



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
21 Feb 2018	Amendment	2.02	Sheryl Tan	Updated the Test Suite to include the ToTV Records and "Other" Asset Class
28 June 2018	Modification	2.03	Hannah Cabuyao/ Sheryl Tan	Updated section 3.3.8: SA2 – User searches for ToTV Records by Attributes SU9 – User subscribes to ToTV Records -ToTV subscription feature withheld until further notice
24 May 2019	Update	2.04	Kurt Aquino	Added RE8 - Retrieve ToTV version 2 Record by ISIN - Manual FIX Certification Sample FIX Message Request and Response for Retrieve ToTV version 2 Record by ISIN

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.

Service	Next Step	Progress	Last Activity	Additional Actions
FIX_50	Begin Certifying	0%	SL1 - Logon and Heartbeat failed by client1FIX5 on 21-Feb-18 01:54 PM	Practice Save Report

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

Service	Next Step	Progress	Last Activity	Additional Actions
FIX_50	Begin Certifying	0%	SL1 - Logon and Heartbeat failed by client1FIX5 on 21-Feb-18 01:54 PM	Practice Save Report

For additional new test cases, these will reflect as new Service under the Certification Progress to be completed by the client.

Service	Next Step	Progress	Last Activity	Additional Actions
FIX_50	Recertify	100%	SL2 - Reconnect after abnormal disconnect passed by client1FIX5 on 21-Feb-18 02:13 PM	Practice Save Report
FIX_50_client1_Other	Begin Certifying	0%	(No activity)	Practice Save Report
FIX_50_client1_ToTV	Begin Certifying	0%	(No activity)	Practice 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. SenderCompID, TargetCompID 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.

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.

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

Service	Next Step	Progress	Last Activity	Additional Actions
FIX_44	Begin Certifying	<div style="width: 0%;"></div> 0%	(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	SenderComplID	TargetComplID	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:

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.

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				
FIX44_Simulated				Edit Session

Test Suite	Test Case	Last Run	Required	Result
Create	CR1 - User creates ISIN for Rates	Run Test	Required	untested
	CR2 - User creates ISIN for Foreign Exchange	Run Test	Optional	untested
	CR3 - User creates ISIN for Credit	Run Test	Optional	untested
	CR4 - User creates ISIN for Equity	Run Test	Optional	untested
	CR5 - User creates ISIN for Commodities	Run Test	Optional	untested

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	Required	untested

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.

Test Runner
SessionLevel

Stop Test

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^A554=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.

Test Runner
SessionLevel Continue to Next Test

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)		20170716-07:49:48.208
TargetCompID (56)		
TargetSubID (57)		
EncryptMethod (36)	0 - NoneOther	0 - NoneOther
HeartBtInt (106)	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.

Test Runner
SessionLevel Stop Test

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.

Test Runner
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

A - Logon
Show All Message Fields

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)		20170718-08:06:49.289
TargetCompID (56)		
TargetSubID (57)		
EncryptMethod (98)	0 - NoneOther	0 - NoneOther
HeartBtInt (106)	30	30
ResetSeqNumFlag (141)		Y - YesResetSequenceNumbers
DefaultAppletID (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.

Test Runner
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.

