": "INFO", "message": "API
request: place_market_order", "data": { "action": "place_market_order", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.001 } } }
{ "timestamp": "2025-08-09T18:56:44.215862+05:30", "level": "INFO", "message": "Market order
executed successfully", "data": { "order_type": "Market", "symbol": "BTCUSDT", "side": "BUY",
"quantity": "0.001", "order_id": 5558426133, "status": "NEW", "executed_qty": "0.000",
"executed_price": null } }
```

...

### ### Limit (BUY below market)

```
2025-08-09 19:08:20,411 - INFO - Connected to Binance testnet
INFO: _main_:Connected to Binance testnet
2025-08-09 19:08:20,411 - INFO - API request: place_limit_order
INFO: _main_:API request: place_limit_order
2025-08-09 19:08:20,887 - INFO - Limit order executed successfully
INFO: _main_:Limit order executed successfully
Limit Order Placed Successfully:
Symbol: BTCUSDT
Order ID: 5558466036
Side: BUY
Type: LIMIT
Quantity: 0.001
Price: 116000.00
Status: NEW
```

```json

```
{ "timestamp": "2025-08-09T19:08:20.411274+05:30", "level": "INFO", "message":
"Connected to Binance testnet", "data": { "server_time": { "serverTime": 1754746700328},
"connection_status": "success"} }
{ "timestamp": "2025-08-09T19:08:20.411551+05:30", "level": "INFO", "message": "API
request: place_limit_order", "data": { "action": "place_limit_order", "parameters": { "symbol":
"BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 116000.0,
"timeInForce": "GTC"} } }
{ "timestamp": "2025-08-09T19:08:20.887603+05:30", "level": "INFO", "message": "Limit order
executed successfully", "data": { "order_type": "Limit", "symbol": "BTCUSDT", "side": "BUY",
"quantity": "0.001", "order_id": 5558466036, "status": "NEW", "executed_qty": "0.000",
"executed_price": null } }
...

```

Stop-Limit (BUY; non-triggering)

```
nv) PS C:\Users\Srushti\Downloads\src> python advanced\stop_limit.py BTCUSDT BUY
001 120000 119900
25-08-09 19:18:57,2353733 INFO - _main_: Connected to Binance testnet
25-08-09 19:18:57,253,412 INFO - _main_: API request: place
25-08-09 19:18:57,887,745 INFO - _main_: Stop-Limit order sucsefully
to-Limit order Placed executed successfully
mbol: BTCUSDT
der ID: 5558499137
de: BUY
pe: STOP
aptity: 0.001
ice: 119900.0.0
atus: NEW
ne in Force: GTC
nv) PS C:\Users\Srushti\Downloads\src> tail -n 12 bot.log > bot.log
timestamp": "2025-08-09T19:18:57.253323+05:30", "level": "INFO", "message": "API request: place stop_li
t_order", "data": { "action": "place_stop_limit_order", "data": { "action": "place_stop_limit_
der", "parameters": { "symbol": "BTCUSDT", "side": "BUY", "type": "STOP", "quantity": 0.001,
ice: 119900.0, "timeInForce": "GTC"} } }, "id": 5558499137, "status": "NEW", "executed_price:
nv) PS C:\Users\Srushti\Downloads\src>
```

```json

```
{ "timestamp": "2025-08-09T19:18:57.253323+05:30", "level": "INFO", "message":
"Connected to Binance testnet", "data": { "server_time": { "serverTime": 1754747337173},
"connection_status": "success"} }
{ "timestamp": "2025-08-09T19:18:57.253631+05:30", "level": "INFO", "message": "API
request: place_stop_limit_order", "data": { "action": "place_stop_limit_order", "parameters":
```

