BARCLAYS

BARX®

BARX FX via FIX

Rules of Engagement

Version 4.6.1 | March 2013

References/Supporting documentation

- FPL – FIX Specification 4.2
- FPL – FIX Implementation Guide
- BARX – FIX Connectivity and On-boarding Guide
- BARX – Client Connectivity Checklist

Date Issued	Version No	Author	Reason for Change
August 2007	4.0	Pritam Kamat	Initial
August 2007	4.1	Jack Utley	Revisions to layout and formatting
August 2007	4.1.1	Pritam Kamat	Added raw string examples
September 2007	4.1.2	Pritam Kamat	Added comments from NW
January 2008	4.2	Jack Utley	NDF amendments
August 2011	4.4	David Lancaster	Corrections, updates for streaming swaps and addition of gap fill section
January 2012	4.5	David Lancaster	NDF Swaps and updates.
August 2012	4.5.1	David Lancaster	Review and updates
September 2012	4.6	Christine Bowes	USI changes
March 2013	4.6.1	David Lancaster	Mid-rate changes

Contents

Contents

Introduction

Purpose

The purpose of this document is to provide clients/vendors with the technical specification required to connect to the BARX FX platform using the FIX protocol, for pricing and trading. The focus is on how the various FIX messages are used by the Barclays system, the information that is included in each message, and the message exchanges between the client system and the Barclays system. The document shall serve as the definition of the FIX Rules of Engagement that are required for pricing and trading.

Scope

The scope of this document is limited to defining the FIX messages and values supported by the BARX FX FIX interface for Trade pricing and trading. It is assumed that the reader has a thorough understanding of the FIX protocol itself, therefore there will be no explanation of the FIX session level protocol, message types or message formats. This information can be obtained through the FIX Protocol website (**http://www. fixprotocol.org**) and is outside the scope of this document.

Supported FIX Versions and Messages

FIX is the communication protocol that both Barclays and its client systems will need to support to communicate with each other for pricing and trading. Barclays bases its message set on the FIX protocol version 4.2 with some additional tags.

Only the messages and fields relevant to communicate with Barclays and its clients are included in this document. Additional fields will be ignored and messages with unsupported field values will be rejected.

All counterparty systems will be expected to comply with the standard FIX protocol v4.2 for all session levels and should default to the FIX defined formats and values unless otherwise stated.

Session Level FIX Messages (Administrative)

The following session level messages will be supported:

- Logon – (MsgType=A)
- Heartbeat – (MsgType=0)
- Test Request – (MsgType=1)
- Resend Request – (MsgType=2)
- Session-level Reject – (MsgType=3)
- Sequence Reset (Gap Fill) – (MsgType=4)
- Logout – (MsgType=5)

The above session level message may be sent by either party in accordance with the FIX protocol specification v4.2 available at the FIX protocol website (http://www.fixprotocol.org)

Application Level FIX Messages (Business)

Messages sent by the Client to Barclays

- Quote Request – (MsgType=R)
- New Order Single – (MsgType=D)

Messages sent by Barclays to Client

- Quote Acknowledgement – (MsgType=b)
- Quote – (MsgType=S)
- Quote Cancel – (MsgType=Z)
- Execution Report – (MsgType=8)
- Business Message Reject – (MsgType=j)

Supported FIX messages and behaviour

Hours of operation

The table in the top right shows the hours of operation for the FIX Engines. When the Barclays FIX Engine stops at the end of the business day the sequence numbers are reset before the FIX Engine restarts.

Day	Stop time	Start time	Client stop actions
Monday		05:00 (SYD)	
Monday – Thursday	17:00 (NYK)	17:01 (NYK)	Stop Price Streams (Optional)
			Send Logout Message (Optional)
			Reset Sequence Numbers
Friday	17:00 (NYK)		Stop Price Streams (Optional)
			Send Logout Message (Optional)
			Reset Sequence Numbers
Saturday	n/a		No Action

Table 1: Start/Stop times for FIX Counterparties

In the table above the locale SYD is the Sydney timezone.

The locale NYK is either the EST or EDT timezone depending on the time of year.

End of day procedures

FIX sequence numbers are reset at the end of each weekday after the disconnect.

During the break the FX system rolls its calendar dates. For example, a Spot date issued at 17:01 NYK would be one day later than the date issued for the same request at 16:49. This convention is based on the time of the New York close (17:00 EST).

All clients are expected to reset their sequence numbers during this downtime.

Counterparty identification

SenderCompID (Tag 49) and TargetCompID (Tag 56) are used to identify counterparties between client and Barclays. The values of these fields are bi-laterally agreed between Barclays and each client (up to a maximum of 12 characters) during the On-boarding process.

Client > Barclays:

• SenderCompID 49=<ClientCompID>

• TargetCompID 56=BARX-PRICES

Barclays > Client:

• SenderCompID 49=BARX-PRICES

• TargetCompID 56=<ClientCompID>

Supported FIX messages and behaviour

Generally there is no requirement for the use of a SenderSubID, but it can be enabled when required. Currently the SenderLocationID is not supported.

SenderSubID can be used to support identification of Users, Groups, Funds or Accounts in a client system. When used the value present is echoed back to the client in TargetSubID in Execution Reports.

During the development and testing phase all comp ids are suffixed with '-TEST'. Similarly, if between test and production the staging environment is used, the ids are suffixed '-DEMO'.

Order types

BARX FX via FIX supports At-Market and Previously Quoted order types only.

All orders are executed as Fill or Kill.

ie They will either be traded outright or rejected.

Account fields and booking details

All trades are booked to the default account associated with the client's counterparty. As such FIX tag 1 is not required when submitting orders. Using an Account value when it has not been agreed upon will result in the Order being rejected. Please check with your Connectivity Manager if you are unsure.

However, when agreed with the business that trades can be booked to multiple accounts, then a bilaterally agreed value can be used in FIX tag 1 in the Order message. When agreed the system will enforce the use of this tag.

Counterparties should be aware that Execution Reports returned do not contain tag 1 by default, should you require this then please let your Connectivity Manager know. Where trade confirmations are required with the account value, a separate Trade Capture Reporting session is required.

Duplicate handling and error recovery

QuoteRequest Ids should be unique for the duration of the session. If a live QuoteRequest with the same ID already exists it may be rejected.

Tip: Try using a unique Id that describes the request rather than a unique but random series of characters (eg GBPUSD-5m-SP-uniqueId for a quote request for 5 million Spot on cable).

