



# CHES Replacement Project

**Software Provider Readiness  
Working Group**

9 March 2022

# Important Information – Competition Law Policy

Working group members are reminded to have regard to their obligations under competition law. In particular, please note changes to the Competition and Consumer Act to prohibit a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

# Agenda

- 
- Update on ITE1
- 
- Update on Ledger API
- 
- Update on Technical Accreditation
- 
- Q&A
- 
- Forward Schedule
-

# Update on ITE1

# Update on ITE1 release code drop (v1.2.1)

## [ITE1 \(v1.2.1\) technical release notes](#)

- Deployment of Corporate Actions in ITE1 (28 February to the 27 May 2022)
- End of day Holding Balance and sub-position (HBAL & HSBL) reports re-enabled
- Code changes re-activated

The following functions remain disabled;

- Change of controlling participant
- Class mergers
- Known issues listed [here](#)

No further scheduled resets until release (v1.3) – TBC

# Update on ITE1 release code drop (v1.2.1) – by connectivity channel

## Ledger API

- Ledger clients disconnects where there is no activity hours after 4 hours, ASX looking to implement an optional feature to 'keep alive' longer
- Access to the JWT server unavailable 15:04-15:20 on 7 March (resolution for this will be patched 10 March 18:00)
  - Any future interruptions will be published on the new on-line service status page

## AMQP

- AMQP properties on Ingress messages need to be populated with BizMsgIdr & correlationId
- ASX currently populating the BizMsgIdr on egress message, correlationId will be added in ITE1 (v1.3)

## CHESS UI

- SMS 2FA authentication working for non-Australia numbers, delivery of the SMS subject to the overseas carrier
- Hold\_201 defaulting 'MRKT' for all transactions
- Ensure the correct UIC is selected on top right before transacting noting;
  - Issuer role cannot create accounts
  - CHESS UI can be used to act as a 'PISP' within the participant test kit to complete mfund workflow / allocations

## SWIFT

- Now live in ITE1

# Update on ITE1

## CHES Replacement Test Environment Status

### CHES Replacement Test Environment Status

This portal is for ASX software providers and CHES users only.

Registered software providers and CHES users please enter your credentials to access the current CHES Replacement test environment status.

### ITE Order Form

Please enter your registered group support mailbox


**CHES REPLACEMENT RESOURCES**

Supporting reading material and technical documentation as part of the CHES Replacement process.

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Group support mailbox (\*) Email

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(\* This needs to be a group mailbox used for announcements relating to service availability etc.)

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# Update on ITE1

## CHES Replacement Test Environment Status

### CHES Replacement Test Environment Status

The System Status Page is used to communicate the environment status during supported hours. Supported hours are 9am to 5pm (Sydney time), business days.

**Quick Links**  
[ITE1 Known Issues and Limitations](#)  
[Release Notes](#)  
[Support Details](#)

**Test System Status**

[Refresh Status](#) ?

- ▶ Industry Test Environment 1 (ITE1) ●
- ▶ Industry Test Environment Migration (ITE-M) ●
- ▶ Industry Test Environment 2 (ITE2) ●

▶ Industry Test Environment 1 (ITE1) ●

▶ Industry Test Environment Migration (ITE-M) ●

▶ Industry Test Environment 2 (ITE2) ●

**Industry Test Environment 1 (ITE1):** 7 Mar 2022 07:59 - Partial Operational Impact  
**AMQP Disconnection**

ASX is investigating an issue with all inbound AMQP connections.

All active connections were dropped at 15:00 AEST.  
New connections are currently being rejected.

Further updates to follow on this page.



CHESReplacement@email.asx.com.au



### CHES Replacement Test Environment Notification

Dear Daniel,

**System:** Industry Test Environment 1 (ITE1)  
**Status:** Partial Operational Impact

For more information and the most recent updates please refer to the [CHES Replacement Test Environment Notification Page](#).

