

Release 1 Build and Test Forum

18 March 2025





ASX acknowledges the Traditional Owners of Country throughout Australia. We pay our respects to Elders past and present.

Artwork by Lee Ann Hall, My country My People

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01 Welcome, Open Actions & Feedback

Release 1 ITE Update

Agenda

Release 1 Upcoming Test Phases

Release 1 Documentation Update

5 Forward Engagement for 2025

01 Welcome, Open Actions & Feedback



01 – Open Actions

7	#	Topic	Action	Raised	Due	Owner	Status
	1	Testing Scenarios	AMOs to provide input as to the failover / DR scenarios they would like covered in the testing plan	15 Aug 2024	Q1 2025	AMOs	Propose to close
:	2	FIX Messaging	ASX to provide iterative updates on FIX specification document to AMOs AMOs to provide feedback on FIX messaging specifications	28 May 2024	Q1 2025	AMOs & ASX	Propose to close



Release 1 ITE Update



02 - ITE Industry Update

Summary of observations and insights since the opening of ITE on 28 February (as at Start of Day 10 March 2025)

Observation and Insights

- All planned AMOs or their Software Providers have connected to ITE
- AMO / Software Provider internal development commenced
- Some AMO / Software Provider testing of Log On & Application Messages in ITE commenced
- Completion of AMO / Software Provider development and testing of ITE open code expected by June 2025
- AMO Readiness ITE code release for additional features and performance enhancements targeting July.

Industry Reporting as of 10 March*

AMO Build & Test	Total Messages
Log In	15
Graceful Disconnection ^	19
Password Changed	-
Forced Disconnection	-
Failover & Recovery	-
Resend Request	-
Sequence Reset	-
Trade Capture	35
Trade Capture Cancellation	-
Market Data Snapshot	8

Currently there have been no service requests / support tickets raised by AMOs or their Software Providers since connecting to ITE

*Industry Reporting dashboard is subject to change in future working groups as more ITE data becomes available

^ Graceful Disconnection metrics include EoD scheduler log out requests, which occur irrespective of existence of an active FIX session

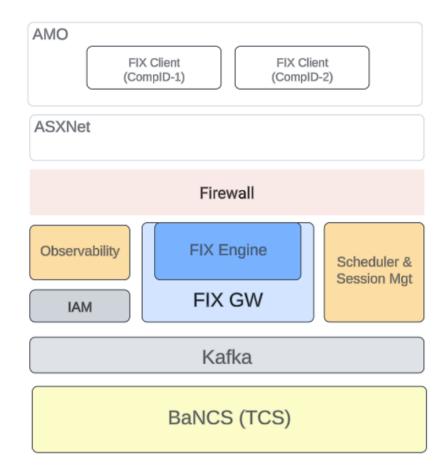


02 - Industry Test Environment FIX Gateway Overview

As BaNCS does not have a FIX Gateway feature to handle FIX sessions, ASX has built a FIX Gateway Java application shell to integrate to BaNCS via Kafka

FIX Gateway Java application shell:

- Embeds a third-party commercial FIX Engine Library
- > When AMOs establish a FIX Session via F5, it is first handled by the FIX Engine
- Once Session is established, business messages are handed over to BaNCS by the FIX Gateway via Kafka
- FIX Gateway also integrates with:
 - IAM for FIX authentication
 - Observability platform for logs/metrics
 - Scheduler to orchestration session open/close.



