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EXCHANGE

Alo Protocol - Binário

Lorem ipsum

ALO Protocol

This document provides essential information regarding the **Binary Order Entry Protocol**, referred to as the **ALO Protocol**.

Authorized market participants will send orders to buy or sell through ALO Order Entry Gateway. Accepted Orders are subject to matching conditions according to their parameters. Orders that cannot be executed immediately will be posted to our Order Book following price-time priority to be executed in appropriate market conditions.

By these gateways, Market participants will be able to send New Order or Cancel and Replace of previously sent Orders as well as receive the related executions. For a better understanding of Execution Rules please refer to the Operations Procedure Guide. For Information on Market Data, please refer to ALI Protocol (available separately).

Disclaimer: This document is a work in progress and should not be considered as final. It is subject to further revisions and modifications pending approval from regulatory agencies. Any information contained herein is preliminary and may be subject to change.

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1. Summary

ALO is a native binary-format protocol for order entry, aimed at simplicity and performance.

The ALO protocol consists of a two-way communication channel between the ALO host and the client application, intermediated by a lower-level protocol, SoupBinTCP. Outbound messages, i.e. from the ALO host to the client, are always sequenced and have their delivery guaranteed by the lower-level protocol (SoupBinTCP), while inbound messages are non-guaranteed by design. The description of the available message types is provided in later sections.

Each ALO User, equivalent to an order entry session, has at least one physical ALO host associated. If the client desires a fault-tolerant configuration, additional physical ALO hosts can be bound to the same ALO User, which will then work as replicas generating the same outbound messages. If there is any doubt whether a given message successfully reached the ALO host, for example in case of a connection failure, the client application can safely repeat the message to the ALO host and/or send it to the multiple replicas bound to the same ALO User with no issue of generating a duplicate request.

All field lengths are considered to be bytes.

2. ALO User setup

It is the Trading Member's responsibility to request the creation of its ALO Users, each one is identified by a unique UserId assigned on the User creation.

2.1 Parameters

1. Unique UserId

2. Username + Password
   - in fault-tolerant configuration, a different pair of Username/Password is assigned to each ALO host

3. Network
   - The exchange shall provide the IP address and port where each ALO host listens for client applications to connect
   - Note: each ALO Host can have only one active connection at a time

4. Authorized Firm – unique FirmId assigned

5. Authorized Accounts – regarding which accounts the ALO User allows order entry, there are two possible configurations:
   - All: all accounts registered under the associated FirmId will be accepted
     i. E.g.: when Connection origin is Trading Member
     ii. E.g.: homebroker
   - Subset: the client provides a list of accounts which will be accepted for the given ALO User
     iii. E.g.: ALO User dedicated to HFT accounts only accepting orders for accounts: AccXY, AccYZ and AccZX
     iv. Note: the accounts in this list must also be registered under an associated FirmId

6. Connection Origin
   - Trading member, Technology Provider or Investor

7. Cancel on Disconnect
   - Optional

3. Inbound Messages

3.1 Enter order

Name	Length	Values	Notes
Type	1	Alpha	'O' = Enter Order
UserRefNum	4	Integer	Must be day-unique and strictly increasing for each ALO User
Side	1	Alpha	B = buy S = sell
Quantity	4	Integer	Total number of shares. Must be greater than zero and less than 1,000,000.
Symbol	8	Alpha	Stock symbol
Price	4	Integer	The price of the order. Must be greater than zero and less than $200,000.00. Orders entered with a price of $200,000.00 or 0x7FFFFFFF will be treated as 'market orders'.

TimeInForce	1	Alpha	0 = Day 3 = IOC 4 = FOK
PostOnly	1	Alpha	P = Post Only (Book-or-cancel) N = No (default)
Attributable*	1	Alpha	A = FirmId Attribution N = No FirmId Attribution (* pending regulatory approval)
ClOrdId	14	Alpha	Customer order identifier. ClOrdId will not be checked for day-uniqueness for each ALO User
AccountId	4	Integer	Optional field. Forwarded to the clearing and settlement venues.
STPKey	4	Integer	Customer STPKey – identifies specific entity, is the trigger to Self Trade Prevention. 0 (zero) means "no STP" for this order.
EnteringTrader	5	Alpha	EnteringTrader identifier

3.2 Replace Order

Name	Length	Values	Notes
Type	1	Alpha	'U' = Replace Order
OrigUserRefNum	4	Integer	This must be filled out with the Order UserRefNum sent on the Enter Order Message or last Replace Order Message
UserRefNum	4	Integer	The replacement Order UserRefNum must be unique and strictly increasing for each ALO User
Quantity	4	Integer	Desired total quantity of the order (open quantity plus any executed quantity). Must be greater than zero and less than 1,000,000.
Price	4	Integer	The price of the order. Must be greater than zero and less than $200,000.00. Orders entered with a price of $200,000.00 or 0x7FFFFFFF will be treated as 'market orders'.

ClOrdId	14	Alpha	Customer replace request identifier. ClOrdId will not be checked for day-uniqueness for each ALO User
EnteringTrader	5	Alpha	EnteringTrader identifier

3.3 Cancel Order

Name	Length	Values	Notes
Type	1	Alpha	'X' = Cancel Order
UserRefNum	4	Integer	The Order UserRefNum as was originally transmitted in an Enter Order Message
ClOrdId	14	Alpha	Customer cancel request identifier. ClOrdId will not be checked for day-uniqueness for each ALO User
EnteringTrader	5	Alpha	EnteringTrader identifier

4. Outbound Messages

4.1 System Event

Name	Length	Values	Notes
Type	1	Alpha	'S' = System Event
Timestamp	8	Integer	Expressed as nanoseconds since midnight
Event Code	1	Alpha	S = Start Of Day, indicating that exchange is open and is ready to accept orders. E = End Of Day, indicating that the exchange is closed and will no longer accept new orders. Note that it is still possible to receive breaks and cancels after this event.

