Quant Bootcamp Handbook

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Introduction

Welcome to the Quant Bootcamp! This comprehensive handbook contains everything you need to know to participate successfully in our quantitative trading competition. Whether you're looking to understand the competition structure, learn about our trading algorithms, navigate the technical API, or get support through Discord, this guide has you covered.

What is the Quant Bootcamp?

The Quant Bootcamp is an intensive, competitive trading program designed to test and develop systematic trading strategies in real market conditions. Participants compete using sophisticated algorithmic trading tools while learning advanced quantitative finance concepts through hands-on experience.

How the System Works

All trading occurs through a central Order and Execution Management System (OEMS) that handles:

- **Pre-trade risk checks** to protect your capital
- **Smart Order Routing (SOR)** to find the best execution prices
- **Real-time P&L attribution** across multiple exchanges
- **Performance tracking** and competitive rankings

Your Trading Capital

Each participant receives a virtual subaccount system spanning three major exchanges: OKX, ByBit, and KuCoin. You'll start with an aggregated virtual balance of $1,000 USDT that functions as a unified trading pool. While initially allocated as $333.33 USDT per exchange, Smart Order Routing enables your orders to execute on any exchange based on optimal pricing and liquidity conditions.

Competition Framework

Your strategies will operate within carefully designed parameters that balance flexibility with risk management:

Leverage & Trading Permissions

- **2x Leverage**: All trades are executed with 2x leverage to enable advanced trading strategies
- **Margin Spot Trading**: Only symbols specifically identified by each venue as available for margin spot trading can be traded
- **Negative Asset Positions**: The 2x leverage allows participants to hold negative (borrowed) asset positions
- **Smart Order Routing Control**: Since participants don't control the SOR logic, the system may create borrowed positions automatically to optimize execution

Risk Management Framework

- **Daily & Net Drawdown Controls**: 15% limits protect against excessive losses

- **Rate Limiting**: One algorithm per second submission limit ensures fair system resource allocation
- **Exchange Isolation**: Risk controls apply to your aggregated $1,000 balance across all exchanges

Trading Activity Guidelines

- **Recommended Daily Turnover**: Aim for approximately $100,000 in daily trading volume
- **Turnover Ratio**: This represents a 100x daily turnover relative to your $1,000 starting capital
- **Activity Benefits**: Higher trading volumes provide more data for performance evaluation and better utilize the Edge algorithms' cost-saving potential
- **Fee Optimization**: Increased volume maximizes opportunities for alpha share savings through superior execution

The competition emphasizes skill, strategy, and risk management rather than capital size, creating a level playing field where intelligent algorithm usage and market understanding determine success.

This handbook covers everything from the competitive structure and fee models to detailed API documentation and community support channels. Use the table of contents above to navigate to specific sections as needed throughout your bootcamp journey.

Competition & Leaderboards

The bootcamp features a competitive leaderboard system that tracks and ranks participants based on their trading performance. The leaderboard will display:

- **Real-time P&L Rankings**: Participants ranked by total profit and loss across all three exchanges
- **Risk-Adjusted Performance**: Metrics that account for drawdown and volatility
- **Trading Activity**: Number of algorithms executed, success rates, and trading frequency
- **Exchange Performance**: Breakdown of performance by individual exchange (OKX, ByBit, KuCoin)
- **Daily/Weekly Leaders**: Time-based performance tracking to show consistent performers

The leaderboard updates in real-time and provides transparency into how different trading strategies perform under the same market conditions and constraints.

