

A2X FIX 4.2 Specification

24th May 2023

Version 2.0

> A2X MARKETS

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Version History

| Version | Date | Comments |
|---------|-------------|--|
| 1.1 | 01 Aug 2017 | Initial version |
| 1.2 | 02 Feb 2018 | Removed MaC ordertype |
| 1.3 | 13 Apr 2022 | Current Production Version - Addition of Large In Scale, Benchmark Cross trade capture reports |
| 1.4 | 10 Oct 2022 | Updated message format for Trade Capture Reports to facilitate Matched Principal Trade (MP) and additional information. Inclusion of Market at Close (MaC) and Auction on Demand (AoD) ordertypes. Expected production go-live date: 3 October 2022 |
| 2.0 | 26 Apr 2023 | Updated spec for AoD update |



1 Introduction

A2X makes use of software provided by Aquis Exchange (Aquis). This document describes the FIX 4.2-based implementation to provide counterparties (direct trading Members or third party vendors) with access to A2X.

The document is intended to supplement the FIX protocol specification available at www.fixprotocol.org by describing the message types, fields and values that are supported. Both necessary and optional parameters are identified, along with any specific usage and meaning adopted by A2X.

1.1 Connectivity

A2X will provide trading Members (or their representatives) with IP address and port information to establish a TCP/IP connection for the trading session.

One or more connections will be provided to the Member test environment and, on successful certification, connection details to the primary and backup production trading environments will be supplied.

Connectivity options (co-location, leased line, extranet) should be discussed with the A2X networks team.

1.2 Enquiries and Support

Please contact the A2X support team (email support@a2x.co.za) for any questions related to this document.



2 Overview

2.1 Trading Session Configuration

A2X will agree *SenderCompID* / *TargetCompID* values with the counterparty to identify their trading session and to identify A2X exchange as the intended trading venue.

These fields are case-sensitive, with a maximum field size of 16 characters. For Service Bureau connections, the trading Member identification is communicated via agreed *OnBehalfOfCompID* values.

These configuration fields are also case-sensitive, with a maximum field size of 16 characters.

2.2 Note on Account Field

The Account (1) field may be used by Members to specify whether trades against a particular order should be allocated to the House account at the client or to a specific client account. The value 'H' should be used to nominate the House account, the field may also be used to nominate a specific account.

If the field is not supplied, then allocation to the House account is assumed by default and is not echoed back in execution messages.

Please note that all accounts need to be loaded on the A2X engine and in MeCRAS in order to be used. Any client specified values can be used with a maximum length of 16 characters and 65,535 account values per member.

2.3 Note on Symbology

A2X encourages Members to use the Uniform Symbology Code in the Symbol (55) field to identify the security that they wish to trade on the platform. This symbology scheme has been adopted by a number of European venues; please contact the A2X connectivity team for more information if required.

If a Member's trading system does not yet support Uniform symbology, A2X also accepts ISIN and RIC as alternative security identifiers. To do so, the *IDSource* (22) field must be set to indicate the chosen symbology: value 4 for ISIN, 5 for RIC.

If using an ISIN to identify a security, the ISIN must be provided in the *SecurityID* (48) field and the fields *Currency* (15) and *SecurityExchange* (207) must also be set to the required currency and market (MIC) in order to uniquely identify the security.

If using a RIC to identify a security, either the A2X RIC or the primary market RIC must be provided in the *SecurityID* (48) field.

If choosing to use the *IDSource* option to specify the security by ISIN or RIC then the *Symbol* (55) field will no longer be validated against the A2X security database.



Subsequent FIX Execution Report messages from A2X will include the same symbology information as was supplied in the initial New Order Single message with the exception of the *Symbol (55)* field, which will return the Uniform Symbology Code

2.4 Clearing Configuration

Before trading is permitted in the cash equities market, the Trading Member must supply their CSDP details to the A2X Settlement Committee. This is verified and set up by A2X as part of the Member's trading configuration and settlement.

2.5 Cancel on Disconnect

By default, all open Orders are cancelled automatically if the trading Member ends their session or the connection drops. Note however that matched MaC orders are not cancelled if the connection drops after the MaC is locked. If the Member does not want this behaviour to apply, they should notify A2X during the onboarding process.

2.6 Self-Trade Prevention

When a Member has multiple trading connections, A2X offers the option for self-trade prevention to be configured across these trading sessions. This prevents a Member from trading with themselves by cancelling the resting order that would otherwise match.

Cancel Resting Order – If an incoming (or price modified) order would trade with another order from that Member that is already on the A2X order book, the existing resting order is automatically cancelled. The incoming order may trade with other orders, or is posted to the order book, as normal.