[CHES Updates >](#)

To unsubscribe please contact Customer Technical Support.  
t: 1800 663 053 | Intl: +61 2 9227 0372  
e: [cls@asx.com.au](mailto:cls@asx.com.au)

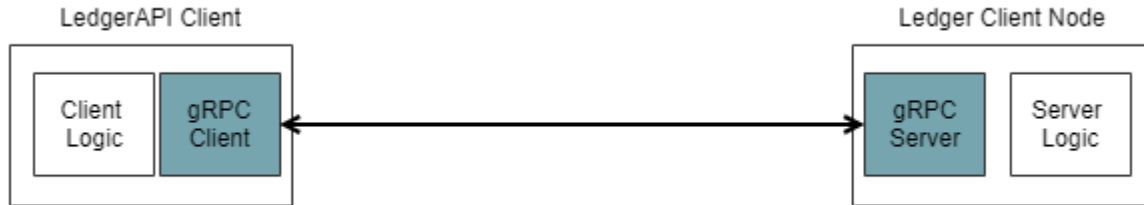


# Update on Ledger API

# SDK 1.18 Error Code Changes

## Basics

- gRPC is remote procedure call framework
- Service definition using .proto file
- Code generation for both client and server side
- LedgerAPI uses gRPC
- The LedgerAPI is client side
- Ledger Client Node is the server side
- Supports request response and streaming communication patterns



# SDK 1.18 Error Code Changes

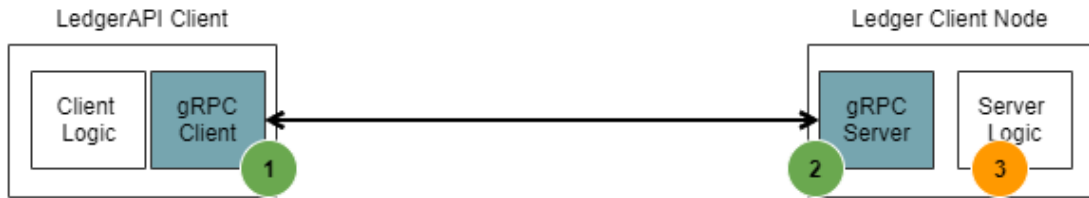
## gRPC Error codes

- Analogous to HTTP error codes, there are gRPC error codes
- Errors can be generated by either client or server
- gRPC errors wrapped in a StatusRuntimeException
  - Contains a Status
  - Status has a code and Description
- List: [https://grpc.github.io/grpc/core/md\\_doc\\_statuscodes.html](https://grpc.github.io/grpc/core/md_doc_statuscodes.html)



# SDK 1.18 Error Code Changes

## What has Changed?



- No changes in gRPC client or Server gRPC layer
- **Change:** Error codes returned by Server Logic, (3) above
- Change 1: New Custom Description format and inclusion of Ledger Error codes
- Change 2: Use of different gRPC Status codes

# SDK 1.18 Error Code Changes

## Change 1

- gRPC errors generated by the Server Logic contains following formatted description

```
<ERROR_CODE_ID> / <CATEGORY_ID> , <CORRELATION_ID_PREFIX> : <HUMAN_READABLE_MESSAGE>
```

The constituent parts are:

- **<ERROR\_CODE\_ID>** - a unique non empty string containing at most 63 characters: upper-cased letters, underscores or digits. Identifies corresponding error code id.
- **<CATEGORY\_ID>** - a small integer identifying the corresponding error category.
- **<CORRELATION\_ID\_PREFIX>** - a string aimed at identifying originating request. Absence of one is indicated by value `0`. If present it is an 8 character long prefix of the corresponding request's submission id. Full correlation id can be found in error's additional machine readable information (see [Additional Machine Readable Information](#)).
- **:** - a colon character that serves as a separator for the machine and human readable parts.
- **<HUMAN\_READABLE\_MESSAGE>** - a message targeted at a human reader. Should never be parsed by applications, as the description might change in future releases to improve clarity.