Orders using a duplicate ClOrdID will be rejected. The only time this could happen would be during a session recovery, when orders are replayed due to a FIX Resend Request, but are flagged as PossDup.

In the event of an abnormal disconnect FIX session error recovery will automatically happen.

Trading limits and throttles

Barclays has some configurable safety features to reduce the risk of trading errors. These are all configurable and will need to be discussed with your Client Connectivity Manager during the Onboarding process.

Throttle/ Limit	Comments	Default Value
Quote Request	This limits the number of simultaneous streaming quote requests that can be opened at any one time. The default is 50 which protects you from exceeding available bandwidth on a standard 512k circuit.	50 Subscriptions*
Orders/ Quote	There is not a specific limit on the number of orders that can be placed against a quote, rather a given quote is valid until the volume on it is exhausted. In the event that volume is exhausted a new quote message will be issued. For example in the case of a quote for 0-1m, this could be executed in a single hit of 1m, in ten hits of 100k, or in any other number of shapes so long as the volume is within the limits of the band.	Variable

Table 2: Throttles that need to be considered

In our UAT environment to maintain stability and ensure consistent performance levels we restrict clients to 20 concurrent streaming quotes.

Note that this is not an exhaustive list of checks and that further checks may be performed to reduce the risk of trading errors. Your application is always expected to trade on the most recent quote published.

How pricing works: Symbology and product information

BARX Supports:

- Crosses against all the major currencies and the more exotic currencies too

- Quoting and trading in the secondary currency if required

- Decimal pricing to 1/100th pip (ie to 6DP for currencies normally quoted to 4DP)

The symbol field must contain the currency pair to be traded in the format CCY1/CCY2. The standard three letter abbreviation for the currency must be used. The ordering of the symbols is important (as GBP/USD is correct, but USD/GBP is incorrect and would result in either the quote request or order being rejected).

Supported FIX messages and behaviour

The ordering is standard and based upon currency rankings. Please see the Currency Ranking table in the Appendix 2 for details on using the correct symbol. If you are unsure what to use please contact your FIX Client Connectivity Manager.

BARX does not support:

• Inverse pricing

• Stacked pricing

The settlement date can be expressed either in the format YYYYMMDD or using a standard tenor, as shown in the table below.

ON	3W	6M	1Y
TN	1M	7M	15M
SP	2M	8M	18M
SN	3M	9M	21M
1W	4M	10M	2Y
2W	5M	11M	

Table 3: Standard Tenors to use as Settlement Date

Tip: Barclays strongly recommends the use of tenors in Quote Requests and Orders, as their meaning and intended date is unambiguous (for example Spot date for CAD is generally T+1 and not T+2). Note the actual date value of the tenor is reported back in all subsequent Quotes and Execution Reports.

How pricing works

BARX FX via FIX prices are controlled by volume bands, such that the bid-offer spread for 1M GBP against USD could be different to the spread for 10M GBP against USD. Exactly how these spreads differ will be managed by your Sales contact but in order to facilitate your development it is useful to understand our terminology and how this works.

For the example let us work with the currency pair GBP/USD. In this GBP is known as the 'base' currency (also sometimes referred to as the primary currency) and USD is known as the 'counter' currency (also sometimes referred to as the secondary currency).

The volume band boundaries are always defined by the base currency, and currently the volume band boundaries to trade up to 10M of the base currency stand at 1M, 3M, 5M and 10M. When we send Quotes the quote will always contain the minimum and maximum tradable amount for that quote. The minimum is the lower volume band boundary and the maximum is the amount specified in the QuoteRequest (hence it is always a good idea to specify the upper limit of the volume band in any streaming quote request).

When you submit a QuoteRequest you must specify a currency. We recommend that you always specify the base currency as that way the min/max amounts in the quotes will remain constant (the volume band boundaries). If you specify the secondary currency then each quote will have a different min/max amount as the rate changes.

Volume banding: MinBidSize and MinOfferSize fields

Prices for a particular amount come from volume bands which are specific for each client. The MinBidSize and MinOfferSize fields in the Quote indicate the minimum amount that is tradable for that quote. Volume bands are always referenced in the base CCY. The standard volume bands are as follows:

    0 – 1 Million

    1 – 3 Million

    3 – 5 Million

    5 – 10 Million

Above 5 million, they increase in clips of 5 million up to 50 million.

Above 50 million, they increase in clips of 10 million.

Note that lower volume band limits are *exclusive* (so for example for the 1 – 3 band the 1m equates to 1,000,000.01) whilst upper volume band limits are *inclusive* (so for example for the 1 – 3 band the 3m equates to 3,000,000).

NDFs (Non-deliverable forwards)

Non-deliverable forwards are Currency outrights that do not settle in the NDF currency. Please see Appendix 7 for details on our offering via FIX. Where an NDF currency is traded, the Fixing Date is not provided in the FIX message by default, and will have to be resolved manually with our back office. Alternatively it is possible to obtain the Fixing Date electronically on Execution Reports or through the use of a FX STP/Trade Capture Report FIX session – if this is something you require then please inform your FIX Client Connectivity Manager.

The fixing date is the date at which the difference between the prevailing market exchange rate and the agreed upon exchange rate is calculated. NDFs are commonly quoted for time periods of one month up to one year, and are normally quoted and settled in US dollars.

The bid/offer price

The BidPx contains the price at which Barclays is prepared to buy the primary currency. The OfferPx is the price at which Barclays is prepared to sell the primary currency.

This means that in all Quotes issued BidPx < OfferPx. Both BidPx and OfferPx are provided in Quotes where the Quote Request is for a two-way quote (ie where the Side field is absent).

Example

Two-way Quote Request from client	Example Quote response
Symbol = GBP/USD Currency = USD Side not present OrderQty = 1000000 FutSettDate = SP	Symbol = GBP/USD Currency = USD BidPx =1.6027 OfferPx = 1.6037

Supported FIX messages and behaviour

Barclays is prepared to buy GBP giving out 1.6027USD for each GBP it buys, and is prepared to sell GBP receiving 1.6037USD for each GBP it sells.

If the client system were to then sell 1000000USD it would receive
1000000/1.6037 = 623558.02 GBP

If the client system were instead to buy 1000000USD it would have to provide
1000000/1.6027 = 623947.09 GBP

When ordering against a Quote, the Price field in a NewOrderSingle must exactly match the appropriate BidPx or OfferPx field provided in the Quote and must match at the character level. The following table is intended to emphasise this issue.