If required, self-trade prevention can be configured by the A2X Support team to apply to the Member's trading sessions. It does not require any changes to the FIX messaging for order entry and order management.

2.7 Post-Only and Post-Only Cancel Replace Order Types

A2X offers post-only (PO) and post-only cancel replace (POCR) order types which a Member may use to ensure that an order can only be passive.

Post-Only (PO) - If there are orders which a new incoming PO order could immediately match against, then the A2X trading system will cancel the incoming PO order.

Post-Only Cancel Replace (POCR) - POCR allows the submitting Member's order that is resting on the opposite side of the book to be cancelled by the incoming PO order and ultimately replaced with this new order. If the incoming POCR order has the correct price limit to aggressively trade against another Member's



order then the incoming POCR will be rejected. Please note that the trading connection(s) must have self-trade prevention enabled in order for the POCR functionality to be activated.

A PO/POCR order is specified using the custom FIX tag *PassiveOnlyOrder* (27010) on the New Order Single message. If the order is cancelled back to prevent an aggressive trade the Execution Report message, with *OrdStatus* (39) = *Cancelled* (4), will carry the reason 'PO' in the Text (58) field.

Cancel/Replace requests for a PO/POCR order (for example to change price) will also require the custom tag to be set. The order will only be updated on the order book if it will not trade on entry, otherwise the order will be cancelled back to the trading Member.

A PO/POCR order can be cancelled like any other order; there is no need for tag 27010 in the Order Cancel request.

Note that the custom tag 27010 is not returned by A2X on any Execution Report messages so as not to affect any processing of order status or trading activity.

2.8 Large In Scale Cross Trade Report

A2X offers the ability to submit large in scale cross trades. These trades will be published on the A2X market data feed as off-book, on-exchange.

This functionality is for members who have two legs of pre-agreed agency flow which is greater than the LIS threshold and is required to be reported on-exchange. In a single message, the A2X member, acting on behalf of both the buyer and seller, can submit a block cross if considered large in scale compared to normal market size.

The order consideration must be equal to or larger than the minimum size for the security as defined by A2X.

Cross trades reported using the LIS Cross will not interact with the A2X order book.

2.9 Benchmark Cross Trade Report

A2X offers the ability to submit benchmark (volume weighted average price, VWAP) cross trades. These trades will be published on the A2X market data feed as off-book, on-exchange.

This functionality is for where an A2X member has two legs of pre-agreed flow which is required to be reported on-exchange and is benchmarked to an appropriate VWAP.

In a single message, the A2X member, acting on behalf of both the buyer and seller, can submit a cross priced accordingly to the VWAP for the crossing period.

Benchmark Cross trades are formalised negotiated transactions but are subject to conditions other than the current market price of the share.

Trades reported using the Benchmark Cross will not interact with the A2X order book.



2.10 Matched Principal Trade Report

A matched principal trade is a transaction where a member trades as a principal with a client, on the same day and at the same average price as transactions in the same equity security executed on the central order book of another exchange in the Republic for the member's own account but in the fulfilment of an order received from the client.

2.11 Auction on Demand (AoD)

A2X offers Auction on Demand (AoD) functionality. There is a separate AoD order book. This order book is also separate to the A2X continuous trading order book.

There will be no interaction between the AoD order books. Nor will there be interaction between the AoD and the existing A2X lit continuous order books.

Members can enter buy/sell orders for stocks which will rest on the AoD order book until they can be matched with another valid order on the other side.

The following order types will be permitted with the Auction on Demand (AoD):

- a) Limit Order only;
- b) Limit Order with 'Trade at Middle' option (allows price improvement on executions which can occur at mid-tick).

The auction process is triggered when a valid order is entered into the book which can successfully match with an existing resting order. At this point the lit auction process begins.

Note: the same MIC (A2XX) will be used for AoD execution reports.



3 FIX Message Header and Trailer

The following sections detail the FIX tags and values that A2X expects and supports in the header and trailer of incoming and outgoing FIX 4.2 messages.