In a concrete example an error description might look like this:

```
TRANSACTION_NOT_FOUND(11,12345) : Transaction not found, or not visible.
```

# SDK 1.18 Error Code Changes

## Change 2

- <https://docs.daml.com/app-dev/grpc/error-codes.html>
- Refer to “Error Code Migration Guide Table”
- Ledger Error codes
- Error Category
- Error Catalog

# SDK 1.18 Error Code Changes

## ASX Internal build approach

- Resolution
  - Ack: all good
  - Nack: Non Retry-able error, e.g. incorrect value or permission denied
  - Retry: command after delay
  - Backpressure: Apply exponential back off strategy
  - Reinitialize: Reinitialize client and retry command. After 'N' failures failover to other node
  - Shutdown: unrecoverable error, need intervention
- Configurable behavior
  - gRPC Error code and LEDGER ERROR CODE ID

# SDK 1.18 Error Code Changes

## Sample mapping Table

gRPC Code	LEDGER ERROR CODE ID	RESOLUTION
PERMISSION_DENIED	PERMISSION_DENIED	Nack
PERMISSION_DENIED	SUBMITTER_CANNOT_ACT_VIA_PARTICIPANT	Nack
INVALID_ARGUMENT	MISSING_FIELD	Nack
FAILED_PRECONDITION	RECORD_TIME_OUT_OF_RANGE	Retry
FAILED_PRECONDITION	OFFSET_OUT_OF_RANGE	Shutdown
UNAVAILABLE	SERVICE_NOT_RUNNING	Retry
UNAVAILABLE	<b>Not present</b>	Reinitialize
RESOURCE_EXHAUSTED	<b>Not present</b>	Backpressure
ABORTED	RESOURCE_EXHAUSTED	Backpressure
ABORTED	PARTICIPANT_BACKPRESSURE	Backpressure
ABORTED	FAILED_TO_DETERMINE_LEDGER_TIME	Retry



# Update on Accreditation

# Technical Accreditation

## Messaging Accreditation Scenarios

### Updates in Feb release

Updated Supplementary Information for Assistance Required scenarios and linked them with [ITE1 ASX Assisted Testing page](#)  
Please refer to [February, 2022 - Documentation Release Notes](#) for more details

#### ITE1 ASX Assisted Testing

There are a small number of test scenarios not supported by Self-Service, Auto-Responder and Auto-Injector

✔ Please use the **Cadence / Request** column to submit your request.

ASX Assisted Testing	Description
<b>On-Request Transactions (Same Business Day)</b>	
⚠ Technical Support teams will endeavor to action the following requests between the hours of support	
Account locked/unlocked by ASX	ASX is able to assist software providers with testing of unsolicited account
Holding locked/unlocked by ASX	ASX is able to assist software providers with testing of unsolicited holding
Update subregister status	ASX is able to assist software providers with testing of subregister status suspend, close and archive.
Change of controlling participant	ASX is able to assist software providers with testing of unsolicited change single account. Partial and all accounts on a UIC (bulk) is not supported in ITE1.
Reverse fall fee	ASX is able to assist software providers with testing of the reversal of a fa

#### Scenario Supplementary Information

**Assistance Required**  
Request ASX to initiate this flow

Please refer to "Account locked/unlocked by ASX" on [ITE1 ASX Assisted Testing page](#)

# Technical Accreditation

## Messaging Accreditation Scenarios

### Version Control for Scenario files

November release of Messaging Accreditation Scenarios was marked as base line for scenario files. ASX introduced the version number for each file in February release.

That will be mentioned on Messaging Accreditation Scenario [page](#), with scenario file name and on main sheet of scenario files.

Clicking on date will leads to release notes.

### 6.1 Messaging Accreditation Scenarios

**i** To view a Messaging Accreditation Scenarios, right-click the relevant link below and select "Save link as...". This will download the Messaging Accreditation Scenarios to your computer.



Microsoft Excel Format (.xlsx)

[Account Participant](#)

- Version 1.1 (28/02/22)

[Clearing & Settlement Participant](#)

- Version 1.1 (28/02/22)

[Issuer \(Registry\)](#)

- Version 1.1 (28/02/22)

[Settlement Participant](#)

- Version 1.1 (28/02/22)

[Specialist SP \(Offeror\)](#)

- Version 1.1 (28/02/22)

[Payment Provider](#)

- Version 1.1 (28/02/22)

[Product Issuer Settlement Participant \(PISP\)](#)

- Version 1.1 (28/02/22)

[Approved Market Operators \(AMO\)](#)

- Version 1.0

# Technical Accreditation

## Messaging Accreditation Scenarios

### Upcoming changes

#### Issuer Data -- Bank Account Update/Delete

- Remove optional fields from existing scenario
- Added new scenario for non-Australian Dollar
- Changes will be applicable to
  - Clearing & Settlement Participant
  - Settlement Participant
  - Account Participant