c - SecurityDefinitionRequest

Field	Expected	Value
MsgString (8)		FOXT 1
MsgLength (9)		445
MsgType (35)		c - SecurityDefinitionRequest
MagNum (34)		4
SenderCompID (46)		
SenderSubID (50)		
SendingTime (52)		20170229-07:18:14.234
TargetCompID (56)		
TargetSubID (57)		
Symbol (55)		[NA]
SecurityXMLLen (1154)	331	331
SecurityXML (1155)	{ "Header": { "MsgClass": "Rates", "InstrumentType": "Swap", "DocCase": "Trade", "Level": "FrontDeskBackoffice" }, "Attributes": { "NationalCurrency": "EUR", "EgnyDate": "2025-07-05", "NationalSchedule": "Custom", "DeliveryType": "PHYS" } }	{ "Header": { "MsgClass": "Rates", "InstrumentType": "Swap", "DocCase": "Trade", "Level": "FrontDeskBackoffice" }, "Attributes": { "NationalCurrency": "EUR", "EgnyDate": "2025-07-05", "NationalSchedule": "Custom", "DeliveryType": "PHYS" } }
SecurityReqID (320)		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)		
SenderSubID (50)		
SendingTime (52)		20170929-07:16:14.234
TargetCompID (56)		
TargetSubID (57)		
Symbol (55)		[N/A]
SecurityXMLLen (1184)		331
SecurityXML (1185)		{ "Header": { "AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Fixed", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "EUR", "ExpiryDate": "2029-07-05", "NotionalSchedule": "Custom", "DeliveryType": "PHYS" } }
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	{ <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)	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","Ins
trumentType":"Swap","UseCase":"Fixed_Fixed","Level":"InstRefDataReporting"},"Attrib
utes":{"NotionalCurrency":"EUR","ExpiryDate":"2029-07-05","Notional
Schedule":"Custom","DeliveryType":"PHYS","PriceMultiplier":1},"ISIN":{"ISIN":"EZ5VM
8R4T037","Status":"New","StatusReason":"","LastUpdateDateTime":"2017-09-
29T06:51:01"},"TemplateVersion":1,
"Derived":{"CommodityDerivativeIndicator":"FALSE","UnderlyingAssetType":"Fixed -
Fixed","SingleorMultiCurrency":"Single
Currency","IssuerorOperatoroftheTradingVenueIdentifier":"NA","FullNam
e":"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		
<input checked="" type="checkbox"/> 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)		
SenderSubID (50)		
SendingTime (52)		20170929-07:16:13.890
TargetCompID (56)		
TargetSubID (57)		
SecurityDSSource (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 - Fixed","SingleorMultiCurrency":"Single Currency"},"IssuerorOperatoroftheTradingVenueIdentifier":"NA","FullName":"Rates Swap Fixed_Fixed EUR 20290705","ShortName":"NA/Swap Fxd Fxd EUR 20290705","ClassificationType":"SRDYSP"} </pre>
AssetClass (1938)		1 - Interest Rate
TransactTime (60)		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 - Fixed","SingleorMultiCurrency":"Single Currency"},"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 6 = Other	
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 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^A321=0^A10=111^A
```

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

The screenshot displays the ANNA Test Runner interface. The test name is "OTC product definitions are requested for a Rate's ISIN". The objective is to verify that a Security Definition Request (35=c) is correctly processed. The test steps are as follows:

- Send tag 321 (SecurityRequestType) = 0, tag 48 (SecurityRequestType) = 0, and tag 22 (SecurityIDSource) = 4.
- SecurityDefinitionRequest (35=c) is sent.
- Evaluating: SecurityDefinitionRequest.
- Waiting for server to respond with a Security Definition.
- SecurityDefinition (35=d) is received.
- Evaluating: SecurityDefinition.
- Evaluating: SecurityDefinition.
- Is the asset class received equal to 1 (Interest Rates)?
- Waiting for a heartbeat.
- Heartbeat (35=h) is received.
- Test passed!

The table on the right shows the details of the SecurityDefinitionRequest message:

Field	Expected	Value
MsgType (8)	FIXT.1.1	FIXT.1.1
MsgLen (9)	112	112
MsgTime (10)		0 - SecurityDefinitionRequest
MsgSeqNum (4)		17
SenderCompID (49)		
SenderSubID (52)		
SendingTime (53)		20170929-07:47:04.456
TargetCompID (55)		
TargetSubID (57)		
SecurityIDSource (22)		4 - ISINNumber
SecurityID (48)		EZB6ZSG1NG20
SecurityPID (33)	DRP32	DRP32
SecurityRequestType (321)	0 - RequestSecurityDefinitionRequest	0 - RequestSecurityDefinitionRequest
Checksum (10)	111	111
SecurityRequestType		111

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","InstrumentType":"Swap","UseCase":"Inflation_Fixed_Float_YoY","Level":"InstRefDataReporting"},"Attributes":{"NotionalCurrency":"EUR","ExpiryDate":"2261-07-25","ReferenceRate":"DEM-CPI-NRW","ReferenceRateTermValue":-604,"ReferenceRateTermUnit":"YEAR","NotionalSchedule":"Accreting","DeliveryType":"CASH","PriceMultiplier":1},"ISIN":{"ISIN":"EZB6ZSG1NG20","Status":"New","StatusReason":"","LastUpdateDateTime":"2017-08-26T16:43:54"},"TemplateVersion":1,"Derived":{"ISOResourceRate":"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": "I", "NotionalCurrency": "EUR", "ExpiryDate": "2261-07-25", "ReferenceRate": "DEM-CPI-NRW", "ReferenceRateTermValue": "-604", "ReferenceRateTermUnit": "YEAR", "NotionalSchedule": "Accreting", "ISIN": "EZB6ZSG1NG20", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-08-26T16:43:54", "ISOResource": "DEM-CPI-NRW", "CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Index", "SingleorMultiCurrency": "Single_Currency", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullIN": "DEM-CPI-NRW -604 YEAR 22610725", "ShortName": "NA/Swap Infl Idx EUR 22610725", "ClassificationType": "OTC" } }
AssetClass (1938)		1 - Interest Rate
TransactTime (60)		20170929-07:47:04.155
SecurityReqID (320)		DREQ2
SecurityRequestResult (321)		0 - ValidRequest

CASE 2: Test Failed

Client inputs an ISIN except the Security ID listed 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=41^A49=SenderCompID^A50=SenderSubID^A52=20170929-07:58:39.536^A56=TargetCompID^A57=TargetSubID^A22=4^A48=EZVQJ3CLCHH3^A320=DREQ3^A321=0^A10=157^A
```

