ASX Trade Refresh

Update Summary

October 2020

Table of Contents

1 Introduction

This document details the changes to technical documentation related to the ASX Trade Refresh project.

1.1 Version History

This document has been revised according to the table below:

Version	Date	Comment
v1.0	September 2019	• Initial creation
v1.1	October 2019	• Trade Recovery Business Logic updated • BD2 extended price structure added • BN5 Broadcast removal
v1.2	November 2019	• Operating System Support for Rhel6.10 x86 (32 and 64 bit)
v1.3	January 2020	• IQ18/IQ19 Business Logic updated • BI9 Broadcast logic changes • BI9 'forced subscription' changes • MO420 Transaction Removal • OUCH Enhancements summary
v1.4	April 2020	• API Development Kit Header File changes • UQ15 Facility Validation • BI9 Broadcast clarification • omniapi_get_info_ex handling after password expiry
v1.5	June 2020	• ASX Omnet API Encryption Option • Parameter Data Types • Omn/bin Library • Stdint.h & inttypes.h • TRUE and FALSE Definition • Gen/src Folder
v1.6	August 2020	• ASX Trade OUCH Feature Changes updated • API Development Kit changes added • MO36 Business Logic added • Optimised Bait Generation for TMCs Business Logic added
v1.7	October 2020	• ASX Trade OUCH Feature Changes updated

2 Update Summary

Changes have been made to technical documentation due to the upgrading of the ASX Trade platform. Messages have been deprecated and trading functionality has been amended. These changes have been summarised below.

2.1 Message Deprecation

2.1.1 Legacy Order Deprecation

Two legacy order entry transactions have been deprecated. The following message sections and references to these messages have been removed from technical documentation:

- MO31 “Order Entry”
- MO33 “Alteration”

2.1.2 Inactive Order Functionality

Inactive order entry, amendment, cancellation and reactivation functionality has been removed. The following messages and references to these messages have been removed from technical documentation:

- MO98 “Inactive Order Entry”
- MO99 “Activate Inactive Order”

2.1.3 BN5 Broadcast Removal

The BN5 Cache Status broadcast has been deprecated. Therefore, the message section and references to this message has been removed from technical documentation.

2.1.4 MO420 Proxy Transaction Removal

The MO420 transaction message (which acts as a proxy for MO36) has been deprecated. As a result, MO420 and block_price_trans_p (named struct 34107) have been subsequently deprecated from ASX Trade Refresh header file.

2.2 Structure Changes

Due to the removal of reactivation functionality, various message variables have been amended to reflect the change.

2.2.1 inactive_c

Orders will no longer be able to be entered as inactive, therefore the reference to value 1 “central inactive order” has been removed from the inactive_c variable.

Variable	Old Description	New Description
inactive_c	uint8_t Specifies whether an order should be entered as a central inactive order. 0 = not defined 1 = central inactive 2 = active order.	uint8_t Specifies whether an order should be entered as a central inactive order. 0 = not defined 2 = active order.

2.2.2 instance_c

Some processes in ASX Trade are partitioned e.g. Matching Engine, ITCH. Other processes have a single instance to service queries and generate broadcasts for OI users. Processes that only have a single instance will produce broadcasts and answers with an instance_c value of one, while partitioned processes will return instance_c equal to the matching engine partition. Please refer to section 2.3.2 and 2.3.3 for further details about the changes.

Variable	Old Description	New Description
instance_c (inbound)	uint8_t The partition of the Deal Capture (DC) from which the trade broadcast originated	uint8_t This is the instance number of the Trade Handler process. As Trade Handler is not partitioned this value should be set to one in queries. Sequence numbers are per day. A user should query for all trades using sequence numbers. In the answer there is a field called instance_next_c that is used to indicate to what instance the next query should be directed. This field is set when sequence_last_u is set to zero (0) and the last trade is sent in the answer. If there are no more trades to query instance_next_c in the answer is set to zero indicating that there is no more data to query.
instance_c (outbound)	uint8_t The partition of the Deal Capture (DC) from which the trade broadcast originated	uint8_t Denotes the instance number of the Trade Handler process. Set to one.

2.2.3 BD2 extended price structure

To increase the price precision of the Edited Price Information (BD2) broadcast a new structure has been created and will be appended to the existing message.

The overall structure is:

- broadcast_hdr_t
- one or more sequences of:
  - item_hdr_t
  - one or more sequences of:
    - sub_item_hdr_t
    - a choice of:
    - market_info_series_t (named structure 33038)
    - market_info_reason_t (named structure 33043)
    - market_info_base_t (named structure 33034)
    - market_info_asx_t (named structure 33039)
    - market_info_index_t (named structure 33040)
    - ob_levels_closing_t (named structure 33031)

– **market_info_asx_extended (named structure 33139)**

The contents of the new structure market_info_asx_extended (named structure 33139) is as below. Note, this structure will contain the same information as per market_info_asx to four decimal place accuracy.