Issuer Data -- Bank Account Update/Delete				
CS-AC-32	Issuer Data -- Bank Account Update/Delete	Send a <b>Request to update</b> Bank Account Details (AUD) where request is <b>Accepted</b> by Issuer	<b>Bank Account Notification - Controlling Participant</b>	
			Transaction Id	
			Account Identifier (HIN)	
			Security Code	
			Action	Insert New Data Set (INSE)
			Bank Account Currency	Australian Dollar (AUD)
			Bank Account Number	
			Bank Account Name	
			Branch Identifier	
			Bank Account Purpose	
			Bank Name	
			Address Line 3	
			Post-Code	
			Status-(Country-sub-division)	
Country				
<b>Account Modification Instruction Acknowledgement</b>				
Transaction Id				
Account Identifier (HIN)				
Status	Accepted (ACCP)			
CS-AC-32A	Issuer Data -- Bank Account Update/Delete	Send a <b>Request to update</b> Bank Account Details (not AUD) where request is <b>Accepted</b> by Issuer	<b>Bank Account Notification - Controlling Participant</b>	
			Transaction Id	
			Account Identifier (HIN)	
			Security Code	
			Action	Insert New Data Set (INSE)
			Bank Account Currency	Non Australian Dollar (AUD)
			Bank Account Number	
			Bank Account Name	
			Branch Identifier	
			Bank Account Purpose	
			Bank Name	
			Address Line 1	
			Town Name	
			Country	
<b>Account Modification Instruction Acknowledgement</b>				
Transaction Id				
Account Identifier (HIN)				
Status	Accepted (ACCP)			

Q&A

# Forward Schedule

# Market Documentation – end February update

Published [February 2022 Documentation Release notes](#)

- Operational Readiness Scenarios publication continued, including:
  - Corporate action events, Dividend reinvestment plan and Bonus share plan, and mFund (PISP/Issuer (Registry))
  - Remaining scenarios will be published in a subsequent release.
- Information relating to the recent ITE1 environment reset on 28 February 2022:
  - ISO Signing, ITE1 test tooling and known issue updates.
- Accreditation scenario updates to include version control and additional information regarding scenarios that require ASX Assisted Testing support.
- General updates and corrections.

# Market Documentation

## Documentation published to support industry testing

### Documentation already published:

- > Industry Test Strategy – **Jun 21**
- > Connectivity Guide (ITE1) – **Jul 21**
- > Guide to Testing Services (ITE1) – **Sep 21**
- > Failover & Recovery details (ITE1) – **Sep 21**
- > Connectivity Guide (Security) – **Oct 21**
- > Accreditation Guide for ITE1 – **Nov 21**
- > ITE1 open release – **Nov 21**
- > ITE2 application form – **Dec 21**
- > Cutover & Migration Strategy – **Dec 21**
- > User Guide (ITE2) – **Jan 22**
- > Ops Readiness Guide & Scenarios (ITE2) [2 of 3] – **Feb 22**
- > Accreditation scripts (updates) – **Feb 22**

### Upcoming documentation:

- > FIX business exceptions and security updates – **mid-Mar 22**
- > Ops Readiness Scenarios (ITE2) [3 of 3] – **Mar 22**
- > User Guide updates (ITE2 set up and data) – **Mar 22**

### Upcoming key documentation milestones

- > Details of single cutover weekend – **end Q1 22**
- > Performance & failure testing details (ITE1) – **subsequent release**
- > Market Dress Rehearsal (MDR) details – **Jul 22**
- > Industry Wide Testing details – **May & Sep 22**

The forward release plan will continue to be updated highlighting when key deliverables and topics will be published to the market.



# Next steps

## Review and feedback:

- Slides and Q&A will be published on the CHES Replacement webpage
- Provide feedback by contacting [CHESReplacement@asx.com.au](mailto:CHESReplacement@asx.com.au) – use “SPR – WG” as the subject heading

## Release ITE (v1.3)

- Confirmation of ITE (v1.3) release date, no later than 18 March 2022

## Next Software Provider Readiness Working Group meeting:

- Date: Wednesday April/May - TBC

Thank you.



# Disclaimer

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