3.1 Header on messages to A2X

A2X will process the following header fields on incoming messages and will ignore all others:

| Tag | Field Name | Req'd | Comments |
|-----|--------------|-------|---|
| 8 | BeginString | Y | FIX 4.2 (Always unencrypted, must be the first field in the message) |
| 9 | BodyLength | Y | (Always unencrypted, must be second field in message) |
| 35 | MsgType | Y | (Always unencrypted, must be third field in message) |
| 34 | MsgSeqNum | Y | Message sequence number (inbound to A2X) for today's trading session |
| 43 | PossDupFlag | N | Set to Y on retransmitted messages (e.g. following a Resend Request) |
| 49 | SenderCompID | Y | ID of sending firm, as agreed with A2X |
| 52 | SendingTime | Y | Time of message transmission in UTC |
| 56 | TargetCompID | Y | ID representing A2X, as agreed |
| 97 | PossResend | N | Set to Y to indicate that message may contain information that has been sent under another sequence number. A2X will process Order cancel messages that are flagged as possible re-sends under a new sequence number. It will not process Order entry or Order modification (cancel/replace) messages that are flagged as re-sent under a new sequence number. Please note that A2X will not re-transmit application messages other than in response to a Resend Request, |



and so does not use *PossResend*.

N = Original transmission

Y = Possible resend

| | | | |
|-----|------------------|---|--|
| 115 | OnBehalfOfCompID | N | ID representing trading Member, as agreed with A2X, for service bureau connections |
| 122 | OrigSendingTime | N | For retransmitted messages (PossDupFlag = Y), the time in UTC that the message was initially sent. If not available, then set to same value as SendingTime |

3.2 Header on messages from A2X

A2X will only include the following header fields on outgoing messages:

| Tag | Field Name | Req'd | Comments |
|-----|--------------|-------|--|
| 8 | BeginString | Y | FIX 4.2 (Always unencrypted, must be the first field in the message) |
| 9 | BodyLength | Y | (Always unencrypted, must be second field in message) |
| 35 | MsgType | Y | (Always unencrypted, must be third field in message) |
| 34 | MsgSeqNum | Y | Message sequence number (inbound from A2X) for today's trading session |
| 43 | PossDupFlag | N | Set to Y on retransmitted messages (e.g. following a Resend Request) |
| 49 | SenderCompID | Y | ID representing A2X, as agreed |
| 52 | SendingTime | Y | Time of message transmission in UTC |
| 56 | TargetCompID | Y | ID of counterparty firm, the value originally sent to A2X as the <i>SenderCompID</i> in the related incoming message |



| | | | |
|-----|-----------------|---|---|
| 122 | OrigSendingTime | N | For retransmitted messages (<i>PossDupFlag</i> = Y), the time in UTC that the message was initially sent. If not available, then set to same value as <i>SendingTime</i> |
| 128 | DeliverToCompID | N | The value originally sent to A2X as the <i>OnBehalfOfCompID</i> if received from a service bureau |

3.3 Message Trailer

In the FIX message trailer, A2X expects and supports only the mandatory *Checksum* (10) as the last field in each message.



4 FIX Session Level Management

This section identifies the messages used to establish, maintain and conclude a FIX trading session, and to re-establish a session after a disconnection including the recovery of any missed messages.

The structure of these messages corresponds to the standard FIX 4.2 protocol and their use is discussed in more detail below.

4.1 Sequence Numbers

A2X will re-set inbound and outbound sequence numbers back to one overnight, ready for the next trading day. Trading counterparties should do the same.

Messages should be sent and received, and processed, in a sequenced order. During an established FIX session, if a message is received with a lower than expected sequence number (i.e. number already seen) then A2X will logout the session and drop the connection.

If a message is received with an unexpectedly high sequence number then A2X will respond with a Resend Request to recover the missing messages before proceeding.

4.2 Logon

The first message A2X expects to receive from a client after the TCP/IP connection has been established is a Logon message (*MsgType* (35) = A).

The *SenderCompID* and *TargetCompID* fields are validated by A2X against the expected trading configuration. If this validation fails, the connection is terminated without sending any message.

The sequence number on the initial Logon for each trading day should be one. If the Logon is to re-establish a broken connection, the sequence number should correspond to the next expected inbound sequence number. If there have been connection problems, or following a drop in connectivity where messages were lost, the sequence number may be higher than expected and message recovery will follow (see below). However, if the sequence number is unexpectedly low then the connection is terminated without sending any message.

The heartbeat interval *HeartBtInt* (108) must also be specified in the Logon message. This value is specified in seconds and should be set at value between 5 and 120 seconds, as required by the counterparty.

On receipt of a valid Logon message, A2X will respond with a Logon message back (echoing the requested heartbeat interval) and then deal with any message recovery (see below). The counterparty should wait until it receives a valid Logon response before sending further messages to A2X.

If unexpectedly high sequence numbers were detected by either party, message recovery should be initiated. Otherwise the session is now established and should be maintained throughout the trading day.



4.3 Recovery

After a drop in connectivity, it is possible that the client will have missed execution messages. This will be detected by the client receiving an unexpectedly high sequence number on the Logon response and they should initiate message recovery by sending a Resend Request (*MsgType* = 2).