Price in Quote response	Price in Order	Order accepted?
1.6027	1.6027	Yes
1.6027	1.6026999999999	No

If the wrong price is used in the order, an Execution Report is generated containing an error message similar to this:
Price for a buy should have been 1.6027 but was 1.602699

Determining whether to use bid or offer price

When sending a trade the side and currency required determine whether to use the bid or the offer price.

Client View	Bid	Offer
CCY1	SELL	BUY
CCY2	BUY	SELL

Table 4: The bid/offer matrix

The bid/offer matrix shown can be used to determine which to use.

Remember that the price shown is the Barclays rate to convert 1 unit of currency 1 to currency 2. So using GBP/USD as an example the Bid is the price to determine how many USD Barclays will pay per GBP, and the offer is how many USD the client has to pay to buy GBP from Barclays.

From the matrix shown this can be easily seen. If the client wants to buy GBP (ccy1) the offer price must be used. Similarly if the client wants to buy USD (ccy2) the bid price must be used.

When determining the price to use for Swaps the same logic can be applied because for FX swaps the side is the intention on the far leg of the swap. The swap can be considered to be 2 FX deals. On each leg the side and currency is known, and so the correct price can be determined on each leg from the matrix shown above.

The currency field (and its effect on size)

The currency field in the quote requests determines the values of the size and min sizes in the quotes. As mentioned above, the Bid and Offer prices are always expressed in the same direction. However, the size of the quote (and the minimum size) is expressed in the currency of the quote request.

The side field

The side field is always from the client's perspective, and always refers to the currency in the currency field.

ie A Quote Request containing Symbol=GBP/USD with Currency=USD and Side=1 means that the client wants to buy USD, selling GBP.

ie A Quote Request containing Symbol=GBP/USD with Currency=GBP and Side=1 means that the client wants to buy GBP, selling USD.

Time synchronization and stale messages

Barclays uses NTP to synchronize its servers and recommends that client systems do the same.

Failover procedures

Barclays run its FIX Engines in (Active/Passive) clusters. In the event of a failure with either FIX Engine or the machine, the DR FIX Engine will be brought up. Barclays supports connectivity from both a clients DR site and from the client to Barclays DR. For more information on connectivity to and from DR sites, please refer to the 'Connectivity and Onboarding Guide'.

Barclays closely monitors all its FIX Engines and if the need arises to contact you due to an exception, then our BARX Support team will contact your designated Application Support contact. Please ensure that your Support details are passed to your Connectivity Manager prior to Go Live.

Details of FIX session level sequences are not provided in full here (Logon, Logout and Gap Fills are shown to highlight key areas). However it is important that your FIX engine is configured to be fully compliant with all Session Level interactions, please refer to the FIX Specification 4.2.

Sequence diagrams and message flows

Logon

The Logon sequence is initiated by the client.

Tip: It is strongly recommended that pricing sessions are always initiated with ResetSeqNumFlag (tag 141) set to 'Y', and that trading sessions are always initiated without the sequence reset flag (or have it set explicitly to N).
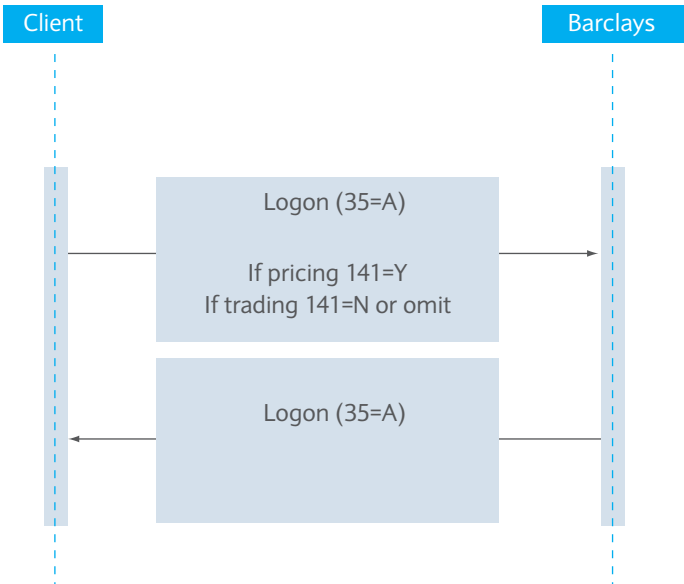
Figure 1: Logon Sequence

Logout

If the logout sequence is client initiated Barclays will not attempt a reconnect. However if Barclays initiate an intra-day logout sequence, the client application will be able to reconnect via a logon sequence.

Note: During normal trading operations Barclays should not need to initiate a logout (apart from at the end of the trading day), doing so would be due to exceptional circumstances.
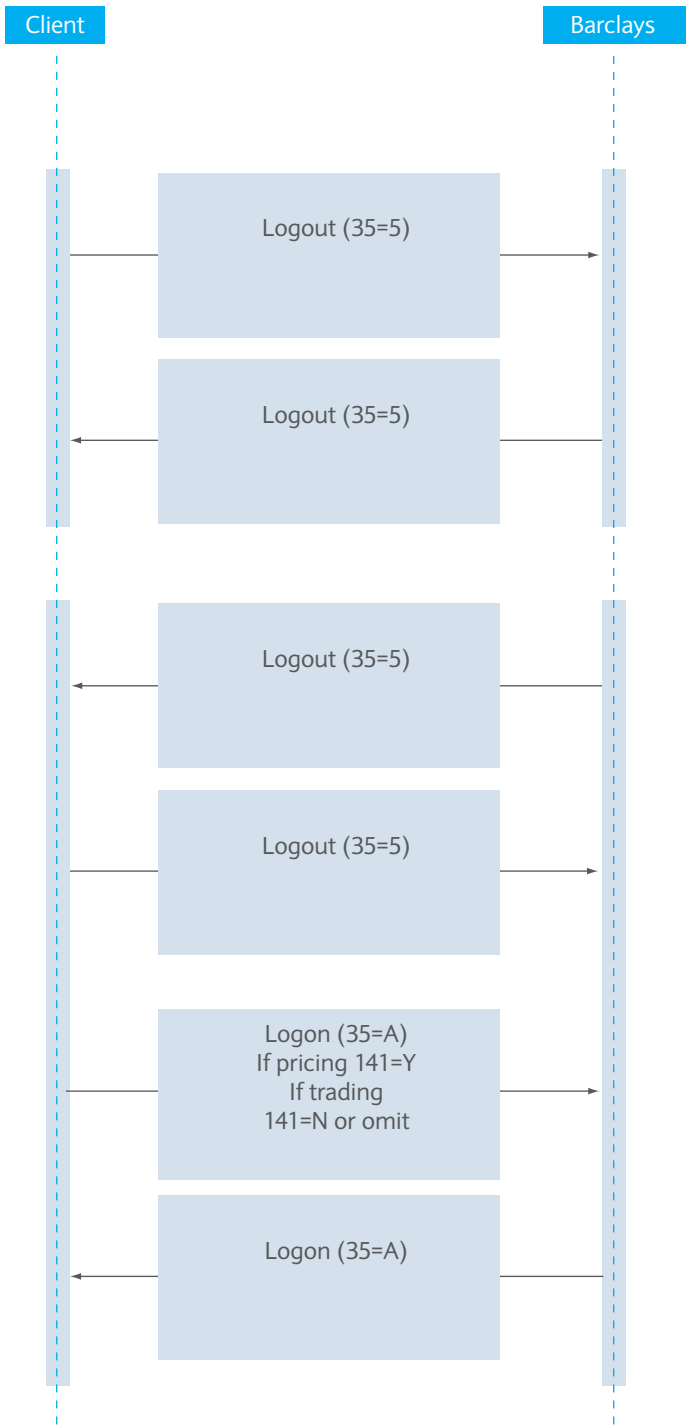
Figure 2: Logon Sequence