Performance Metrics

Your trading performance is evaluated using sophisticated financial metrics calculated on your aggregated $1,000 virtual subaccount:

Profit & Loss Metrics

- **Realized P&L ($)**: Actual profits/losses from completed trades across all exchanges
- **Realized P&L (%)**: Percentage return on your initial $1,000 capital
- **Unrealized P&L ($)**: Mark-to-market value of open positions across all exchanges
- **Unrealized P&L (%)**: Percentage of unrealized gains/losses relative to your capital
- **Total P&L**: Combined realized and unrealized P&L for complete performance picture

Risk-Adjusted Performance Metrics

- **Alpha**: Risk-adjusted returns measuring performance above market benchmark
- **Beta**: Correlation coefficient measuring your strategy's sensitivity to overall market movements
- **Sharpe Ratio**: Risk-adjusted return metric calculated as (Return - Risk-free rate) / Volatility

These metrics provide a comprehensive view of not just your raw returns, but how efficiently you're generating those returns relative to the risk taken and market conditions.

Revenue Model & Fee Structure

The bootcamp operates on a transparent fee structure that aligns our incentives with your trading success:

Volume-Based Fee: 1 Basis Point (0.01%)

- **Applied to**: All executed trade volume across all exchanges

- **Calculation**: Total traded volume × 0.0001
- **Example**: If you trade $10,000 in volume, the fee is $1.00
- **Recommended Volume**: With the suggested $100,000 daily turnover, expect approximately $10 in daily volume fees
- **Purpose**: Covers infrastructure and operational costs

Alpha Share Fee: Performance-Based

Our Edge + SOR algorithms are designed to save you money compared to basic market orders. When they do, we share in those savings:

- **Benchmark**: Plain market order execution on the primary venue for each trade
- **Net Savings Calculation**:

```
Net Savings = Benchmark Execution Cost - Actual Edge Algorithm Cost
```

- **Alpha Share**: We take 80% of positive net savings, you keep 20% of the savings
- **Transparency**: All benchmark comparisons and savings calculations are provided in real-time
- **Alignment**: We only profit when our algorithms provide measurable value to your trades

Fee Examples

Example 1: Profitable Edge Execution

- Market order benchmark cost: $50 slippage
- Edge algorithm actual cost: $20 slippage
- Net savings: $30
- Alpha share fee: $24.00 (80% of $30 savings)
- Your benefit: $6.00 (20% of $30 savings) + superior execution
- Volume fee: 1 bps on trade volume

Example 2: No Savings Generated

- Market order benchmark cost: $50 slippage
- Edge algorithm actual cost: $50 slippage
- Net savings: $0
- Alpha share fee: $0 (no savings to share)
- Volume fee: 1 bps on trade volume

This model ensures that:

1. You always know your costs upfront (volume fee)
2. We're incentivized to provide superior execution (alpha share only on savings)
3. You still benefit from superior execution even when paying the alpha share (20% of savings + better execution)
4. Complete transparency in all fee calculations

Bootcamp Organization & Communication

Communication & Support

The bootcamp uses Discord for communication and support:

- **Access**: Join via the exclusive invitation link provided to participants
- **Support**: Use Discord to raise issues and contact competition administrators
- **Updates**: Receive important announcements and competition information through Discord channels

For technical issues or questions, create a support ticket through Discord to connect directly with the admin team.

Risk Management & Account Protection

Your trading account is protected by comprehensive risk management rules designed to prevent excessive losses and maintain fair competition:

Daily Drawdown Limit: 15%

- Calculated as the percentage loss from your start-of-day equity
- Measured across all three exchanges combined
- **Example**: If you start the day with $1,000 total equity, your account will be locked if losses exceed $150 in a single day

Net Drawdown Limit: 15%

- Calculated as the percentage loss from your peak equity (highest balance achieved)
- Measured across all three exchanges combined
- **Example**: If your peak equity reaches $1,200, your account will be locked if your total equity falls below $1,020

Rate Limiting

- You are limited to **one algorithm per second** to prevent system overload and ensure fair resource allocation
- This applies to all algorithm placement operations (`place` commands)
- Rate limits are enforced per participant and per physical sub-account
- Excessive rate limit violations may result in temporary trading restrictions

Account Lockout Procedures

Automatic Risk-Based Lockouts

When any risk limit is exceeded:

1. **Immediate Lockout**: Your account is automatically locked from placing new orders
2. **Algorithm Cancellation**: All active algorithms are cancelled to prevent further losses
3. **Admin Reset Required**: Only bootcamp administrators can unlock your account
4. **Risk Alert Logging**: All violations are logged for review and analysis