```
{ "symbol": "BTCUSDT", "side": "BUY", "type": "STOP", "quantity": 0.001, "price": 119900.0,
 "stopPrice": 120000.0, "timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:18:57.745703+05:30", "level": "INFO", "message": "Stop-Limit order
executed successfully", "data": { "order_type": "Stop-Limit", "symbol": "BTCUSDT", "side": "BUY",
 "quantity": "0.001", "order_id": 5558499137, "status": "NEW", "executed_qty": "0.000",
 "executed_price": null } }
```

```

OCO-style SELL (futures simulated):

```
2025-08-09 19:21:57.009 - INFO - Connected to Binance testnet
INFO: main :Connected to Binance testnet
2025-08-09 19:21:57.009 - WARNING - OCO orders require manual management in futures - placing two separate orders
WARNING: main :OCO orders require manual management in futures - placing two separate orders
2025-08-09 19:21:57.010 - INFO - API request: place_oco_limit_order
INFO: main :API request: place_oco_limit_order
2025-08-09 19:21:57.501 - INFO - API request: place_oco_stop_order
INFO: main :API request: place_oco_stop_order
2025-08-09 19:21:58.003 - INFO - OCO-style orders placed successfully
INFO: main :OCO-style orders placed successfully
OCO-style Orders Placed Successfully:

Limit Order:
Symbol: BTCUSDT
Order ID: 5558508843
Side: SELL
Type: LIMIT
Quantity: 0.001
Price: 116200.00
Status: NEW

Stop Order:
Symbol: BTCUSDT
Order ID: 5558508849
Side: SELL
Type: STOP MARKET
Quantity: 0.001
Stop Price: 115800.00
Status: NEW
```

```
```json
{ "timestamp": "2025-08-09T19:21:57.009399+05:30", "level": "INFO", "message":
 "Connected to Binance testnet", "data": { "server_time": { "serverTime": 1754747516918 },
 "connection_status": "success" } }
{ "timestamp": "2025-08-09T19:21:57.009950+05:30", "level": "WARNING", "message":
 "OCO orders require manual management in futures - placing two separate orders", "data":
 { "order_type": "OCO", "implementation": "manual_management", "note": "placing_separate_orders" } }
{ "timestamp": "2025-08-09T19:21:57.010185+05:30", "level": "INFO", "message": "API
request: place_oco_limit_order", "data": { "action": "place_oco_limit_order", "parameters":
 { "symbol": "BTCUSDT", "side": "SELL", "type": "LIMIT", "quantity": 0.001, "price": 116200.0,
 "timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:21:57.501698+05:30", "level": "INFO", "message": "API
request: place_oco_stop_order", "data": { "action": "place_oco_stop_order", "parameters":
 { "symbol": "BTCUSDT", "side": "SELL", "type": "STOP_MARKET", "quantity": 0.001, "stopPrice":
 115800.0 } } }
{ "timestamp": "2025-08-09T19:21:58.003073+05:30", "level": "INFO", "message":
 "OCO-style orders placed successfully", "data": { "order_type": "OCO", "limit_order_id":
 5558508843, "stop_order_id": 5558508849, "symbol": "BTCUSDT", "side": "SELL", "quantity":
 "0.001", "limit_price": "116200", "stop_price": "115800" } }
```
```