A Resend Request should be processed, even if it is received with a high sequence number.

As per the FIX protocol the Resend Request may be for a set range of messages, or open ended by setting *EndSeqNo* (16) = 0. A2X will handle either type of request.

A2X will respond to the Resend Request by resending any application messages that have been missed and by using the Sequence Reset – Gap Fill message (*MsgType* = 4, *GapFillFlag* (123) = Y) to cover consecutive administrative messages. All retransmitted messages will be sent with *PossDup* (43) = Y.

Similarly, if there have been connectivity problems, it is possible that the sequence number on the inbound Logon from the client will be unexpectedly high. A2X will issue a Resend Request for the missed messages. The client may wish to consider sending a gap fill rather than resending any new order messages, to avoid entering stale orders into different market conditions.

4.4 Heartbeat and Test Request

A2X will send a Heartbeat message (*MsgType* = 0) if no other messages have been sent for the agreed heartbeat interval, *HeartBtInt*.

Similarly, if no messages have been received for *HeartBtInt* +1 seconds then A2X will send a Test Request message (*MsgType* = 1) to test the connection and the responsiveness of the counterparty application. The Test Request message carries a *TestReqID* (112) value and the expected response is a Heartbeat message echoing back this *TestReqID* value.

If there is no response to the Test Request and overall no messages have been received for 2 x *HeartBtInt* seconds then A2X will logout the client and terminate the connection.

A2X expects the client's FIX application to behave similarly, to maintain the session and to detect and react to abnormal behaviour.

4.5 Logout

Either side may send a Logout message (*MsgType* = 5) to end the FIX session. The initiator should continue to process messages until it receives a Logout message in response and it may then terminate the connection.

Under normal circumstances, A2X will maintain the FIX session throughout the trading day and only issue a Logout prior to the maintenance window at the end of the day, after market close.



A2X will respond to a client Logout and will also issue a Logout if it receives a client message with a sequence number lower than expected and the *PossDupFlag* (43) is not set. A network level disconnection or an absence of messages for two heartbeat intervals are also treated as if the client had logged out.

4.6 Reject

A2X will use a session level Reject message (*MsgType* = 3) to respond to messages that break the session protocol or contain missing or incorrect fields. However this should be rare, and where possible A2X will respond with application level reject messages, such as *OrderCancelReject* or *ExecutionReport – OrdStatus Rejected*.



5 FIX Application Messages

This section describes the application messages used for order entry, order management and trade reporting. In particular it identifies the specific fields and field values used by A2X to provide its trading services.

5.1 OrderSingle

A2X supports the FIX New Order Single message for order entry.

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|--|
| | StandardHeader | Y | <i>MsgType</i> (35) = D |
| 1 | Account | N | Optional account field to specify House or Client Account for use with clearing CCP. If not supplied, A2X will assume House. Values must be pre-loaded on the A2X systems, any client specified values can be sent with a maximum length of 16 characters. |
| 11 | ClOrdID | Y | Unique for each Order on this session for the trading day. Maximum length 20 characters. |
| 15 | Currency | N | Required if ISIN is used to identify the security, <i>IDSource</i> (22) = 4 (ISIN) ZAC = South African Cents |
| 18 | ExecInst | N | Instructions for order handling. Values supported by A2X: M = Midpoint peg (pegged to midpoint of PBBO) Only valid for AoD where 27010=4 |
| 21 | HandlInst | N | Only acceptable value (and default if not supplied). 1 = Automated execution order, private, no Broker intervention |



| | | | |
|----|---------------|---|---|
| 22 | IDSource | N | Security identifier 4 = ISIN 5 = RIC |
| 38 | OrderQty | Y | Number of shares |
| 40 | OrdType | Y | Order type <i>Note that the order type value supplied in this tag will be overridden by the 'Order Attribute' supplied in tag 27010</i> 2 = Limit 5 = Market at Close |
| 44 | Price | N | Limit price, required for limit orders. Not supported on MaC orders. |
| 47 | OrderCapacity | N | By default, if not supplied, orders are accepted as Principal A = Agency Order P = Principal |
| 48 | SecurityID | N | If using alternative symbology, RIC or ISIN depending on the value of <i>IDSource</i> (22) |
| 54 | Side | Y | Side of order 1 = Buy 2 = Sell |
| 55 | Symbol | N | A2X security - Uniform code. Not required if alternative symbology used. |
| 59 | TimeInForce | N | Default, if not supplied, is Day. Good Til Date orders will expire at time in ExpireTime (126) field, date must be today's date. Only Day orders are valid for Market at Close (MaC) GFA orders are only valid for Auction on Demand (AoD) |