Administrative Discretionary Actions

In addition to automatic risk controls, bootcamp administrators reserve the right to take manual action when circumstances warrant:

Manual Account Lockout:

- **Suspicious Activity**: Unusual trading patterns or potential system abuse
- **Rule Violations**: Breach of bootcamp terms, fair play policies, or community guidelines
- **Technical Issues**: System instability or API misuse that could affect other participants
- **Market Conditions**: Extreme market events requiring protective measures
- **Educational Purposes**: Temporary locks for instructional demonstrations or system maintenance

Account Reset Authority:

- **Balance Adjustments**: Correction of erroneous trades or system errors
- **Position Liquidation**: Forced closure of positions when necessary for risk management
- **Credential Reset**: API key regeneration for security purposes
- **Performance Corrections**: Adjustment of metrics due to technical issues
- **Restart Permissions**: Allowing participants to resume trading after violations are addressed

Administrative Process:

1. **Immediate Action**: Admins can lock accounts instantly without prior notice when necessary
2. **Notification**: Participants are informed via Discord and/or email about the action taken
3. **Review Period**: Administrative team reviews the situation and determines appropriate response
4. **Resolution**: Account status is updated based on findings (unlock, reset, or maintain restrictions)
5. **Appeal Process**: Participants may request review through the Discord support ticket system

Transparency & Communication:

- All administrative actions are logged and documented
- Participants receive clear explanations for any manual interventions
- Discord announcements for system-wide actions affecting multiple participants
- Regular updates on account status during resolution process

These administrative powers ensure fair competition, system integrity, and participant protection throughout the bootcamp duration.

Additional Protections

- **Controlled Leverage**: All trading uses 2x leverage on margin-enabled spot markets only
- **Symbol Restrictions**: Only venue-approved margin spot trading symbols are available
- **Exchange Isolation**: Losses on one exchange don't affect your ability to trade on others (subject to total drawdown limits)

Available Trading Algorithms

The bootcamp provides three sophisticated Edge algorithms designed for different market conditions and execution strategies. All algorithms use smart order routing (SOR) and are designed to minimize market impact while ensuring reliable execution.

Smart Order Routing (SOR)

All Edge algorithms include intelligent order routing that automatically selects the optimal exchange for execution:

- **Cross-Exchange Execution**: Your buy/sell orders can execute on any of your three virtual subaccounts (OKX, ByBit, KuCoin)
- **Aggregated NAV**: Your total $1,000 virtual balance is treated as an aggregated pool across all exchanges
- **Optimal Venue Selection**: The system automatically routes orders to the exchange offering the best price and liquidity
- **Unified P&L Tracking**: All trades are consolidated into unified performance metrics regardless of execution venue
- **Risk Management**: Drawdown limits apply to your total aggregated balance, not individual exchange balances

This means you don't need to manually decide which exchange to trade on - the algorithms will automatically find the best execution venue for each order while maintaining your unified $1,000 trading capital.

Spot Margin Trading & Auto-Borrowing

The underlying exchange accounts supporting your virtual subaccounts are configured for spot margin trading, enabling advanced liquidity management:

Automatic Borrowing & Repayment

- **Auto-Borrow**: When your trades require more funds than available in a specific asset, the system automatically borrows the needed amount
- **Auto-Repay**: Profits and available balances are automatically used to repay any outstanding borrowings
- **Seamless Operation**: This happens transparently without requiring manual intervention from participants
- **Cross-Asset Trading**: Enables trading pairs even when you don't hold the base asset initially

Liability Management

- **Automatic Liability Handling**: The system manages any temporary liabilities created through margin borrowing
- **Real-Time Monitoring**: All borrowings and repayments are tracked in real-time
- **Risk Controls**: Margin requirements and limits are managed at the infrastructure level

Daily Maintenance & Rebalancing

- **Admin-Managed**: Daily rebalancing and margin maintenance are handled by bootcamp administrators
- **Automated Processes**: Margin calls, rebalancing, and account optimization occur automatically
- **Participant Focus**: You can focus on trading strategy without worrying about margin management
- **Transparent Reporting**: All margin activities are reflected in your balance and P&L reporting

Important Note: The underlying accounts are configured with 2x leverage capabilities, allowing participants to hold negative (borrowed) asset positions. This leverage is automatically managed through Smart Order Routing and enables more sophisticated trading strategies while maintaining risk controls on your virtual $1,000 capital.