Sequence diagrams and message flows

Resend Requests

It is important that the client application should be able to correctly handle Gap Fills as per the FIX protocol. In the event of an incoming sequence number mismatch, the receiving party should issue a Resend Request.

Under normal circumstances the re-sender should respond by:

1. Resending the requested messages (in order) with the original sequence numbers and PossDupFlag(43=Y).

2. Where applicable, issue a SeqReset-GapFill with GapFill(123=Y) message, to replace the retransmission of administrative and application messages.

In the event of a serious application error – and with manual agreement from both sides – the client application should be able to handle the following additional scenario:

Issue a SeqReset-Reset with GapFill(123=N) to force sequence number synchronization.

The behaviour described is in accordance with the FIX protocol and is covered in more detail within the specification.

Client		Barclays
	ResendRequest (35=2) BeginSeqNo(7) EndSeqNo(16)	
	Replay Message SeqNum(34=x) PossDup(43=y)	
	Replay Messages SeqNum(34=x+1) PossDup(43=y) ...until all requested messages have been replayed	
	ResendRequest(35=2)	
	SequenceReset(35=4) GapFill(123=y)	
	ResendRequest(35=2)	
	SequenceReset(35=4) GapFill(123=n)	
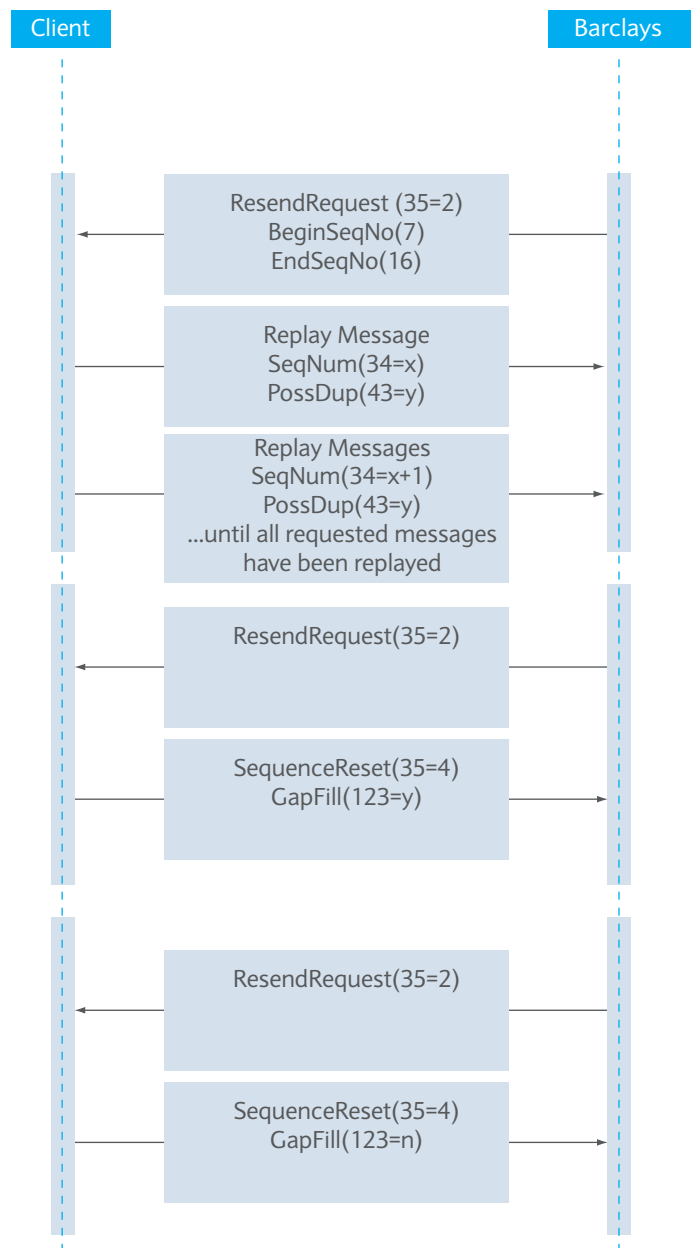
Figure 3: GapFill Sequence (note that flow can be in either direction)

Sequence diagrams and message flows

Pricing

There are two available pricing models, snapshot prices and streaming prices.

In each model a given quote can be traded upon between the minimum quote amount and the maximum, as many times as required, provided the total amount ordered does not exceed the quote amount and the quote is still valid. In the case of the streaming model once the volume on a quote is exhausted a new quote will be issued regardless of whether there is any price movement or not, snapshots by design will not refresh.

Pricing Request Rejection

In both models, the quote request may be rejected by way of a QuoteAcknowledgement message (35=b) for a number of reasons. For example if a currency pair is not enabled or in the case of a streaming request if returning a price would exceed the quote stream throttle in place on your session.

A QuoteAcknowledgement is also sent when the data if a quote request is malformed – if for example incorrect values are used. Therefore receipt of a QuoteAcknowledgement can be considered as indicating that a quote has not been accepted. Following successful conformance testing a QuoteAcknowledgement should not occur when in production, as the conformance test is designed to ensure that the client application conforms to the Barclays RoE.

The BusinessMessageReject is an optional message, which can be sent in the event that there is no price available at the time of the request. It is only produced when requesting a snapshot price.