0 = Day
3 = Immediate or Cancel (IOC)
4 = Fill or Kill (FOK)
6 = Good Till Date
8 = Good for Auction (GFA)

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|-------|------------------|---|--|
| 60 | TransactTime | Y | Time this order entry request was initiated by the trading Member |
| 110 | MinQty | N | Minimum quantity (shares) of an order to be executed. Only valid when 27010 = 3 or 4 |
| 111 | MaxFloor | N | Display quantity for an iceberg order. The remainder of the order quantity is held in reserve and is not visible. The display quantity of all orders at a given price level will be traded first and then the hidden quantity. When the display quantity has been fully traded it is refreshed from the reserve. |
| 126 | ExpireTime | N | Date/time in UTC of order expiry for a Good Till Date order, withTimeInForce (59) = 6. Date must be today's date |
| 207 | SecurityExchange | N | Required if ISIN is used to identify the security, IDSource (22) = 4 (ISIN). XJSE = JSE (Johannesburg) 4AXE = Cape Town Exchange |
| 27010 | OrderAttribute | N | Values supported when OrdType (40) = 2 0 = Continuous Limit Order Book Regular Order (default) 1 = Continuous Limit Order Book Post-Only Order 2 = Continuous Limit Order Book POCR Order 3 = Auction on Demand Limit Order |



4 = Auction on Demand Limit Trade at Middle Order

5.2 ExecutionReport

A2X uses the FIX Execution Report message to accept or to reject a New Order Single, and to accept an Order Cancel Request or an Order Cancel/Replace Request.

Trade reports, and any subsequent trade busts, are also sent using the Execution Report.

For orders submitted to the A2X Market at Close (MaC) the Execution Report message is used to indicate the quantity accepted for crossing at MaC lock time (see [Section 5.2.2](#)).

For iceberg orders, when an order is refreshed from reserve quantity an Execution Report is used to carry the market data order ID for this new displayed quantity (see [Section 5.2.4](#)).

The fields and values provided by A2X are detailed below:

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|---|
| | StandardHeader | Y | <i>MsgType</i> (35) = 8 |
| 1 | Account | N | If provided on the original New Order Single message |
| 6 | AvgPx | Y | Average price of quantity so far traded on this order |
| 11 | CIOrdID | Y | The current <i>CIOrdID</i> identifier of the order, or the <i>CIOrdID</i> of the request that is being accepted |
| 14 | CumQty | Y | Cumulative quantity so far traded on this order |
| 15 | Currency | N | As provided on the original order ZAC = South African Cents |
| 17 | ExecID | Y | Unique id for the trading day for this Execution Report |



| | | | |
|----|---------------|---|---|
| 18 | ExecInst | N | Returned when supplied on the original order. |
| 19 | ExecRefID | N | Sent for a trade bust (<i>ExecTransType</i> = 1) to identify the earlier Execution Report for the trade |
| 20 | ExecTransType | Y | Identifies transaction type 0 = New (for order related messages and trade reports) 1 = Cancel (for a trade bust) |
| 22 | IDSource | N | As provided on the original order 4 = ISIN 5 = RIC |
| 30 | LastMkt | N | Market of execution for last fill, or an indication of the market where an order was routed A2XX = A2X Market Trade |
| 31 | LastPx | Y | Price of this trade (zero if not a trade) |
| 32 | LastShares | Y | Quantity of this trade (zero if not a trade) |
| 37 | OrderID | Y | A2X order reference number |
| 38 | OrderQty | Y | Quantity of the order |
| 39 | OrdStatus | Y | Status of the order 0 = New 1 = Partially filled 2 = Filled 4 = Canceled 5 = Replaced 8 = Rejected C = Expired |



| | | | |
|-----|---------------|---|---|
| 40 | OrdType | N | As provided on the original order |
| 41 | OrigClOrdID | N | ClOrdID of the order that is being cancelled or replaced (for solicited cancel or replace responses only) |
| 44 | Price | N | Limit price, if provided on the original order |
| 47 | OrderCapacity | N | As provided on the original order |
| 48 | SecurityID | N | As provided on the original order |
| 54 | Side | Y | As provided on the original order |
| 55 | Symbol | Y | Uniform symbology code for the security. |
| 58 | Text | N | To provide error text in case of a reject message |
| 59 | TimeInForce | N | As provided on the original order |
| 60 | TransactTime | Y | Time of this event in UTC |
| 111 | MaxFloor | N | Display quantity applicable to an iceberg order. |
| 126 | ExpireTime | N | As provided on the original order |
| 150 | ExecType | Y | Reason for this report 0 = New 1 = Partially filled 2 = Filled 4 = Cancelled 5 = Replaced 8 = Rejected C = Expired D = Restated |