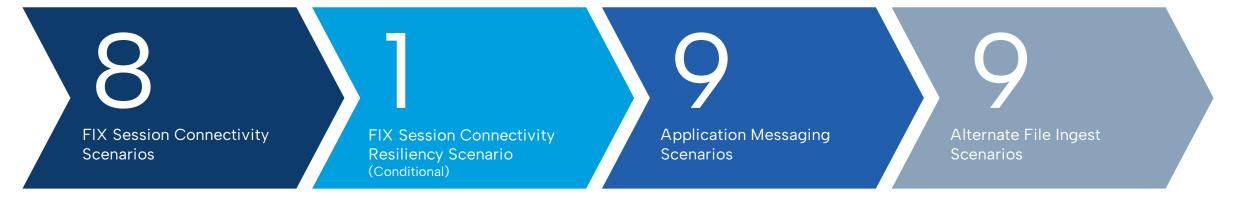


03 Release 1 Upcoming Test Phases



03 - AMO Accreditation Phase - Overview

AMO Accreditation Guide: 27 accreditation scenarios targeting publication and distribution end of March 2025



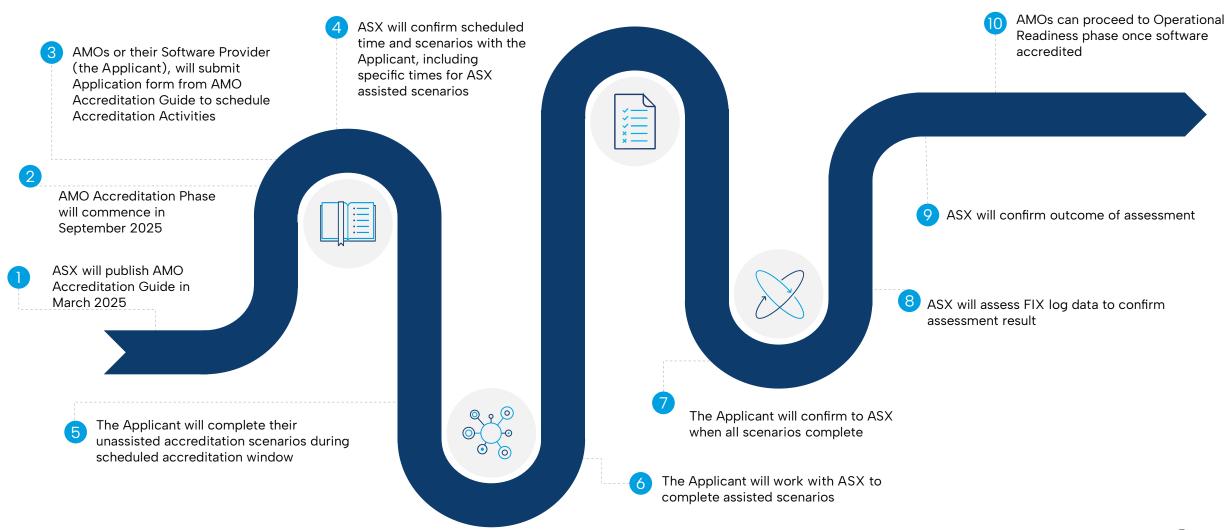
AMO Accreditation Phase Details

- Requires AMOs / Software Providers to have completed all Build & Test and AMO readiness activities resulting in production ready AMO software
- Runs between Sept Nov 2025
- Dependency for AMO Operational Readiness phase (also scheduled between Sept – Nov 2025)

- Combination of mandatory and conditional (based on technical configuration) scenarios
- Several scenarios require ASX assistance to facilitate
- Failure of any scenario will require rectification and restart of accreditation process



03 - Accreditation Process





03 - ITE Regression Testing with AMOs and CPs in Co-Existence

Proposed approach to managing ITE activity to ensure Clearing Participants can effectively manage their test cases

AMO Only Testing Phases

Integration of ITE & Current CHESS

Clearing Regression Phase

February – September 2025

- AMOs to complete their testing by submitting Trade Capture messages against production Trading Participant IDs
 - AMO Build and Test
 - Mar 2025 to Jul 2025
 - AMO Readiness
 - Jul 2025 to Feb 2026
 - AMO Accreditation
 - Sep 2025 to Nov 2025

August / September 2025

- In preparation for the Clearing Regression phase
 - Current CHESS test environment (XPI) integrated to ITE
 - New XP1 test kits allocated to Clearing Participants (CPs)
- Ongoing AMO testing will generate unsolicited EIS messages to CPs, impacting their testing. To prevent this, AMOs will need to transition to using synthetic Trading Participant PIDs for their testing

