



The Derivatives Service Bureau (DSB)

FIX Certification Test

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Preface

Change History

Date	Change	Version	Author	Revision Details
18 July 2017	Creation	1.00	Sheryl Tan	Initial Version
06 Sept 2017	Update	2.00	Sheryl Tan	Added 3.3.5 Retrieve ISIN Record by Attributes and 3.3.6 Search for ISIN Records by Attributes Added Business Message Reject on Error Codes Test Suite
29 Sept 2017	Amendment	2.01	Sheryl Tan	Updated sample fix messages to reflect latest product definitions

1 Introduction

1.1 Document Purpose

This document intends to provide a comprehensive guide on the FIX Client Certification by using the FIX Conductor interface. The FIX certification process is designed to ensure that users connecting the DSB via FIX are fully integrated in a robust manner. Successful completion of the DSB's FIX Client Certification is an important milestone in being on-boarded into the DSB's production environment. The client can rerun the certification test until completion of all the required test cases. The FIX Conductor has a Reset Certification feature which will be discussed on the FIX Conductor section.

1.2 Intended Audience

Clients who use FIX that needs certification via FIX Conductor interface.

1.3 Scope

This document focuses on the use of FIX Conductor to setup the connectivity and test the functionality of the FIX Client.

1.4 Contact Information

Please direct your questions or concerns on the FIX Conductor via email to technical.support@anna-dsb.com

1.5 Functional Summary

The FIX Conductor interface provides a real time testing service for the FIX Client certification. It consists of several test cases to check the connectivity (i.e. Logon and Heartbeat) and functionality (i.e. create, search, subscribe, retrieve) of the FIX Client. It has error code test to simulate the output of the Security Request Result (560) for invalid request, system unavailable or business message reject.

Result of the test cases can be viewed on the client's Test Dashboard. The client needs to pass all of the required test cases in order to obtain the certification. Once the client has completed successfully, a certification report is made available for the client and the DSB Technical Support.

The DSB Technical Support Admin has a dashboard to verify that a client has successfully completed the test. The client can contact the DSB Technical Support Team for any issues that may arise while completing the test.

1.6 Document Structure

This document contains the following section:

Section Number	Title	Description
Section 1	Introduction	A brief introduction to this document providing background to the purpose of the document and the FIX Conductor
Section 2	Site Preparation	Provides details of the tasks required before connectivity can take place
Section 3	FIX Conductor	Documents the overview, test suites and messages of the FIX Conductor

2 Site Preparation

2.1 FIX Conductor Setup

2.1.1 Register New Client

Once a client approaches the DSB seeking FIX connectivity to the DSB production environment, the DSB Technical Support Admin will register the new client so that authorized users can access the FIX Conductor.

Client's Name, company email address and services (FIX_4.4 or FIX_5.0) to be used by the client will be based on the Onboarding Form submitted by the client.

2.2 FIX Client Setup

Clients need to undertake the following preparation to connect to the DSB's FIX Conductor interface:

- Select the FIX version to use: DSB FIX interface supports FIX5.0SP2 as well as FIX 4.4
- DSB operations will provide the following connectivity parameters as part of the client registration details for access to the FIX conductor:
 - Company identifiers (Compid); These are used throughout the FIX messages and commonly configured in the FIX engine
 - IP address of the DSB FIX Conductor
 - Port for Proxy and Simulated interface
- Make any network/firewall configuration changes required to connect to the DSB FIX Conductor.
- Verify that the DSB IP FIX Conductor addresses/port numbers are open and visible from any machine that needs to connect to the FIX service.
- Configure the local FIX engine with the DSB FIX Conductor Hostname, Port, Compid accordingly.

There are 2 types of Interface that the client needs to configure:

2.2.1 Proxy Interface

This is required for testing the Create, Search, Subscribe, Retrieve, Search by Attributes and Session Level Test Suites. FIX Client will connect to the FIX Conductor which in turn will connect to the DSB FIX servers to validate the FIX messages.

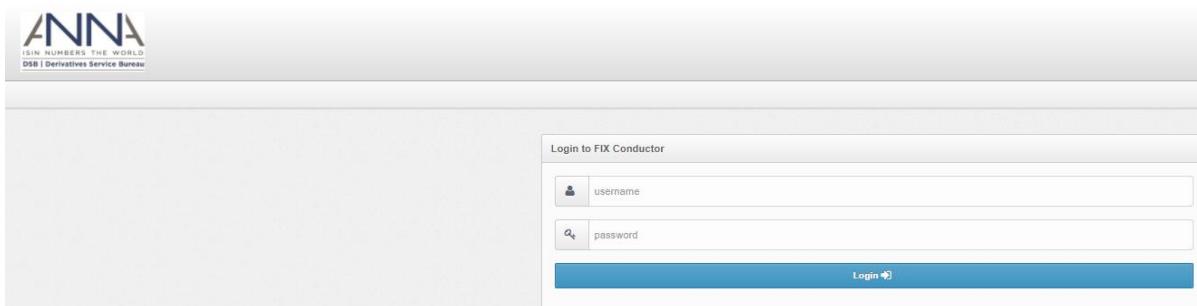
2.2.2 Simulated Interface

FIX Client will run in simulated mode to simulate the errors of the different test scenarios. This is used for Error Codes Test Suite which is required for the client to complete the certification.

3 FIX Conductor

3.1 Login

Client enters the Username and Password to login and access the dashboard.



3.2 Dashboard

3.2.1 Certification Progress

Certification progress can be viewed at a glance on the client dashboard.

To begin the certification, client needs to click the “Begin Certifying” button on the dashboard.

The green bar displays the % progress of the certification. Client needs to finish all the required test cases to complete the certification.

Client has an option to choose “Practice” mode under Additional Actions to check the test cases.

Certification Progress					
Service	Next Step	Progress	Last Activity	Additional Actions	
FIX_44	<button>Begin Certifying</button>	0%	(No activity)	<input checked="" type="radio"/> Practice	<input type="checkbox"/> Save Report
FIX_50	<button>Continue Certifying</button>	31%	SU1 - User subscribes to OTC product definitions for Rates failed by sheryl on 14-Jul-17 10:17 AM	<input checked="" type="radio"/> Practice	<input type="checkbox"/> Save Report

Certification Report can be generated via “Save Report”. Results of all the test cases are saved on this report.

Certification Progress					
Service	Next Step	Progress	Last Activity	Additional Actions	
FIX_44	<button>Begin Certifying</button>	0%	(No activity)	<input checked="" type="radio"/> Practice	<input type="checkbox"/> Save Report
FIX_50	<button>Continue Certifying</button>	13%	SE1 - User requests OTC product definition for a Rate ISIN failed by sheryl on 18-Jul-17 06:20 AM	<input checked="" type="radio"/> Practice	<input type="checkbox"/> Save Report

3.2.2 Interfaces and Sessions

The DSB Technical Support Admin will set the interface and session of the client based on the preferred FIX version that the client will use and certify. SenderComplID, TargetComplID and port will be sent to the client once registered. Please note that the Port which will reflect in this section is not exactly the same with the proxy port and simulated port given to clients. The clients need to configure the FIX Application using the credentials that will be sent to their email.

Interfaces and Sessions					
Service	Specs	Interface	SenderComplID	TargetComplID	Port
FIX_44_client2	DSB_FIX44	FIX44_client2_P			
	DSB_FIX44	FIX_44_client2_S			

3.2.3 Profile and Questionnaire Progress

The Questionnaire is used for optional test cases wherein client will answer the questionnaire at the start of the certification and % Progress of the questionnaire will reflect on this tab. If all the test

cases are required, there will be no questionnaire progress on this section. Client can also edit the User Profile and Client Profile on this tab.

Profile and Questionnaire Progress				
Information	Details	Progress	Additional Actions	
User Profile	FIX@user2.test@client3.com	<div style="width: 70%;">70%</div>	Edit User Profile	
Client Profile	client3	<div style="width: 30%;">30%</div>	Edit Client Profile	

3.2.4 Test Runner

Client needs to click the “Begin Certifying” or “Continue Certifying” button next to a service name on the user dashboard to begin or continue the certification.

Certification Progress				
Service	Next Step	Progress	Last Activity	Additional Actions
FIX_44	Begin Certifying	<div style="width: 0%;">0%</div>	(No activity)	Practice Save Report

To start with the test cases, the client needs to enter the name and version of the FIX on the Application Details field as shown below.

[Back to User page](#)

Sessions				
Interface	SenderCompid	TargetCompid	Port	Actions
FIX44_client2_P				
FIX_44_client2_S				

Please provide the name and version of the application you're using to certify:

[Enter Application Details](#)

Application Details

Please enter information below, concerning the application for which you will be using to certify. (Or recertify, if you have already completed this certification for another application.)

Application Name:

Application Version:

[Close](#) [Save changes](#)

The test dashboard shows test suites broken down into test cases, with the option to run test as well as when the test was last run, required or optional test case, and the result of the test.

Client has an option to reset certification which is located at the top right side of the Test dashboard.

FIX Conductor - FIX_44 Certification

Progress: 0% [Reset Certification](#)

[Back to User page](#)

This service connects to DSB's UAT environment using FIX 4.4

FixClient 1.0 Certification for Client DSB

Sessions				
Interface	SenderCompid	TargetCompid	Port	Actions
FIX44_Proxy	[redacted]	[redacted]	[redacted]	Edit Session
FIX44_Simulated	[redacted]	[redacted]	[redacted]	

Test Suite	Test Case	Last Run	Required	Result
Create	CR1 - User creates ISIN for Rates	► Run Test	(Never)	Required
	CR2 - User creates ISIN for Foreign Exchange	► Run Test	(Never)	Optional
	CR3 - User creates ISIN for Credit	► Run Test	(Never)	Optional
	CR4 - User creates ISIN for Equity	► Run Test	(Never)	Optional
	CR5 - User creates ISIN for Commodities	► Run Test	(Never)	Optional

To access the test cases, click on the “Run Test” button next to a test case.

Test Suite	Test Case	Last Run	Required	Result
Create	CR1 - User creates ISIN for Rates	► Run Test	(Never)	Required

3.3 Test Suite

3.3.1 Session Level

There are 2 session level tests that are required to complete the certification.

SL1 - Logon and Heartbeat

Objective: Client sends a logon and waits for a logon response from the server. The client sends a heartbeat and wait for a heartbeat in response.

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SL1 - Logon and Heartbeat

SL2 - Reconnect after abnormal disconnect

Test Runner

SessionLevel

Test Name: Logon and Heartbeat messages are checked for

Objective: Client sends a logon and waits for a logon response from the server. The client then sends a heartbeat and waits for a heartbeat in response

Please connect and logon to the FIX session <==>

To proceed with the test, client needs to login to FIX Client so that the FIX Conductor can check the connectivity (35=A Logon) and heartbeat (35=0 Heartbeat).

```
8=FIX.4.4^A9=126^A35=A^A34=1^A49=SenderCompID^A50=SenderSubID^A52=20170616-
09:11:00.327^A56=TargetCompID^A57=TargetSubID^A98=0^A108=30^A141=Y^A553=Username^A5
54= password^A10=100^A

8=FIX.4.4^A9=85^A35=A^A34=1^A49= SenderCompID ^A50= SenderSubID ^A52=20170616-
09:10:57.269^A56= TargetCompID^A57=TargetSubID^A98=0^A108=30^A141=Y^A10=063^A

8=FIX.4.4^A9=67^A35=0^A34=2^A49= SenderCompID^A50=SenderSubID ^A52=20170616-
09:11:31.286^A56= A56=TargetCompID^A57=TargetSubID ^A10=225^A

8=FIX.4.4^A9=67^A35=0^A34=2^A49= SenderCompID ^A50= SenderSubID ^A52=20170616-
09:11:27.563^A56= A56=TargetCompID^A57=TargetSubID ^A10=228^A
```

FIX Conductor will check the session connection and heartbeat response to pass this test case.

 SL1 - Logon and Heartbeat
SL2 - Reconnect after abnormal disconnect

Test Runner Continue to Next Test

SessionLevel

- ▶ Test Name: Logon and Heartbeat messages are checked for
- ▶ Objective: Client sends a logon and waits for a logon response from the server. The client then sends a heartbeat and waits for a heartbeat in response
- ▶ Please connect and logon to the FIX session <==>
- ▶ Logon (Reset Sequence Numbers) Show Details
- ▶ Client logon received, waiting for logon response from server.
- ▶ Logon (Reset Sequence Numbers) Show Details
- ▶ Server logon received, session is connected.
- ▶ Logon received, session is connected. Waiting for heartbeats. Please allow up to 30 seconds...
- ▶ Heartbeat Show Details
- ▶ Heartbeat Show Details
- ▶ Test passed!

Test Console

 The test passed

A - Logon

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	132	132
MsgType (35)		A - Logon
MsgSeqNum (34)		1
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170718-07:49:48.208
TargetCompID (56)		
TargetSubID (57)		
EncryptMethod (98)	0 - NoneOther	0 - NoneOther
HeartBlt (108)	30	30
ResetSeqNumFlag (141)		Y - YesResetSequenceNumbers
Username (553)		

SL2 - Reconnect after abnormal disconnect

Objective: Client disconnects without sending a logout and then re-establishes connection and logs on

Client needs to disconnect on FIX Client without sending a logout.

 SL1 - Logon and Heartbeat
SL2 - Reconnect after abnormal disconnect

Test Runner Stop Test

SessionLevel

- ▶ Test Name: A reconnect after an abnormal disconnect is checked for
- ▶ Objective: Client disconnects without sending a logout and then reestablishes connection and logs on
- ▶ Connection Established. Please disconnect without logout
- ▶ Waiting for 10 seconds...

Once disconnected, client needs to relogin on FIX Client. The FIX Conductor will check the connectivity and heartbeat.

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SL1 - Login and Heartbeat
SL2 - Reconnect after abnormal disconnect

Test Runner [Return to Certification Dashboard](#)

Session Level

- Test Name: A reconnect after an abnormal disconnect is checked for
- Objective: Client disconnects without sending a logout and then reestablishes connection and logs on
- Connection Established. Please disconnect without logout
- Waiting for 10 seconds...
- Connection has been abnormally disconnected. Please reconnect.
- Please connect and logon to the FIX session <==>
- Logon (Reset Sequence Numbers) [Show Details](#)
- Client logon received, waiting for logon response from server.
- Logon (Reset Sequence Numbers) [Hide Details](#)
- Server logon received, session is connected.
- Connection established successfully.
- Waiting for a heartbeat...
- Heartbeat [Show Details](#)
- Test passed!

Test Console

SL2 - Reconnect after abnormal disconnect

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	91	91
MsgType (35)		A - Logon
MsgSeqNum (34)		1
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170718-06:06:49.289
TargetCompID (56)		
TargetSubID (57)		
EncryptMethod (98)	0 - NoneOther	0 - NoneOther
HeartBltnt (108)	30	30
ResetSeqNumFlag (141)		Y - YesResetSequenceNumbers
DefaultApplVerID (1137)	9	9
CheckSum (10)	165	165

3.3.2 Create ISIN

Client needs to create an ISIN per Asset Class to test the scenarios below. Once ISIN has been created, the FIX Conductor will display the result of the test.

CASE 1: Test Passed

The FIX Conductor will request client to create an ISIN for the specific asset class.

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CR1 - User creates ISIN for Rates
CR2 - User creates ISIN for Foreign Exchange
CR3 - User creates ISIN for Credit
CR4 - User creates ISIN for Equity
CR5 - User creates ISIN for Commodities

Test Runner [Stop Test](#)

Create

- Test Name: A new ISIN is requested for Rates
- Objective: Client submits a Security Definition Request with OTC product definitions for Rates for which the client gets a new ISIN
- Please send a Security Definition Request (35=c) to create a new ISIN for Rates

The following is a snapshot of the SecurityDefinitionRequest message (35=c) in the FIX log.

```
8=FIXT.1.1^A9=445^A35=c^A34=3^A49=SenderCompID^A50=SenderSubID^A52=20170929-
06:51:01.483^A56=TargetCompID^A57=TargetSubID^A55=[N/A]^A320=DREQ1^A321=1^A1184=331
^A1185={

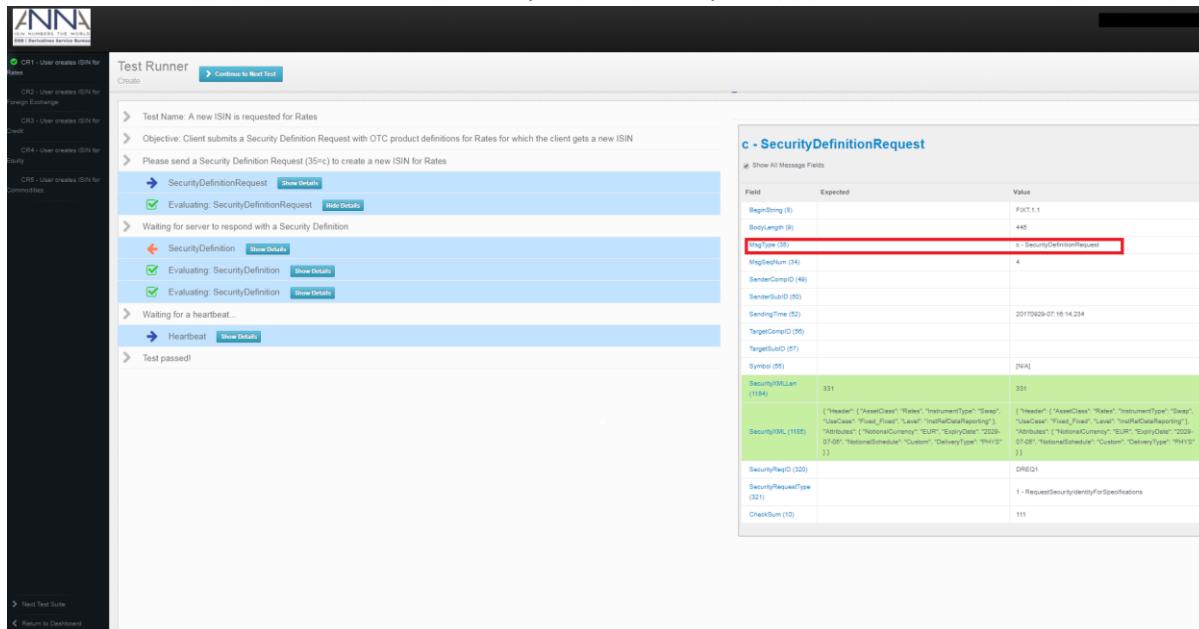
  "Header": {
    "AssetClass": "Rates",
    "InstrumentType": "Swap",
    "UseCase": "Fixed_Fixed",
    "Level": "InstRefDataReporting"
  },
  "Attributes": {
    "NotionalCurrency": "EUR",
    "ExpiryDate": "2029-07-05",
    "NotionalSchedule": "Custom",
  }
}
```

```

        "DeliveryType": "PHYS"
    }
} ^A10=110^A

```

The FIX Conductor will check for the Security Definition Request (35=c) for the new ISIN created.