Market Edge Algorithm

Purpose: Aggressive execution with exponential decay curve for time-sensitive orders

The Market Edge algorithm combines passive limit orders with aggressive market orders to ensure complete execution within a specified timeframe. It uses an exponentially decaying curve to determine order sizes over time.

Key Features:

- **Decay-Based Execution**: Uses exponential decay to front-load or back-load orders based on market conditions
- **Hybrid Strategy**: Starts with passive limit orders at the edge of the order book, switches to market orders if needed
- **Automatic Completion**: Guarantees full execution by placing final market orders before deadline

Input Parameters:

- `base`: Base asset (e.g., "ETH")
- `quote`: Quote asset (e.g., "USDT")
- `side`: "buy" or "sell"
- `quantity`: Total quantity to execute
- `duration`: Maximum time in seconds for execution
- `decay_factor`: Controls execution curve shape (>0, higher = more aggressive front-loading)

Execution Strategy:

1. Places limit orders at best bid/ask prices (passive)
2. Uses exponential decay formula to determine slice sizes
3. Cancels unfilled orders and places market orders if time is running out
4. Continuously monitors fills and adjusts remaining quantity

Execution Timing: Places approximately 1 order per 5 seconds during active execution

Best Used For: Time-sensitive orders where completion is critical, moderate to high urgency execution

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Limit Edge Algorithm

Purpose: Conditional passive execution within a price range

The Limit Edge algorithm waits for favorable market conditions before executing, only becoming active when the market price enters a specified range around your target price. It uses sophisticated order book modeling to optimize placement.

Key Features:

- **Conditional Activation**: Only trades when market price is within your specified threshold
- **Order Book Optimization**: Uses Poisson process modeling to find optimal placement prices
- **Adaptive Execution**: Continuously places and cancels orders to adapt to available liquidity
- **Risk Management**: Built-in maximum duration and rejection handling

Input Parameters:

- `base`: Base asset (e.g., "ETH")
- `quote`: Quote asset (e.g., "USDT")
- `side`: "buy" or "sell"
- `quantity`: Total quantity to execute
- `duration`: Maximum time in seconds for execution
- `price`: Target limit price (optional - algorithm can determine optimal price)
- `threshold`: Percentage range around limit price for activation (e.g., 0.05 = 5%)

Execution Strategy:

1. **Monitoring Phase**: Watches market price until it enters execution range

2. **Activation**: Begins execution when price reaches threshold
3. **Optimal Placement**: Uses order book analysis to find best price level
4. **Cycle Execution**: Places orders, waits, evaluates fills, repeats
5. **Range Management**: Returns to monitoring if price moves outside range

Execution Timing: Places approximately 1 order per 5 seconds during active execution cycles

Best Used For: Patient execution with specific price targets, taking advantage of favorable market conditions

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TWAP Edge Algorithm

Purpose: Time-weighted average price execution with controlled market impact

The TWAP Edge algorithm breaks large orders into smaller time-based segments, executing each segment using the Market Edge decay strategy. This provides predictable execution timing while minimizing market impact.