Variable	Description
extended_opening_price_i	int64_t This field may be set to the opening price with up to four decimal places.
extended_high_price_i	int64_t This field may be set to the high price with up to four decimal places.
extended_low_price_i	int64_t This field may be set to the low price with up to four decimal places.
extended_last_price_i	int64_t This field may be set to the last price with up to four decimal places.

2.3 Business Logic Changes

2.3.1 UQ14 Business Logic

Currently the date_s variable in the UQ14 query is UTC timestamped. The process has now been simplified in order to query for a full trading day's BI81 broadcasts as shown below.

Variable	Old Description	New Description
date_s	char[8] Set to the current date or the previous trading day's date in YYYYMMDD format. **Note**: BI81 broadcasts are time stamped with UTC time. Since this is a number of hours behind EST, for a user to retrieve all the announcements that were sent today, two queries will have to be sent. The first one will have this field set to yesterday's date, the second set to today's date.	char[8] Set to the current business date or the previous trading day's date in YYYYMMDD format. **Note**: If date is zero-filled, today's business date is assumed.

2.3.2 CQ110, CQ111, CQ27 Trade History and Trade Recovery

The instance_c and instance_next_c variables have now been updated for use in Trade Handler queries i.e. CQ110, CQ111 and CQ27. As Trade Handler is not partitioned instance_c will be set to one in trade broadcasts. When querying for trades the instance_next_c variable in the response is returned as one or zero. Zero indicates the query has been completed and no data remains.

Variable	Old Description	New Description
instance_next_c	uint8_t Ignore. Not used.	uint8_t Set to zero or one. Used to denote the next instance_c to query. If set to zero there is no more data to query.
instance_c	uint8_t Set to zero.	uint8_t Set to one.

2.3.3 IQ18/IQ19 Business Logic

The subsystem that processes IQ18 and IQ19 queries is no longer partitioned. The logic to conduct these queries has been amended and is detailed in section 35.1 of the ASX Trade Queries document.

The following variables have also been amended under the IQ18/18 queries due to the subsystem change.

Variable	Old Description	New Description
instance_next_c	uint8_t Indicates the Matching Engine partition that needs to be used for a subsequent query.	uint8_t Set to one.
instance_c	uint8_t Indicates the Matching Engine partition that needs to be used for a subsequent query.	uint8_t Set to one.

2.3.4 BI9 Price Information Heartbeat Logic

Currently, ASX Trade has been configured to send out this broadcast from each matching engine partition every eight seconds. As part of the ASX Trade Refresh, only one broadcast will be disseminated every eight seconds rather than per partition.

Further to this, the process that disseminates BI9s is no longer partitioned. Therefore, instance_c and tot_instances_c logic changes have occurred, and the description_s field will display "ALL MARKETS" instead of the partition name.

Variable	Old Description	New Description
instance_c	uint8_t The market place partition that the heartbeat originated from.	uint8_t Set to one.
tot_instances_c	uint8_t The total number of market place partitions.	uint8_t Set to one.

2.3.5 MO36: Series field in block_price_trans_t structure

As part of ASX Trade refresh, additional validation has been added for series field in block_price_trans_t structure. It is mandatory to fill in a valid series for MO36. Invalid series will result in a reject.

2.3.6 Optimised Bait Generation for TMCs

Bait generation has been optimised with the ASX Trade Refresh upgrade of the platform. The new algorithm is more efficient as it performs fewer bait re-calculations and maintains time priority for baits from different combination order books. For more details, please refer to the ASX Trade Introduction and Business Information document.

2.4 Reference Data and Market Changes

2.4.1 Removal of PureMatch

The PureMatch market will be removed. References to the PureMatch market as well as '*Partition 5*' have been removed from technical documentation.

2.4.2 Removal of Agricultural Derivatives

The Agricultural Derivatives market will be removed, as products were migrated to ASX24. The ASX24 Agricultural Derivatives market is not impacted. References to the Agricultural Derivatives market have been removed from ASX Trade technical documentation.

2.5 Operating System Changes

2.5.1 Supported Platform Changes

The Sun Solaris operating system will no longer be supported. All references to the Sun Solaris operating system has been removed from technical documentation.

The following platforms are supported by ASX Trade:

- Linux Redhat Rhel6.10 x86 (32 and 64 bit)
- Linux Redhat Rhel7 x86 (32 and 64 bit)
- Windows 6.3 x86 (Windows Server 2012 R2 - 32 and 64 bit)
- Windows 10 x86 (Windows Server 2016 - 32 and 64 bit)

2.6 ASX Trade OUCH Feature Changes

The below table summarises the changes to ASX Trade OUCH. OUCH message structures remain unchanged.