The screenshot shows the ANNA Test Runner interface with a test named 'Test Name: A new ISIN is requested for Rates'. The objective is 'Client submits a Security Definition Request with OTC product definitions for Rates for which the client gets a new ISIN'. The steps include creating a SecurityDefinitionRequest and evaluating it. The results show a successful evaluation of the SecurityDefinitionRequest. On the right, a detailed view of the SecurityDefinitionRequest message is shown in a table:

c - SecurityDefinitionRequest		
<input checked="" type="checkbox"/> Show All Message Fields		
Field	Expected	Value
BeginString (5)		FIXT.1.1
BodyLength (4)		440
MsgType (5)		a - SecurityDefinitionRequest
MgipMedium (34)		
SenderCompID (46)		
SenderSubID (65)		
SendingTime (52)		20170929-07:16:14.234
TargetCompID (65)		
TargetSubID (67)		
Symbol (65)		[N/A]
SecurityMLLen (1184)	331	331
SecurityML (1185)		[Large XML Content]
SecurityReqID (32)		DREQ1
SecurityRequestType (321)		1 - RequestSecurityIdentifyForSpecifications
Checksum (10)		111

Client can validate the details of the ISIN submitted on the SecurityXML (1185) or Request Product Payload.

c - SecurityDefinitionRequest

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	445	445
MsgType (35)		c - SecurityDefinitionRequest
MsgSeqNum (34)		4
SenderCompID (49)	[REDACTED]	[REDACTED]
SenderSubID (50)		
SendingTime (52)		20170929-07:16:14.234
TargetCompID (56)	[REDACTED]	[REDACTED]
TargetSubID (57)		
Symbol (55)		[N/A]
SecurityXMLLen (1184)		331
SecurityXML (1185)		<pre>{ "Header": { "AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS" } }</pre>
SecurityReqID (320)	DREQ1	DREQ1
SecurityRequestType (321)	1 - RequestSecurityIdentityForSpecifications	1 - RequestSecurityIdentityForSpecifications
CheckSum (10)	111	111
SecurityRequestType		

The table below provides an explanation of the sample content:

Field	Description	Comment
Begin String (8)	FIX 5.0: Always set to: FIXT.1.1 FIX 4.4: Always set to: FIX4.4	
Body Length (9)	Message length, in bytes, forward to the CheckSum field. Always the second field of the message.	
MsgType (35)	c = SecurityDefinitionRequest Request (or create) the ISIN for an OTC derivative financial instrument as identified by its unique attributes	
MsgSeqNum (34)	Integer message sequence number	
SenderCompID(49) ↔ TargetCompID(56)	Client ↔ DSB	Client Comp ID Configured for each client The DSB comp ID
SenderSubID(49) ↔ TargetSubID(57)	Subclient ↔ UAT	Client Sub Comp Configured for each client The DSB Sub Comp ID is configured for each environment (i.e.: Demo / UAT / Prod)
SendingTime (52)	Time of message transmission	

Symbol (55)	Use: "[N/A]"	
SecurityXMLLen (1184)	Length of JSON record payload	
SecurityXML(1185)	Request Product payload	{"Header": { "AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS" } }
SecurityReqID (320)	Identifies the request ID	
SecurityRequestType (321)	0 = Request Security Identity And Specifications 1 = Request Security Identity For Specifications Provided	
CheckSum(10)	As per FIX specification	

FIX Conductor will wait for the server to respond with a Security Definition (35=d).

The following is a sample of a SecurityDefinition message (35=d).

```
8=FIXT.1.1^A9=846^A35=d^A34=3^A49=TargetCompID^A50=TargetSubID^A52=20170929-
06:51:01.165^A56=SenderCompID^A57=SenderSubID^A22=4^A48=EZ5VM8R4T037^A55=[N/A]^A60=
20170929-
06:51:01.165^A320=DREQ1^A560=0^A1184=679^A1185={"Header": {"AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS", "PriceMultiplier": 1}, "ISIN": {"ISIN": "EZ5VM8R4T037", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-09-29T06:51:01"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed - Fixed", "SingleorMultiCurrency": "Single Currency", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_Fixed EUR 20290705", "ShortName": "NA/Swap Fxd Fxd EUR 20290705", "ClassificationType": "SRDYSP"} }^A1938=1^A10=044^A
```

Simultaneously, FIX Conductor will display the details of the SecurityDefinition (35=d) message. The ISIN created will reflect on the SecurityXML (1185) which is the Record Payload.

d - SecurityDefinition

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	846	846
MsgType (35)		d - SecurityDefinition
MsgSeqNum (34)		4
SenderCompID (49)	[REDACTED]	[REDACTED]
SenderSubID (50)		
SendingTime (52)		20170929-07:16:13.890
TargetCompID (56)	[REDACTED]	[REDACTED]
TargetSubID (57)		
SecurityIDSource (22)		4 - ISINNumber
SecurityID (48)		EZ5VM8R4T037
Symbol (55)		[N/A]
SecurityXMLLen (1184)		679
SecurityXML (1185)		<pre>{"Header": {"AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS", "PriceMultiplier": 1}, "ISIN": {"ISIN": "EZ5VM8R4T037", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-09-29T06:51:01"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed", "SingleorMultiCurrency": "Single", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_EUR 20290705", "ShortName": "NA/Swap Fxd Fxd EUR 20290705", "ClassificationType": "SRDYSP"}}</pre>
AssetClass (1938)		1 - Interest Rate
TransactTime (80)		20170929-07:16:13.890
SecurityReqID (320)	DREQ1	DREQ1
SecurityRequestResult (560)	0 - ValidRequest	0 - ValidRequest
AssetClass (1938)		1 - Interest Rate
CheckSum (10)	065	065

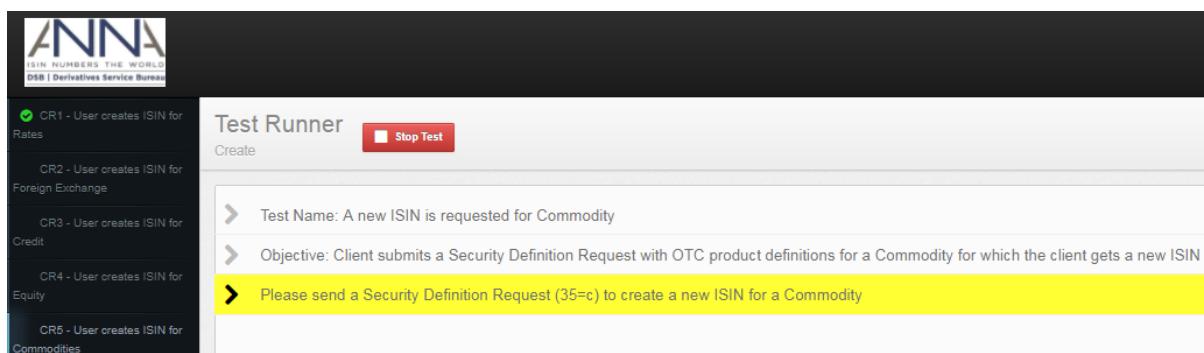
The table below provides an explanation of the sample content:

Field	Description	Comment
SecurityXML(1185)	Record Payload	<pre>{"Header": {"AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS", "PriceMultiplier": 1}, "ISIN": {"ISIN": "EZ5VM8R4T037", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-09-29T06:51:01"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed", "SingleorMultiCurrency": "Single", "IssuerorOperatoroftheTr</pre>

		adingVenueIdentifier":"NA","FullNa m e":"Rates Swap Fixed_Fixed EUR 20290705","ShortName":"NA/Swap Fxd Fxd EUR 20290705","ClassificationType":"SRD YSP"}}}
AssetClass (1938)	Filter the request to products of a single asset class 1 = Interest rate 2 = Currency (Foreign Exchange) 3 = Credit 4 = Equity 5 = Commodity	
TransactTime (60)	Time of transaction	
SecurityRequestResult (560)	0 = Valid request 1 = Invalid or unsupported request 2 = No Instruments found that match selection criteria 3 = Not authorized to retrieve instrument data 4 = Instrument data temporarily unavailable	

CASE 2: Test Failed

Client sends an ISIN for Credit instead of Commodity Asset Class which the FIX Conductor is expecting.



The screenshot shows the ANNA Test Runner interface. On the left, there is a sidebar with a tree view of test cases: CR1 - User creates ISIN for Rates, CR2 - User creates ISIN for Foreign Exchange, CR3 - User creates ISIN for Credit, CR4 - User creates ISIN for Equity, and CR5 - User creates ISIN for Commodities. The CR3 node is expanded. In the center, there is a "Test Runner" section with a "Create" button and a "Stop Test" button. Below this, there is a list of test steps:

- Test Name: A new ISIN is requested for Commodity
- Objective: Client submits a Security Definition Request with OTC product definitions for a Commodity for which the client gets a new ISIN
- Please send a Security Definition Request (35=c) to create a new ISIN for a Commodity

The last step is highlighted with a yellow background.

The following is a snapshot of the SecurityDefinitionRequest message (35=c) in the FIX log.

```
8=FIXT.1.1^A9=469^A35=c^A34=3^A49=SenderCompID^A50=SenderSubID^A52=20170929-
07:40:08.516^A56=TargetCompID^A57=TargetSubID^A55=[N/A]^A320=DREQ1^A321=1^A1184=355
^A1185={

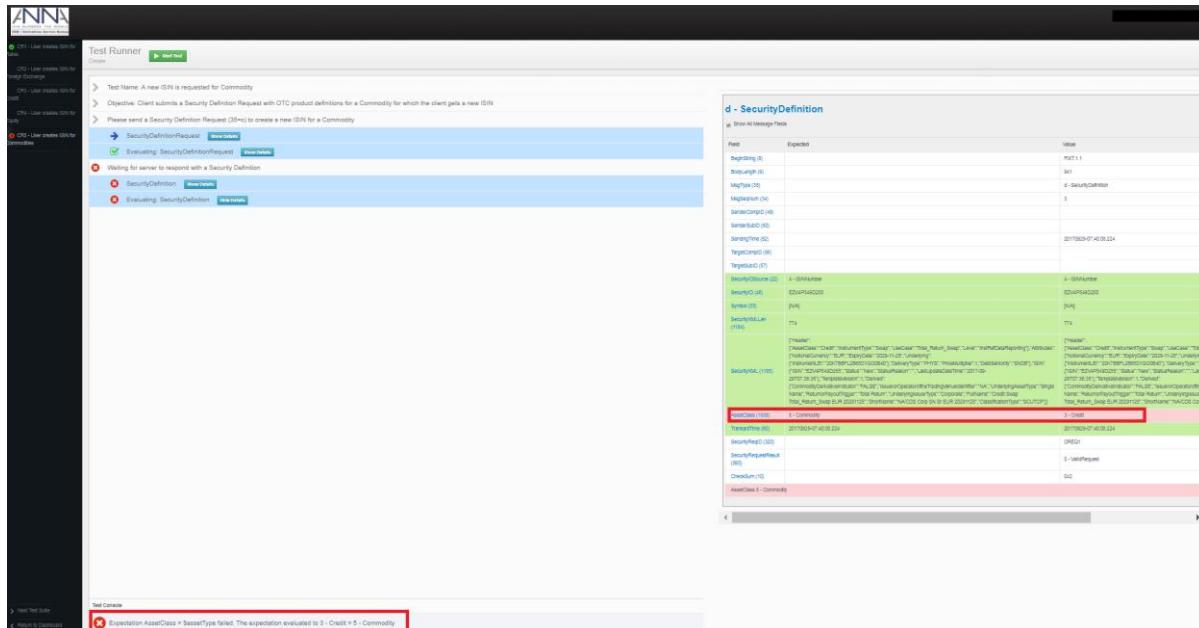
  "Header": {
    "AssetClass": "Credit",
    "InstrumentType": "Swap",
    "UseCase": "Total_Return_Swap",
    "Level": "InstRefDataReporting"
  },
  "Attributes": {
    "NotionalCurrency": "EUR",
    "ExpiryDate": "2029-11-25",
    "Underlying": {
      "InstrumentLEI": "20K7BBFL2B65D1GO0B40"
    }
  }
}
```

```

}
} ^A10=094^A

```

Asset Type failed due to asset class mismatch. The FIX Conductor was expecting for Commodity but ISIN for Credit asset class was created.

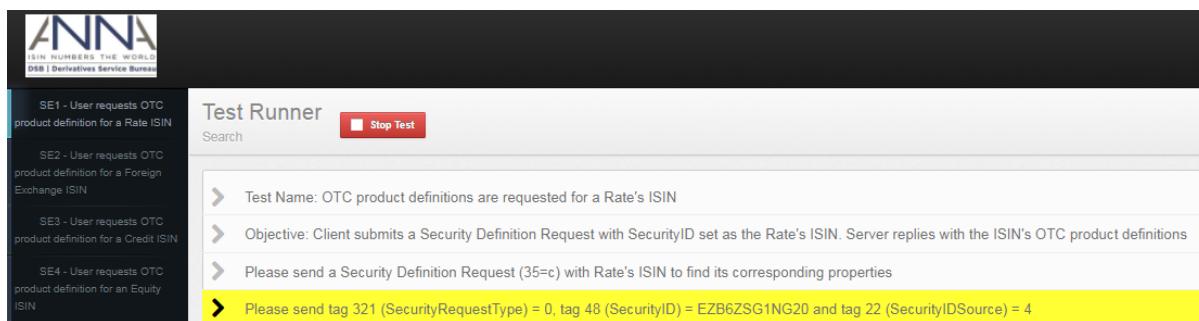


3.3.3 Search ISIN

Client submits an ISIN per asset class to request the OTC product definition for an ISIN.

CASE 1: Test Passed

The client needs to send the ISIN provided in the FIX Conductor.



The following is a sample of a SecurityDefinitionRequest message (35=c) having an ISIN.

```

8=FIXT.1.1^A9=112^A35=c^A34=17^A49=SenderCompID^A50=SenderSubID^A52=20170929-
07:47:04.454^A56=TargetCompID^A57=TargetSubID^A22=4^A48=EZB6ZSG1NG20^A320=DREQ2^A32
1=0^A10=111^A

```

The FIX Conductor will check for the Security Definition Request (35=c).

The screenshot shows the ANNA Test Runner interface with a successful test run. The left sidebar lists various test cases, and the main area displays the execution details for a specific test.

Test Runner

Search

Test Name: OTC product definitions are requested for a Rate's ISIN

Objective: Client submits a Security Definition Request with SecurityID set as the Rate's ISIN. Server replies with the ISIN's OTC product definitions

Please send a Security Definition Request (35c) with Rate's ISIN to find its corresponding properties

Please send tag 321 (SecurityRequestType) = 0, tag 46 (SecurityID) = F21025510048 and tag 22 (SecurityIDSource) = 4

Evaluating: SecurityDefinitionRequest [Show Details]

Evaluating: SecurityDefinition [Show Details]

Evaluating: SecurityDefinition [Show Details]

Evaluating: SecurityDefinition [Show Details]

Waiting for server to respond with a Security Definition

↳ SecurityDefinition [Show Details]

↳ SecurityDefinition [Show Details]

Is the asset class received equal to 1 (Interest Rates)? [Yes] [No]

Waiting for a heartbeat

↳ Heartbeat [Show Details]

Test passed!

c - SecurityDefinitionRequest

Show All Message Fields

Field	Expected	Value
BeginText (5)	FIXT.1	FIXT.1
BeginLength (9)	112	112
MsgType (35)	a - SecurityDefinitionRequest	
MsgSeqNum (34)	17	
SendToComp (49)		
SendingTime (52)	20170629-07:47:04.454	
TargetComp (55)		
TargetFileID (57)		
SecuritySource (22)	4 - ISINNumber	
SecurityID (46)	E29ECD019C20	
SecurityReqID (300)	DR02	DR02
SecurityReqType (321)	0 - RequestSecurityIdentityAndSpecifications	0 - RequestSecurityIdentityAndSpecifications
Checksum (15)	111	111
SecurityRequestType		

Test Console

The test passed

The FIX Conductor will wait for the server to respond with a Security Definition (35=d).

```
8=FIXT.1.1^A9=1028^A35=d^A34=17^A49=TargetCompID^A50=TargetSubID^A52=20170929-
07:47:04.155^A56=SenderCompID^A57=SenderSubID^A22=4^A48=EZB6ZSG1NG20^A55=[N/A]^A60=
20170929-
07:47:04.155^A320=DREQ2^A560=0^A1184=860^A1185={"Header":{"AssetClass":"Rates","In-
strumentType":"Swap","UseCase":"Inflation_Fixed_Float_YoY","Level":"InstRefDataRepor-
ting"},"Attributes":{"NotionalCurrency":"EUR","ExpiryDate":"2261-07-
25","ReferenceRate":"DEM-CPI-NRW","ReferenceRateTermValue":-
604,"ReferenceRateTermUnit":"YEAR","NotionalSchedule":"Accreting","DeliveryType":"C-
ASH","PriceMultiplier":1},"ISIN":{"ISIN":"EZB6ZSG1NG20","Status":"New","StatusReaso-
n":"","LastUpdateDateTime":"2017-08-
26T16:43:54"}, "TemplateVersion":1,"Derived":{"ISOReferenceRate":"DEM-CPI-
NRW","CommodityDerivativeIndicator":false,"UnderlyingAssetType":"Inflation Rate
Index","SingleorMultiCurrency":"Single
Currency","IssuerorOperatoroftheTradingVenueIdentifier":"NA","FullName":"Rates Swap
Inflation_Fixed_Float_YoY DEM-CPI-NRW -604 YEAR 22610725","ShortName":"NA/Swap Infl
Idx EUR 22610725","ClassificationType":"SRGISC"} } } ^A1938=1^A10=011^A
```

Client can verify the product definition on the SecurityDefinition details in the FIX Conductor. The test passed since the asset class of the ISIN submitted matched the expected asset class.