TWAP (BUY; total divisible by chunk)

```
2025-08-09 20:10:57,209 - INFO - API request: place_twap_chunk_3
INFO: _main_:API request: place_twap_chunk_3
2025-08-09 20:10:57,383 - INFO - TWAP chunk 3/5 executed
INFO: _main_:TWAP chunk 3/5 executed
Chunk 3/5 executed:
  Order ID: 5558677358
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:07,383 - INFO - API request: place_twap_chunk_4
INFO: _main_:API request: place_twap_chunk_4
2025-08-09 20:11:07,859 - INFO - TWAP chunk 4/5 executed
INFO: _main_:TWAP chunk 4/5 executed
Chunk 4/5 executed:
  Order ID: 5558677526
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:17,860 - INFO - API request: place_twap_chunk_5
INFO: _main_:API request: place_twap_chunk_5
2025-08-09 20:11:18,348 - INFO - TWAP chunk 5/5 executed
INFO: _main_:TWAP chunk 5/5 executed
Chunk 5/5 executed:
  Order ID: 5558679802
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:28,349 - INFO - API request: place_twap_remaining
INFO: _main_:API request: place_twap_remaining
2025-08-09 20:11:28,514 - ERROR - Order execution failed: TWAP_Remaining_Error
ERROR: _main_:Order execution failed: TWAP_Remaining_Error
Error executing remaining quantity: (400, -1111, 'Precision is over the maximum defined for this asset.', {'Content-Type': 'application/json', 'Content-Length': '76', 'Connection': 'keep-alive', 'Date': 'Sat, 09 Aug 2025 14:41:28 GMT', 'Access-Control-Allow-Methods': 'GET, POST, PUT, DELETE, OPTIONS', 'Server': 'Bengine', 'x-mbx-used-weight-1m': '1', 'x-mbx-order-count-10s': '0', 'x-mbx-order-count-1m': '0', 'x-response-time': '8ms', 'Access-Control-Allow-Origin': '*', 'X-Cache': 'Error from cloudfront', 'Via': '1.1 f58f65c11a806a22e60fa9ba6e024136.cloudfront.net (CloudFront)', 'X-Amz-Cf-Pop': 'DEL54-P5', 'X-Amz-Cf-Id': 'nhck8e8mXwblyJ7yMgPLZwMBUFYufXcJyMXC407gPL_h8rbGw2xfcg=='})
2025-08-09 20:11:28,514 - INFO - TWAP order execution completed
INFO: _main_:TWAP order execution completed

TWAP Order Complete: 5 orders executed
```

```
2025-08-09 20:10:57,209 - INFO - API request: place_twap_chunk_3
INFO: _main_:API request: place_twap_chunk_3
2025-08-09 20:10:57,383 - INFO - TWAP chunk 3/5 executed
INFO: _main_:TWAP chunk 3/5 executed
Chunk 3/5 executed:
  Order ID: 5558677358
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:07,383 - INFO - API request: place_twap_chunk_4
INFO: _main_:API request: place_twap_chunk_4
2025-08-09 20:11:07,859 - INFO - TWAP chunk 4/5 executed
INFO: _main_:TWAP chunk 4/5 executed
Chunk 4/5 executed:
  Order ID: 5558677526
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:17,860 - INFO - API request: place_twap_chunk_5
INFO: _main_:API request: place_twap_chunk_5
2025-08-09 20:11:18,348 - INFO - TWAP chunk 5/5 executed
INFO: _main_:TWAP chunk 5/5 executed
Chunk 5/5 executed:
  Order ID: 5558679802
  Quantity: 0.010
  Status: NEW
  Waiting 10.00 seconds...
2025-08-09 20:11:28,349 - INFO - API request: place_twap_remaining
INFO: _main_:API request: place_twap_remaining
2025-08-09 20:11:28,514 - ERROR - Order execution failed: TWAP_Remaining_Error
ERROR: _main_:Order execution failed: TWAP_Remaining_Error
Error executing remaining quantity: (400, -1111, 'Precision is over the maximum defined for this asset.', {'Content-Type': 'application/json', 'Content-Length': '76', 'Connection': 'keep-alive', 'Date': 'Sat, 09 Aug 2025 14:41:28 GMT', 'Access-Control-Allow-Methods': 'GET, POST, PUT, DELETE, OPTIONS', 'Server': 'Bengine', 'x-mbx-used-weight-1m': '1', 'x-mbx-order-count-10s': '0', 'x-mbx-order-count-1m': '0', 'x-response-time': '8ms', 'Access-Control-Allow-Origin': '*', 'X-Cache': 'Error from cloudfront', 'Via': '1.1 f58f65c11a806a22e60fa9ba6e024136.cloudfront.net (CloudFront)', 'X-Amz-Cf-Pop': 'DEL54-P5', 'X-Amz-Cf-Id': 'nhck8e8mXwblyJ7yMgPLZwMBUFYufXcJyMXC407gPL_h8rbGw2xfcg=='})
2025-08-09 20:11:28,514 - INFO - TWAP order execution completed
INFO: _main_:TWAP order execution completed

TWAP Order Complete: 5 orders executed
```

```
```json
{"timestamp": "2025-08-09T19:23:44.722922+05:30", "level": "INFO", "message":
"Connected to Binance testnet", "data": {"server_time": {"serverTime": 1754747624645},
"connection_status": "success"}}
{"timestamp": "2025-08-09T19:23:44.723262+05:30", "level": "INFO", "message": "TWAP
execution plan initialized", "data": {"order_type": "TWAP", "symbol": "BTCUSDT", "side": "BUY",
"total_quantity": 0.05, "chunk_size": 0.01, "num_chunks": 5, "remaining_quantity":
1.734723475976807e-18, "interval_seconds": 10.0}}
```