Client		Barclays
	QuoteRequest(35=R) QuoteRequestID(131)<new> (StreamingQuoteDuration (6065)<n>) →	
	← QuoteAcknowledgement (35=b) QuoteRequestID(131)<Client>	
	QuoteRequest(35=R) QuoteRequestID(131)<new> →	
	← BusinessMessageReject (35=j) BusinessRejectReflD(379) <Client>RefSeqNum(45) <seqNum>	
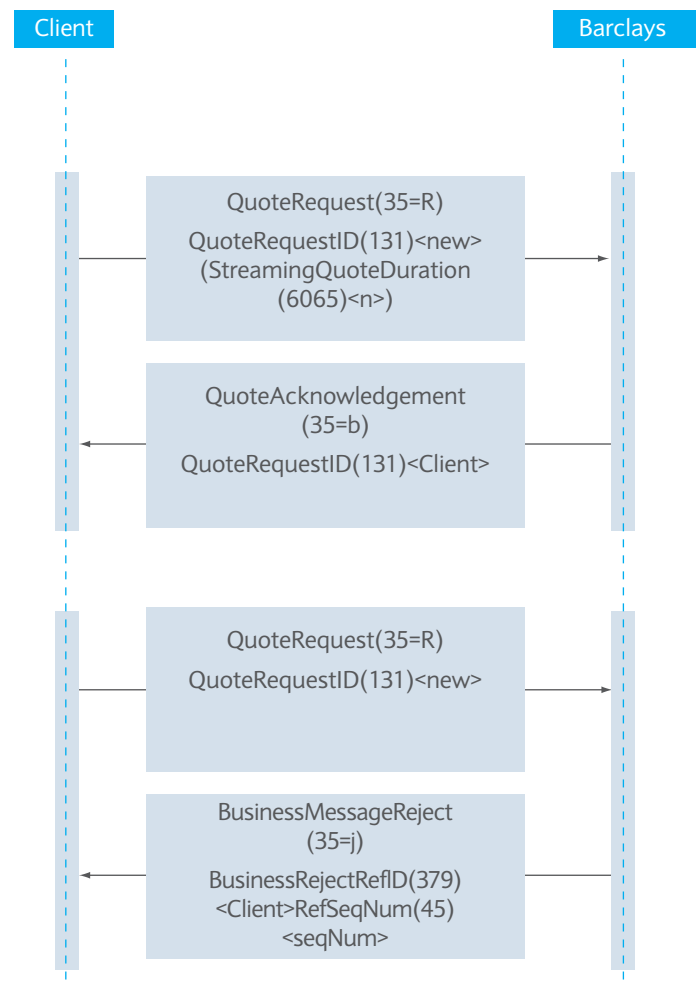
Figure 4: Pricing Request Rejection

Sequence diagrams and message flows

Snapshot Pricing

A snapshot price request results in a single quote from Barclays and possibly a QuoteCancel (effectively making the price stale). The lifetime of the Quote is determined by the Expiry Time in tag 62.

Streaming Pricing

A streaming price request results in a stream of Quotes from Barclays, and possibly Quote Cancels when prices are stale. The client application can optionally close the stream using the Quote Request message as described in Quote Request, FX Spot and Forward and Quote Request, FX Swaps.

Disconnecting the FIX Session also closes the stream and cancels all open subscriptions.

Figure 5: Snapshot Pricing
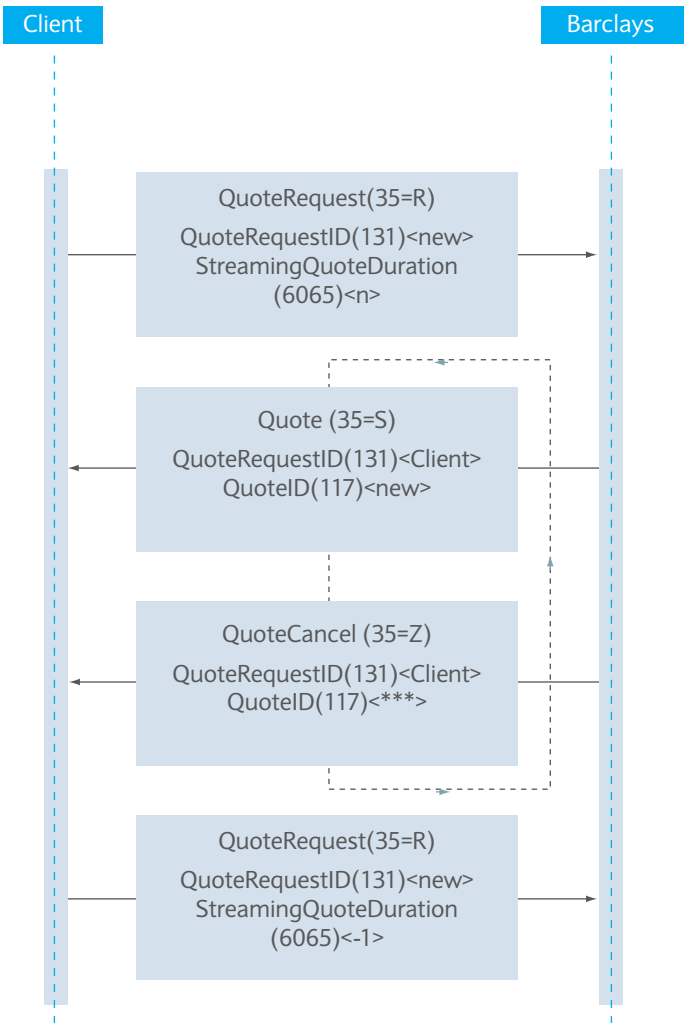
Figure 6: Streaming Pricing

Sequence diagrams and message flows

Trading

Currently Barclays offer two order types; at-market and previously quoted. In both cases orders are fill or kill – that is they either get executed or rejected.

At-market orders by their nature do not reference a quote and therefore the price an order executes at may not always match your expectations. At market orders are independent from any quotes you may be streaming, therefore they can be sent regardless of whether you have any quotes streaming in a given pair and regardless of the volume bands you are streaming.

Previously quoted orders must always reference the latest quote id, a given quote id is tradable up to the amount requested. A quote can be traded on multiple times provided that:

• Order quantity is within the minimum and maximum sizes of the quote

• Cumulative volume traded against the quote id does not exceed the maximum size of the quote

Snapshot Price Trading

When trading on a snapshot quote there is an additional constraint in that the time-to-live period of the quote referenced must not have expired. It is also worth noting that minimum and maximum sizes are not returned on snapshot quotes but are still in effect. Once the volume on a snapshot quote is exhausted it is no longer tradable.