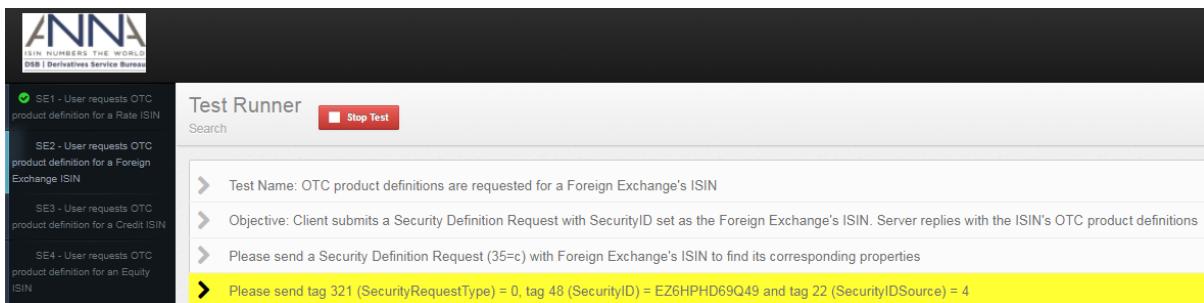
d - SecurityDefinition

Show All Message Fields

Field	Expected	Value
BeginString (8)		FIXT.1.1
BodyLength (9)		1028
MsgType (35)		d - SecurityDefinition
MsgSeqNum (34)		17
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170929-07:47:04.155
TargetCompID (56)		
TargetSubID (57)		
SecurityIDSource (22)	4	4
SecurityID (48)	EZB6ZSG1NG20	EZB6ZSG1NG20
Symbol (55)		[N/A]
SecurityXMLLen (1184)		860
SecurityXML (1185)		{"Header":{"AssetClass":"Rates","InstrumentType":"Swap","UseCase":"Inflation_Fixed_Float_YoY","Level":1}, {"NotionalCurrency":"EUR","ExpiryDate":"2261-07-25","ReferenceRateID":"DEM-CPI-NRW"}, {"ReferenceRateTermValue":-604,"ReferenceRateTermUnit":"YEAR"}, {"NotionalSchedule":"Accreting"}, {"ISIN":"EZB6ZSG1NG20"}, {"Status":"New"}, {"StatusReason":""}, {"LastUpdateDateTime":"2017-08-26T16:43:54"}, {"ISOReferenceRateID":"DEM-CPI-NRW"}, {"CommodityDerivativeIndicator":false}, {"UnderlyingAssetType": "Index"}, {"SingleOrMultiCurrency": "Single Currency"}, {"IssuerOrOperatorOfTheTradingVenueIdentifier": "NA"}, {"FullN": "DEM-CPI-NRW -604 YEAR 22610725"}, {"ShortName": "NA/Swap Infl Idx EUR 22610725"}, {"ClassificationType": "1 - Interest Rate"}
AssetClass (1938)		1 - Interest Rate
TransactTime (60)		20170929-07:47:04.155
SecurityReqID (320)		DREQ2
SecurityRequestResult (320)		0 - ValidRequest

CASE 2: Test Failed

Client inputs an ISIN except the Security ID listed in the FIX Conductor.



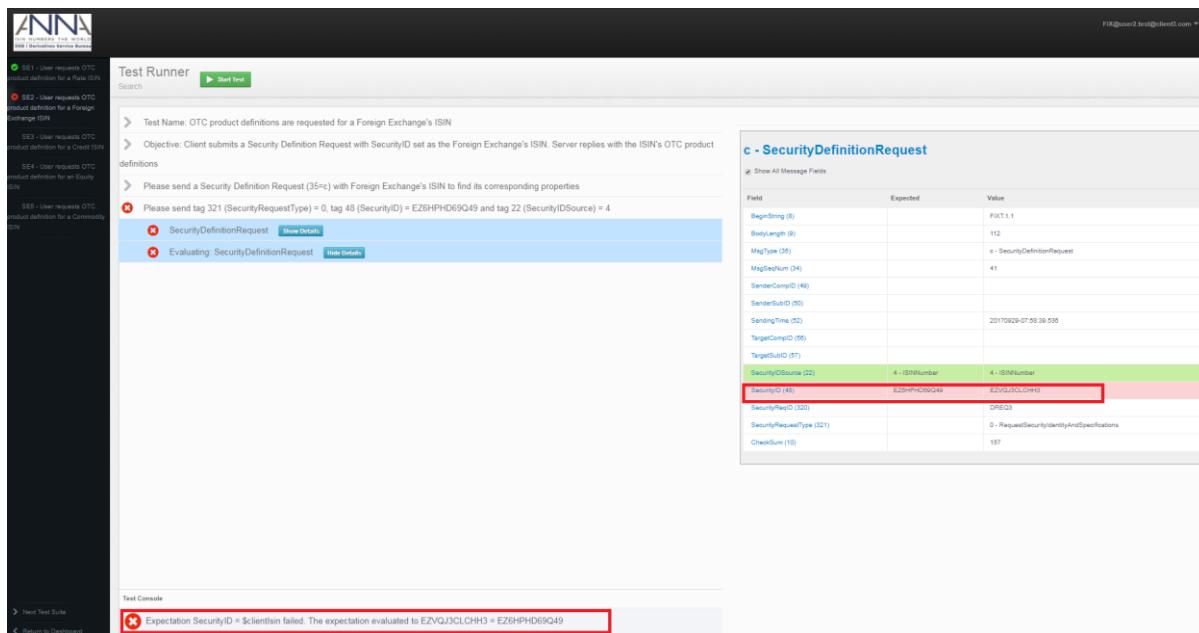
The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists four test steps: SE1, SE2, SE3, and SE4. SE1 is marked as completed (green). The main area is titled 'Test Runner' and contains a 'Stop Test' button. Below it, a list of test steps is shown:

- Test Name: OTC product definitions are requested for a Foreign Exchange's ISIN
- Objective: Client submits a Security Definition Request with SecurityID set as the Foreign Exchange's ISIN. Server replies with the ISIN's OTC product definitions
- Please send a Security Definition Request (35=c) with Foreign Exchange's ISIN to find its corresponding properties
- Please send tag 321 (SecurityRequestType) = 0, tag 48 (SecurityID) = EZ6PHHD69Q49 and tag 22 (SecurityIDSource) = 4** (highlighted in yellow)

The following is a sample of a SecurityDefinitionRequest message (35=c) having an ISIN.

```
8=FIXT.1.1^A9=112^A35=c^A34=41^A49=SenderCompID^A50=SenderSubID^A52=20170929-
07:58:39.536^A56=TargetCompID^A57=TargetSubID^A22=4^A48=EZVQJ3CLCH3^A320=DREQ3^A32
1=0^A10=157^A
```

The Test failed due to security ID did not match.



The screenshot shows the ANNA Test Runner interface. On the left, there's a sidebar with several test cases listed:

- SU1 - User requests OTC product definition for a Rate ISIN
- SU2 - User requests OTC product definition for a Foreign Exchange ISIN
- SU3 - User requests OTC product definition for a Credit ISIN
- SU4 - User requests OTC product definition for an Equity ISIN
- SU5 - User requests OTC product definition for a Commodity ISIN

The main area is titled "Test Runner" and has a "Start Test" button. Below it is a search bar. The central part shows a tree view of test steps:

- Test Name: OTC product definitions are requested for a Foreign Exchange's ISIN
- Objective: Client submits a Security Definition Request with SecurityID set as the Foreign Exchange's ISIN. Server replies with the ISIN's OTC product definitions
- Please send a Security Definition Request (35=c) with Foreign Exchange's ISIN to find its corresponding properties
- Please send tag 321 (SecurityRequestType) = 0, tag 48 (SecurityID) = EZBPHD69Q49 and tag 22 (SecurityIDSource) = 4

Details for the last step are shown in a table:

c - SecurityDefinitionRequest		
Show All Message Fields		
Field	Expected	Value
BeginString (8)	FIXT.1	
BodyLength (9)	112	
MsgType (8)	e - SecurityDefinitionRequest	
MsgSeqNum (24)	41	
SenderCompID (48)		
SenderSubID (50)		
SendingTime (52)	20170929-07:59:39.030	
TargetCompID (55)		
TargetSubID (57)		
SecurityIDSource (22)	4 - ISINNumber	4 - ISINNumber
SecurityID (48)	EZBPHD69Q49	EZBPHD69Q49
SecurityListID (32)	DRE023	DRE023
SecurityRequestType (32)	0 - RequestSecurityIdentityAndSpecifications	0 - RequestSecurityIdentityAndSpecifications
Checksum (10)	187	187

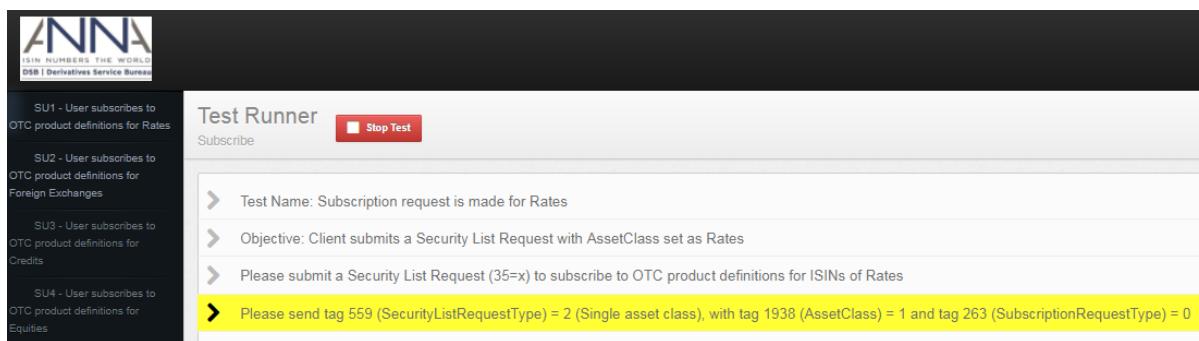
At the bottom, there's a "Text Console" section with a red box highlighting an error message: "Expectation SecurityID = \$clientian failed. The expectation evaluated to EZVQJ3CLCH3 = EZBPHD69Q49".

3.3.4 Subscribe

Client needs to subscribe to Asset Class and send SubscriptionRequestType listed in the FIX Conductor.

CASE 1: Test Passed

Client should subscribe to Rates Asset Class (1938=1) and send SubscriptionRequestType (263=0).



The screenshot shows the ANNA Test Runner interface. On the left, there's a sidebar with several test cases listed:

- SU1 - User subscribes to OTC product definitions for Rates
- SU2 - User subscribes to OTC product definitions for Foreign Exchanges
- SU3 - User subscribes to OTC product definitions for Credits
- SU4 - User subscribes to OTC product definitions for Equities

The main area is titled "Test Runner" and has a "Stop Test" button. Below it is a search bar. The central part shows a tree view of test steps:

- Test Name: Subscription request is made for Rates
- Objective: Client submits a Security List Request with AssetClass set as Rates
- Please submit a Security List Request (35=x) to subscribe to OTC product definitions for ISINs of Rates
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 1 and tag 263 (SubscriptionRequestType) = 0

The table below provides an explanation of the sample content:

Name	Data Type	Tag	Rq	Description
SecurityListRequestType	Int	559	Y	2= Product: Filter the request to products of a single asset class 4 = All Securities (that were created today, i.e. since midnight).
AssetClass	String	1938	N	Filter the request to products of a single asset class 1 = Interest rate 2 = Currency (Foreign Exchange) 3 = Credit 4 = Equity 5 = Commodity
SubscriptionRequestType	Char	263	Y	0 = Snapshot 1 = Snapshot + updates 2 = Unsubscribe

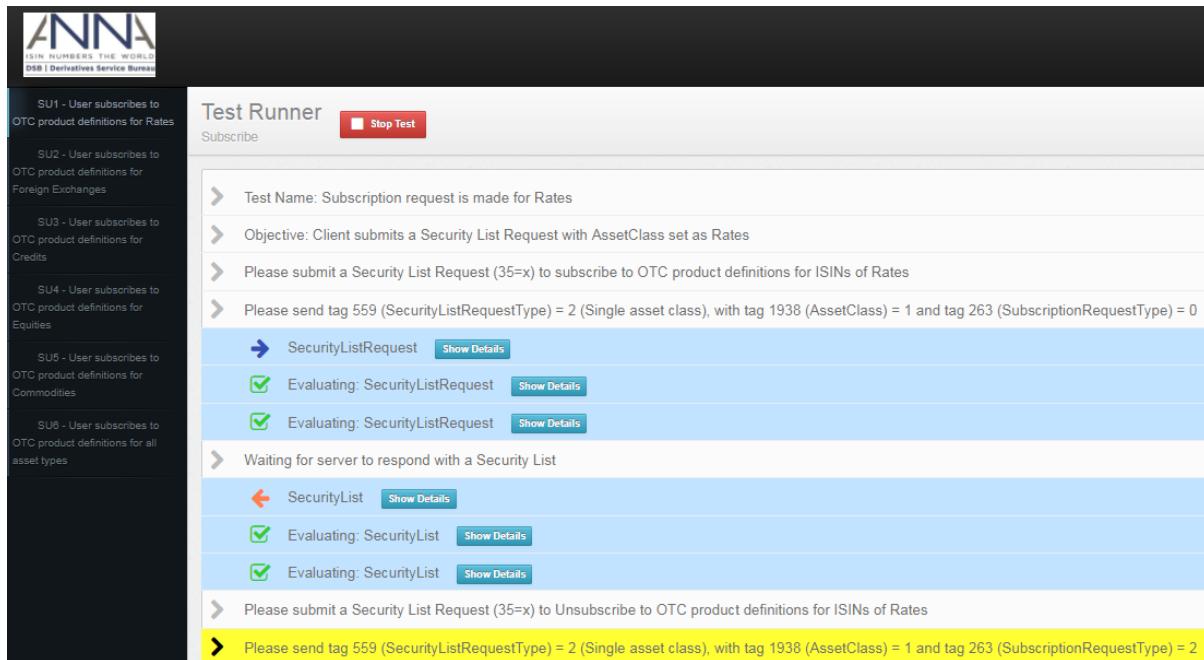
The following is a sample of a SecurityListRequest message (35=x). The request is for a snapshot of Rates asset class.

8=FIXT.1.1^A9=104^A35=x^A34=54^A49=SenderCompID^A50=SenderSubID^A52=20170929-
 08:04:19.018^A56=TargetCompID^A57=TargetSubID^A263=0^A320=LREQ7^A559=2^A1938=1^A10=
 056^A

The following is a sample of a SecurityList message (35=y).

```
8=FIXT.1.1^A9=629778^A35=y^A34=65^A49=TargetCompID^A50=TargetSubID^A52=20170929-
08:04:20.574^A56=SenderCompID^A57=SenderSubID^A60=20170929-
08:04:20.568^A320=LREQ7^A393=716^A560=0^A146=716^A55=[N/A]^A48=EZ3K13MY0S
41^A22=4^A1938=1^A1184=988^A1185={"Header":{"AssetClass":"Rates","InstrumentType":"Swap","UseCase":"Basis","Level":"InstRefDataReporting"},"Attributes":{"NotionalCurrency":"USD","OtherLegReferenceRateTermUnit":"Mnth","ExpiryDate":"2017-09-28","NotionalSchedule":"Constant","ReferenceRateTermValue":3,"OtherLegReferenceRateTermValue":6,"ReferenceRate":"USD-LIBOR-BBA","ReferenceRateTermUnit":"Mnth","OtherLegReferenceRate":"USD-LIBOR-BBA","DeliveryType":"PHYS","PriceMultiplier":1},"ISIN":{"ISIN":"EZ3K13MY0S41","Status":"Expired","StatusReason":"","LastUpdateDateTime":"2017-09-29T00:16:54"}, "TemplateVersion":1,"Derived":{"ISOReferenceRate":"LIBO","ISOOtherLegReferenceRate":"LIBO","CommodityDerivativeIndicator":false,"UnderlyingAssetType":"Basis Swap (Float - Float)","SingleorMultiCurrency":"Single Currency","IssuerorOperatoroftheTradingVenueIdentifier":"NA","FullName":"Rates Swap Basis USD-LIBOR-BBA 3 Mnth USD-LIBOR-BBA 6 Mnth 20170928","ShortName":"NA/Swap Flt Flt USD 20170928","ClassificationType":"SRACSP"} }^A55=[N/A]^A48=EZ27KTJ0TR86^A22=4^A1938=1^A1184=837^A1185={"Header":{"AssetClass":"Rates","InstrumentType":"Swap","UseCase":"Fixed_Float_Zero_Coupon","Level":"InstRefDataReporting"},"Attributes":{"ReferenceRate":"GBP-LIBOR-BBA","ExpiryDate":"2049-04-01","NotionalCurrency":"GBP","NotionalSchedule":"Constant","ReferenceRateTermValue":6,"ReferenceRateTermUnit":"Mnth","DeliveryType":"PHYS","PriceMultiplier":1},"ISIN":{"ISIN":"EZ27KTJ0TR86","Status":"New","StatusReason":"","LastUpdateDateTime":<Truncated>}}
```

Client needs to Unsubscribe (SubscriptionRequestType 263=2) to OTC product definition for Rates to proceed on the next test case.