```
{ "timestamp": "2025-08-09T19:23:44.723475+05:30", "level": "INFO", "message": "API
request: place_twap_chunk_1", "data": { "action": "place_twap_chunk_1", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.01 } } }
{ "timestamp": "2025-08-09T19:23:45.211276+05:30", "level": "INFO", "message": "TWAP
chunk 1/5 executed", "data": { "order_type": "TWAP_CHUNK", "chunk_number": 1, "total_chunks":
5, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.010", "order_id": 5558514878, "status":
"NEW" } }
{ "timestamp": "2025-08-09T19:23:55.211845+05:30", "level": "INFO", "message": "API
request: place_twap_chunk_2", "data": { "action": "place_twap_chunk_2", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.01 } } }
{ "timestamp": "2025-08-09T19:23:55.379248+05:30", "level": "INFO", "message": "TWAP
chunk 2/5 executed", "data": { "order_type": "TWAP_CHUNK", "chunk_number": 2, "total_chunks":
5, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.010", "order_id": 5558515056, "status":
"NEW" } }
{ "timestamp": "2025-08-09T19:24:05.379819+05:30", "level": "INFO", "message": "API
request: place_twap_chunk_3", "data": { "action": "place_twap_chunk_3", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.01 } } }
{ "timestamp": "2025-08-09T19:24:05.860165+05:30", "level": "INFO", "message": "TWAP
chunk 3/5 executed", "data": { "order_type": "TWAP_CHUNK", "chunk_number": 3, "total_chunks":
5, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.010", "order_id": 5558516274, "status":
"NEW" } }
{ "timestamp": "2025-08-09T19:24:15.860704+05:30", "level": "INFO", "message": "API
request: place_twap_chunk_4", "data": { "action": "place_twap_chunk_4", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.01 } } }
{ "timestamp": "2025-08-09T19:24:16.337252+05:30", "level": "INFO", "message": "TWAP
chunk 4/5 executed", "data": { "order_type": "TWAP_CHUNK", "chunk_number": 4, "total_chunks":
5, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.010", "order_id": 5558517545, "status":
"NEW" } }
{ "timestamp": "2025-08-09T19:24:26.337941+05:30", "level": "INFO", "message": "API
request: place_twap_chunk_5", "data": { "action": "place_twap_chunk_5", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity": 0.01 } } }
{ "timestamp": "2025-08-09T19:24:26.816027+05:30", "level": "INFO", "message": "TWAP
chunk 5/5 executed", "data": { "order_type": "TWAP_CHUNK", "chunk_number": 5, "total_chunks":
5, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.010", "order_id": 5558517657, "status":
"NEW" } }
{ "timestamp": "2025-08-09T19:24:36.816576+05:30", "level": "INFO", "message": "API
request: place_twap_remaining", "data": { "action": "place_twap_remaining", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "MARKET", "quantity":
1.734723475976807e-18 } } }
{ "timestamp": "2025-08-09T19:24:37.308739+05:30", "level": "ERROR", "message": "Order
execution failed: TWAP_Remaining_Error", "data": { "error_type": "TWAP_Remaining_Error",
"details": "(400, -1111, 'Precision is over the maximum defined for this asset.',
{'Content-Type': 'application/json', 'Content-Length': '76', 'Connection': 'keep-alive', 'Date': 'Sat, 09
Aug 2025 13:54:37 GMT', 'Access-Control-Allow-Methods': 'GET, POST, PUT, DELETE,
OPTIONS', 'Server': 'Bengine', 'x-mbx-used-weight-1m': '-1',
'x-mbx-order-count-10s': '0', 'x-mbx-order-count-1m': '0', 'x-response-time': '0ms', 'Access-
Control-Allow-Origin': '*', 'X-Cache': 'Error from cloudfront', 'Via': '1.1
a9fc660f0a2dafc29cb1fe2bba69768e.cloudfront.net (CloudFront)', 'X-Amz-Cf-Pop':
```

'DEL54-P5', 'X-Amz-Cf-Id':  
'FtRld43rAqsRttAWeZI5z6RerYE9645-kqMkI-yMQ2m8mEoKUHAfRg==}')})"}}

{"timestamp": "2025-08-09T19:24:37.309072+05:30", "level": "INFO", "message": "TWAP  
order execution completed", "data": {"order\_type": "TWAP", "symbol": "BTCUSDT", "side": "BUY",  
"total\_orders\_executed": 5, "planned\_orders": 6, "success\_rate":  
0.8333333333333334}}