Key Features:

- **Time Segmentation**: Divides total duration into equal intervals
- **Decay Within Segments**: Uses exponential decay execution within each time slice
- **Rollover Handling**: Unfilled quantities carry over to subsequent intervals
- **Predictable Pacing**: Provides structured, time-based execution framework

Input Parameters:

- `base`: Base asset (e.g., "ETH")
- `quote`: Quote asset (e.g., "USDT")
- `side`: "buy" or "sell"
- `quantity`: Total quantity to execute
- `duration`: Total execution time in seconds
- `interval`: Time interval in seconds for each segment
- `decay_factor`: Controls execution aggression within each interval (optional)

Execution Strategy:

1. **Segmentation**: Divides total quantity by number of intervals
2. **Interval Execution**: Uses Market Edge strategy within each time slice
3. **Rollover Management**: Adds unfilled quantities to next interval
4. **Final Completion**: Can use market orders in final interval to guarantee completion

Mathematical Framework:

- Segment Quantity: `Q_segment = Q_total / N_intervals`
- Next Interval Quantity: `Q_next = Q_segment + Q_unfilled`
- Decay Formula (within interval): `Q_order = Q_remaining × e^(-decay_factor × time_left)`

Execution Timing: Places approximately 1 order per 5 seconds within each time interval segment

Best Used For: Large orders requiring controlled market impact, consistent execution over extended periods

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Authentication

REST API

Base URL: `https://quant-bootcamp-api.goquant.io`

To authenticate, you need to make a request to the login endpoint to generate an `access_token`. This token is valid for 24 hours.

Login Endpoint

Endpoint: `POST /auth/v2/validate_user`

Request:

```
{
  "email": "user1@goquant.io",
  "password": "user@123"
}
```

Response:

```
{
  "type": "success",
  "message": "User validated successfully",
  "status_code": 200,
  "data": {
    "access_token": "<access_token>"
  }
}
```

Use the `access_token` from the response for all subsequent API calls.

WebSocket

When connecting to the WebSocket endpoint, you must provide the `access_token` in the `Authorization` header. WebSocket connections can remain active even if the `access_token` expires.

WebSocket API

Endpoint:

```
wss://quant-bootcamp-api.goquant.io/ws/v1/virtual-subaccount
```

Headers:

```
{
    "Authorization": "Bearer $TOKEN",
    "Virtual-Subaccount-Name": "unique_name"
}
```

Default Messages

Ping/Pong Message

Default incoming message (every 10 seconds if no update):

```
{
    "pong": {
        "timestamp": "2025-09-07T14:20:03.688992+00:00"
    },
    "timestamp": "2025-09-07T14:20:03.689189+00:00"
}
```

Operations

All messages sent to the WebSocket server are JSON objects with an `op` field that specifies the operation to be performed.

Place an Order

- `op`: `place`

This operation allows you to place an order. There are three types of algorithms available: `market_edge`, `limit_edge`, and `twap_edge`.

Important Notes:

- `client_algo_id` is automatically generated by the system and returned in responses
- `account_name` should be provided to specify which account to use
- All algorithms use `"instrument_type": "spot"` and `"sor_enabled": true` by default
- Supported exchanges: `okx`, `bybit`, `kucoinspot`

Place Market Edge Order

Request:

```
{
  "op": "place",
  "algorithm_type": "market_edge",
  "exchange_name": "okx | bybit | kucoinspot",
  "account_name": "<account_name>",
  "base": "ETH",
  "quote": "USDT",
  "side": "buy",
  "quantity": 0.25,
  "duration": 10
}
```

Response:

```
{
    "algorithm_place_response": {
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": 17572549169100,
        "status": "success",
        "message": "Order submitted successfully",
        "timestamp": "2025-09-07T14:21:57.477421+00:00"
    }
}
```

Place Limit Edge Order

Request:

```
{
  "op": "place",
  "algorithm_type": "limit_edge",
  "exchange_name": "okx | bybit | kucoinspot",
  "account_name": "<account_name>",
  "base": "ETH",
  "quote": "USDT",
  "side": "buy",
  "quantity": 1,
  "duration": 10
}
```

Response:

```
{
    "algorithm_place_response": {
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": 17572550297483,
        "status": "success",
        "message": "Order submitted successfully",
        "timestamp": "2025-09-07T14:23:51.650677+00:00"
    }
}
```