October 2025

- Mandatory test scope includes trade registration, netting and settlement messages
- CPs can use tooling to upload trades directly into BaNCS to perform testing in a controlled environment
- Optional (where available): Some CPs may also want to perform integrated AMO testing where available, relying on their Trading Participant & AMO Test Environment

Note: All dates are indicative and may be subject to change

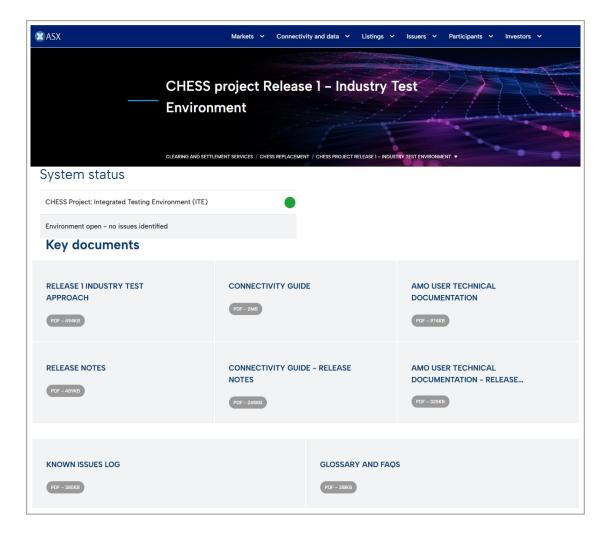


04
Release 1 Documentation Update



04 - Release 1 ITE Hub

- Release 1 ITE Hub launched 28 February
- > CHESS project Release 1 Industry Test Environment
- Provides direct access to Release 1 Industry Test Key Elements
- Updates to Release 1 Documentation include:
 - ITE Connectivity Guide Ver 1.1
 - AMO User Technical Documentation
 - Includes FIX Specifications Ver 1.2





Forward Engagement for 2025



05 - Release 1 Proposed Engagement Activities for 2025

Activities and Documentation to Support R1 Industry Readiness

Activity	Subject	Purpose	Planned Date	Status
Publish Documentation	Release 1 Industry Test Approach	Documentation describing the detailed industry test approach and expected activities of each involved party, as well as timing, entry and exit criteria and expected test outcomes of all Release 1 industry test phases	Q3 2024	Published 6 Sep 2024
Publish Documentation	Release 1 FIX Specifications	Documentation providing a detailed specification of all FIX messages, including message structures, rules, and message flow diagrams. Market-relevant specifications will be published in iterations as ASX analyses and completes designs for each drop	Q4 2024	Published 14 Nov 2024
Publish Documentation	Release 1 Connectivity Guide	Documentation detailing the technical connectivity requirements to connect to the CHESS replacement system, including connectivity method(s), network details and security details	Q4 2024	Published 17 Dec 2024
Engagement Activity	Release 1 ITE Open overview, including Industry Testing Activity and Progress Tracking	I&T WG session to provide overview of the opening of ITE, and discuss ASX proposed approach to tracking and reporting test phase activity	Q1 2025	Performed 27 Feb 2025
Publish Documentation	Release 1 AMO Accreditation Guide	Documentation providing detail on the CHESS replacement AMO Accreditation phase, expectations regarding conduct and expected results including the Accreditation process, connectivity, and message scenarios	Q1 2025	Tracking for end March 2025
Engagement Activity	Release 1 Clearing Regression Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing the Clearing Regression phase	Q2 2025	
Engagement Activity	Release 1 Cutover Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing Release 1 cutover activities	Q2 2025	
Publish Documentation	Release 1 Clearing Regression Test Guide	Documentation detailing the minimum ASX-specified Clearing Regression test scenarios, key activities and expectations regarding conduct and expected results including entry and exit criteria	Q2 2025	
Publish Documentation	Release 1 Guide to Operational Readiness Phase	Documentation detailing the Operational Readiness scenarios including mandatory success criteria	Q2 2025	
Publish Documentation	Release 1 Cutover and Migration Approach	Documentation detailing the cutover and migration approach, key activities, responsibilities including all verifications and validations required by ASX and the market, and milestones across the cutover and dress rehearsal windows.	Q2 2025	
Engagement Activity	AMO Parallel Phase Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing the Parallel Test phase	Q3 2025	
Publish Documentation	Release 1 Guide to AMO Parallel Test	Documentation providing detail on the Parallel Test phase, key activities and expectations and expected results including entry and exit criteria	Q3 2025	
Publish Documentation	R1 Cutover Runbook	Documentation providing AMOs with key tasks and milestones, with an outline of detailed steps including planned timing. The runbook will be used in dress rehearsals and refined as required ahead of the final go-live event. Note that the cutover runbook will also include the steps required to rollback	Q3 2025	