```

Grid (5 levels around current price)

```
2025-08-09 20:13:02,223 - INFO - Connected to Binance testnet
INFO: _main_:Connected to Binance testnet
2025-08-09 20:13:02,788 - INFO - Grid strategy market data retrieved
INFO: _main_:Grid strategy market data retrieved
Grid Order Execution Plan:
Symbol: BTCUSDT
Current Price: 116919.9
Price Range: 115800.0 - 116200.0
Grid Levels: 5
Price Step: 100.00
Quantity per Level: 0.001
Starting execution...

2025-08-09 20:13:02,789 - INFO - API request: place_grid_order_1
INFO: _main_:API request: place_grid_order_1
2025-08-09 20:13:03,280 - INFO - Grid order 1/5 placed
INFO: _main_:Grid order 1/5 placed
Grid Level 1/5 - BUY Order:
Order ID: 5558684458
Price: 115800.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:03,280 - INFO - API request: place_grid_order_2
INFO: _main_:API request: place_grid_order_2
2025-08-09 20:13:03,761 - INFO - Grid order 2/5 placed
INFO: _main_:Grid order 2/5 placed
Grid Level 2/5 - BUY Order:
Order ID: 5558684470
Price: 115900.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:03,762 - INFO - API request: place_grid_order_3
INFO: _main_:API request: place_grid_order_3
2025-08-09 20:13:04,239 - INFO - Grid order 3/5 placed
INFO: _main_:Grid order 3/5 placed
Grid Level 3/5 - BUY Order:
Order ID: 5558684486
Price: 116000.0
Quantity: 0.001
Status: NEW

Order ID: 5558684470
Price: 115900.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:03,762 - INFO - API request: place_grid_order_3
INFO: _main_:API request: place_grid_order_3
2025-08-09 20:13:04,239 - INFO - Grid order 3/5 placed
INFO: _main_:Grid order 3/5 placed
Grid Level 3/5 - BUY Order:
Order ID: 5558684486
Price: 116000.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:04,239 - INFO - API request: place_grid_order_4
INFO: _main_:API request: place_grid_order_4
2025-08-09 20:13:04,407 - INFO - Grid order 4/5 placed
INFO: _main_:Grid order 4/5 placed
Grid Level 4/5 - BUY Order:
Order ID: 5558684490
Price: 116100.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:04,407 - INFO - API request: place_grid_order_5
INFO: _main_:API request: place_grid_order_5
2025-08-09 20:13:04,878 - INFO - Grid order 5/5 placed
INFO: _main_:Grid order 5/5 placed
Grid Level 5/5 - BUY Order:
Order ID: 5558684505
Price: 116200.0
Quantity: 0.001
Status: NEW
2025-08-09 20:13:04,879 - INFO - Grid order execution completed
INFO: _main_:Grid order execution completed

Grid Orders Complete: 5/5 orders placed successfully

Grid Strategy Active:
- Buy orders below 116919.9
- Sell orders above 116919.9
- Monitor and manage orders as market moves
```

```json