Place TWAP Edge Order

Request:

```
{
  "op": "place",
  "algorithm_type": "twap_edge",
  "exchange_name": "okx | bybit | kucoinspot",
  "account_name": "<account_name>",
  "base": "ETH",
  "quote": "USDT",
  "side": "sell",
  "quantity": 1,
  "duration": 10,
  "interval": 2
}
```

Response:

```
{
    "algorithm_place_response": {
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": 17572549863632,
        "status": "success",
        "message": "Order submitted successfully",
        "timestamp": "2025-09-07T14:23:07.201540+00:00"
    }
}
```

Cancel Algorithm

- `op`: `cancel`

Cancels an existing algorithm. You must specify the `client_algo_id` of the algorithm you wish to cancel.

Request:

```
{
    "op": "cancel",
  "client_algo_id": "<int>"
}
```

Response:

```
{
    "algorithm_cancel_response": {
        "client_algo_id": "17572564237729",
        "status": "success",
        "message": "Algorithm cancelled successfully",
        "timestamp": "2025-09-07T14:48:16.490006+00:00"
    }
}
```

Fetch Virtual Subaccount Balance

- `op`: `virtual_subaccount_balance`

Retrieves the current balances for your aggregated virtual subaccount across all exchanges. Due to Smart Order Routing, your positions may be distributed across OKX, ByBit, and KuCoin, but your total NAV remains $1,000 equivalent.

Request:


```
{
    "op": "virtual_subaccount_balance"
}
```


Response:

```
{
    "virtual_subaccount_balance": [
        {
            "exchange_name": "okx",
            "account_name": "<account_name>",
            "fund_currency": "USDT",
            "fund_limit": 333.33,
            "assets": {
                "USDT": {
                    "total": 250.15,
                    "available": 250.15,
                    "blocked": 0.0,
                    "avg_price": 0.0
                },
                "BTC": {
                    "total": 0.002,
                    "available": 0.002,
                    "blocked": 0.0,
                    "avg_price": 45000.0
                }
            },
            "peak_nav": 350.0,
            "current_nav": 340.15,
            "realized_pnl": 15.25,
            "unrealized_pnl": -9.85
        },
        {
            "exchange_name": "bybit",
            "account_name": "<account_name>",
            "fund_currency": "USDT",
            "fund_limit": 333.33,
            "assets": {
                "USDT": {
                    "total": 180.50,
                    "available": 180.50,
                    "blocked": 0.0,
                    "avg_price": 0.0
                },
                "ETH": {
                    "total": 0.05,
                    "available": 0.05,
                    "blocked": 0.0,
                    "avg_price": 3200.0
                }
            },
            "peak_nav": 340.0,
            "current_nav": 340.50,
            "realized_pnl": 5.75,
            "unrealized_pnl": 1.42
        },
        {
            "exchange_name": "kucoinspot",
            "account_name": "<account_name>",
            "fund_currency": "USDT",
            "fund_limit": 333.33,
            "assets": {
                "USDT": {
                    "total": 333.33,
                    "available": 333.33,
                    "blocked": 0.0,
                    "avg_price": 0.0
                }
            },
            "peak_nav": 333.33,
            "current_nav": 333.33,
            "realized_pnl": 0.0,
            "unrealized_pnl": 0.0
        }
    ],
    "aggregated_metrics": {
        "total_nav": 1013.98,
        "total_realized_pnl": 21.0,
        "total_unrealized_pnl": -8.43,
        "total_pnl": 12.57,
        "return_percentage": 1.26,
        "peak_nav": 1000.0
    },
    "timestamp": "2025-09-07T14:37:16.065920+00:00"
}
```


Key Fields Explained:

- `current_nav`: Current net asset value per exchange
- `realized_pnl`: Profits/losses from completed trades
- `unrealized_pnl`: Mark-to-market value of open positions
- `aggregated_metrics`: Your overall performance across all exchanges
- `return_percentage`: Total return on your $1,000 starting capital

Channel Subscriptions

Subscribe to Orders Channel

You can subscribe to real-time updates for your orders. The system automatically subscribes you to all accounts in your virtual subaccount.