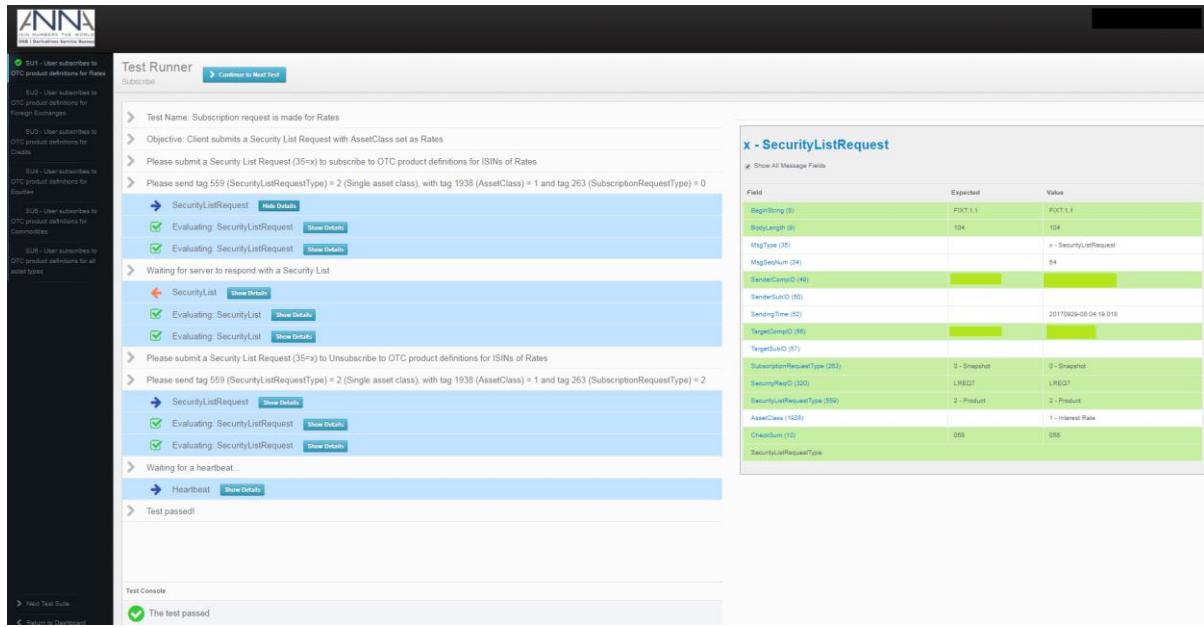
The screenshot shows the ANNA Test Runner interface. On the left, there is a sidebar with various subscription rules (SU1-SU6). The main area shows a test run with the following steps:

- Test Name: Subscription request is made for Rates
- Objective: Client submits a Security List Request with AssetClass set as Rates
- Please submit a Security List Request (35=x) to subscribe to OTC product definitions for ISINs of Rates
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 1 and tag 263 (SubscriptionRequestType) = 0
- SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Waiting for server to respond with a Security List
- SecurityList** (Status: Evaluating)
- Evaluating: SecurityList** (Status: Evaluating)
- Evaluating: SecurityList** (Status: Evaluating)
- Please submit a Security List Request (35=x) to Unsubscribe to OTC product definitions for ISINs of Rates
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 1 and tag 263 (SubscriptionRequestType) = 2

The following is a sample of a **SecurityListRequest** message (35=x) with **SubscriptionRequestType** (263=2).

```
8=FIXT.1.1^A9=104^A35=x^A34=55^A49=SenderCompID^A50=SenderSubID^A52=20170929-
08:04:47.926^A56=TargetCompID^A57=TargetSubID^A263=2^A320=LREQ8^A559=2^A1938=1^A10=
069^A
```

The Test Console shows that the test passed.



The screenshot shows the ANNA Test Runner interface. On the left, there is a sidebar with various subscription rules (SU1-SU6). The main area shows a test run with the following steps:

- Test Name: Subscription request is made for Rates
- Objective: Client submits a Security List Request with AssetClass set as Rates
- Please submit a Security List Request (35=x) to subscribe to OTC product definitions for ISINs of Rates
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 1 and tag 263 (SubscriptionRequestType) = 0
- SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Waiting for server to respond with a Security List
- SecurityList** (Status: Evaluating)
- Evaluating: SecurityList** (Status: Evaluating)
- Evaluating: SecurityList** (Status: Evaluating)
- Please submit a Security List Request (35=x) to Unsubscribe to OTC product definitions for ISINs of Rates
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 1 and tag 263 (SubscriptionRequestType) = 2
- SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Evaluating: SecurityListRequest** (Status: Evaluating)
- Waiting for a heartbeat...
- Heartbeat** (Status: Evaluating)
- Test passed!

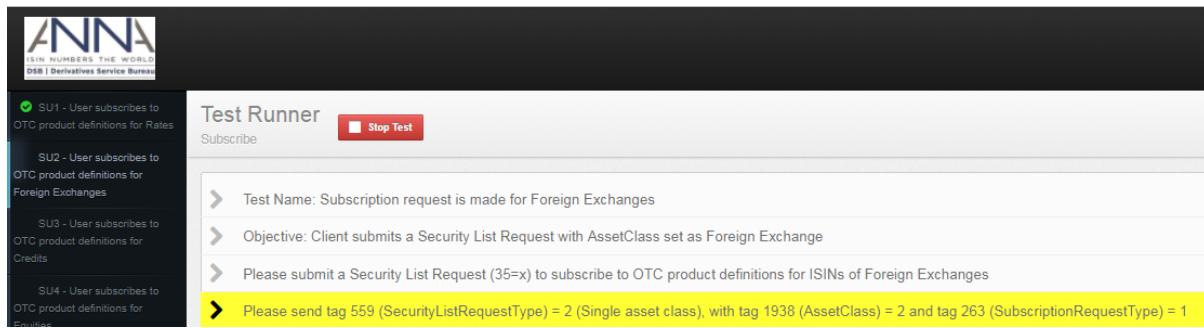
On the right, there is a detailed view of the **x - SecurityListRequest** message with its fields:

Field	Expected	Value
Beginning (5)	FIXT.1	FIXT.1
BodyLength (8)	104	104
MsgType (5)		x - SecurityListRequest
MsgSeqNum (4)		54
SenderCompID (16)		
SenderSubID (8)		
SendingTime (22)		20170929-08:04:19.018
TargetCompID (8)		
TargetSubID (8)		
SubscriptionRequestType (20)	0 - Snapshot	0 - Snapshot
SecurityRequest (20)	LREQ8	LREQ8
SecurityListRequestType (16)	2 - Product	2 - Product
AssetClass (128)		1 - Interest Rate
ClassDetail (16)	000	000
SecurityListRequestType		

CASE 2: Test Failed

If the Client subscribes to any Asset Class that is not requested by the FIX Conductor, the test will fail.

In this example, the client should send Foreign Exchange Asset Class (1938=2) with Snapshot +Updates SubscriptionRequestType (263=1).



The screenshot shows the ANNA Test Runner interface. On the left, there's a sidebar with several test cases listed:

- SU1 - User subscribes to OTC product definitions for Rates
- SU2 - User subscribes to OTC product definitions for Foreign Exchanges
- SU3 - User subscribes to OTC product definitions for Credits
- SU4 - User subscribes to OTC product definitions for Equities

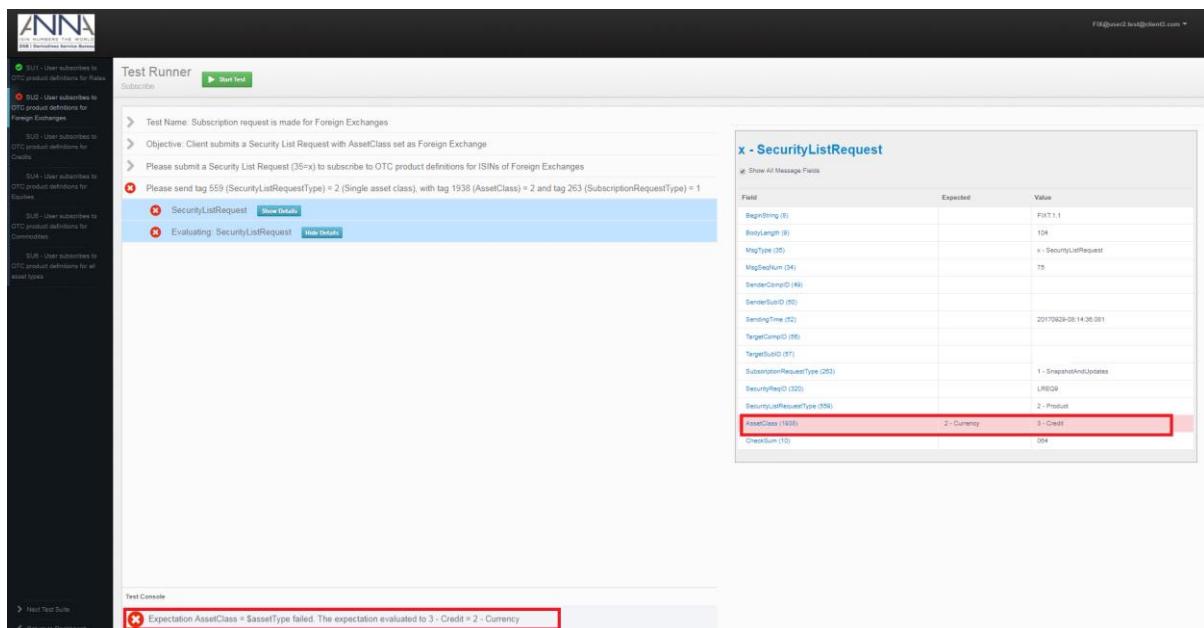
The main area is titled "Test Runner" and has a "Subscribe" button and a "Stop Test" button. Below these are the steps of the test case:

- Test Name: Subscription request is made for Foreign Exchanges
- Objective: Client submits a Security List Request with AssetClass set as Foreign Exchange
- Please submit a Security List Request (35=x) to subscribe to OTC product definitions for ISINs of Foreign Exchanges
- Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 2 and tag 263 (SubscriptionRequestType) = 1**

The following is a sample of a **SecurityListRequest** message (35=x) with tag 1938=3 (Credit) and 263=1 (Snapshot+Updates).

```
8=FIXT.1.1^A9=104^A35=x^A34=75^A49=SenderCompID^A50=SenderSubID^A52=20170929-
08:14:36.081^A56=TargetCompID^A57=TargetSubID^A263=1^A320=LREQ9^A559=2^A1938=3^A10=
064^A
```

The Test Console shows that the test failed due to AssetClass mismatch.



The screenshot shows the ANNA Test Console interface. On the left, the same sidebar of test cases is visible. The main area shows the test runner results for the "Subscription request is made for Foreign Exchanges" test case. The "Evaluate" section shows two entries:

- SecurityListRequest [Show Details]
- Evaluating: SecurityListRequest [Hide Details]

To the right, a detailed view of the "x - SecurityListRequest" message is shown in a table:

Field	Expected	Value
BeginString (5)	FIXT.1.1	
BodyLength (6)	104	
MsgType (5)	x - SecurityListRequest	
MsgSeqNum (14)	75	
SenderCompID (46)		
SenderSubID (50)		
SendingTime (52)	20170929-08:14:36.081	
TargetCompID (56)		
TargetSubID (57)		
SubscriptionRequestType (251)	1 - SnapshotAndUpdates	
SecurityType (221)	LREQ9	
SecurityListRequestType (255)	2 - Product	
AssetClass (100)	2 - Currency	3 - Credit
CreditType (15)	064	

At the bottom of the console, a red box highlights an error message: "Expectation AssetClass = \$assetType failed. The expectation evaluated to 3 - Credit > 2 - Currency".

x - SecurityListRequest

Show All Message Fields

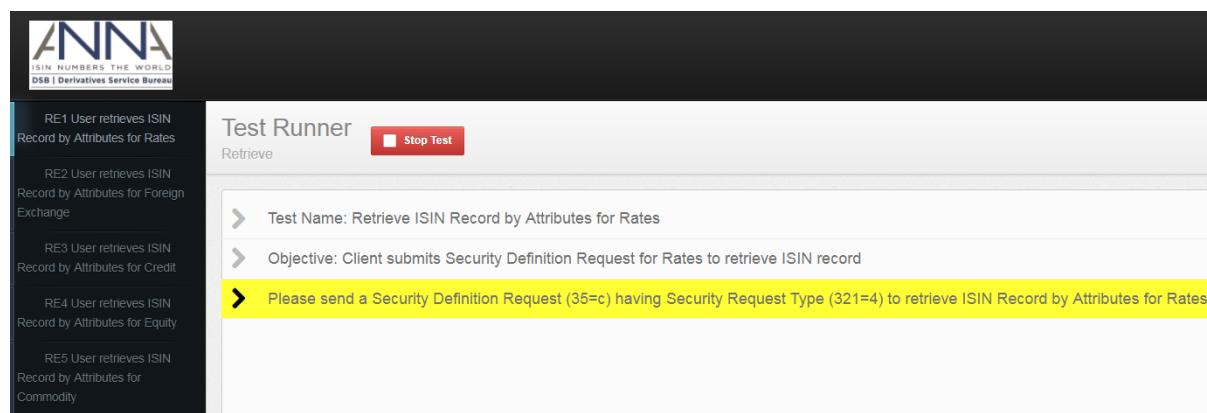
Field	Expected	Value
BeginString (8)		FIXT.1.1
BodyLength (9)		104
MsgType (35)		x - SecurityListRequest
MsgSeqNum (34)		75
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170929-08:14:36.081
TargetCompID (56)		
TargetSubID (57)		
SubscriptionRequestType (283)		1 - SnapshotAndUpdates
SecurityReqID (320)		LREQ9
SecurityListRequestType (559)		2 - Product
AssetClass (1938)	2 - Currency	3 - Credit
CheckSum (10)		064

3.3.5 Retrieve

The client can retrieve ISIN record by attributes to return the existing record if the ISIN record already exists.

CASE 1: Test Passed

The FIX Conductor will request client to send Security Definition Request (35=c) having Security Request Type (321=4) for the specific asset class.



The screenshot shows the ANNA Test Runner interface. On the left, there's a sidebar with five test cases: RE1, RE2, RE3, RE4, and RE5. RE4 is highlighted with a yellow background. The main area shows a test named "Test Name: Retrieve ISIN Record by Attributes for Rates". The objective is "Client submits Security Definition Request for Rates to retrieve ISIN record". A note at the bottom says "Please send a Security Definition Request (35=c) having Security Request Type (321=4) to retrieve ISIN Record by Attributes for Rates".

The following is a snapshot of the SecurityDefinitionRequest message (35=c) having SecurityRequestType (321=4) in the FIX log.

```
8=FIXT.1.1^A9=447^A35=c^A34=96^A49=SenderCompID^A50=SenderSubID^A52=20170929-
08:24:31.579^A56=TargetCompID^A57=TargetSubID^A55=[N/A]^A320=DREQ11^A321=4^A1184=33
1^A1185={

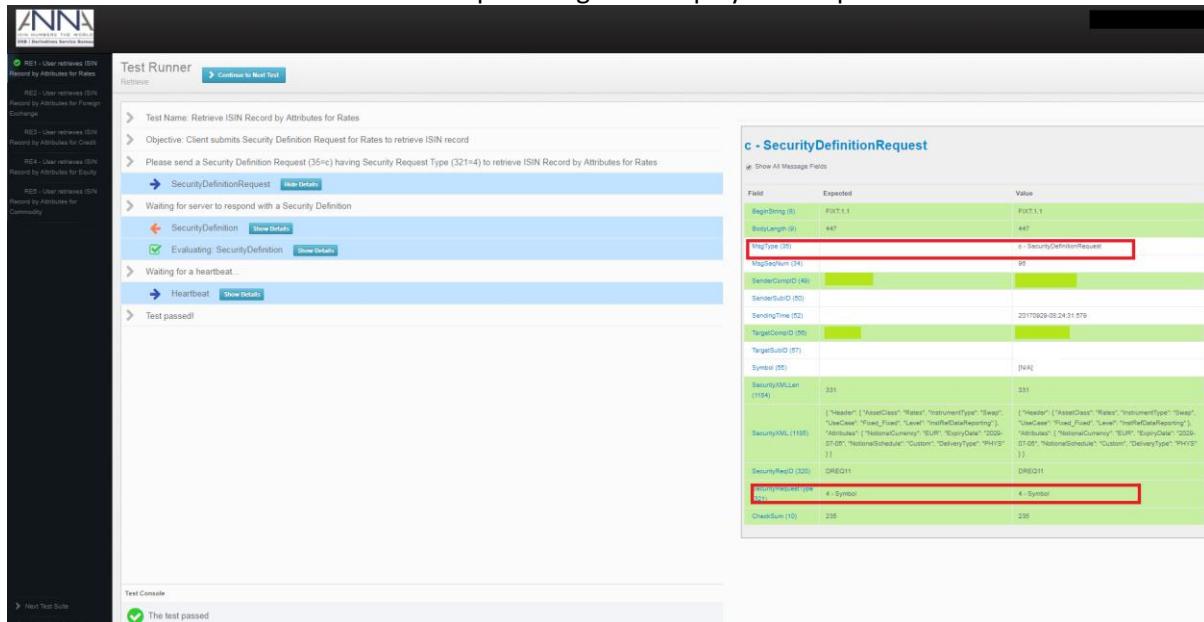
  "Header": {
```

```

    "AssetClass": "Rates",
    "InstrumentType": "Swap",
    "UseCase": "Fixed_Fixed",
    "Level": "InstRefDataReporting"
  },
  "Attributes": {
    "NotionalCurrency": "EUR",
    "ExpiryDate": "2029-07-05",
    "NotionalSchedule": "Custom",
    "DeliveryType": "PHYS"
  }
}
} ^A10=235^A

```

The FIX Conductor will check for the required tags and display the output of the test case.