| | | | |
|-----|-----------------------|---|--|
| 151 | LeavesQty | Y | Quantity still open for execution |
| 198 | SecondaryOrderID | N | The A2X market data order id for tracking purposes, sent on a restatement message after the refresh of displayed quantity for an iceberg order |
| 207 | SecurityExchange | N | As provided on the original order |
| 375 | ContraBroker | N | Only provided on trade reports, the identifier of the CCP unless a CCP-suppressed 'self trade' where the value is set to 'SELF' |
| 851 | LastLiquidityInd | N | FIX 4.4 Tag for trade liquidity indicator. Only provided on trade reports. 1 = Added Liquidity 2 = Removed Liquidity 4 = Auction (For AoD and MaC trades) |
| 880 | TVTIC | N | Identifier assigned to a trade by a matching system. |
| 378 | ExecRestatementReason | N | Only provided on Restatement for iceberg or MaC orders: 4 = Broker option – indicates iceberg order has refreshed or MaC order has fully matched 5 = Partial reduction of order quantity (exchange initiated partial cancel) – indicates MaC order has partially matched |
| | StandardTrailer | Y | |

5.2.1 Trade Bust

In the event of a Trade Bust, Members should refer to the *ExecRefID* (19) to identify the original Execution ID. Please note that *ExecID* (17) and *TVTIC* (880) should be disregarded.



If a Large In Scale/Benchmark Cross Trade Capture Report is cancelled by A2X, 2 Trade Bust messages will be returned to the reporter of the transaction.

5.2.2 Market at Close

Orders may be submitted to A2X Market at Close (MaC) at any time during the trading day. Orders submitted during continuous trading phase will be accepted but will not be published until the MaC opens. Up until the MaC lock phase, orders may be entered, replaced or cancelled.

Should a particular security at the Market of Listing not enter an auction phase within 30 seconds of the close of continuous trading on A2X, orders in that security will be cancelled back to the Member.

When the MaC is locked, Members are notified of the quantity accepted for matched orders by an Execution Report (*Restatement*) message: *ExecType* (150) = D (*Restated*) with a zero price.

During the MaC lock phase, the Order Capacity (47) can be modified up to the point when the trade is published.

If the order has only partially matched, the accepted quantity is reported in the *OrderQty* (38) field. The *ExecRestatementReason* (378) also indicates that there has been a partial cancel of order quantity. Note that, for clarity, the A2X MaC will still send a restatement message if the order fully matches. In this case, the *OrderQty* will not be reduced and the *ExecRestatementReason* will be used to indicate that the order has fully matched.

If an order is unmatched at lock time then the order will expire and cancel back to the Member.

When the Market of Listing auction ends, the locked matched orders on A2X are executed at the closing price. Trade reports are sent to the Member. Note that these Execution Report messages carry *LastLiquidityInd* (851) = 4 (*Auction*) and *LastMkt* (30) will be A2XX.

If for any reason the Market of Listing auction is cancelled or extended for a security, the locked orders in that security will be cancelled back to the Member.

5.2.3 Auction on Demand (AoD)

Once an AoD comes to an end, trade reports are then sent to the Member for successful matches. Note that these Execution Report messages carry *LastLiquidityInd* (851) = 4 (*Auction*). *LastMkt* (30) will be A2XX.

5.2.4 Iceberg Order Refresh

When the currently displayed quantity of an iceberg order has been traded, it is refreshed from the non-displayed reserve quantity. This new displayed quantity is published on A2X market data as a new order, with a new market data order ID.



The trading Member is notified of this display quantity refresh by an Execution Report (*Restatement*) message: *ExecType* (150) = D (*Restated*). The new market data order ID is provided in the *SecondaryOrderID* (198) field, for tracking purposes against the market data feed.

Note that the *A2X OrderID* (37) applies to the iceberg order as a whole and remains unchanged.

5.3 OrderCancelReplaceRequest

A2X supports the FIX Order Cancel/Replace message for order modification as detailed below.

It may be used to modify the limit price of an order and/or to increase or decrease the order quantity.

For MaC orders, the Order Capacity (47) can be modified up to the point when the trade is published.

For iceberg orders, the display quantity may be modified using MaxFloor (111). If the field is not sent, the original display quantity will be reused and will be applied to the modified order. Note that A2X does not support the modification of a regular limit order into an iceberg order.

A2X does not support the re-opening of a fully filled order by increasing order quantity or the sending of "Pending Replace" messages.

For Cancel and Cancel/Replace Request messages, alternate symbology (ISIN, RIC) is also still supported.