The Test failed due to security ID did not match.

Test Runner
 Search

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

SecurityDefinitionRequest (35=c) = 0, tag 48 (SecurityID) = EZ2HPHD69Q49 and tag 22 (SecurityIDSource) = 4

Evaluating: SecurityDefinitionRequest

c - SecurityDefinitionRequest

Field	Expected	Value
BeginString (8)		FIXT.1.1
BodyLength (9)		112
MsgType (20)		4 - SecurityDefinitionRequest
MsgSeqNum (40)		41
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170529-07:58:39.536
TargetCompID (56)		
TargetSubID (57)		
SecurityIDSource (32)	4 - ISINNumber	4 - ISINNumber
SecurityID (31)	EZ2HPHD69Q49	EZVQJ3CLOH43
SecurityPrefix (202)		OTC33
SecurityRequestType (221)	0 - RequestSecurityIdentAndSpecifications	
Checksum (10)		157

Test Console
 Expectation SecurityID = \$clientIsin failed. The expectation evaluated to EZVQJ3CLOH43 = EZ2HPHD69Q49

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).

Test Runner
 Subscribe

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 6 = Other
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=EZ3K13MY0S41^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":{"ISOResourceRate":"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":"","LastUpdateDateTim": ""}}
<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 a list of test scenarios (SU1 to SU6). The main area is titled 'Test Runner' and shows a 'Subscribe' test. The test steps are as follows:

- 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 (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Waiting for server to respond with a Security List
- SecurityList (Show Details)
- Evaluating: SecurityList (Show Details)
- Evaluating: SecurityList (Show Details)
- 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 with a failed test. The test steps are:

- 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 (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Waiting for server to respond with a Security List
- SecurityList (Show Details)
- Evaluating: SecurityList (Show Details)
- Evaluating: SecurityList (Show Details)
- 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 (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Evaluating: SecurityListRequest (Show Details)
- Waiting for a heartbeat
- Heartbeat (Show Details)
- Test passed!

On the right, a table titled 'x - SecurityListRequest' shows the message fields:

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	104	104
MsgType (20)		3 - SecurityListRequest
MsgSeqNum (34)		54
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170929-08:04:47.926
TargetCompID (55)		
TargetSubID (57)		
SubscriptionRequestType (263)	0 - Snapshot	0 - Snapshot
SecurityReqID (320)	LREQ01	LREQ01
SecurityListRequestType (559)	2 - Product	2 - Product
AssetClass (1938)	1 - Interest Rate	1 - Interest Rate
OrderNum (10)	000	000
SecurityListRequestType		

The Test Console at the bottom shows a green checkmark and the text 'The test passed'.