The screenshot shows the FIX Conductor Test Runner interface. On the left, a sidebar lists several test cases: R01 - User retrieves ISIN Record by Attributes for Rates, R02 - User retrieves ISIN Record by Attributes for Foreign Exchange, R03 - User retrieves ISIN Record by Attributes for Credit, R04 - User retrieves ISIN Record by Attributes for Equity, R05 - User retrieves ISIN Record by Attributes for Commodity. The main area shows a test named "Test Name: Retrieve ISIN Record by Attributes for Rates". It includes steps like "Please send a Security Definition Request (35=c) having Security Request Type (321=4) to retrieve ISIN Record by Attributes for Rates", "SecurityDefinitionRequest", "SecurityDefinition", "Evaluating SecurityDefinition", "Waiting for a heartbeat...", "Heartbeat", and "Test passed!". To the right, a detailed view of the "c - SecurityDefinitionRequest" message is shown in a table format:

Field	Expected	Value
Requesting (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	447	447
MsgType (35)	4 - SecurityDefinitionRequest	4 - SecurityDefinitionRequest
MessageID (14)		95
SenderCompID (48)		
SenderSubID (50)		
SendingTime (52)		20170929-08:24:31.579
TargetCompID (55)		
TargetSubID (57)		
Symbol (59)		[N/A]
SecurityXML (1184)	231	331
SecurityXML (1185)	[Redacted JSON]	[Redacted JSON]
SecurityReqID (320)	DREQ11	DREQ11
CompuSeqNum (384)	4 - Symbol	4 - Symbol
Checksum (10)	238	238

At the bottom, the "Test Console" shows "The test passed!" with a green checkmark icon.

If the request is valid, Security Request Result will display 560=0 and the JSON payload is available in SecurityXML (1185) and it contains a valid ISIN identifier.

```

8=FIXT.1.1^A9=849^A35=d^A34=118^A49=TargetCompID^A50=TargetSubID^A52=20170929-
08:24:31.358^A56=SenderCompID^A57=SenderSubID^A22=4^A48=EZVM8R4T037^A55=[N/A] ^A60=
20170929-08:24:31.358^A320=DREQ11^A560=0^A1184=679

```

```

^A1185={"Header":{"AssetClass":"Rates","InstrumentType":"Swap","UseCase":"Fixed_Fixed","Level":"InstRefDataReporting"},"Attributes":{"NotionalCurrency":"EUR","ExpiryDate":"2029-07-05","NotionalSchedule":"Custom","DeliveryType":"PHYS","PriceMultiplier":1},"ISIN": {"ISIN":"EZVM8R4T037","Status":"New","StatusReason":"","LastUpdateDateTime":"2017-09-29T06:51:01"}, "TemplateVersion":1,"Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed - Fixed", "SingleorMultiCurrency": "Single Currency", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_Fixed EUR 20290705", "ShortName": "NA/Swap Fxd Fxd EUR 20290705", "ClassificationType": "SRDYS"} }^A1938=1^A10=217^A

```

In case JSON payload is available in SecurityXML (1185) yet the ISIN identifier is empty, the Security Request Result will display 560=2 which is no instruments found that match the selection criteria. Other attributes like the CFI and FISN are populated.

```

8=FIX.4.4^A9=835^A35=d^A34=233^A49=TargetCompID^A50=TargetSubID^A52=20170831-
09:46:05.299^A56=SenderCompID^A57=SenderSubID^A55=[N/A]^A60=20170831-
09:46:05.299^A320=DREQ13^A560=2^A1184=687^A1185={"Header": {"AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2389-07-22", "NotionalSchedule": "Accreting", "PriceMultiplier": 17057482.674599454, "DeliveryType": "PHYS"}, "ISIN": {"ISIN": ""}, "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-08-31T09:46:05"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed_Fixed", "SingleorMultiCurrency": "Single", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_Fixed EUR 23890722", "ShortName": "NA/Swap Fxd Fxd EUR 23890722", "ClassificationType": "SRDISP"} }^A1938=1^A10=015^A

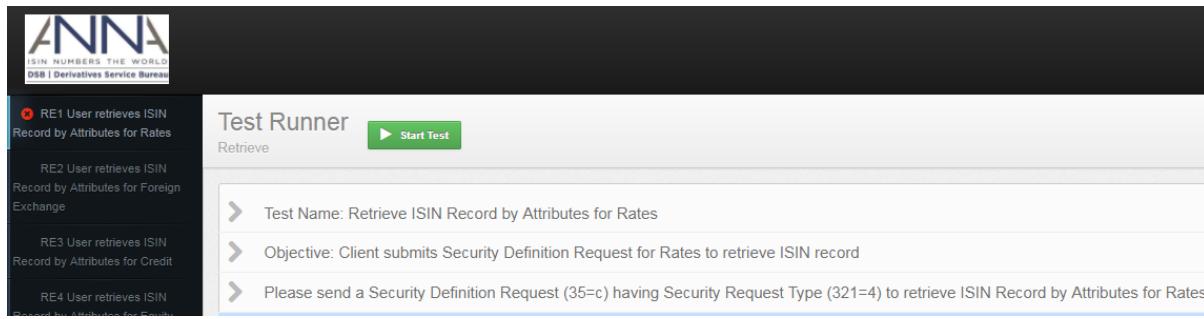
```

The FIX Conductor will display the details of the Security Definition (35=d) message.

d - SecurityDefinition		
Field	Expected	Value
BeginString (8)	FIX.4.4	FIX.4.4
BodyLength (9)	835	835
MsgType (35)		d - SecurityDefinition
MsgSeqNum (34)		233
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170831-09:46:05.299
TargetCompID (56)		
TargetSubID (57)		
Symbol (55)		[N/A]
SecurityXMLLen (1184)		687
SecurityXML (1185)		{"Header": {"AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2389-07-22", "NotionalSchedule": "Accreting", "PriceMultiplier": 17057482.674599454, "DeliveryType": "PHYS"}, "ISIN": {"ISIN": ""}, "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-08-31T09:46:05"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed_Fixed", "SingleorMultiCurrency": "Single", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_Fixed EUR 23890722", "ShortName": "NA/Swap Fxd Fxd EUR 23890722", "ClassificationType": "SRDISP"} }
AssetClass (1938)		1 - Interest Rate
TransactTime (60)		20170831-09:46:05.299
SecurityReqID (320)	DREQ13	DREQ13
SecurityRequestResult (560)	2 - NoInstrumentsFound	2 - NoInstrumentsFound

CASE 2: Test Failed

The test will fail if the client sends a Security Definition Request for a different asset class than the FIX Conductor is expecting or if there are missing tags.



The Test Runner interface shows a test named "Retrieve ISIN Record by Attributes for Rates". The objective is to submit a Security Definition Request for Rates to retrieve an ISIN record. The test details include:

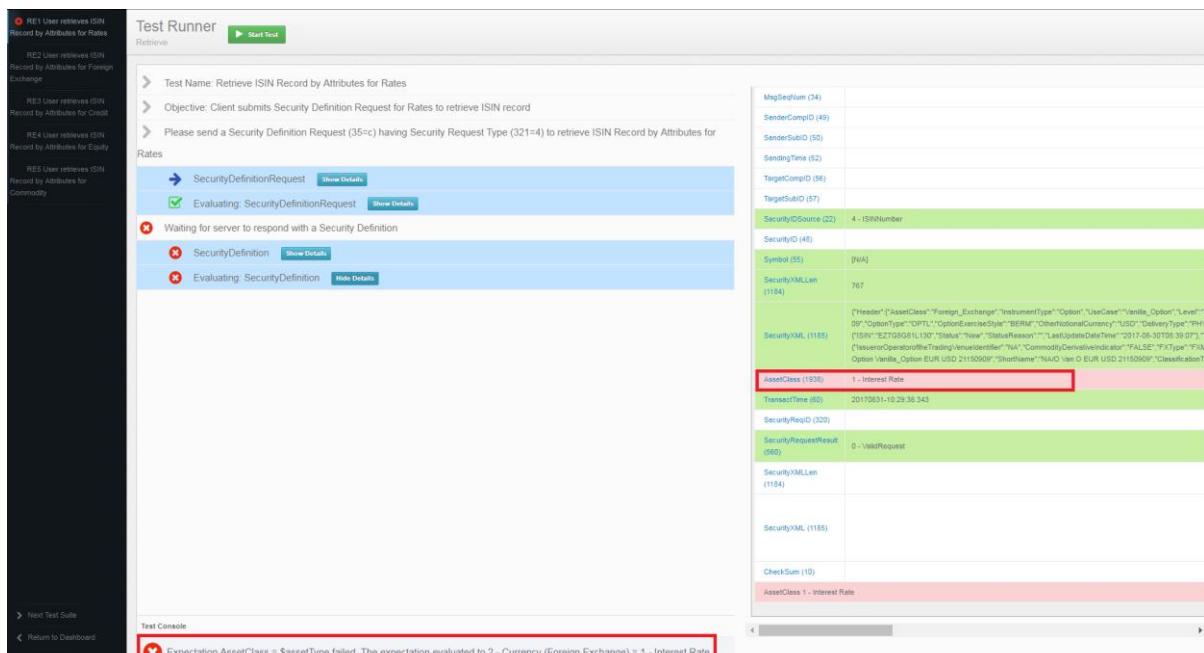
- Test Name: Retrieve ISIN Record by Attributes for Rates
- Objective: Client submits Security Definition Request for Rates to retrieve ISIN record
- Please send a Security Definition Request (35=c) having Security Request Type (321=4) to retrieve ISIN Record by Attributes for Rates

The following is a snapshot of the SecurityDefinitionRequest message (35=c) in the FIX log.

```
8=FIXT.1.1^A9=550^A35=c^A34=115^A49=SenderCompID^A50=SenderSubID^A52=20170929-
08:33:59.165^A56=TargetCompID^A57=TargetSubID^A55=[N/A]^A320=DREQ12^A321=4^A1184=43
3^A1185={

  "Header": {
    "AssetClass": "Foreign_Exchange",
    "InstrumentType": "Option",
    "UseCase": "Vanilla_Option",
    "Level": "InstRefDataReporting"
  },
  "Attributes": {
    "NotionalCurrency": "EUR",
    "ExpiryDate": "2025-05-12",
    "OptionType": "PUTO",
    "OptionExerciseStyle": "BERM",
    "OtherNotionalCurrency": "USD",
    "PriceMultiplier": 11785344.157333411
  }
}^A10=233^A
```

Asset Type failed due to asset class mismatch. The FIX Conductor was expecting for Rates but SecurityDefinitionRequest (35=c) for Foreign Exchange was sent.



The Test Runner interface shows a failed test named "Retrieve ISIN Record by Attributes for Rates". The objective is to submit a Security Definition Request for Rates to retrieve an ISIN record. The test details include:

- Test Name: Retrieve ISIN Record by Attributes for Rates
- Objective: Client submits Security Definition Request for Rates to retrieve ISIN record
- Please send a Security Definition Request (35=c) having Security Request Type (321=4) to retrieve ISIN Record by Attributes for Rates

The status of the test is "Waiting for server to respond with a Security Definition". The results table shows the following fields:

MsgSeqNum (14)	
SenderCompID (48)	
SenderSubID (50)	
SendingTime (52)	
TargetCompID (56)	
TargetSubID (57)	
SecurityDSource (22)	4 - ISINNumber
SecurityID (48)	
Symbol (55)	[N/A]
SecurityXmL (1184)	767
SecurityXmL (1185)	"Header": {"AssetClass": "Foreign_Exchange", "InstrumentType": "Option", "UseCase": "Vanilla_Option", "Level": "09", "OptionType": "OPTI", "OptionExerciseStyle": "BERM", "OtherNotionalCurrency": "USD", "DeliveryType": "PH"}, {"ISIN": "EZTQGB611307", "Status": "New", "StatusReason": "", "LastUpdateDate": "2017-09-30 07:17", "IssuerOrOperatorOrTradingVenueIdentifier": "NA", "CommodityDerivativeIndicator": "FALSE", "FTType": "FXM", "Option_Vanilla_Option_EUR USD 21150309", "ShareName": "NAO Van O EUR USD 21150309", "Classification": "Interest Rate", "AssetClass": "Interest Rate", "SecurityXmL": "20170831-10:29:30.342", "SecurityReqID": "20170831-10:29:30.342", "SecurityRequestResult": "0 - ValidRequest", "SecurityXmL": "767", "CheckSum": "10", "AssetClass": "Interest Rate", "SecurityXmL": "767"}}, {"Header": {"AssetClass": "Interest Rate", "InstrumentType": "Option", "UseCase": "Vanilla_Option", "Level": "09", "OptionType": "OPTI", "OptionExerciseStyle": "BERM", "OtherNotionalCurrency": "USD", "DeliveryType": "PH"}, {"ISIN": "EZTQGB611307", "Status": "New", "StatusReason": "", "LastUpdateDate": "2017-09-30 07:17", "IssuerOrOperatorOrTradingVenueIdentifier": "NA", "CommodityDerivativeIndicator": "FALSE", "FTType": "FXM", "Option_Vanilla_Option_EUR USD 21150309", "ShareName": "NAO Van O EUR USD 21150309", "Classification": "Interest Rate", "AssetClass": "Interest Rate", "SecurityXmL": "20170831-10:29:30.342", "SecurityReqID": "20170831-10:29:30.342", "SecurityRequestResult": "0 - ValidRequest", "SecurityXmL": "767", "CheckSum": "10", "AssetClass": "Interest Rate", "SecurityXmL": "767"}}

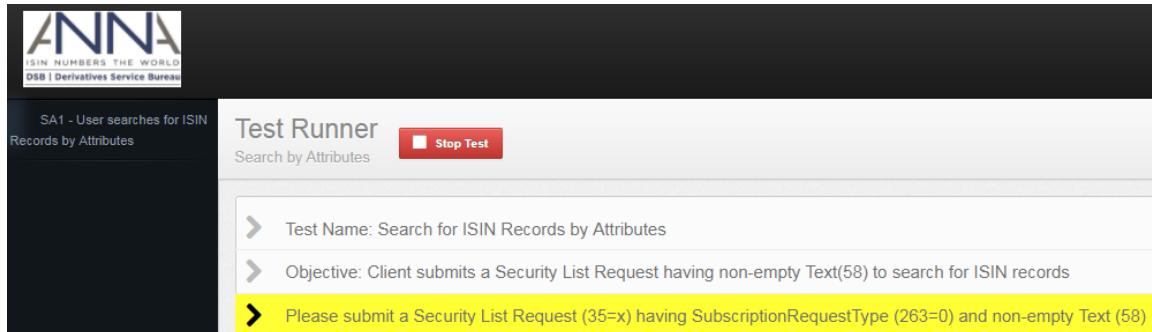
The test console shows the error message: "Expectation AssetClass = \$assetType failed. The expectation evaluated to 2 - Currency (Foreign Exchange) = 1 - Interest Rate".

3.3.6 Search by Attributes

The client can search ISIN records by attributes that match the supplied criteria that is provided in the Text(58) tag.

CASE 1: Test Passed

The FIX Conductor will request client to submit a Security List Request (35=x) having Subscription Request Type (263=0) and non-empty Text (58).

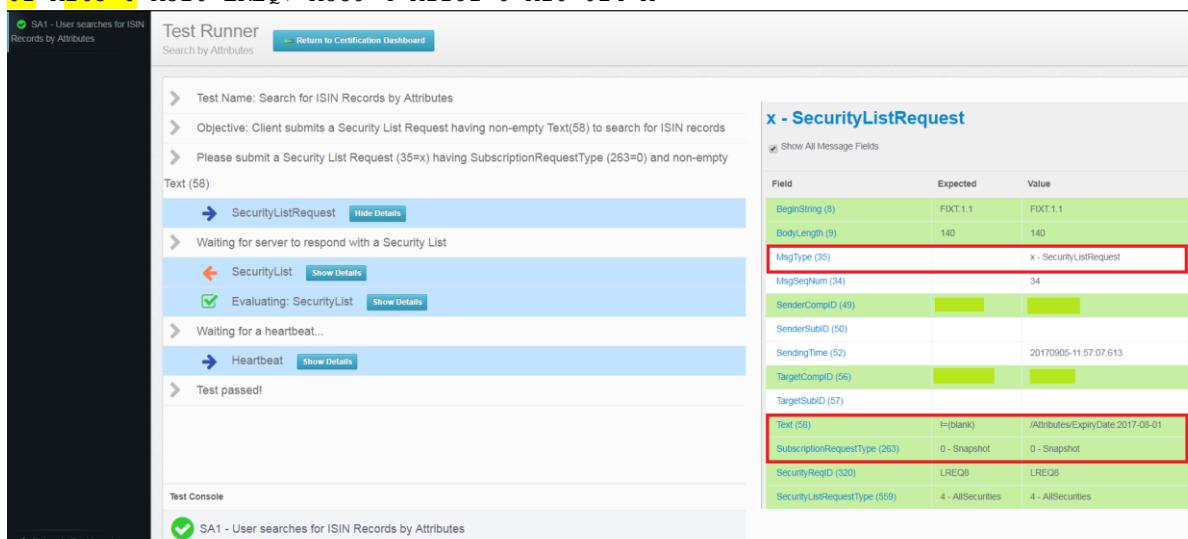


The screenshot shows the ANNA Test Runner interface. The left sidebar displays the message: "SA1 - User searches for ISIN Records by Attributes". The main area has a title "Test Runner" with a "Stop Test" button. Below it, there are three bullet points:

- Test Name: Search for ISIN Records by Attributes
- Objective: Client submits a Security List Request having non-empty Text(58) to search for ISIN records
- Please submit a Security List Request (35=x) having SubscriptionRequestType (263=0) and non-empty Text (58)

The following is a sample of a SecurityListRequest message (35=x) having SubscriptionRequestType (263=0) and non-empty Text (58).

```
8=FIXT.1.1^A9=140^A35=x^A34=23^A49=SenderCompID^A50=SenderSubID^A52=20170905-
11:52:05.415^A56=TargetCompID^A57=TargetSubID^A58=/Attributes/ExpiryDate:2017-08-
01^A263=0^A320=LREQ7^A559=4^A1181=0^A10=024^A
```



The screenshot shows the ANNA Test Runner interface. The left sidebar displays the message: "SA1 - User searches for ISIN Records by Attributes". The main area has a title "Test Runner" with a "Return to Certification Dashboard" button. Below it, there are several status messages:

- Test Name: Search for ISIN Records by Attributes
- Objective: Client submits a Security List Request having non-empty Text(58) to search for ISIN records
- Please submit a Security List Request (35=x) having SubscriptionRequestType (263=0) and non-empty Text (58)
- Waiting for server to respond with a Security List
- Evaluating: SecurityList
- Waiting for a heartbeat...
- Heartbeat
- Test passed!