Feature	Current ASX Trade Production	ASX Trade Refresh
Partitioning	An OUCH user is given 5 logins, 1 per partition.	There will be one OUCH login that can access all partitions.
Throttling	There is no throttling.	Exchange side OUCH throttling is available in 50 tps increments. When the configured tps rate has been reached in a rolling second, subsequent messages will be queued. For

Feature	Current ASX Trade Production	ASX Trade Refresh
		more details, please refer to the ASX Trade Introduction and Business Information document.
Cross protocol support	Cross protocol order replacements will cause a loss of ownership of the order.	Cross protocol order replacements will be supported and ownership will not be lost. For more information, please refer to the OUCH specification.
Match ID	Match IDs are not unique for TMCs.	Match IDs will be unique for all executions.
Password change	OUCH password change is supported via OMNet API port 15024.	OUCH password change via OMNet API port 15024 will no longer be supported.
Recovery	Pair of active gateways in each OUCH family.	OUCH will have improved DR capability. More information will be provided in the connectivity guide.
Token in Order Cancelled	An Order Cancelled message resulting from a Cancel By Order Id message or from another protocol / session cancelling the order (e.g. OMNet API), has the order token field blanked out (space filled).	An Order Cancelled message resulting from a Cancel By Order Id message or from another protocol / session cancelling the order (e.g. OMNet API), has the last valid order token returned.
Login Timeout	There is no login timeout in current ASX Trade Production.	OUCH users opening a TCP connection to the gateway without sending a Login message will have the connection closed after 1 second of not establishing a successful login.
Token in Order Reject after Amendment	An Order Rejected Message resulting from an order amendment, displays the original order token.	An Order Rejected Message resulting from an order amendment, displays the replacement order token.

2.7 API Changes

2.7.1 API Development Kit Changes

2.7.1.1 Acceptance / Rejection codes

Acceptance / Rejection codes were previously included in the omex_asx.h file. As part of ASX Trade refresh, these codes will be provided in the all_message.h file.

2.7.1.2 Removed messages

The following sections have been removed from all_messages.h file:
CX_MESSAGES_H
PS_MESSAGES_H
RM_MESSAGES_H

ASX Trade does not use these messages.

2.7.1.3 omniapi_get_info_ex handling after password expiry

When a user's password expires the ASX Trade OMnet API library allows restricted access until the user's password is changed e.g. allows the client to get limited information such as the user code. As part of the ASX Trade refresh upgrade and security policy change, an API call made prior to a successful password change will be rejected with the error code invalid operation before login returned.

2.7.1.4 ASX OMNet API Encryption Option

The ASX OMNet API does not support encryption, therefore it is not recommended to set this option before logging on. The OMNIAPI_OPT_ENCRYPT opttype parameters OMNIAPI_OPVAL_ANY and OMNIAPI_OPVAL_ENABLE will result in a connection rejection. For further information please refer to the ASX Trade Open Interface Function Calls document.

2.7.1.5 Parameter Data types

Fixed sized data types are updated to be in line with the C++11 and C99 standards (for example, int32 is updated to int32_t). This data type change is applied to all structures as well as function prototypes.

2.7.1.6 Omn/bin Library

As part of ASX Trade refresh, all libraries have been aggregated into one.

2.7.1.7 Stdint.h & inttypes.h

Stdint.h file is now included in inttypes.h.

2.7.1.8 TRUE and FALSE Definition

The common definition of TRUE and FALSE is removed from the header file.

2.7.1.9 gen/src Folder

omex_asx.h and all_messages.h files should be placed in the gen/src folder

2.7.1.10 Concurrent Broadcast Feature

ASX Trade Refresh OMNet API libraries no longer establish two separate TCP connections to the gateway for utilising the concurrent broadcast feature. Instead, the library uses a single connection with a different thread to read the broadcast.

2.7.2 UQ15 Facility Validation

As part of ASX Trade Refresh, only facility type EP1 is accepted by UQ15.

2.7.3 BI9 Forced Subscription Removal

The ASX Trade platform has previously defined one broadcast, the BI9 (Price Information Heartbeat) to be 'forced'. This meant that all customers will automatically receive BI9 broadcasts whether they subscribe to BI9 or not.

As part of the ASX Trade Refresh, BI9 broadcasts will no longer be forced.

Customers are required to review their subscription behaviour, and add BI9 to their subscription list where appropriate. Please note that, BI9 is included in event type 1 subscriptions.

Note: Customers who do not currently have active subscriptions, please note that adding BI9 as your first subscription in your function call, the header size will change from 2 to 6 bytes. For further information you may refer to section 3.10.5 of the Open Interface Function Call specification.

Disclaimer

This document provides general information only and may be subject to change at any time without notice. ASX Limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of this information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way, including by way of negligence, from or in connection with any information provided or omitted, or from anyone acting or refraining to act in reliance on this information. The information in this document is not a substitute for any relevant operating rules, and in the event of any inconsistency between this document and the operating rules, the operating rules prevail to the extent of the inconsistency.

ASX Trade Marks

The trademarks listed below are trademarks of ASX. Where a mark is indicated as registered it is registered in Australia and may also be registered in other countries. Nothing contained in this document should be construed as being any licence or right to use of any trade mark contained within the document.

ASX®