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 is a sidebar with test steps: 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, and SU4 - User subscribes to OTC product definitions for Equities. The main area is titled 'Test Runner' and 'Subscribe'. It contains a 'Stop Test' button and a list of test steps. The final step is highlighted in yellow: '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 Runner interface with a failed test result. The test steps are listed on the left, and the main area shows the test details. The test step 'Please send tag 559 (SecurityListRequestType) = 2 (Single asset class), with tag 1938 (AssetClass) = 2 and tag 263 (SubscriptionRequestType) = 1' is marked as failed. The test details show the message type 'x - SecurityListRequest' and the message body. The 'AssetClass' field is highlighted in red, showing a value of '3 - Credit' instead of the expected '2 - Currency'. The test console at the bottom shows the error message: 'Expectation AssetClass = \$assettype failed. The expectation evaluated to 3 - Credit = 2 - Currency'.

Field	Expected	Value
BeginString (8)		FIXT.1.1
BodyLength (9)		104
MsgType (20)		x - SecurityListRequest
MsgSeqNum (34)		75
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170929-08:14:36.081
TargetCompID (56)		
TargetSubID (57)		
SubscriptionRequestType (203)		1 - SnapshotAndUpdates
SecurityListRequest (320)		LREQ9
SecurityListRequestType (559)		2 - Product
AssetClass (1938)	2 - Currency	3 - Credit
Checksum (10)		064

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 is a sidebar with a list of test cases: RE1 User retrieves ISIN Record by Attributes for Rates, RE2 User retrieves ISIN Record by Attributes for Foreign Exchange, RE3 User retrieves ISIN Record by Attributes for Credit, RE4 User retrieves ISIN Record by Attributes for Equity, and RE5 User retrieves ISIN Record by Attributes for Commodity. The main area displays the 'Test Runner' for the 'Retrieve' test. It includes a 'Stop Test' button and a list of test details: Test Name: Retrieve ISIN Record by Attributes for Rates, Objective: Client submits Security Definition Request for Rates to retrieve ISIN record, and a highlighted instruction: 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=331^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 ANNA Test Runner interface. The test name is 'Retrieve ISIN Record by Attributes for Rates'. The objective is to submit a Security Definition Request (35=C) to retrieve ISIN records. The test steps are: SecurityDefinitionRequest, Evaluating SecurityDefinition, and Heartbeat. The test console shows 'The test passed!'. A detailed view of the SecurityDefinitionRequest message is shown on the right, with fields like MsgType (8), SenderCompID (48), and SecurityReqID (32) highlighted.

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=EZ5VM8R4T037^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":"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":"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":{"AssetCl
ass":"Rates","InstrumentType":"Swap","UseCase":"Fixed_Fixed","Level":"InstRefDataRe
porting"},"Attributes":{"NotionalCurrency":"EUR","ExpiryDate":"2389-07-
22","NotionalSchedule":"Accreting",
"PriceMultiplier":17057482.674599454,"DeliveryType":"PHYS"},"ISIN":{"ISIN":"","Stat
us":"New","StatusReason":"","LastUpdateDateTime":"2017-08-
31T09:46:05"},"TemplateVersion":1,"Derived":{"Co
mmodityDerivativeIndicator":"FALSE","UnderlyingAssetType":"Fixed -
Fixed","SingleorMultiCurrency":"Single
Currency","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		
<input checked="" type="checkbox"/> Show All Message Fields		
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", "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 Currency", "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 (580)	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 that the FIX Conductor is expecting or if there are missing tags.

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=433^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.