4.2 Orders Accepted

Name	Length	Values	Notes
Type	1	Alpha	'A' = Accepted Order
Timestamp	8	Integer	Expressed as nanoseconds since midnight
UserRefNum	4	Integer	The order UserRefNum as entered
Side	1	Alpha	The side as entered
Quantity	4	Integer	Total number of shares accepted
Symbol	8	Alpha	Symbol as entered
Price	4	Integer	Price as entered
TimeInForce	1	Alpha	Time in Force as entered
PostOnly	1	Alpha	PostOnly as entered
Attributable	1	Alpha	Attributable as entered
OrderRefNum	8	Integer	The day-unique Order Reference Number assigned to this order
OrderState	1	Alpha	L = Order Live D = Order Dead Order Accepted message is sent with value “Dead” for an IOC order which is accepted but fails to execute. No further Canceled message will be received for the accepted order.
ClOrdId	14	Alpha	Customer order identifier
AccountId	4	Integer	AccountId as entered
STPKey	4	Integer	STPKey as entered

4.3 Order Replaced

Name	Length	Values	Notes
Type	1	Alpha	'U' = Replaced Order
Timestamp	8	Integer	Expressed as nanoseconds since midnight
OrigUserRefNum	4	Integer	The UserRefNum of the order being replaced
UserRefNum	4	Integer	The UserRefNum of the replacement order, as entered
Side	1	Alpha	The side indicator as entered on the original order in the chain
Quantity	4	Integer	Total number of shares outstanding
Symbol	8	Alpha	Symbol as entered
Price	4	Integer	Price as entered
OrderRefNum	8	Integer	The day-unique Order Reference Number assigned to this order
OrderState	1	Alpha	L = Order Live D = Order Dead If the replaced quantity is equal to the executed quantity, OrderReplaced message is sent with value “Dead”. No further Canceled message will be received for the replaced order.
ClOrdId	14	Alpha	Customer replace request identifier

4.4 Order Canceled

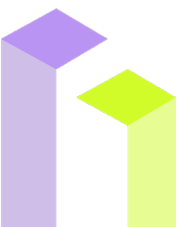
Name	Length	Values	Notes
Type	1	Alpha	'C' = Canceled Order
Timestamp	8	Integer	Expressed as nanoseconds since midnight
UserRefNum	4	Integer	The UserRefNum of the order being canceled
Quantity	4	Integer	The number of shares being decremented from the order. This number is incremental, not cumulative.
ClOrdId	14	Alpha	Customer cancel request identifier, will be empty in case of an unsolicited cancel
Reason	1	Alpha	Reason the order was canceled. Depends also on the CancelOrigin. (supervisory, STP etc)

Reason Types

Reason	Code
K	VCM
M	MaximumNumOrders
O	Post Only
P	PriceOutsideRange
R	CanceledRemaining
S	Supervisory
T	STP
U	UserRequested
Z	System

4.5 Order Executed

Name	Length	Values	Notes
Type	1	Alpha	'E' = Executed Order
Timestamp	8	Integer	Expressed as nanoseconds since midnight
UserRefNum	4	Integer	The UserRefNum of the order being executed
Quantity	4	Integer	The incremental number of shares just executed
Price	4	Integer	The price at which the shares were executed
LiquidityFlag	1	Alpha	Identifies whether this would-be trade was a result of a liquidity provider providing or liquidity taker taking the liquidity. A = Added (for the passive firm) R = Removed (for the aggressor)
MatchNumber	8	Integer	Assigned by the exchange to identify the trade. Both the buy and the sell executions participating in the trade will share the same match number.
CounterFirmId	2	Integer	Trading counterparty



4.6 Rejected

Rejected messages can be sent by the ALO Order Entry SoupBinTCP message in both Sequenced and Unsequenced message envelopes. When Unsequenced, this message type skips the 'Timestamp' field.

Name	Length	Values	Notes
Type	1	Alpha	'J' = Rejected
Timestamp	8	Integer	Expressed as nanoseconds since midnight
OrigUserRefNum	4	Integer	The UserRefNum of the original order in case of reject for a replace request, otherwise will be 0
UserRefNum	4	Integer	The UserRefNum of the order being rejected
Reason	2	Integer	The reason the order was rejected
ClOrdId	14	Alpha	Customers enter/replace request identifier

Reason Number	Code
7	Halted
9	Invalid side
14	NoRefPrice
15	AccountNotAuthorized
19	InvalidQuantity
20	PriceOutsideRange
21	PostOnly
22	MaximumNumOrders
23	InvalidSymbol
29	InvalidPrice
41	PortMessageRateRestriction
48	MaxVolumeExceeded
50	InvalidTimeInForce
51	InvalidPostOnly
52	InvalidAttributable
101	AggregateExposure

102	FirmExposure
104	AccountExposure
105	SecurityExposure

4.7 Broken Trade

Name	Length	Values	Notes
Type	1	Alpha	'B' = Broken Trade
Timestamp	8	Integer	Expressed as nanoseconds since midnight
UserRefNum	4	Integer	The UserRefNum of the order whose execution corresponding to given Match Number is being broken
MatchNumber	8	Integer	Match Number as transmitted in the Executed Order Message being broken
Reason	1	Alpha	The reason the trade was broken. E = Erroneous (trade deemed clearly erroneous) C = Consent (both parties agreed to break the trade) S = Supervisory (manually broken by supervisory)