Request:

```
{
    "op": "subscribe",
    "channel": "orders"
}
```

Response:

```
{
    "subscription_success": {
        "channel": "orders",
        "exchange_name": "okx | bybit | kucoinspot",
        "account_name": "<account_name>",
        "status": "success",
        "timestamp": "2025-09-07T14:29:14.369571+00:00"
    },
    "timestamp": "2025-09-07T14:29:14.371095+00:00"
}
```

Order Update Message

Real-time order updates are sent automatically when subscribed:

```
{
    "orders": {
        "channel": "orders",
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": "17572554767945",
        "state": "closed",
        "timestamp": "2025-09-07T14:31:19.559021+00:00",
        "symbol": "ETH-USDT",
        "oems_order_update": {
            "exchange_name": "<exchange_name>",
            "account_name": "<account_name>",
            "client_algo_id": "17572554767945",
            "algorithm_id": "33",
            "order_id": "2843841433806376960",
            "symbol": "ETH-USDT",
            "status": "closed",
            "filled": 0.05,
            "remaining": 0.0,
            "price": 4303.8,
            "initial_timestamp": 1757255477809,
            "order_timestamp": 1757255479008,
            "instrument_type": "spot",
            "timestamp": "2025-09-07T14:31:19.504151+00:00",
            "algorithm_type": "market_edge",
            "is_sor_order": false,
            "display_currency": "contracts",
            "notes": null,
            "tags": null
        }
    }
}
```


Subscribe to Algorithms Channel

Request:


```
{
    "op": "subscribe",
    "channel": "algorithms"
}
```


Response:
For all the accounts in virtual subaccount:


```
{
    "subscription_success": {
        "channel": "algorithms",
        "exchange_name": "okx | bybit | kucoinspot",
        "account_name": "<account_name>",
        "status": "success",
        "timestamp": "2025-09-07T14:33:01.356152+00:00"
    },
    "timestamp": "2025-09-07T14:33:01.358452+00:00"
}
```


Algorithm Updates

Algorithm In Progress Update

```
{
    "algorithms": {
        "channel": "algorithms",
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": "17572556766560",
        "state": "in_progress",
        "algorithm_type": "market_edge",
        "timestamp": "2025-09-07T14:34:38.760643+00:00",
        "oems_algo_update": {
            "exchange_name": "<exchange_name>",
            "account_name": "<account_name>",
            "client_algo_id": "17572556766560",
            "algorithm_id": "34",
            "status": "in_progress",
            "parameters": {
                "exchange_name": "<exchange_name>",
                "account_name": "<account_name>",
                "client_algo_id": 17572556766560,
                "algorithm_type": "market_edge",
                "base": "ETH",
                "quote": "USDT",
                "side": "BUY",
                "quantity": 0.1,
                "duration": 10.0,
                "decay_factor": 1.0,
                "symbol": "ETH-USDT",
                "instrument_type": "spot",
                "base_instrument": "ETH",
                "quote_instrument": "USDT",
                "smart_order_accounts": [
                    {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>"
                    }
                ]
            },
            "error": null,
            "timestamp": "2025-09-07T14:34:38.758350+00:00",
            "order_timestamp": 1757255677859
        }
    }
}
```