```
{ "timestamp": "2025-08-09T19:26:26.099432+05:30", "level": "INFO", "message":
"Connected to Binance testnet", "data": { "server_time": { "serverTime": 1754747786015 },
"connection_status": "success" } }
{ "timestamp": "2025-08-09T19:26:26.572722+05:30", "level": "INFO", "message": "Grid strategy
market data retrieved", "data": { "symbol": "BTCUSDT", "current_price": 116920.6, "grid_range_low":
115800.0, "grid_range_high": 116200.0 } }
{ "timestamp": "2025-08-09T19:26:26.573192+05:30", "level": "INFO", "message": "API
request: place_grid_order_1", "data": { "action": "place_grid_order_1", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 115800.0,
"timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:26:27.048389+05:30", "level": "INFO", "message": "Grid order 1/5
placed", "data": { "order_type": "GRID_ORDER", "grid_level": 1, "total_levels": 5, "grid_price":
115800.0, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "order_id": 5558524240,
"status": "NEW" } }
{ "timestamp": "2025-08-09T19:26:27.048800+05:30", "level": "INFO", "message": "API
request: place_grid_order_2", "data": { "action": "place_grid_order_2", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 115900.0,
"timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:26:27.527792+05:30", "level": "INFO", "message": "Grid order 2/5
placed", "data": { "order_type": "GRID_ORDER", "grid_level": 2, "total_levels": 5, "grid_price":
115900.0, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "order_id": 5558524245,
"status": "NEW" } }
{ "timestamp": "2025-08-09T19:26:27.528209+05:30", "level": "INFO", "message": "API
request: place_grid_order_3", "data": { "action": "place_grid_order_3", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 116000.0,
"timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:26:27.693727+05:30", "level": "INFO", "message": "Grid order 3/5
placed", "data": { "order_type": "GRID_ORDER", "grid_level": 3, "total_levels": 5, "grid_price":
116000.0, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "order_id": 5558524247,
"status": "NEW" } }
{ "timestamp": "2025-08-09T19:26:27.694065+05:30", "level": "INFO", "message": "API
request: place_grid_order_4", "data": { "action": "place_grid_order_4", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 116100.0,
"timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:26:28.172523+05:30", "level": "INFO", "message": "Grid order 4/5
placed", "data": { "order_type": "GRID_ORDER", "grid_level": 4, "total_levels": 5, "grid_price":
116100.0, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "order_id": 5558524254,
"status": "NEW" } }
{ "timestamp": "2025-08-09T19:26:28.172842+05:30", "level": "INFO", "message": "API
request: place_grid_order_5", "data": { "action": "place_grid_order_5", "parameters":
{ "symbol": "BTCUSDT", "side": "BUY", "type": "LIMIT", "quantity": 0.001, "price": 116200.0,
"timeInForce": "GTC" } } }
{ "timestamp": "2025-08-09T19:26:28.654972+05:30", "level": "INFO", "message": "Grid order 5/5
placed", "data": { "order_type": "GRID_ORDER", "grid_level": 5, "total_levels": 5, "grid_price":
116200.0, "symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "order_id": 5558524270,
"status": "NEW" } }
{ "timestamp": "2025-08-09T19:26:28.655384+05:30", "level": "INFO", "message": "Grid order
execution completed", "data": { "order_type": "GRID", "symbol": "BTCUSDT", "current_price":
```