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|--|
| | StandardHeader | Y | <i>MsgType</i> (35) = G |
| 11 | ClOrdID | Y | Unique identifier for the replacement order on this session for the trading day. Maximum length 20 characters. |
| 15 | Currency | N | As provided on the original order |
| 18 | ExecInst | N | Instructions for order handling. Values supported by A2X: M = Midpoint peg (pegged to midpoint of PBBO) |
| 22 | IDSource | N | As provided on the original order |
| 38 | OrderQty | Y | New total order quantity (number of shares) |



| | | | |
|-------|----------------|---|--|
| 40 | OrdType | Y | As provided on the original order |
| 41 | OrigClOrdID | Y | Identifier for the original or last modified version of the order |
| 44 | Price | N | New limit price, required for limit orders. |
| 47 | OrderCapacity | N | Values supported by A2X: A = Agency P = Principal |
| 48 | SecurityID | N | As provided on the original order. |
| 54 | Side | Y | As provided on the original order. |
| 55 | Symbol | N | As provided on the original order |
| 59 | TimeInForce | N | As sent on the original order, this field cannot be modified. |
| 60 | TransactTime | Y | Time this order modification request was initiated by the trading Member |
| 110 | MinQty | N | New minimum quantity (shares) of an order to be executed. |
| 111 | MaxFloor | N | Display quantity for an iceberg order. The remainder of the order quantity is held in reserve and is not visible. The display quantity of all orders at a given price level will be traded first and then the hidden quantity. When the display quantity has been fully traded it is refreshed from the reserve. |
| 27010 | OrderAttribute | N | 0 = Continuous Limit Order Book Regular Order (default) 1 = Continuous Limit Order Book Post-Only Order |



2 = Continuous Limit Order Book POCR Order
3 = Auction on Demand Limit Order
4 = Auction on Demand Limit Trade at Middle Order

| | |
|-----------------|---|
| StandardTrailer | Y |
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5.4 OrderCancelRequest

A2X supports the FIX Order Cancel Request message to fully cancel an open order or the balance on a partially traded order.

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|---|
| | StandardHeader | Y | <i>MsgType</i> (35) = F |
| 11 | ClOrdID | Y | Unique identifier of the cancel request. Maximum length 20 characters. |
| 15 | Currency | N | As provided on the original order ZAC = South African Cents |
| 22 | IDSource | N | As provided on the original order 4 = ISIN 5 = RIC |
| 41 | OrigClOrdID | Y | Identifier for the original or last modified version of the order. |
| 48 | SecurityID | N | As provided on the original order |
| 54 | Side | Y | As provided on the original order. 1 = Buy 2 = Sell |
| 55 | Symbol | N | As provided on the original order. |



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| 60 | TransactTime | Y | Time this order entry request was initiated by the trading Member |
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| StandardTrailer | Y |
|-----------------|---|

5.5 OrderCancelReject

A2X rejects an Order Cancel Request or an Order Cancel/Replace Request that it cannot act upon with a FIX Order Cancel Reject message.

| Tag | Field Name | Req'd | Comments |
|----------------|-------------|-------|---|
| StandardHeader | | Y | <i>MsgType</i> (35) = 9 |
| 11 | ClOrdID | Y | The <i>ClOrdID</i> of the request that is being rejected |
| 37 | OrderID | Y | A2X order reference number. If an unknown order, value will be 0 |
| 39 | OrdStatus | Y | Status of the order that failed to be cancelled or replaced. If an unknown order, value will be set to 8 (Rejected) 0 = New 1 = Partially filled 2 = Filled 4 = Canceled 5 = Replaced 8 = Rejected |
| 41 | OrigClOrdID | Y | The <i>ClOrdID</i> that could not be cancelled or replaced |
| 44 | Price | N | Limit price, if provided on the original order |



| | | | |
|-----------------|------------------|---|---|
| 58 | Text | N | To provide a reason for the reject |
| 434 | CxlRejResponseTo | Y | The type of request that this is a response to. 1 = Order Cancel Request 2 = Order Cancel/Replace Request Request |
| StandardTrailer | | Y | |

5.6 Large In Scale / Benchmark Cross / Matched Principal Trade Capture

A2X uses the Trade Capture Report message from later versions of the FIX specification (specifically 4.4) as an extension to our existing 4.2 FIX ports for the purposes of allowing members to submit negotiated trades to the exchange. Trade Capture Report messages are used by members to submit a trade which conforms to either of the following standards:

- » A Large in Scale (LS) cross where both legs of the trade must be considered large in scale compared with normal market size if it is equal to or larger than the minimum size of order specified per security.
- » A Negotiated Benchmark Cross (NC) trade between either an A2X member and their client or two clients of a member where both legs of the cross must be pre-agreed.
- » A Matched Principal Trade (MP) where both legs must have a capacity of Principal (P) set.