Algorithm Completed Update

```
{
    "algorithms": {
        "channel": "algorithms",
        "exchange_name": "<exchange_name>",
        "account_name": "<account_name>",
        "client_algo_id": "17572556766560",
        "state": "completed",
        "algorithm_type": "market_edge",
        "timestamp": "2025-09-07T14:34:47.357448+00:00",
        "oems_algo_update": {
            "exchange_name": "<exchange_name>",
            "account_name": "<account_name>",
            "client_algo_id": "17572556766560",
            "algorithm_id": "34",
            "status": "completed",
            "parameters": {
                "exchange_name": "<exchange_name>",
                "account_name": "<account_name>",
                "client_algo_id": 17572556766560,
                "algorithm_type": "market_edge",
                "base": "ETH",
                "quote": "USDT",
                "side": "BUY",
                "quantity": 0.1,
                "duration": 10.0,
                "decay_factor": 1.0,
                "symbol": "ETH-USDT",
                "instrument_type": "spot",
                "base_instrument": "ETH",
                "quote_instrument": "USDT",
                "smart_order_accounts": [
                    {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>"
                    }
                ]
            },
            "error": null,
            "timestamp": "2025-09-07T14:34:47.352260+00:00",
            "order_timestamp": 1757255677859,
            "filled_quantity": 0.1,
            "remaining_quantity": 0.0,
            "side": "buy"
        }
    }
}
```


History Operations

Fetch Virtual Subaccount Algorithm History

- `op`: `virtual_subaccount_algo_history`

Fetches the history of algorithms for your virtual subaccount, including detailed order information for each algorithm.

```
{
    "op": "virtual_subaccount_algo_history"
}
```

Fetch Algorithm History

The system provides comprehensive algorithm history with pagination support. The response includes detailed algorithm parameters, state changes, and associated order information.

Response:

```
{
    "virtual_subaccount_algo_history": {
        "algorithms": [
            {
                "id": "93247c38-a4f3-466c-aa4e-2e405ca8028b",
                "algorithm_id": "17572556766560",
                "parameter": [
                    {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>",
                        "client_algo_id": 17572556766560,
                        "algorithm_type": "market_edge",
                        "base": "ETH",
                        "quote": "USDT",
                        "side": "BUY",
                        "quantity": 0.1,
                        "duration": 10.0,
                        "decay_factor": 1.0,
                        "symbol": "ETH-USDT",
                        "instrument_type": "spot",
                        "base_instrument": "ETH",
                        "quote_instrument": "USDT",
                        "smart_order_accounts": [
                            {
                                "exchange_name": "<exchange_name>",
                                "account_name": "<account_name>"
                            }
                        ]
                    }
                ],
                "algorithm_update": {
                    "initialized": {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>",
                        "client_algo_id": "17572556766560",
                        "algorithm_id": "34",
                        "status": "initialized",
                        "error": null,
                        "timestamp": "2025-09-07T14:34:37.859749+00:00",
                        "order_timestamp": 1757255677859,
                        "symbol": "ETH-USDT",
                        "side": "buy",
                        "quantity": 0.1,
                        "duration": 10.0,
                        "decay_factor": 1.0,
                        "tpsl": null
                    },
                    "in_progress": {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>",
                        "client_algo_id": "17572556766560",
                        "algorithm_id": "34",
                        "status": "in_progress",
                        "error": null,
                        "timestamp": "2025-09-07T14:34:47.350442+00:00",
                        "order_timestamp": 1757255677859,
                        "slice": 2,
                        "slice_quantity": 0.05,
                        "filled": 0.05,
                        "carry_over": 0.0,
                        "total_filled": 0.1
                    },
                    "completed": {
                        "exchange_name": "<exchange_name>",
                        "account_name": "<account_name>",
                        "client_algo_id": "17572556766560",
                        "algorithm_id": "34",
                        "status": "completed",
                        "error": null,
                        "timestamp": "2025-09-07T14:34:47.352260+00:00",
                        "order_timestamp": 1757255677859,
                        "filled_quantity": 0.1,
                        "remaining_quantity": 0.0,
                        "side": "buy"
                    }
                },
                "state": "completed",
                "created_at": "2025-09-07T14:34:38.049904",
                "updated_at": "2025-09-07T14:34:47.886157",
                "is_archived": false
            }
        ],
        "pagination": {
```

```
            "page": 1,
            "limit": 1,
            "total": 1,
            "pages": 1,
            "has_next": false,
            "has_prev": false
        },
        "timestamp": 1643596
    },
    "timestamp": "2025-09-07T14:39:07.556230+00:00"
}
```