Streaming Price Trading

When trading on a streaming quote once the volume has been exhausted a new quote will be issued regardless of whether the price has moved or not.

Figure 7: Snapshot Trading

Client		Barclays

Quote (35=S)
QuoteRequestID(131)<Client>
QuoteID(117)<new>
Size(134,135)<Size>
MinSize(647,648)<Size>

New Order Single (35=D)
CIOrderID(11)<new>
QuoteID(117)<Barclays>
MinSize<OrderQty(38)
<Size> <=Size

ExecutionReport (35=8)
CIOrderID(11)<Client>
OrderID(37)<new>
ExecID(17)<Barclays>
OrderStatus(39)<"2"> or
OrderStatus(39)<"8">

Sum(OrderQty(38))<=Size

Figure 7: Snapshot Trading

Figure 8: Streaming Price Trading

Client		Barclays

Quote (35=S)
QuoteRequestID(131)<Client>
QuoteID(117)<new>
Size(134,135)<Size>
MinSize(647,648)<Size>
QuoteID(117)<new>

New Order Single (35=D)
CIOrderID(11)<new>
QuoteID(117)<Barclays>
MinSize<OrderQty(38)
<Size> <=Size

ExecutionReport (35=8)
CIOrderID(11)<Client>
OrderID(37)<new>
ExecID(17)<Barclays>
OrderStatus(39)<"2"> or
OrderStatus(39)<"8">

Sum(OrderQty(38))<=Size
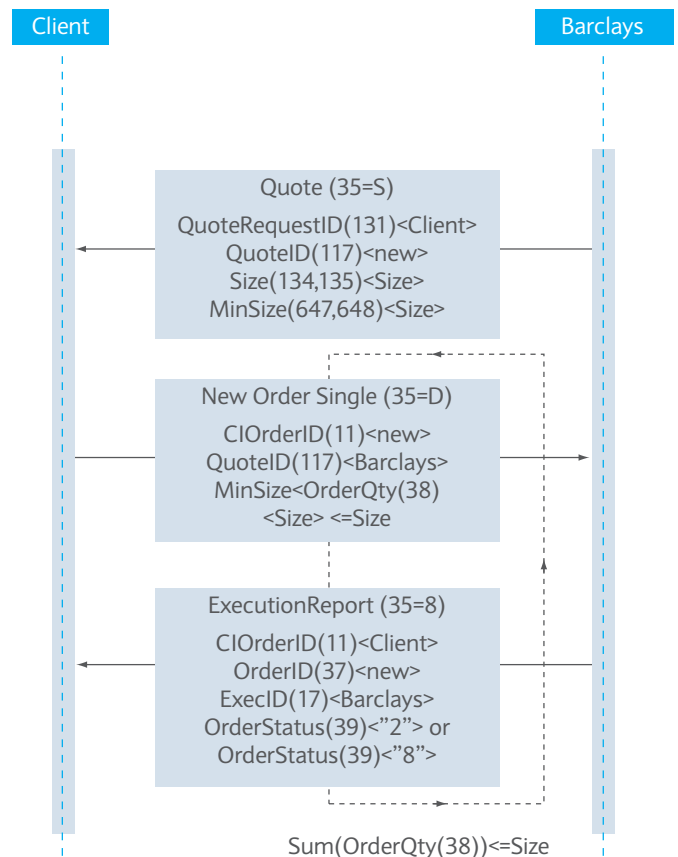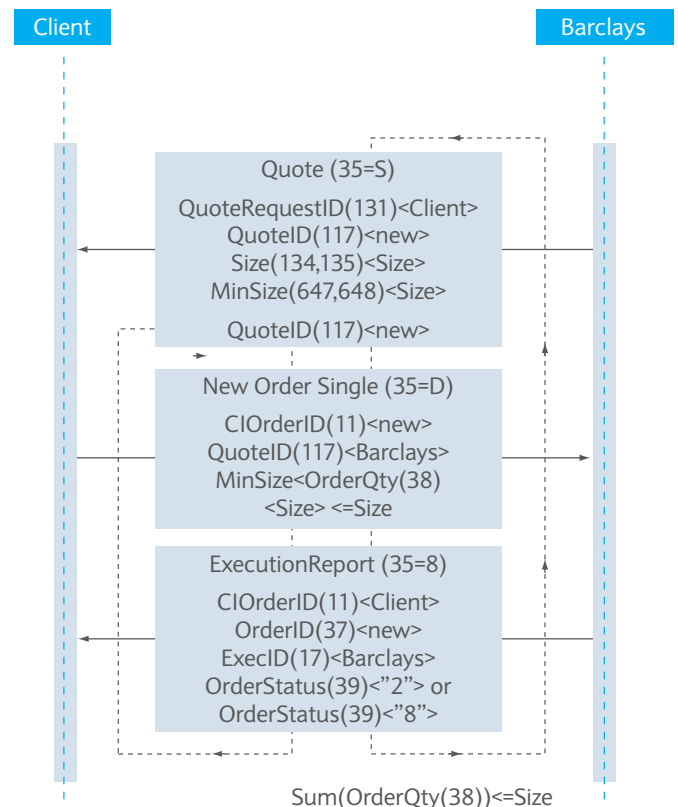
Figure 8: Streaming Price Trading

Appendix 1 – Message Definitions and Values

Quote Request, FX Spot and Forward

The quote request message for spots (and forwards) is used to request quotes for a given currency pair at a given volume. Typically the currency specified is the primary currency, if the secondary currency is selected the amounts in the quotes is given in the secondary currency (as explained in The Currency Field (and its effect on Size)). The side can be optionally specified, in which case the quotes provided would be one-sided (allowing one to either buy or sell the currency requested).