Note: indicative only, subject to change based on industry inputs and further planning



05 – Indicative Forward Engagement Calendar (Rolling 3 Months)

	March 2025	April 2025	May 2025
	3 March	2 April	6 May
Technical Committee	 Release 1 and Release 2 project update Release 1 Industry Test Environment Working Group updates Optional versus mandatory functionality Pulse Survey actions 	 Release 1 and Release 2 project update Release 1 Industry Testing update Working Group updates Optional versus mandatory functionality CHESS project - use of BICS 	TBD
	27 March	29 April	29 May
Implementation & Transition Working Group	Release 2 Industry Test Tooling Approach	 Release 2 Industry Test Tooling Approach (cont'd) Release 1 Operational Readiness and Approach 	Release 1 Clearing Regression and Cutover
AMO	18 March	10 April	14 May
Working Group	Moving to BAU (CHESS project updates as required)	Moving to BAU (CHESS project updates as required)	Moving to BAU (CHESS project updates as required)
	18 March	10 April	14 May
Release 1 Build & Test Forum	Build and Test UpdateReadiness TrackingIndustry testing	Build and Test UpdatesReadiness TrackingIndustry testing	Build and Test UpdatesReadiness TrackingIndustry testing
Business Design	13 March	3 April	8 May
Working Group	Registries Focus Group	Release 2 Drop 2 Deep Dive	TBD
ISO Design	20 March	9 April	21 May
Working Group	Release 2 Drop 1 ISO messages and Schema	Release 2 Drop 1 and 2 ISO messages and schema	Release 2 Drop 2 ISO messages and Schema



05 - Upcoming Industry Test Phases Summary

	AMO Readiness	AMO Accreditation	AMO Operational Readiness	Clearing Regression	AMO Parallel Test
Planned Dates	Jul 2025 - Feb 2026	Sept – Early Nov 2025	Sept – Early Nov 2025	Oct 2025 – Feb 2026	Nov 2025 – Feb 2026
AMO Activity Required	Complete development of Drop 3 features, undertake testing, finalise software for accreditation (and ongoing testing to familiarise until Feb 2026)	Demonstrate software's ability to connect and interact with the CHESS replacement system by completing specified accreditation scenarios	Demonstrate their organisation meets both the ASX's standards and operational requirements	AMOs revise participant IDs used in Trade Capture testing + support industry testing in their ITE integrated test environment	Reconcile current CHESS production feed of trade registrations to CHESS project feed on To-Be-Production infrastructure
Environment	R1 ITE	R1 ITE	R1 ITE	R1 ITE	R1 To-Be-Production
Entry Criteria	Completed build for features delivered in Drop 1 & 2 (ITE Open code base)	Successfully tested all AMO Accreditation scenarios and are ready to have AMO software assessed for formal Accreditation	Passed AMO Accreditation and have successfully tested all Operational Readiness scenarios.	Changes implemented to enable Clearing Participant testing in ITE, and processes required to support Clearing Participant testing in AMO ITE Integrated Test Environment communicated	Successfully completed AMO Operational Readiness assessment and ready to generate the FIX equivalent for Production trade registration and pricing data
Exit Criteria	Successfully tested all AMO Accreditation and are ready to have AMO software assessed for formal Accreditation	Demonstrated all AMO Accreditation scenarios have passed the success criteria	Demonstrated all Operational Readiness scenarios have passed the success criteria	AMO testing and Clearing Participant testing effectively coexisted enabling Clearing Participant attestations	Successful comparison of trade registration and pricing messages between current CHESS and CHESS project environments
Supporting Documentation	AMO User Technical Documentation	Release 1 AMO Accreditation Guide	Release 1 Guide to Operational Readiness Phase	Release 1 Guide to Operational Readiness Phase	Release 1 Guide to AMO Parallel Test
Supporting Documentation ETA	Feb 2025	Mar 2025	Jun 2025	Jun 2025	Sep 2025