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|--|
| | StandardHeader | Y | <i>MsgType</i> (35) = AE |
| 828 | TrdType | N | Sub type(829) value 0 permitted for Block Trade (1) Sub type(829) values 2 or 4 permitted for Cross Trade (6) 1 = Block Trade 6 = Cross Trade |
| 829 | TrdSubType | Y | Further qualification of the trade type 0 = Block Trade (LS) 2 = Negotiated Benchmark Cross (NBC) 4 = Matched Principal Trade (MP) |



| | | | |
|-----|------------------|---|--|
| 571 | TradeReportId | Y | Unique identifier for the Trade Capture Report |
| 15 | Currency | N | Required if using ISIN or RIC ZAC = South African Cents |
| 22 | IDSource | N | Security identifier 4 = ISIN 5 = RIC |
| 48 | SecurityID | N | If using alternative symbology, RIC or ISIN depending on the value of <i>IDSource</i> (22) |
| 55 | Symbol | N | A2X security - Uniform code. Not required if alternative symbology used. |
| 207 | SecurityExchange | N | Required if using ISIN or RIC XJSE = JSE (Johannesburg) 4AXE = Cape Town Exchange |
| 31 | LastPx | Y | Price of the trade |
| 32 | LastShares | Y | Quantity of the trade |
| 60 | TransactTime | Y | Time this order entry request was initiated by the trading Member |
| 552 | NoSides | N | Both buy and sell legs are required so this value should always be set to 2. |
| >54 | Side | N | Required when NoSides(552) is greater than 0. 1 = Buy 2 = Sell |
| >1 | Account | N | Optional account field, if omitted it will be assumed to be 'H' (House account). Values need to be pre-loaded on the trading platform. |



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|------|-----------------|---|--|
| >528 | OrderCapacity | N | The capacity for this side of the trade A = Agency P = Principal |
| 75 | TradeDate | Y | Date of trade referenced in this message in YYYYMMDD format. Acceptable values are for current day only. |
| | StandardTrailer | Y | |

5.7 Large In Scale / Benchmark Cross / Matched Principal Trade Capture Report Acknowledgement

In response to a member submitted Trade Capture Report, A2X will send the member back the following acknowledgement:

| Tag | Field Name | Req'd | Comments |
|-----|----------------|-------|--|
| | StandardHeader | Y | <i>MsgType</i> (35) = AR |
| 15 | Currency | N | Copied from the incoming TradeCaptureReport ZAC = South African Cents |
| 17 | TrdMatchID | N | Unique ID for the trading day for this Trade Capture Report |
| 22 | IDSource | N | Security identifier 4 = ISIN 5 = RIC |
| 31 | LastPx | Y | Price of this trade (zero if not a trade) |
| 32 | LastShares | Y | Quantity of this trade (zero if not a trade) |
| 48 | SecurityID | N | As provided on the original order |



| | | | |
|------|------------------|---|--|
| 55 | Symbol | N | A2X security - Uniform code. Not required if alternative symbology used. |
| 58 | Text | N | To provide error text in case of a reject message |
| 60 | TransactTime | Y | Time this order entry request was initiated by the trading Member |
| 75 | TradeDate | Y | Date of trade referenced in this message in YYYYMMDD format. |
| 128 | DeliverToCompID | N | Outbound from A2X only. The value originally sent to A2X as the <i>OnBehalfOfCompID</i> if received from a service bureau. |
| 150 | ExecType | Y | Reason for this report 8 = Rejected F = Trade |
| 207 | SecurityExchange | N | Copied from the incoming TradeCaptureReport XJSE = JSE (Johannesburg) 4AXE = Cape Town Exchange |
| 552 | NoSides | N | Copied from the incoming TradeCaptureReport |
| >54 | Side | Y | As provided on the original order. 1 = Buy 2 = Sell |
| >528 | OrderCapacity | N | A = Agency P = Principal |
| >1 | Account | N | Copied from the incoming TradeCaptureReport |
| 571 | TradeReportId | Y | Unique identifier for the Trade Capture Report |



| | | | |
|-----|-----------------|---|---|
| 828 | TrdType | N | Trade type 1 = Block Trade 6 = Cross Trade |
| 829 | TrdSubType | Y | Further qualification of the trade type 0 = Block Trade (LS) 2 = Negotiated Benchmark Cross (NBC) 4 = Matched Principal Trade (MP) |
| | StandardTrailer | Y | |