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'R'	4.2
OrdType	40	Y	'C'	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
QuoteReqID	131	Y	Client quote id	4.2
NoRelatedSym	146	Y	'1'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	N	'1'=BUY, '2'=SELL, absent for two-way quote	4.2
OrderQty	38	Y	Amount of Currency CCY	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket	4.2
TransactTime	60	Y	YYYYMMDD-HH:MM:SS client UTC stamp	4.2
StreamingQuote Duration	6065	N	A number of seconds for which you wish to receive price ticks. If this field is present and is valid, you will receive quotes until the timeout period is reached rather than just a single quote. If you specify duration of 0, you will receive quotes until you logout. If –1 is specified, then the streaming rates for the specified (previously requested) Quote Request (QuoteReqID) will end. If tag is omitted then the request is for a snapshot price.	Barclays extension

Figure 1: Example of Raw FIX FX Spot QuoteRequest

8=FIX.4.2^A9=175^A35=R^A49=CLIENT PRICES TEST^A56=BARX PRICES TEST^A34=38^A52=20070831 1:0 1:25^A40=C^A167=FOR^A131= C1188558085003^A146=1^A55=GBP/USD^A15=GBP^A38=5000000^A64=SP ^A60=20070831-12:01:25^A6065=0^A10=084^A

Example of 2-way Quote Request Message for Spot

BeginString	8	FIX.4.2
BodyLength	9	175
MsgType	35	R
SenderCompID	49	CLIENT-PRICES-TEST
TargetCompID	56	BARX-PRICES-TEST
MsgSeqNum	34	38
SendingTime	52	20070831-11:01:25
OrdType	40	C
SecurityType	167	FOR
QuoteReqID	131	C1188558085003
NoRelatedSym	146	1
Symbol	55	GBP/USD
Currency	15	GBP
OrderQty	38	5000000
FutSettDate	64	SP
TransactTime	60	20070831-12:01:25
StreamingQuoteDuration	6065	0
CheckSum	10	84

Appendix 1 – Message Definitions and Values

Quote Request, FX Swaps

The swap quote request message is similar to that of the Spot/Forward, but the order quantities and tenor/settlement dates for both legs are required.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'R'	4.2
OrdType	40	Y	'G' = Forex Swap	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
QuoteReqID	131	Y	Client quote id	4.2
NoRelatedSym	146	Y	'1'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	N	'1'=BUY, '2'=SELL, Refers to the side of the far leg of the FX swap (also known as the right-hand side). The absence of a side implies that a two-sided quote is being requested	4.2
OrderQty	38	Y	Amount of Currency CCY – Near Leg	4.2
OrderQty2	192	Y	Amount of Currency CCY – Far Leg	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket – Valid Tenor (Near Leg)	4.2
FutSettDate2	193	Y	Value date YYYYMMDD or valid time bucket – Valid Tenor (Far Leg)	4.2
TransactTime	60	Y	YYYYMMDD-HH :MM:SS client UTC time stamp	4.2
StreamingQuote Duration	6065	N	If 0 is specified, you will receive quotes until a predefined time limit. If >0 is specified, the quotes are subscribed for the number of seconds specified in the tag (as long as it is less than a predefined time limit talk to your Onboarding manager to find out this predefined time limit for your session). If -1 is specified, the streaming swap rates for the specified (previously requested) QuoteRequest (QuoteReqID) will end. If tag is omitted, the request is for a snapshot price	4.2

Figure 2 Example of a Raw FIX FX Swap Quote Request

```
8=FIX.4.2^A9=181^A35=R^A49=CLIENT PRICES TEST^A56=BARX PRICES TEST^A34=61^A52=20070831-16:31:20^A40=G^A167=FOR^A131=G11885
78300892^A146= 1^A55=USD/CAD^A15=USD^A38=1000^A192=1000^ A64=SP^A193=1M^A60=20070831-16:31:20^A6065=0^A10=084^A
```

Appendix 1 – Message Definitions and Values

Example of 2-way Quote Request Message for Swaps

BeginString	8	FIX.4.2
BodyLength	9	181
MsgType	35	R
SenderCompID	49	CLIENT-PRICES-TEST
TargetCompID	56	BARX-PRICES-TEST
MsgSeqNum	34	61
SendingTime	52	20070831-16:38:20
OrdType	40	G
SecurityType	167	FOR
QuoteReqID	131	G1188578300892
NoRelatedSym	146	1
Symbol	55	USD/CAD
Currency	15	USD
OrderQty	38	1000
OrderQty2	192	1000
FutSettDate	64	SP
FutSettDate2	193	1M
TransactTime	60	20070831-17:38:20
CheckSum	10	148

Appendix 1 – Message Definitions and Values

Quote Acknowledgment, FX Outright, Used for Rejection of Quote Request

The Quote Acknowledgement is sent in response to a badly formed Quote Request (badly formed here means at an application level, rather than FIX session level). Typically they are seen during the development phase but should not be seen during production, unless one is sent to indicate a throttle breach (too many outstanding quote requests).

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'b'	4.2
QuoteReqID	131	Y	Client quote id	4.2
QuoteAckStatus	297	Y	'5' rejected	4.2
QuoteRejectReason	300	Y	'1' = message or tag value invalid, '3' = server busy, '4' = quote message was stale '8' = invalid price	4.2
QuoteResponseLevel	301	Y	'0'	4.2
Text	58	N	Freeform error description	4.2

Figure 3: Example of a Raw FIX FX Quote Acknowledgement

8=FIX.4.2^A9=143^A35=b^A34=80^A49=BARX PRICES TEST^A56=CLIENT PRICES TEST^A52=20070831 16:47:26^A131=C1188578847558^A297=5 ^A300=1 ^A301=0^A58=Bad currency – not in symbol^A10=234^A

Example of Quote Acknowledgment

BeginString	8	FIX.4.2
BodyLength	9	143
MsgType	35	b
MsgSeqNum	34	80
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070831-16:47:26
QuoteReqID	131	C1188578847558
QuoteAckStatus	297	5
QuoteRejectReason	300	1
QuoteResponseLevel	301	0
Text	58	Bad currency – not in symbol
CheckSum	10	234

Appendix 1 – Message Definitions and Values

Quote, FX Spot and Forward

Quotes are sent in response to a quote request and are valid until the full volume has been exhausted, it is updated or cancelled. In the case of a quote being traded on, the quote will remain valid until the volume has been exhausted (though subsequent orders still need to obey the minimum size rules), once volume is exhausted a new quote will be issued regardless of whether there has been any price movement. Snapshot quotes (in response to snapshot request) do not contain MinBidSize or MinOfferSize, and can only be traded up to the amount of the quote.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'S'	4.2
OrdType	40	Y	'C'	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
QuoteID	117	Y	Barclays quote id	4.2
QuoteReqID	131	Y	Client quote id	4.2
QuoteResponseLevel	301	N	'0'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
MidRate	22061	N	Mid-rate. As per the Dodd-Frank reporting requirement there is no requirement to provide a mid-rate for ON, TN and Spot trades	Custom
BidPx	132	N	Bid	4.2
OfferPx	133	N	Offer	4.2
BidSize	134	N	Bid amount	4.2
OfferSize	135	N	Offer amount	4.2
MinBidSize	647	N	Minimum size of order for execution at quoted price	4.3*
MinOfferSize	648	N	Minimum size of order for execution at quoted price	4.3*
BidForwardPoints	189	N	Bid fwd points	4.2
OfferForwardPoints	191	N	Offer forward points	4.2
BidSpotRate	188	N	Bid spot rate	4.2
OfferSpotRate	190	N	Offer spot rate	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket	4.2
ValidUntilTime	62	N	YYYYMMDD-HH:MM:SS UTC stamp	4.2
TransactTime	60	Y	YYYYMMDD-HH:MM:SS server UTC stamp	4.2