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 test name is 'Search for ISIN Records by Attributes'. The objective is 'Client submits a Security List Request having non-empty Text(58) to search for ISIN records'. A highlighted instruction states: '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 with the test results for the SecurityListRequest message. The test console shows the message was sent and received successfully. A table on the right displays the message fields:

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 (58)	!=(blank)	/Attributes/ExpiryDate:2017-08-01
SubscriptionRequestType (263)	0 - Snapshot	0 - Snapshot
SecurityReqID (320)	LREQ6	LREQ6
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","FinalPr
iceType":"ARGM","ReferenceRate":"A Fuel oil 0.1%S -waterborne spot Tokyo bay rim
intelligence
products","PriceMultiplier":1,"SubProduct":"GROS","AdditionalSubProduct":"FWHT"},"I
SIN":{"ISIN":"EZ84H1HTRFT4","Status":"Expired","StatusReason":"","LastUpdateDateTim
e":"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","OptionExerciseSt
yle":"AMER","ValuationMethodorTrigger":"Vanilla","UnderlyingAssetType":"CDS on
Index","DeliveryType":"CASH","PriceMultiplier":1},"ISIN":{"ISIN":"EZ3B46BRHK59","St
atus":"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 Idx 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.

Test Runner
 Search by Attributes [Return to Certification Dashboard](#)

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)

- SecurityListRequest [Show Details](#)
- Waiting for server to respond with a Security List
- ← SecurityList [Hide Details](#)
- ✓ Evaluating: SecurityList [Show Details](#)
- Waiting for a heartbeat...
- Heartbeat [Show Details](#)
- Test passed!

Test Console
 ✓ SA1 - User searches for ISIN Records by Attributes [Return to Dashboard](#)

y - SecurityList
 Show All Message Fields

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 (56)		/Attributes/ExpiryDate:2017-08-01
TransactTime (60)		20170905-11:57:07.622
SecurityReqID (320)	LREQB	LREQB
Text(58)		

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. The test name is 'Search for ISIN Records by Attributes'. The objective is to submit a Security List Request with non-empty text. The test details show a 'SecurityListRequest' message with a 'Text' field that is empty. The test console shows the error: 'Expectation ApplSeqNum failed.' The table on the right shows the expected and actual values for various fields, with 'Text' and 'ApplSeqNum' highlighted in red.

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 (58)	=(blank)	
ApplSeqNum		
SecurityReqID		

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

ErrorCodes Stop 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**

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

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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

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!

c - SecurityDefinitionRequest

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	542	542
MsgType (35)		c - SecurityDefinitionRequest
MsgSeqNum (34)		11
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170716-11:42:28.730
TargetCompID (55)		
TargetSubID (57)		
Symbol (58)		DUAJ
SecurityMsgLen (1104)		421
SecurityMsg (1105)		{ "Header": { "AssetClass": "IR", "InstrumentType": "Bond", "UseCase": "Inflation_Bond", "Level": "InflationDataReporting", "AddSubid": "NationalCurrency", "ISIN": "ISIN:ISIN", "ISIN": "ISIN", "ReferenceDate": "2017-07-16", "ReferenceRateTermUnit": "YEAR", "NationalSchedule": "Custom" } }
SecurityReqID (300)	DR021	DR021
SecurityRequestType (301)	1	1 - RequestSecurityIdentifyForSpecifications
OrderQty (10)	003	003
SecurityRequestType		

Test Console

The test passed

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
SenderCompID (49)	
TargetCompID (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 test cases: 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), and SE6 (User requests OTC product definition for a non-existent ISIN). The main area displays the 'Test Runner' for 'ErrorCodes' with a 'Stop Test' button. The test details include:

- 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
- A highlighted instruction: Please send a Security Definition Request (35=c) to attempt to create a new ISIN

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

Test Runner
Error Codes

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

- SecurityDefinitionRequest (35-c) **Show Details**
- Evaluating: SecurityDefinitionRequest (35-c) **Show Details**
- Waiting for server to respond
- SecurityDefinition (35-c) **Show Details**
- Waiting for a heartbeat...
- Heartbeat (35-c) **Show Details**
- Test passed!

Test Console
The test passed

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)	134

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.

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ISIN NUMBERS THE WORLD
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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

Test Runner

ErrorCodes Stop Test

- 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).

ANNA
ISIN NUMBERS THE WORLD
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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 respond to OTC product definition by submitting invalid response
 SE8 - User attempts to respond to OTC product definition when the system is unavailable

Test Runner

Continue to Next Test

- 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 Show Details
- Waiting for a heartbeat
- Heartbeat Show Details
- Test passed!