Note: All AMO Activity Required, Entry & Exit Criteria to be completed by AMOs or their Software Provider (where relevant), and dates are indicative and may be subject to change

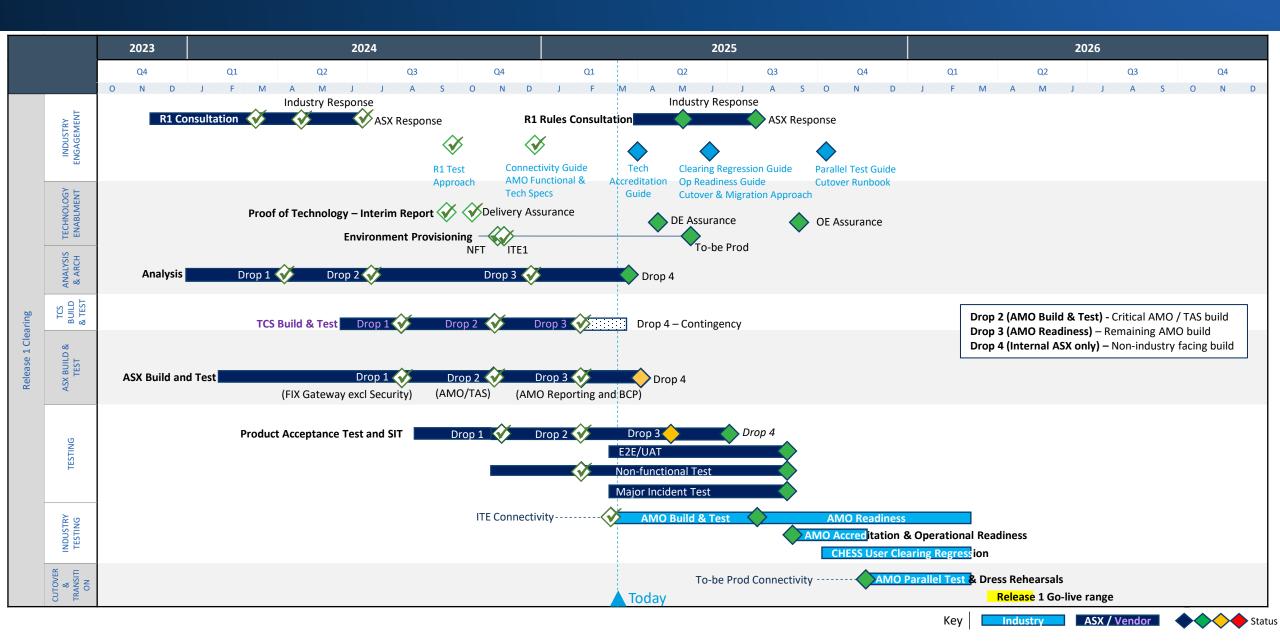


Appendix

- > R1 Indicative Project Timeline
- > R1 Industry Test Phase Summaries
- > R1 Open Issues Log



Appendix - Updated Release 1 Indicative Project Timeline - March 2025



Appendix - Upcoming Phase Overview - AMO Readiness

AMO Readiness phase is planned to commence in July 2025 and will deliver Security Details Report + Alternate File Ingest Interface to ITE, with enhancements to support production grade message volumes

AMO Readiness Phase

AMOs are provided the opportunity to complete the development of their software and perform further testing in ITE, including optional performance and simulated network outage testing. This is a mandatory industry test phase that operates in parallel to and/or beyond other test phases, enabling both the completion of software testing for Accreditation, and ongoing testing of accredited software to refine upstream/downstream systems and processes.