On the right, there is a detailed view of the "x - SecurityListRequest" message with its fields and expected values:

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	140	140
MsgType (35)	x - SecurityListRequest	
MsgSeqNum (34)	34	
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170905-11:57:07.613
TargetCompID (56)		
TargetSubID (57)		
Text (56)	=blank	/Attributes/ExpiryDate:2017-08-01
SubscriptionRequestType (263)	0 - Snapshot	0 - Snapshot
SecurityReqID (320)	LREQ7	LREQ7
SecurityListRequestType (559)	4 - AllSecurities	4 - AllSecurities

The following is a sample of a SecurityList message (35=y). A valid response contains

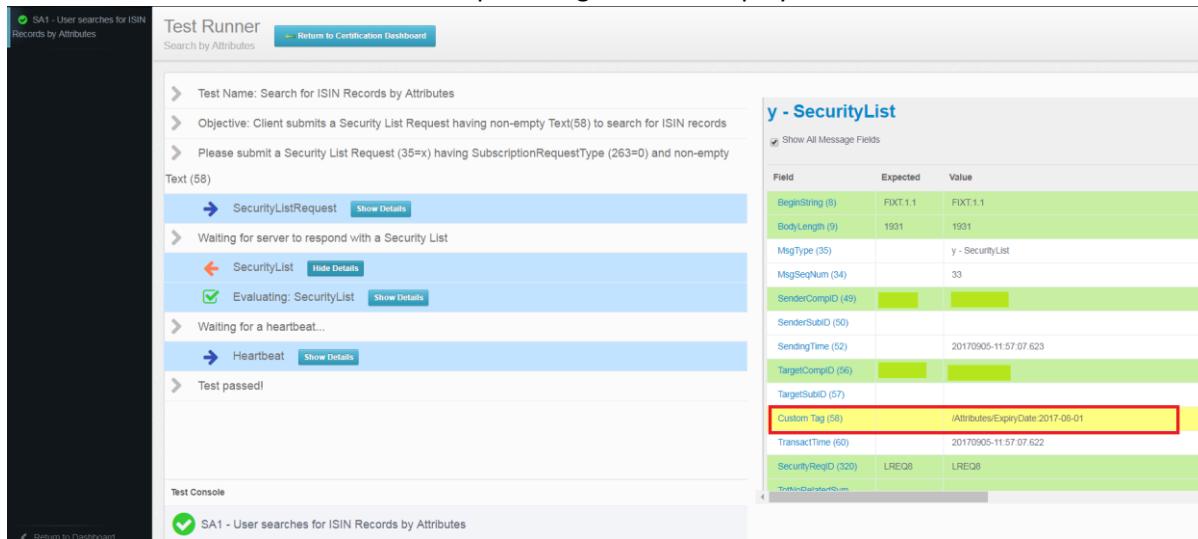
- SecurityRequestResults(560)=Valid Request(0)
- TotNoRelatedSym(393): The total number of ISIN records that matches the search criteria
- NoRelatedSym(146): The number of ISIN records in this message
- ApplSeqNum(1181): as supplied by the user

```
8=FIXT.1.1^A9=1931^A35=y^A34=22^A49=TargetCompID^A50=TargetSubID^A52=20170905-
11:52:05.397^A56=SenderCompID^A57=SenderSubID^A58=/Attributes/ExpiryDate:2017-08-
01^A60=20170905-11:52:05.396^A320=LREQ7^A393=2^A560=0
```

```

^A1181=0^A146=2^A55=[N/A]^A48=EZ84H1HTRFT4^A22=4^A1938=5^A1184=892^A1185={"Header": {"AssetClass": "Commodities", "InstrumentType": "Forward", "UseCase": "Forward", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2017-08-01", "ReturnorPayoutTrigger": "Contract for Difference (CFD)", "DeliveryType": "CASH", "BaseProduct": "AGRI", "TransactionType": "FUTR", "FinalPriceType": "ARGM", "ReferenceRate": "A Fuel oil 0.1% waterborne spot Tokyo bay rim intelligence products", "PriceMultiplier": 1, "SubProduct": "GROS", "AdditionalSubProduct": "FWHT"}, "ISIN": {"ISIN": "EZ84H1HTRFT4", "Status": "Expired", "StatusReason": "", "LastUpdateDateTime": "2017-09-05T11:51:28"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "TRUE", "UnderlyingAssetType": "Agriculture", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Commodities Forward AGRI GROS FWHT EUR 20170801", "ShortName": "NA/Fwd AGRI FWHT EUR 20170801", "ClassificationType": "JTAXCC"} }^A55=[N/A]^A48=EZ3B46BRHK59^A22=4^A1938=3^A1184=764^A1185={"Header": {"AssetClass": "Credit", "InstrumentType": "Option", "UseCase": "Index_Swaption", "Level": "InstRefDataReporting"}, "Attributes": {"NotionalCurrency": "EUR", "ExpiryDate": "2017-08-01", "UnderlyingInstrumentISIN": "Ezb495ZWSFD3", "OptionType": "CALL", "OptionExerciseStyle": "AMER", "ValuationMethodorTrigger": "Vanilla", "UnderlyingAssetType": "CDS on Index", "DeliveryType": "CASH", "PriceMultiplier": 1, "ISIN": {"ISIN": "EZ3B46BRHK59", "Status": "Expired", "StatusReason": "", "LastUpdateDateTime": "2017-09-05T11:52:00"}, "TemplateVersion": 1, "Derived": {"CommodityDerivativeIndicator": "FALSE", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Credit Option Index_Swaption Ezb495ZWSFD3 EUR 20170801", "ShortName": "NA/CDS Iidx Swt EUR 20170801", "ClassificationType": "HCIBVC"} }^A10=253^A
  
```

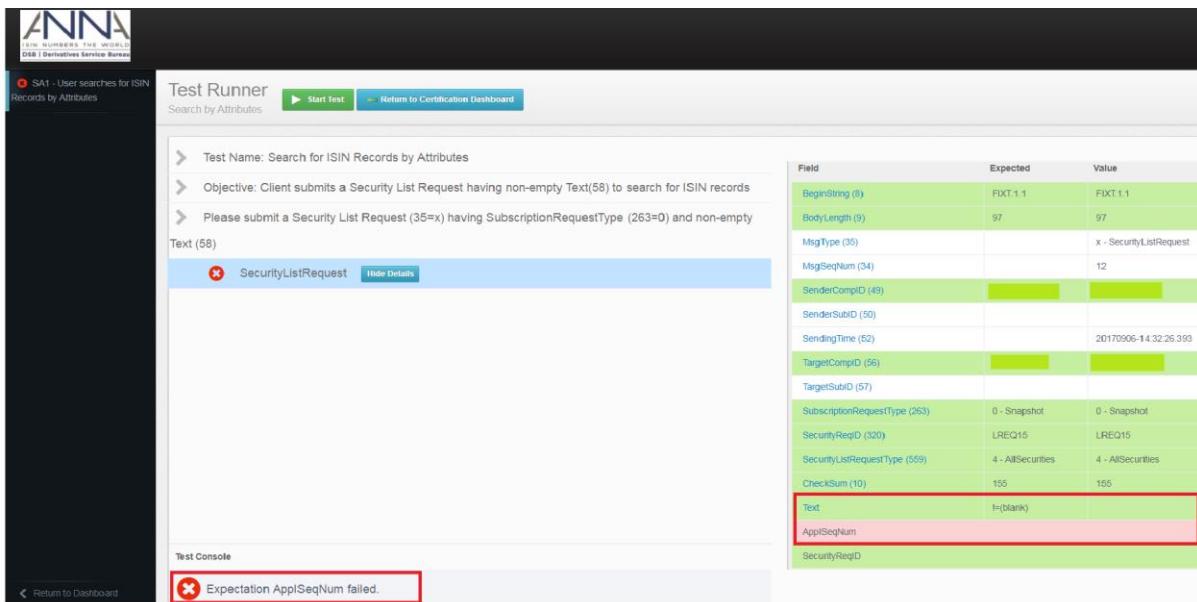
The FIX Conductor will check for the required tags and will display the result of the test case.



Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	1931	1931
MsgType (35)		y - SecurityList
MsgSeqNum (34)		33
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170905-11:57:07.623
TargetCompID (56)		
TargetSubID (57)		
Custom Tag (58)		Attributes/ExpiryDate 2017-08-01
TransactTime (60)		20170905-11:57:07.622
SecurityReqID (320)	LREQ8	LREQ8
TransitDestination		

CASE 2: Test Failed

If the Client sends SecurityListRequest message (35=x) having SubscriptionRequestType (263=0) but there are missing tags, then the test will fail.



The screenshot shows the ANNA Test Runner interface. At the top, there's a navigation bar with the ANNA logo, a search bar, and buttons for "Start Test" and "Return to Certification Dashboard". Below this, a list of test steps is shown:

- > Test Name: Search for ISIN Records by Attributes
- > Objective: Client submits a Security List Request having non-empty Text(58) to search for ISIN records
- > Please submit a Security List Request (35=x) having SubscriptionRequestType (263=0) and non-empty Text (58)

In the center, there's a "SecurityListRequest" section with a "Hide Details" button. To the right, a table shows expected values for various fields:

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	97	97
MsgType (35)		x - SecurityListRequest
MsgSeqNum (34)		12
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170906-14:32:26.393
TargetCompID (56)		
TargetSubID (57)		
SubscriptionRequestType (263)	0 - Snapshot	0 - Snapshot
SecurityReqID (320)	LREQ15	LREQ15
SecurityListRequestType (559)	4 - AllSecurities	4 - AllSecurities
Checksum (10)	155	155
Text	!=blank	
ApplSeqNum		
SecurityReqID		

At the bottom left, there's a "Test Console" section with a red box around the message: "Expectation ApplSeqNum failed."

The following is a sample of a SecurityListRequest message (35=x) having SubscriptionRequestType (263=0) with incomplete tags.

```
8=FIXT.1.1^A9=97^A35=x^A34=12^A49=SenderCompID^A50=SenderSubID^A52=20170906-
14:32:26.393^A56=TargetCompID^A57=TargetSubID^A263=0^A320=LREQ15^A559=4^A10=155^A
```

The FIX Conductor is expecting for non-empty Text(58) and ApplSeqNum(1181).

3.3.7 Error Codes

Client needs to connect on Simulated mode to test the output of the error codes.

CR6 - User submits a malformed payload

Objective: Client submits a Security Definition Request with invalid OTC product definitions

In this case, client needs to submit an invalid OTC product definition.

ANNA
ISIN NUMBERS THE WORLD
DSB | Derivatives Service Bureau

CR6 - User submits a malformed payload

CR7 - Unauthorized user attempts to create an ISIN

CR8 - User requests for a new ISIN when the system is unavailable

SE6 - User requests OTC product definition for a non-existent ISIN

SU7 - User attempts to subscribe to OTC product definitions by submitting invalid message

SU8 - User attempts to subscribe to OTC product definitions when the system is unavailable

Test Runner

Stop Test

ErrorCodes

Please connect and logon to the FIX session <==>

Logon (Reset Sequence Numbers) Show Details

Client logon received, waiting for logon response from server.

Logon (Reset Sequence Numbers) Show Details

Server logon received, session is connected.

Test Name: A new ISIN is requested for invalid product definitions

Objective: Client submits a Security Definition Request with invalid OTC product definitions

Please send a Security Definition Request (35=c) to attempt to create a new ISIN

The following is a snapshot of Security Definition Request with invalid asset class.

ANNA
Automated Network
and Test Infrastructure Services Bureau

CR1 - User submits a
authenticated payload

CR2 - Unauthenticated user
attempts to create an ISIN

CR3 - User requests for a
new ISIN when the system is
unavailable

SEB - User requests OTC
product definitions for a non-
existing ISIN

SUT - User attempts to
subscribe to OTC product
definitions by submitting invalid
message

BUS - User attempts to
unsubscribe from OTC product
definitions when the system is
unavailable

Test Runner

>ErrorCodes

Continue to Next Test

Please connect and logon to the FIX session

Logon (Reset Sequence Numbers) Show Details

Client logon received, waiting for logon response from server.

Logon (Reset Sequence Numbers) Show Details

Server logon received, session is connected.

Test Name: A new ISIN is requested for invalid product definitions

Objective: Client submits a Security Definition Request with invalid OTC product definitions

Please send a Security Definition Request (35=c) to attempt to create a new ISIN

SecurityDefinitionRequest Show Details

Evaluating: SecurityDefinitionRequest Show Details

Waiting for server to respond

SecurityDefinition Show Details

Waiting for a heartbeat...

Heartbeat Show Details

Test passed!

The test passed

c - SecurityDefinitionRequest

Show All Message Fields

Field	Expected	Value
BeginString (5)	FIXT.1	FIXT.1
BodyLength (9)	542	542
MsgType (3)	c - SecurityDefinitionRequest	c - SecurityDefinitionRequest
MsgSeqNum (14)	11	11
SendToCompID (4)		
SenderID (8)		
SendingTime (2)	20170718-11:42:29.793	20170718-11:42:29.793
TargetCompID (9)		
TargetDialogID (7)		
Symbol (35)	[N/A]	[N/A]
SecurityXMLLen (1184)	421	421
SecurityXML (1195)	[Redacted]	[Redacted] {"Message": "CreateISIN", "InstrumentType": "Base", "UseCase": "Inflation", "Base": "Lever", "InflationDataReporting": "AllBuckets", "HistoricalCurrency": "SEK", "ExpiryDate": "2020-12-10T", "ReferenceRate": "HED-CPIT", "ReferenceRateTermValue": "73000000", "ReferenceRateTermUnit": "YEAR", "InterestSchedule": "Custom"},
SecurityReqID (32)	DREQ1	DREQ1
SecurityRequestType (32)	1 - RequestSecurityIdentityForSpecifications	1 - RequestSecurityIdentityForSpecifications
Checksum (10)	003	003
SecurityRequestType		

Test Console

Return to Dashboard

Security Request Result (560) shows Invalid or Unsupported Request due to invalid asset class "IR".

d - SecurityDefinition

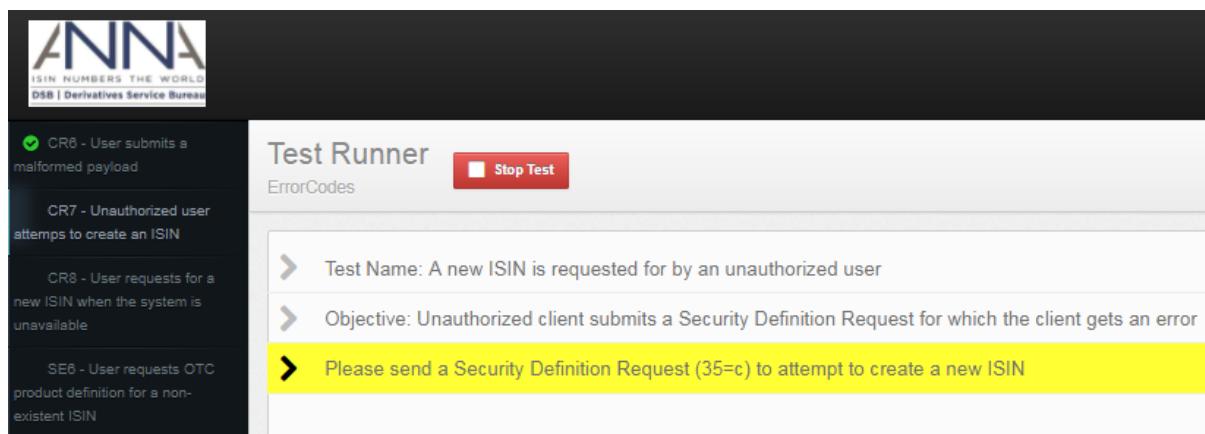
Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	133
MsgType (35)	d - SecurityDefinition
SenderComplID (49)	
TargetComplID (56)	
MsgSeqNum (34)	126
SendingTime (52)	20170718-12:37:24.264
SecurityReqID (320)	DREQ7
Text (58)	Error parsing json data inside security XML.
SecurityRequestResult (560)	1 - InvalidOrUnsupportedRequest
CheckSum (10)	172

CR7 - Unauthorized user attempts to create an ISIN

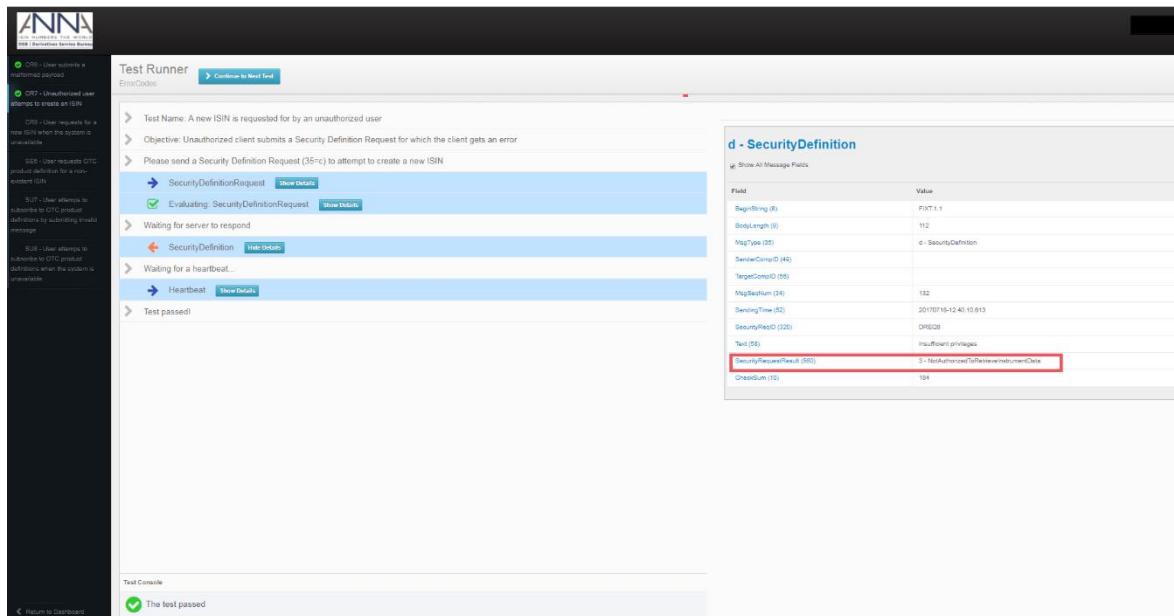
Objective: Unauthorized client submits a Security Definition Request for which the client gets an error

Client creates a new ISIN but is not authorized to submit a Security Definition Request.