Test Console
 The 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)	57
SendingTime (52)	20170718-12:54:24.970
SecurityReqID (320)	DREQ03
SecurityRequestResult (560)	4 - InstrumentDataTemporarilyUnavailable
Checksum (10)	130

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)	DREQ09
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.

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 ISIN NUMBERS THE WORLD
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Test Runner
 ErrorCodes Stop Test

- 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

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

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

ANNA
 ISIN NUMBERS THE WORLD
 DSB | Derivatives Service Bureau

Test Runner Continue to Next 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
- DU1 - User attempts to duplicate an OTC product definition by submitting invalid message
- DU2 - User attempts to duplicate an OTC product definition when the system is unavailable

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 Show Details
- Waiting for a heartbeat
- Heartbeat Show Details
- Test passed!

Test Console
The test passed

d - SecurityDefinition
 Show All Message Fields

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	104
MsgType (35)	d - SecurityDefinition
SenderCompID (48)	
TargetCompID (55)	
MsgSeqNum (4)	55
SendingTime (52)	20170718-12:10:11.438
SecurityReqID (320)	DRBD4
Text (58)	Object not found
SecurityRequestResult (560)	2 - NoInstrumentsFound
Checksum (10)	063

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)	108
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 list of test cases is displayed with status icons: CR6 (green check), CR7 (green check), CR8 (green check), SE6 (red X), and SU7 (grey). The SU7 test case is selected. The main area shows the details for SU7: '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', and a highlighted instruction: 'Please send a Security List Request (35=x) to subscribe to OTC product definitions for ISINs'. A 'Stop Test' button is visible at the top right of the test runner area.

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 (560)	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.

x - SecurityListRequest

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIX.4.4	FIX.4.4
BodyLength (9)	110	110
MsgType (35)		x - SecurityListRequest
MsgSeqNum (34)		9
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20170728-12:40:23.387
TargetCompID (56)		
TargetSubID (57)		
SubscriptionRequestType (263)		0 - Snapshot
SecurityReqID (320)	LREQ1	LREQ1
SecurityListRequestType (559)	2 - Product	2 - Product
AssetClass (1936)		1 - Interest Rate
Checksum (10)	164	164

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


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.



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

Test Runner

ErrorCodes Stop Test

- > 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

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

Test Runner
 ErrorCodes

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" [Hide Details](#)

Waiting for a heartbeat...

Heartbeat [Show Details](#)

Test passed!

Test Console

j - BusinessMessageReject

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)	20170906-06:23:47.757
RefMsgType (372)	c - SecurityDefinitionRequest
BusinessRejectRefID (379)	DREQ1
BusinessRejectReason (380)	8
Text (58)	Throttle Limit Exceeded
Checksum (10)	046

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.

Test Runner
 ErrorCodes

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

Waiting for server to respond

Test Console

Stop Test

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 test cases CR6 through TH2. The main area displays a test run for 'Business Message Reject for Security List Request'. The test objective is to send a Security List Request in a burst and receive a Business Message Reject. The test steps include sending a SecurityListRequest, multiplying the request in a burst, waiting for a server response, and receiving a 'Business Reject' message with the error 'Throttle Limit Exceeded'. A 'Heartbeat' step follows. The test console shows the error details. On the right, a table titled 'j - BusinessMessageReject' shows the message fields, with 'MsgType (35)' and 'BusinessRejectReason (300)' highlighted in red.

Field	Value
BeginString (8)	FIXT.1.1
BodyLength (9)	117
MsgType (35)	J - BusinessMessageReject
SenderCompID (49)	
TargetCompID (56)	
MsgSeqNum (34)	20
SendingTime (52)	20170906-08:30:22.217
RefMsgType (372)	x - SecurityListRequest
BusinessRejectRefID (379)	LREQ2
BusinessRejectReason (300)	8
Text (58)	Throttle Limit Exceeded
Checksum (10)	103

3.3.8 ToTV Records

RE7 - User retrieves ToTV Record by ISIN

Objective: Client submits Security Definition Request to retrieve ToTV Record by ISIN

Client needs to send Security Definition Request (35=c) with Security Request Type (321=6) for Product to return the ToTV Record for an existing ISIN.