Phase Window	Planned between July 2025 and February 2026
Supporting Documentation	AMO User Technical Documentation (update published February 2025) AMO Readiness Release Notes: Planned for July 2025
Environment	Release 1 Industry Test Environment (ITE1)
Data	Production snapshot security data synchronised daily, production and synthetic reference data
ASX Assisted Activities	ASX scheduled events enabling optional non-functional testing of: FIX Gateway Failures, Production Grade Simulated Message Volumes, and Alternate File Ingest Interface
Entry Criteria	AMO's or their Software Provider have completed build associated with Software Provider Build & Test functionality, are ready to perform build of AMO Readiness features, perform optional non-functional testing, and finalise their software build in preparation for AMO Accreditation
Exit Criteria (to commence AMO Accreditation)	AMOs or their Software Provider have successfully tested all AMO Accreditation scenarios and are ready to have their solutions assessed for AMO Accreditation
For Awareness	AMO Readiness phase will continue while AMO Accreditation, AMO Readiness, and Clearing Regression phases are in operation



Schedule of supported non-functional activities will be published in the AMO Readiness release notes in July 2025



Appendix - Upcoming Phase Overview - AMO Accreditation

AMO Accreditation phase is planned to commence in September 2025 and requires AMOs or their Software Provider to have completed their software build, including features delivered at the commencement of the AMO Readiness phase

AMO Readiness Phase AMOs or their Software Provider will schedule a window with ASX where they will demonstrate their software's conformance to the AMO User Technical Documentation by completing the mandatory and relevant conditional scenarios for assessment. This is a mandatory industry test phase that is required to be successfully completed before any AMO software can be deployed to a production environment. Phase Window Planned between September 2025 and Early November 2025 Release 1 Accreditation Guide, including Application Form (planned for March 2025) Supporting Documentation Release 1 Industry Test Environment (ITE1) Environment Production snapshot security data synchronised daily, production and synthetic reference data Data **ASX Assisted Activities** Specified Connectivity, Application Messaging, and Resiliency accreditation scenarios AMOs or their Software Provider have successfully tested all AMO Accreditation scenarios and are ready to have their solutions **Entry Criteria** assessed for formal Accreditation Exit Criteria (to commence AMOs or their Software Provider demonstrates all AMO Accreditation scenarios have passed the success criteria AMO Accreditation) Clearing Regression Phase will commence in October 2025, potentially requiring changes to testing process and supporting of For Awareness Clearing Participant initiated orders/trades



AMOs or their Software Provider should schedule Accreditation early in the phase window to allow for potential rework and any time required to deploy accredited software into AMO test environment(s) for Operational Readiness



Appendix - Upcoming Phase Overview - AMO Operational Readiness

AMO Operational Readiness phase is planned to commence in September 2025 and requires AMOs or their Software Provider to have had their AMO software pass AMO Accreditation and operationalised the processes supporting its use

AMO Readiness Phase

AMOs or their Software Provider will schedule a window with ASX where they will demonstrate their ability to successfully operate their Business-as-Usual functions using the CHESS replacement system. This is a mandatory industry test phase verifying that AMOs have established appropriate processes and can demonstrate their capability to manage the CHESS replacement system's requirements effectively and safely.

Planned between September 2025 and early November 2025
Release 1 Guide to Operational Readiness (planned for June 2025)
Release 1 Industry Test Environment (ITE1)
Production snapshot security data synchronised daily, production and synthetic reference data
ASX scheduled engagement to discuss Operational Readiness Scenarios
AMO Software has passed AMO Accreditation & AMO has operationalised processes for using the accredited Software. AMOs have successfully tested all Operational Readiness scenarios outlined in the Release 1 Guide to Operational Readiness Phase
AMOs demonstrate all Operational Readiness scenarios have passed the success criteria outlined in the Release 1 Guide to Operational Readiness Phase.