The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists several test cases: CR6 (selected), CR7 (highlighted with a red border), CR8, and SE6. The main area is titled "Test Runner" and contains a "Stop Test" button. Below it, under "ErrorCodes", there are three items: "Test Name: A new ISIN is requested for by an unauthorized user", "Objective: Unauthorized client submits a Security Definition Request for which the client gets an error", and "Please send a Security Definition Request (35=c) to attempt to create a new ISIN". The third item is highlighted with a yellow background.

Security Request Result (560) shows that the client is not authorized to retrieve Instrument Data.



The screenshot shows the ANNA Test Runner interface. On the left, there's a sidebar with various message types and their descriptions. The main panel shows a test log with several steps: 'Test Name: A new ISIN is requested for by an unauthorized user', 'Objective: Unauthorized client submits a Security Definition Request for which the client gets an error', 'Please send a Security Definition Request (35-c) to attempt to create a new ISIN', 'Waiting for server to respond', 'SecurityDefinition [HTTP Details]', 'Waiting for a heartbeat...', 'Heartbeat [Show Details]', and 'Test passed!'. Below the log, a 'Task Console' shows a green checkmark and the message 'The test passed'. On the right, there's a detailed view of a 'd - SecurityDefinition' message with its fields and values.

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	112
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	37
SendingTime (52)	20170718-11:55:00.758
SecurityReqID (320)	DREQ2
Text (58)	Insufficient privileges
SecurityRequestResult (560)	3 - NotAuthorizedToRetrieveInstrumentData
Checksum (10)	104

Information of the Security Request Result(560) is available in Text(58) attribute.

d - SecurityDefinition

Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	111
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	37
SendingTime (52)	20170718-11:55:00.758
SecurityReqID (320)	DREQ2
Text (58)	Insufficient privileges
SecurityRequestResult (560)	3 - NotAuthorizedToRetrieveInstrumentData
Checksum (10)	147

CR8 - User requests for a new ISIN when the system is unavailable

Objective: Client submits a Security Definition Request when the system is unavailable for which the client gets an error

Client sends a request for an ISIN assuming the system is unavailable.



Test Runner Stop Test

ErrorCodes

- CR6 - User submits a malformed payload
- CR7 - Unauthorized user attempts to create an ISIN
- CR8 - User requests for a new ISIN when the system is unavailable
- SE6 - User requests OTC product definition for a non-existent ISIN
- SE7 - User attempts to subscribe to OTC product definitions for a non-existent message
- SE8 - User attempts to subscribe to OTC product definitions when the system is unavailable

➤ Test Name: A new ISIN is requested for when the system is unavailable

➤ Objective: Client submits a Security Definition Request when the system is unavailable for which the client gets an error

➤ Please send a Security Definition Request (35=c) to attempt to create a new ISIN

Security Request Result (560) shows that the Instrument data temporarily unavailable (4).



Test Runner Continue to Next Test

ErrorCodes

➤ Test Name: A new ISIN is requested for when the system is unavailable

➤ Objective: Client submits a Security Definition Request when the system is unavailable for which the client gets an error

➤ Please send a Security Definition Request (35=c) to attempt to create a new ISIN

➤ SecurityDefinitionRequest Show Details

➤ Evaluating: SecurityDefinitionRequest Show Details

➤ Waiting for server to respond

➤ SecurityDefinition Hide Details

➤ Heartbeat Show Details

➤ Test passed!

d - SecurityDefinition

Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	84
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	67
SendingTime (52)	20170718-12:45:24.970
SecurityReqID (320)	DREQ9
SecurityRequestResult (560)	4 - InstrumentDataTemporarilyUnavailable
CheckSum (10)	185

Test Console

The test passed

d - SecurityDefinition

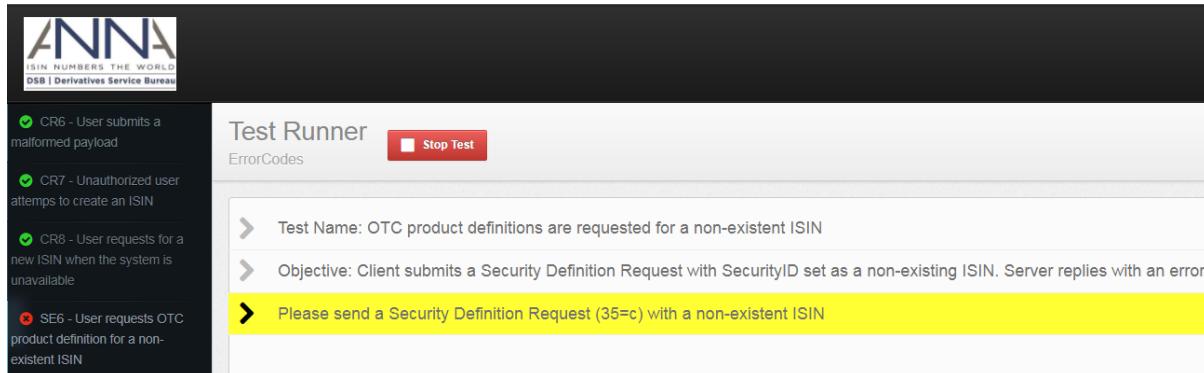
Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	85
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	143
SendingTime (52)	20170718-12:45:24.439
SecurityReqID (320)	DREQ9
SecurityRequestResult (560)	4 - InstrumentDataTemporarilyUnavailable
CheckSum (10)	185

SE6 - User requests OTC product definition for a non-existent ISIN

Objective: Client submits a Security Definition Request with SecurityID set as a non-existing ISIN.

Client sends an invalid (non-existing) ISIN.



Test Runner

Stop Test

ErrorCodes

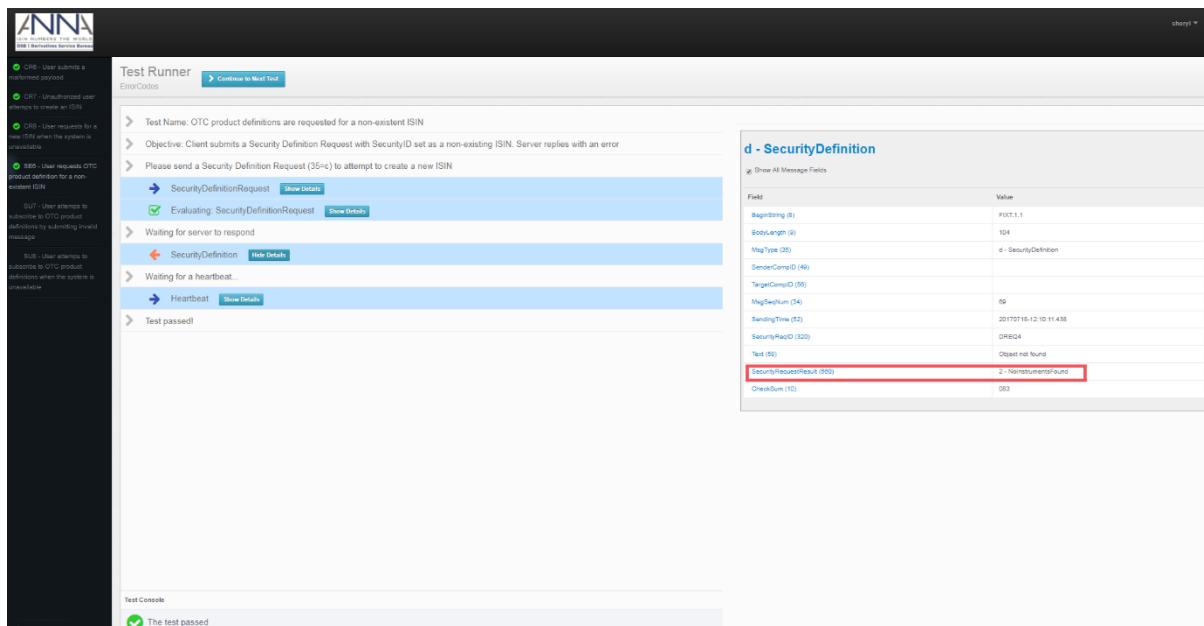
Test Name: OTC product definitions are requested for a non-existent ISIN

Objective: Client submits a Security Definition Request with SecurityID set as a non-existing ISIN. Server replies with an error

Please send a Security Definition Request (35=c) with a non-existent ISIN

- ✓ CR6 - User submits a malformed payload
- ✓ CR7 - Unauthorized user attempts to create an ISIN
- ✓ CR8 - User requests for a new ISIN when the system is unavailable
- ✗ SE6 - User requests OTC product definition for a non-existent ISIN

Security Request Result (560) shows No Instrument Found (2) due to non-existing ISIN.



Test Runner Continue to Next Test ErrorCodes

Test Name: OTC product definitions are requested for a non-existent ISIN

Objective: Client submits a Security Definition Request with SecurityID set as a non-existing ISIN. Server replies with an error

Please send a Security Definition Request (35=c) to attempt to create a new ISIN

SecurityDefinitionRequest Show Details

Evaluating: SecurityDefinitionRequest Show Details

Waiting for server to respond

SecurityDefinition Hide Details

Waiting for a heartbeat...

Heartbeat Show Details

Test passed!

d - SecurityDefinition	
Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	104
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (59)	
MsgSeqNum (34)	59
SendingTime (52)	20170718-12:10:11.438
SecurityReqID (320)	DRE04
Text (58)	Object not found
SecurityRequestResult (550)	2 - NonInstrumentFound
Checksum (10)	093

Test Console

The test passed

Information of the Security Request Result(560) is available in Text(58) attribute.

d - SecurityDefinition

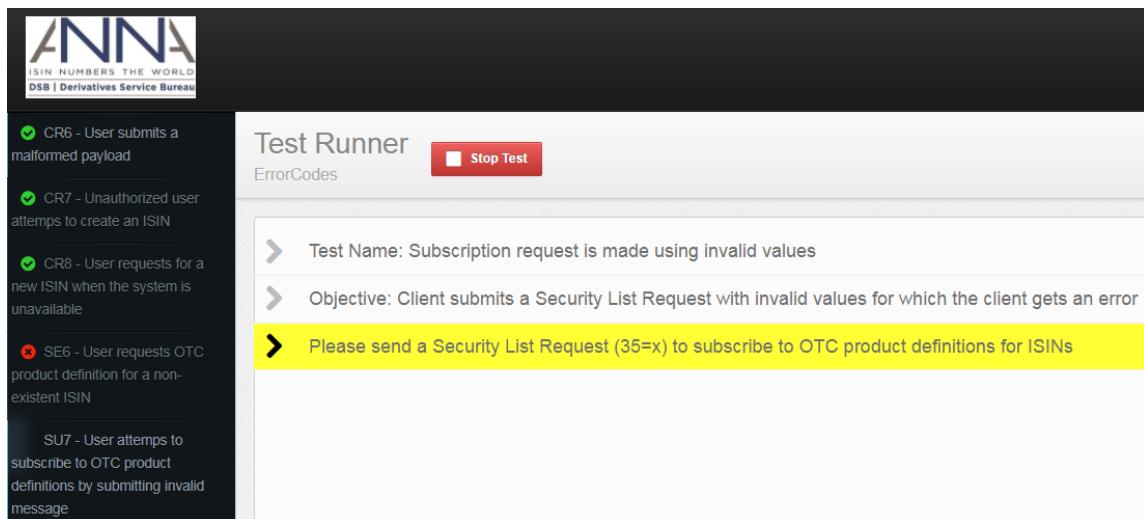
Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	106
MsgType (35)	d - SecurityDefinition
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	150
SendingTime (52)	20170718-12:48:28.189
SecurityReqID (320)	DREQ10
Text (58)	Object not found
SecurityRequestResult (560)	2 - NoInstrumentsFound
CheckSum (10)	191

SU7 - User attempts to subscribe to OTC product definitions by submitting invalid message

Objective: Client submits a Security List Request with invalid values for which the client gets an error

Client can send any Security List Request to test this error code.



The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists several test cases with checkboxes:

- CR6 - User submits a malformed payload (checked)
- CR7 - Unauthorized user attempts to create an ISIN (checked)
- CR8 - User requests for a new ISIN when the system is unavailable (checked)
- SE6 - User requests OTC product definition for a non-existent ISIN (unchecked)
- SU7 - User attempts to subscribe to OTC product definitions by submitting invalid message (checked)

The main area is titled "Test Runner" and "ErrorCodes". It contains a "Stop Test" button. Below it, there are three expandable sections:

- Test Name: Subscription request is made using invalid values
- Objective: Client submits a Security List Request with invalid values for which the client gets an error
- Please send a Security List Request (35=x) to subscribe to OTC product definitions for ISINs

The third section is highlighted with a yellow background.

Security Request Result (560) shows Invalid or Unsupported Request (1).

y - SecurityList

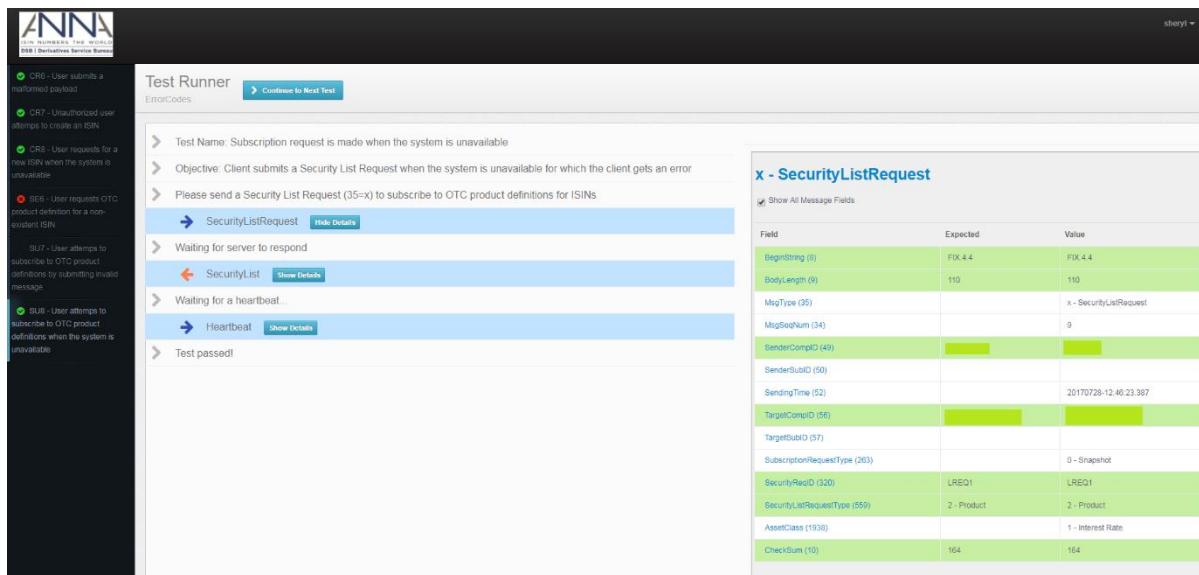
Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	84
MsgType (35)	y - SecurityList
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	81
SendingTime (52)	20170718-12:15:45.116
SecurityReqID (320)	LREQ5
SecurityRequestResult (580)	1 - InvalidOrUnsupportedRequest
CheckSum (10)	151

SU8 - User attempts to subscribe to OTC product definitions when the system is unavailable

Objective: Client submits a Security List Request when the system is unavailable for which the client gets an error

Client subscribes to any asset class to test this scenario.