The screenshot shows the ANNA Test Runner interface for the test 'Retrieve ToTV Record by ISIN'. The test objective is to submit a Security Definition Request to retrieve the ToTV Record. The test steps include sending a SecurityDefinitionRequest, evaluating the response, and waiting for a server response. The test console shows the progress of the SecurityDefinitionRequest step.

c - SecurityDefinitionRequest

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	113	113
MsgType (35)		c - SecurityDefinitionRequest
MsgSeqNum (34)		611
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20180214-10:15:28.753
TargetCompID (56)	DSB	DSB
TargetSubID (57)		
SecurityDSource (22)		4 - ISINNumber
SecurityID (48)		EZ15BS4SK2S0
SecurityReqID (320)	DREQ42	DREQ42
SecurityRequestType (321)	6 - Product	6 - Product
Checksum (10)	093	093

Client will receive Security Definition (35=d) with the ToTV record.

d - SecurityDefinition

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	1192	1192
MsgType (35)		d - SecurityDefinition
MsgSeqNum (34)		613
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20180214-10:15:27.667
TargetCompID (56)		
TargetSubID (57)		
SecurityIDSource (22)		4 - ISINNumber
SecurityID (48)		EZ15BS4SK2S0
Symbol (55)		[N/A]
SecurityXMLLen (1184)		1022
SecurityXML (1185)		{ToTV-record:{"Header":{"ISIN":"EZ15BS4SK2S0","LastCompletedProcessingDate":"2018-02-14","LastModifiedDate":"2018-02-14"},"Body":{"Header":{"AssetClass":"Commodities","InstrumentType":"Swap","UseCase":"Swap","Level":"InstRefDataReporting"},"Attributes":{"DeliveryType":"CASH","ExpiryDate":"2019-02-28","FinalPriceType":"PLAT","NotionalCurrency":"EUR","PriceMultiplier":1,"Refer for Difference (CFD)","TransactionType":"OTCT","BaseProduct":"NRGY","SubProduct":"OILP","AdditionalSubProduct":"NAPH"},"ISIN":{"ISIN":"EZ15BS4SK2S0","Status":"New","StatusReason":"","LastUpdateDateTime":"2018-02-12T16:38:28","TemplateVersion":1,"CommodityDerivativeIndicator":"TRUE","UnderlyingAssetType":"Energy","IssuerorOperatoroftheTradingVenueIdentifier":"NA","EUR 20190228","ShortName":"NA/Swap NRGY NAPH EUR 20190228","ClassificationType":"STJCXC"},"Derived":{"ToTV":false}}
AssetClass (1938)		5 - Commodity
TransactTime (60)		20180214-10:15:27.666
SecurityReqID (320)	DREQ42	DREQ42
SecurityRequestResult (550)	0 - ValidRequest	0 - ValidRequest

SA2 – User searches for ToTV Records by Attributes

Objective: Client submits a Security List Request having non-empty Text(58) and Security List Type to search for ToTV records

To search for ToTV records, there is a need to add SecurityListType(1470)=100 to the SecurityListRequest(35=x) message. **Single ISIN** only can be specified in the search criteria for the ToTV data.

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RE7 - User retrieves ToTV Record by ISIN
 SA2 - User searches for ToTV Records by Attributes
 SU9 - User subscribes to ToTV Records

Test Runner

ToTV Stop Test

- Test Name: Searches for ToTV Records by Attributes
- Objective: Client submits a Security List Request having non-empty Text(58) and Security List Type to search for ToTV records
- Please submit a Security List Request (35=x) having SubscriptionRequestType (263=0) and SecurityListType (1470=100) and non-empty Text (58=<ISIN>)

→ SecurityListRequest Hide Details

✓ Evaluating: SecurityListRequest Show Details

→ Waiting for server to respond with a Security List

x - SecurityListRequest

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	127	127
MsgType (35)		x - SecurityListRequest
MsgSeqNum (34)		6
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20180214-11:50:51.956
TargetCompID (56)		
TargetSubID (57)		
Text (58)	!=(blank)	EZ15BS4SK2S0
SubscriptionRequestType (263)	0 - Snapshot	0 - Snapshot
SecurityReqID (320)	LREQ1	LREQ1
SecurityListRequestType (559)	4 - AllSecurities	4 - AllSecurities
Custom Tag (1181)		0
SecurityListType (1470)	100	100
Checksum (10)	252	252