Appendix - Upcoming Phase Overview - Clearing Regression

Clearing Regression phase planned to operate in ITE1 between October 2025 and February 2026, with Clearing Participants performing their testing using a combination of ASX tooling to upload trades when testing in a controlled environment, or matching Trading Participant trades in an AMO test environment

Clearing Regression Phase	Clearing Regression Phase						
·	Clearing Participants are required to perform internal testing and validation of all downstream EIS messages received that result from trade registration, clearing and netting services. This is a mandatory industry test phase where Clearing Participants and AMOs will be operating in the same test environment.						
Phase Window	Planned between October 2025 and February 2026						
Supporting Documentation	Release 1 Clearing Regression Test Guide (planned for June 2025)						
Environment	Release 1 Industry Test Environment (ITE1) integrated with current CHESS						
Data	Data required to support Clearing Regression will be determined as part of the Clearing Regression test guide						
Supported Activities	N/A						
Entry Criteria	Clearing Participants are ready to run regression scenarios required to complete Clearing Regression in current CHESS. This may require coordination with Trading Participants and AMOs to facilitate trades in an ITE1-Integrated Test Environment						
Exit Criteria	Clearing Participants to confirm that EIS messages that have been generated by the CHESS replacement system cause no issue in system and business processing for the trade clearing and settlement lifecycle						
For Awareness	Where available, AMOs will need to provide access for Trading Participants (supporting Clearing Participants) to submit orders into their ITE1-Integrated Test Environment						



ASX is working through options to enable Clearing Participants and AMOs to co-exist in ITE1 whilst completing their respective test cases. Options under consideration include limiting AMO Readiness testing to a specific Participant list from the commencement of the Clearing Regression phase.

AMO feedback welcomed.



Appendix - Open Issues Log (1/2)

Reference ID	Summary	Details	AMO Impact	Workaround	Status
CHR- 13018	MarketDataSnapshotFullRefresh (W) message, if the <55> <symbol> tag string length is > 15 characters it causes the FIX AE (Trade message) consumer group to fail and subsequent FIX AE messages are NOT processed.</symbol>	Expected behaviour: The AMO should receive a FIX AU reject indicating invalid message tag value Actual behaviour: Consumer group fails and FIX session disconnect will occur	AMOs will lose connectivity and any subsequent FIX AE messages that were transmitted after the disconnection will be lost. Once the consumer group is brought back up, the AMOs will need to re-transmit the lost messages	This will only occur should a malformed message be received from the AMO, specifically <55> <symbol> tag. This does not occur for formatting errors in other fields AMOs should ensure this tag is properly encoded with the security code (of up to 6 characters in length)</symbol>	Fix planned for AMO Readiness release
CHR- 11318	[FIX Gateway] message - misleading error message when transmitting the message with one or more missing mandatory repeating group <269> <mdentry> tags</mdentry>	Expected Behaviour: "One or more required repeating group codes are missing from the tag <269> <mdentry>" Actual: "<268><nomdentries>: [SUPPLIED_VALUE] is invalid"</nomdentries></mdentry>	AMOS will receive an incorrect error when this occurs	This will only occur should a malformed message be received from the AMO AMOs should be aware that the correct message will not be transmitted in this circumstance	Fix planned for AMO Readiness release
CHR- 12107	[FIX Gateway] FIX Message retransmission occurs in incorrect order when message gap identified from LogOn (A) with higher MsgSeqNum (34) and lower NextExpectedMsgSeqNum (789) than expected.	Expected behaviour: The FIX Gateway should automatically transmit a ResendRequest(2) requesting for the gap (i.e. missing messages that the gateway has not received) to be resent from the AMO Actual behaviour: The FIX Gateway fails to retransmit the expected messages in the correct sequence	When a gap fill is requested in the logon, automatic gap fill will not occur, and the AMOs and ASX will not be aligned in terms of MsgSeqNum and NextExpectedMsgSeqNum. This will result in a corrupted FIX session state	This error would only occur should the AMO or ASX send an erroneous sequence of messages and there is a session reconnect requested with gap fills from both parties This would result in a session failure and the AMO can request a session reset with a new logon with the message sequence reset	Fix planned for AMO Readiness release
CHR- 10792	[FIX Gateway] Message gap is not identified by FIX Gateway on a LogOn with higher MsgSeqNum (34) than expected (without NextExpectedMsgSeqNum (789))	Expected behaviour: The FIX Gateway should automatically transmit a ResendRequest(2) requesting the missing messages that the gateway has not received to be resent from the AMO Actual behaviour: The FIX Gateway fails to send the ResendRequest (2) message	When a gap is detected, automatic gap fill management will not occur, and the AMOs and ASX will not be aligned in terms of MsgSeqNum and NextExpectedMsgSeqNum. This will result in a corrupted FIX session state	This error would only occur should the AMO or ASX send an erroneous sequence of messages and there is a session reconnect requested with gap fills from both parties This would result in a session failure and the AMO can request a session reset with a new logon with the message sequence reset	Fix planned for AMO Readiness release