The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists various test cases with their status (e.g., CR6 - User submits a malformed payload, CR7 - Unauthorized user attempts to create an ISIN, etc.). The main area is titled "Test Runner" and shows a single test named "Subscription request is made when the system is unavailable". The test details include:

- Test Name: Subscription request is made when the system is unavailable
- Objective: Client submits a Security List Request when the system is unavailable for which the client gets an error
- Description: Please send a Security List Request (35=x) to subscribe to OTC product definitions for ISINs
- Steps:
 - SecurityListRequest [Show Details]
 - Waiting for server to respond
 - ← SecurityList [Show Details]
 - Waiting for a heartbeat.
 - Heartbeat [Show Details]
 - Test passed!

To the right of the test runner, there is a detailed view of the "x - SecurityListRequest" message. It shows the following fields and values:

Field	Expected	Value
BeginString (6)	FIX.4.4	FIX.4.4
BodyLength (9)	110	110
MsgType (35)		x - SecurityListRequest
MsgSeqNum (34)		9
SenderCompID (49)		
TargetCompID (56)		
SendingTime (52)		20170728-12:46:23.387
SubscriptionRequestType (263)		0 - Snapshot
SecurityReqID (320)	LREQ1	LREQ1
SecurityListRequestType (559)	2 - Product	2 - Product
AssetClass (1938)		1 - Interest Rate
CheckSum (10)	164	164

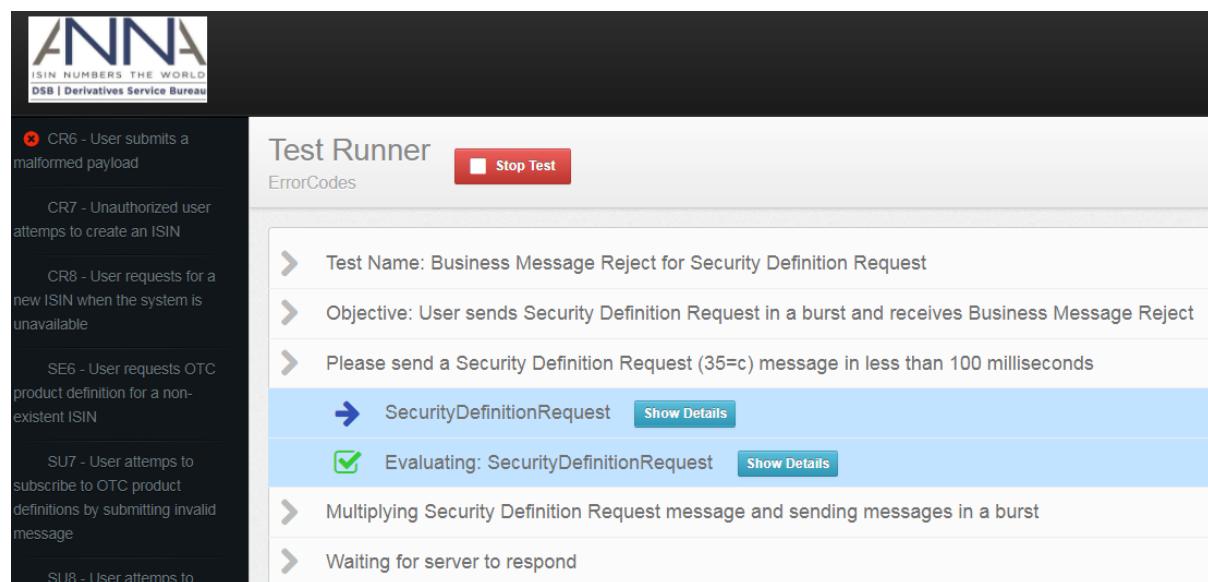
Security Request Result (560) shows Instrument Data Temporarily Unavailable (4).

y - SecurityList	
<input checked="" type="checkbox"/> Show All Message Fields	
Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	85
MsgType (35)	y - SecurityList
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	101
SendingTime (52)	20170718-12:25:21.557
SecurityReqID (320)	LREQ6
SecurityRequestResult (560)	4 - InstrumentDataTemporarilyUnavailable
CheckSum (10)	201

TH1 - User sends Security Definition Request in a burst and receives Business Message Reject

Objective: Client sends Security Definition Request in a burst and receives Business Message Reject

To simulate this test case, client will be requested to send a Security Definition Request message. This will be multiplied to several Security Definition Request messages and will be sent in a burst.



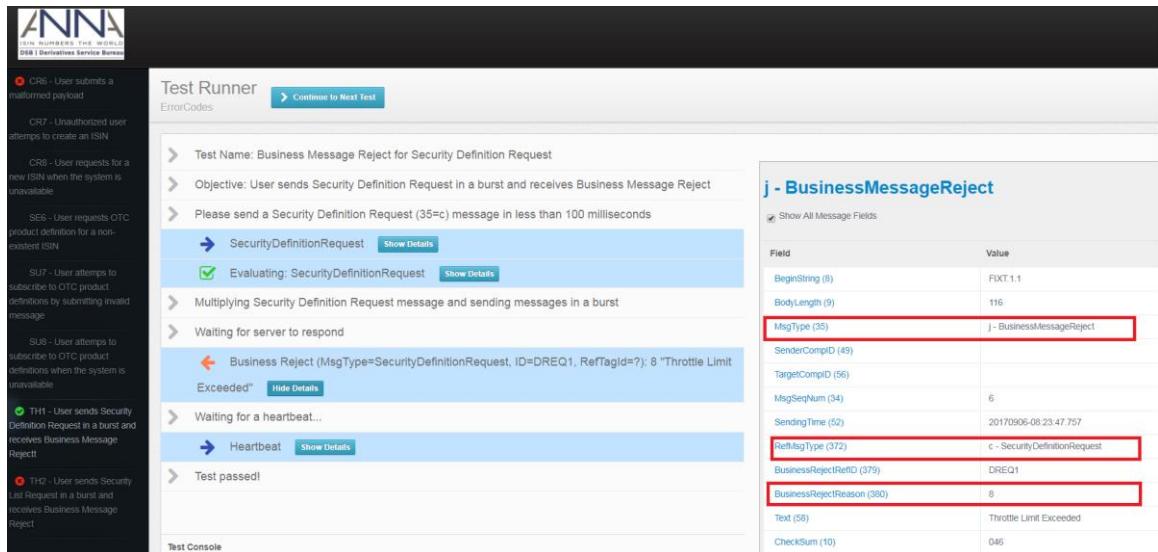
The screenshot shows the ANNA Test Runner interface. On the left, there is a sidebar with a list of error codes and their descriptions:

- CR6 - User submits a malformed payload
- CR7 - Unauthorized user attempts to create an ISIN
- CR8 - User requests for a new ISIN when the system is unavailable
- SE6 - User requests OTC product definition for a non-existent ISIN
- SU7 - User attempts to subscribe to OTC product definitions by submitting invalid message
- SU8 - User attempts to

The main area is titled "Test Runner" and contains the following information:

- Test Name: Business Message Reject for Security Definition Request
- Objective: User sends Security Definition Request in a burst and receives Business Message Reject
- Please send a Security Definition Request (35=c) message in less than 100 milliseconds
- SecurityDefinitionRequest (Show Details)
- Evaluating: SecurityDefinitionRequest (Show Details) - This item has a green checkmark next to it, indicating it is currently being evaluated.
- Multiplying Security Definition Request message and sending messages in a burst
- Waiting for server to respond

Client will receive BusinessMessageReject (35=j) having business MessageRejectReason (380) = Throttle Limit Exceeded (8) and RefMsgType (372) value = c.



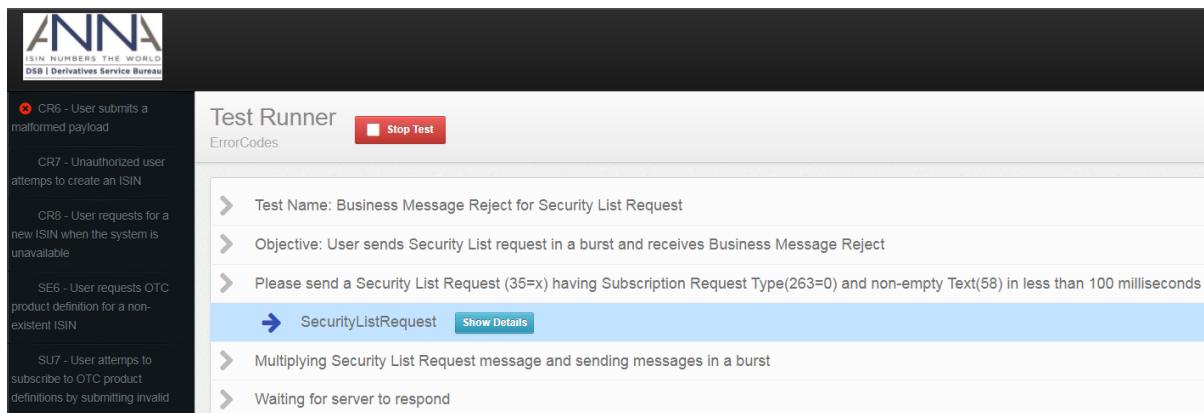
The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists error codes: CR6 (malformed payload), CR7 (Unauthorized user attempts to create an ISIN), CR8 (User requests for a new ISIN when the system is unavailable), SE6 (User requests OTC product definition for a non-existent ISIN), SL7 (User attempts to subscribe to OTC product definitions by submitting invalid message), SU8 (User attempts to subscribe to OTC product definitions when the system is unavailable), TH1 (User sends Security Definition Request in a burst and receives Business Message Reject), and TH2 (User sends Security List Request in a burst and receives Business Message Reject). The main area shows a test named "Business Message Reject for Security Definition Request". The steps are: "Test Name: Business Message Reject for Security Definition Request", "Objective: User sends Security Definition Request in a burst and receives Business Message Reject", "Please send a Security Definition Request (35=c) message in less than 100 milliseconds", "SecurityDefinitionRequest Show Details", "Evaluating: SecurityDefinitionRequest Show Details", "Multiplying Security Definition Request message and sending messages in a burst", "Waiting for server to respond", "Business Reject (MsgType=SecurityDefinitionRequest, ID=DREQ1, RefTagId=?): 8 "Throttle Limit Exceeded\"", "Waiting for a heartbeat...", "Heartbeat Show Details", and "Test passed!". To the right, a detailed view of the "BusinessMessageReject" message is shown in a table:

j - BusinessMessageReject	
<input checked="" type="checkbox"/> Show All Message Fields	
Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	116
MsgType (35)	j - BusinessMessageReject
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	6
SendingTime (52)	20170906-08:23:47.757
RefMsgType (372)	c - SecurityDefinitionRequest
BusinessRejectRefID (379)	DREQ1
BusinessRejectReason (380)	8
Text (58)	Throttle Limit Exceeded
Checksum (10)	D46

TH2 - User sends Security List Request in a burst and receives Business Message Reject

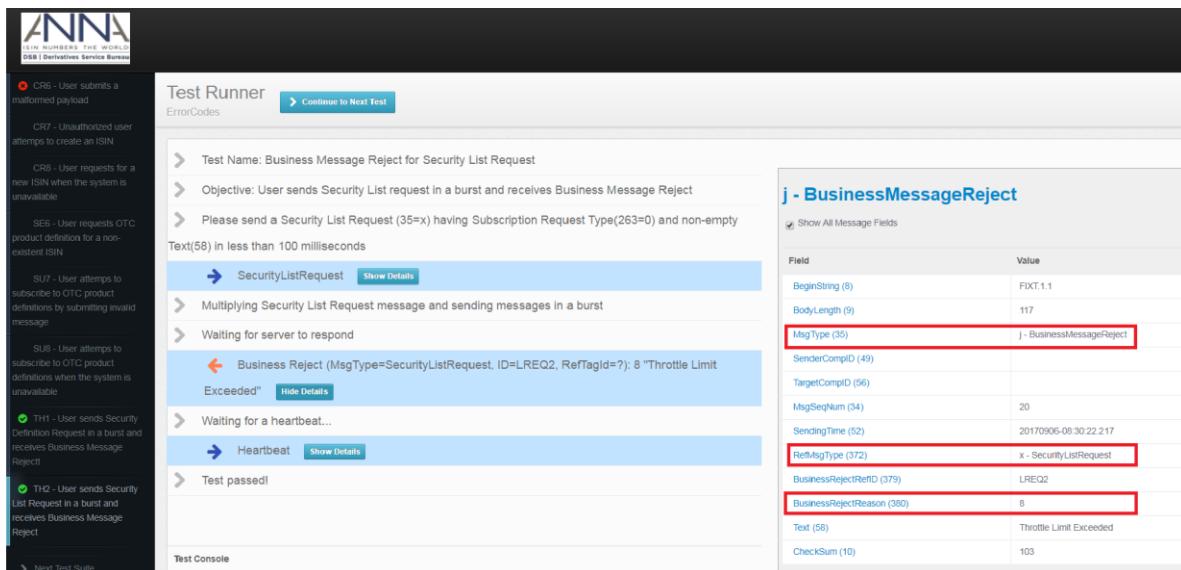
Objective: Client sends Security List Request in a burst and receives Business Message Reject

To simulate this test case, client will be requested to send a Security List Request message. This will be multiplied to several Security List Request messages and will be sent in a burst.



The screenshot shows the ANNA Test Runner interface. The sidebar and steps are identical to the previous screenshot. The steps are: "Test Name: Business Message Reject for Security List Request", "Objective: User sends Security List request in a burst and receives Business Message Reject", "Please send a Security List Request (35=x) having Subscription Request Type(263=0) and non-empty Text(58) in less than 100 milliseconds", "SecurityListRequest Show Details", "Multiplying Security List Request message and sending messages in a burst", and "Waiting for server to respond".

Client will receive BusinessMessageReject (35=j) having business MessageRejectReason (380) = Throttle Limit Exceeded (8) and RefMsgType (372) value = x.

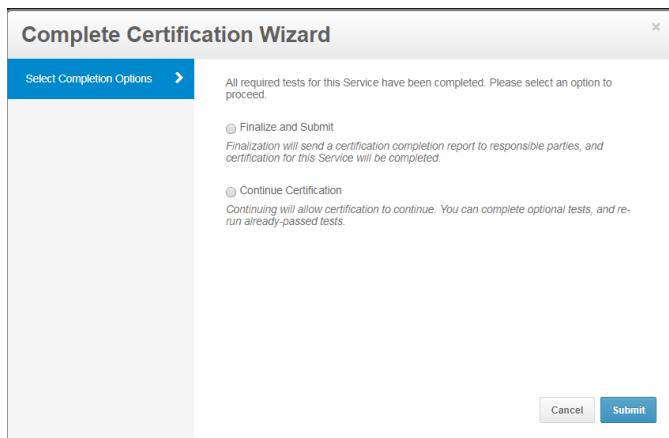


The screenshot shows the ANNA Test Runner interface. On the left, a sidebar lists various test cases with their descriptions and status icons. The main area is titled "Test Runner" and contains a "Test Cases" section with a list of steps and their details. To the right, a specific test case is expanded, showing its configuration and results. The expanded section is titled "j - BusinessMessageReject" and includes a table of message fields with their values.

Field	Value
BeginString (8)	FXKT.1.1
BodyLength (9)	117
MsgType (35)	j - BusinessMessageReject
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	20
SendingTime (52)	20170906-06:30:22.217
RefMsgType (372)	x - SecurityListRequest
BusinessRejectRefID (379)	LREQ2
BusinessRejectReason (380)	8
Text (58)	Throttle Limit Exceeded
CheckSum (10)	103

3.4 Certification Report

Upon completion of the required test cases, a summary of the result of each test case will reflect on the certification report.



- Finalize and Submit – Certification for the service is completed and Certification Report is made available to the DSB Technical Support Admin and the client.
- Continue Certification – This will allow the client to continue optional test cases and rerun passed test cases.

The following is a sample of the Certification Report with the details of the Test Cases, Date Run, User and Result of the Test Cases.



Test	Run	User	Result
SL1 - Logon and Logout	2017-07-27 06:00:07.457		PASSED
SL2 - User logs off after abnormal disconnect	2017-07-27 06:00:07.457		PASSED
CR1 - User creates ISIN for Rates	2017-07-21 09:41:22.659		FAILED
CR2 - User creates ISIN for Foreign Exchange	2017-07-21 09:46:35.835		PASSED
CR3 - User creates ISIN for Equity	Never run		
CR4 - User creates ISIN for Commodity	Never run		
SE1 - User requests OTC product definition for a Rate	2017-07-21 09:52:34.682		PASSED
ISIN			
SE2 - User requests OTC product definition for a Credit	Never run		
Foreign Exchange ISIN			
SE3 - User requests OTC product definition for a Credit	Never run		
SE4 - User requests OTC product definition for an Equity ISIN	Never run		
SE5 - User requests OTC product definition for a Commodity ISIN	Never run		
SU1 - User subscribes to OTC product definitions for Rates	2017-07-21 09:56:36.833		PASSED
SU2 - User subscribes to OTC product definitions for Foreign Exchanges	Never run		
SU3 - User subscribes to OTC product definitions for Credits	Never run		
SU4 - User subscribes to OTC product definitions for Equities	Never run		
SU5 - User subscribes to OTC product definitions for Commodities	Never run		
SU6 - User subscribes to OTC product definitions for all assets	Never run		
CR6 - User submits a malformed payload	2017-07-26 08:31:29.657		PASSED
CR7 - Unauthorized user attempts to create an ISIN	2017-07-26 08:46:20.297		PASSED
CR8 - User requests for a new ISIN when the system is unavailable	2017-07-21 10:09:56.945		PASSED
SE6 - User requests OTC product definition for a non-existing product	2017-07-28 12:44:28.836		FAILED
SU7 - User attempts to subscribe to OTC product definitions by submitting Invalid message	2017-07-28 12:46:06.347		FAILED
SU8 - User attempts to subscribe to OTC product definitions when the system is unavailable	2017-07-28 12:46:49.032		PASSED