```
116920.6, "price_range_low": 115800.0, "price_range_high": 116200.0, "total_levels": 5,
"orders_placed": 5, "success_rate": 1.0}}
```
```

Validation & Logging

1. Invalid side

```
python src/market_orders.py BTCUSDT HOLD 0.001 || true && tail -
n 4 bot.log
```

```
```json
{"timestamp": "2025-08-09T19:28:55.897496+05:30", "level": "ERROR", "message":
"Validation failed: market_order_validation", "data": {"error_type": "market_order_validation",
"details": {"symbol": "BTCUSDT", "side": "HOLD", "quantity": "0.001", "error_message": "Side must
be BUY or SELL"}}}
```
```

2. Negative quantity

```
python src/market_orders.py BTCUSDT BUY -1 || true && tail -n
4 bot.log
```

```
```json
{"timestamp": "2025-08-09T19:30:03.248073+05:30", "level": "ERROR", "message":
"Validation failed: market_order_validation", "data": {"error_type": "market_order_validation",
"details": {"symbol": "BTCUSDT", "side": "BUY", "quantity": "-1", "error_message": "Quantity must
be positive"}}}
```
```

3. Invalid limit price (non-positive)

```
python src/limit_orders.py BTCUSDT BUY 0.001 -1 || true && tail -n
4 bot.log
```

```
```json
{"timestamp": "2025-08-09T19:31:15.281895+05:30", "level": "ERROR", "message":
"Validation failed: limit_order_validation", "data": {"error_type": "limit_order_validation", "details":
{"symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "price": "-1", "error_message": "Price
must be positive"}}}
```
```

4. Stop/limit invalid relation (BUY with stop <= limit)

```
python src/advanced/stop_limit.py BTCUSDT BUY 0.001 120000 130000 || true && tail -n 6
bot.log
```



```

```json
{"timestamp": "2025-08-09T19:31:58.994062+05:30", "level": "ERROR", "message":
"Validation failed: stop_limit_order_validation", "data": {"error_type": "stop_limit_order_validation",
"details": {"symbol": "BTCUSDT", "side": "BUY", "quantity": "0.001", "stop_price": "120000",
"limit_price": "130000", "error_message": "For BUY orders: stop price must be higher than limit
price"}}}
```

```

5. Grid invalid range (low >= high)

```
python src/advanced/grid.py BTCUSDT 120000 110000 5 0.001 || true && tail -n 6
bot.log
```

```

```json
{"timestamp": "2025-08-09T19:32:36.922602+05:30", "level": "ERROR", "message":
"Validation failed: grid_order_validation", "data": {"error_type": "grid_order_validation", "details":
{"symbol": "BTCUSDT", "price_low": "120000", "price_high": "110000", "grid_levels": "5",
"quantity_per_level": "0.001", "error_message": "Low price must be less than high price"}}}
```

```

6. TWAP invalid duration

```
python src/advanced/twap.py BTCUSDT BUY 0.01 -10 0.005 || true && tail -n 6
bot.log
```

```

```json
{"timestamp": "2025-08-09T19:33:00.397180+05:30", "level": "ERROR", "message":
"Validation failed: twap_order_validation", "data": {"error_type": "twap_order_validation",
"details": {"symbol": "BTCUSDT", "side": "BUY", "total_quantity": "0.01", "time_duration": "-
10", "chunk_size": "0.005", "error_message": "Time duration must be positive"}}}
```

```

Notes

- OCO orders on USDT-M Futures are simulated (limit + stop); manual cancellation required.
- Testnet only. Timestamps in logs default to Asia/Kolkata (BOT_LOG_TZ can override).

Summary

Core order types (Market, Limit) and advanced strategies (Stop-Limit, OCO-style, TWAP, Grid) are implemented with consistent input validation and structured logging.