Appendix – Open Issues Log (2/2)

Reference ID	^e Summary	Details	AMO Impact	Workaround	Status
CHR- 12858	MarketDataSnapshotFullRefresh (W) message - Spelling error on <75> <pricedate> tag in Reject Text</pricedate>	Expected Behaviour: 58=<75> <pricedate>:[20250108] is invalid Actual Behaviour: 58=<75><pricedate>:[20250108] is invaild</pricedate></pricedate>	AMOS will receive an unexpected error text string	Mitigation – AMOs should expect the incorrect error text	Fix planned for AMO Readiness release
CHR- 12348	TradeCaptureReport (AE) message - incorrect Reject text is sent for invalid <2376> <partyrolequalifier> tag</partyrolequalifier>	Expected Behaviour: "1238=<2376> <partyrolequalifier>: [SUPPLIED_VALUE] is not an allowable value" Actual Behaviour: "1328=<2376><partyrolequalifier>: [23] is invalid"</partyrolequalifier></partyrolequalifier>	AMOS will receive an unexpected error (typo) when this occur	Mitigation – AMOs should expect the incorrect error text	Fix planned for AMO Readiness release
CHR- 13599	TradeCaptureReportAck (AR) message – ACK message not send sent back to AMO when input TradeCaptureReport (AE) message contains out of range value in <487> <tradereporttranstype> tag</tradereporttranstype>	Expected behaviour: TradeCaptureReportAck (AR) rejecting malformed message Actual Behaviour: No TradeCaptureReportAck (AR) message transmitted	AMOs will not receive a response from the FIX Gateway when Tag 487 is not populated correctly on FIX AE	This will only occur should a malformed message be received from the AMO, specifically invalid value in <487> <tradereporttranstype> tag AMOs should ensure this tag is properly encoded</tradereporttranstype>	Fix planned for AMO Readiness release
CHR- 7684	[FIX Gateway] If the FIX gateway receives a garbled message with the following incorrect tag ordering: 1. <35> <msgtype> 2. <8> <beginstring> 3. <9> <bodylength> it creates an unstable state for the ASX FIX session and the subsequent message received will likely cause a session failure</bodylength></beginstring></msgtype>	Expected Behaviour: The garbled message should be rejected Actual Behaviour: The FIX Gateway does not reject the message and the session sate is compromised	AMOs will be required to reset the session with a new logon <a> after being forced disconnected, and will need to resume by specifying the next expected Msg sequence number (34)	This error would only occur should the AMO send a malformed message, which is unlikely to occur A session reset can be applied in the unlikely circumstance that this does occur	Fix planned for AMO Readiness release



Thank you.



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