Client will receive Security List (35=y) for the ToTV records.

y - SecurityList

Show All Message Fields

Field	Expected	Value
BeginString (8)	FIXT.1.1	FIXT.1.1
BodyLength (9)	1224	1224
MsgType (35)		y - SecurityList
MsgSeqNum (34)		6
SenderCompID (49)		
SenderSubID (50)		
SendingTime (52)		20180214-11:50:51.135
TargetCompID (56)		
TargetSubID (57)		
Custom Tag (58)		EZ15BS4SK250
TransactTime (60)		20180214-11:50:51.133
SecurityReqID (320)	LREQ1	LREQ1
TotNoRelatedSym (383)	1	1
SecurityRequestResult (384)	0 - ValidRequest	0 - ValidRequest
AppSeqNum (1181)	0	0
Custom Tag (58)		EZ15BS4SK250
NoRelatedSym (146)		1

SU9 – User subscribes to ToTV Records

ToTV subscription feature withheld until further notice.

RE8 - Retrieve ToTV version 2 Record by ISIN (FCA ToTV) - Manual FIX Certification

Objective: Client submits Security Definition Request to retrieve ToTV Record version 2 (FCA ToTV) by ISIN. DSB FIX user who would like to use these new features would need to pass the required test cases in order to obtain the certification. This can be done by submitting the exact FIX messages and then technical support will manually validate the results. Related DSB Notification:

<https://www.anna-dsb.com/download/2019-03-21-notification-anna-dsb-uat-fix-totv-manual-fix-certification/>

Client needs to send Security Definition Request (35=c) with Security Request Type (321=6) and SecurityGroup(1151)=2 is used to return the ToTV version 2 Record for an existing ISIN.

The ISIN is specified in SecurityID(tag 48). The SecurityIDSource(22) is set to ISIN(4).

Sample FIX Message Request and Response

Request

```
8=FIXT.1.1 9=158 35=c 34=2 43=N 49=client1 50=subclient1 52=20190519-08:29:24.130
56=DSB 57=UAT 122=20190519-08:29:24.130 22=4 48=DE000CN0XBX2 55=[N/A] 320=DREQ1
321=6 1151=2 10=089
```

Response

```
8=FIXT.1.1 9=5174 35=d 34=2 49=DSB 50=UAT 52=20190519-08:29:24.504 56=client1
57=subclient1 22=4 48=DE000CN0XBX2 55=[N/A] 60=20190519-08:29:24.504 320=DREQ1
560=0 1151=2 1184=5006 1185={"ToTV-record":{"version":"2", "Header":{"ISIN":"DE000CN0XBX2", "LastCompletedProcessingDate":"2019-05-18", "LastModifiedDate":"2019-04-06"}, "EU":{"Derived":{"ToTV":true, "ToTV-
```

```
EffectiveDate":"2015-04-20", "uToTV":true, "uToTV-EffectiveDate":"1927-01-01  
Certification Report <TRUNCATED>
```

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

Complete Certification Wizard

Select Completion Options >

All required tests for this Service have been completed. Please select an option to proceed.

Finalize and Submit
Finalization will send a certification completion report to responsible parties, and certification for this Service will be completed.

Continue Certification
Continuing will allow certification to continue. You can complete optional tests, and re-run already-passed tests.

Cancel Submit

- 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 Heartbeat	2017-07-27 06:00:07.457		PASSED
SL2 - Reconnect after abnormal disconnect	2017-07-21 10:04:08.925		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 Credit	Never run		
CR4 - User creates ISIN for Equity	Never run		
CR5 - User creates ISIN for Commodities	Never run		
SE1 - User requests OTC product definition for a Rate ISIN	2017-07-21 09:52:34.682		PASSED
SE2 - User requests OTC product definition for a Foreign Exchange ISIN	Never run		
SE3 - User requests OTC product definition for a Credit ISIN	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 asset types	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-existent ISIN	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