Figure 4: Example of a Raw FIX FX Spot Quote

8=FIX.4.2^A9=315^A35=S^A34=38^A49=BARX PRICES TEST^A56=CLIENT PRICES TEST^A52=20070831 11:01:27^A117=UOXDNFYF121304 21999999998^ A131=C1188558085003^A40=C^A167=FOR^A55=GBP/USD^A15=GBP^A133=2.01995^A190=2.01995^A135=5000000^A648= 3000000.000000^A191=0.00^A132=201971^A188=2.01971^A134=5000000^A647=3000000.000000^A189=0.00^A60=20070831-11:01:28^ A64=20070904^A10=088^A

Tip: MinBidSize and MinOfferSize (4.3 FIX Fields) are used as custom fields in these messages. You will need to override validation on your FIX engine either for these tags or the entire message type. Please consult your vendor for assistance with disabling validation.

Appendix 1 – Message Definitions and Values

Example of Quote in Response to Quote Request Spot

BeginString	8	FIX.4.2
BodyLength	9	315
MsgType	35	S
MsgSeqNum	34	38
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070831-11:01:27
QuoteID	117	UOXDNFYF12130421999999998
QuoteReqID	131	C1188558085003
OrdType	40	C
SecurityType	167	FOR
Symbol	55	GBP/USD
Currency	15	GBP
OfferPx	133	2.01995
OfferSpotRate	190	2.01995
OfferSize	135	5000000
MinOfferSize	648	3000000.000000
OfferForwardPoints	191	0.00
BidPx	132	2.01971
BidSpotRate	188	2.01971
BidSize	134	5000000
MinBidSize	647	3000000.000000
BidForwardPoints	189	0.00
TransactTime	60	20070831-11:01:28
FutSettDate	64	20070904
CheckSum	10	088

Appendix 1 – Message Definitions and Values

Quote, FX Swaps

Quotes are sent in response to a quote request. They can be one way or two way. To determine which price to use and the 'intention' of the order on these quotes see page 10. Streaming quotes do not have tag 62 (valid until time) as they are valid until the full volume on them is traded on, they are updated or cancelled. In the case of a quote being traded on, the quote will remain valid until the volume has been exhausted (though subsequent orders still need to obey the minimum size rules), once volume is exhausted a new quote will be issued regardless of whether there has been any price movement. Snapshot quotes (in response to snapshot request) do not contain MinBidSize or MinOfferSize, and can only be traded up to the amount of the quote.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'S'	4.2
OrdType	40	Y	'G'	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
QuoteID	117	Y	Barclays quote id	4.2
QuoteReqID	131	Y	Client quote id	4.2
QuoteResponseLevel	301	Y	'0'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
MidRate	22061	N	Mid-rate. As per the Dodd-Frank reporting requirement there is no requirement to provide a mid-rate for ON, TN and Spot trades	Custom
BidPx	132	N	Bid Price, Near Leg	4.2
BidPx2	6050	N	Bid Price, Far Leg	4.2
OfferPx	133	N	Offer Price, Near Leg	4.2
OfferPx2	6051	N	Offer Price, Far Leg	4.2
BidSize	134	N	Bid amount, Near Leg	4.2
BidSize2	6052	N	Bid amount, Far Leg	4.2
OfferSize	135	N	Offer amount, Near Leg	4.2
OfferSize2	6053	N	Offer amount, Far Leg	4.2
BidForwardPoints	189	N	Bid fwd points, Near Leg	4.2
BidForwardPoints2	642	N	Bid fwd points, Far Leg	4.2
OfferForwardPoints	191	N	Offer forward points, Near Leg	4.2
OfferForwardPoints2	643	N	Offer forward points, Far Leg	4.2
BidSpotRate	188	N	Bid spot rate	4.2
OfferSpotRate	190	N	Offer spot rate	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket, Near Leg	4.2
FutSettDate2	193	Y	Value date YYYYMMDD or valid time bucket, Far Leg	4.2
CombinedPtsBid	6056	N	Combined Points Bid (custom)	4.2
CombinedPtsOffer	6057	N	Combined Points Offered (custom)	4.2
ValidUntilTime	62	N	YYYYMMDD-HH :MM:SS UTC stamp	4.2
TransactTime	60	Y	YYYYMMDD-HH :MM:SS server UTC stamp	4.2

Figure 5: Example of a Raw FIX FX 2-way Swap Quote

```
8=FIX.4.2^A9=413^A35=S^A34=61^A49=BARX PRICES TEST^A56=CLIENT PRICES TEST^A52=20070831 16:38:20^A117=TXDRSGPN121306042949
67292^A131=G1188578300892^A40=G^A167=FOR^A55=USD/CAD^A15=USD^A133=1.0554^A6050=1.054720^A191=0.00^A642=6.80^A135=1000.
000000^A6052=1000.000000^A132=1.0554^A6051=1.054740^A189=0.00^A643= 6.60^A134=1055.40^A6053=1054.72^A6057= 6.6^A6056= 6.8^A1
90=1.0554^A188=1.0554^A60=2007083116:38:20^ 64=20070904^A193=20071004^A10=155^A
```

Appendix 1 – Message Definitions and Values

Example of Swap Quote in Response to One-Way Quote Request Spot-1M: For Side=2, Currency = CCY1 (USD)

BeginString	8	FIX.4.2
BodyLength	9	346
MsgType	35	S
MsgSeqNum	34	11
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070903-10:55:45
QuoteID	117	CWHQWLPT12131484294967293
QuoteReqID	131	G1188816945709
OrdType	40	G
SecurityType	167	FOR
Symbol	55	USD/CAD
Currency	15	USD
OfferPx	133	1.0536
BidPx2	6050	1.052915
OfferForwardPoints	191	0.00
BidForwardPoints2	642	-6.85
OfferSize	135	1000.000000
BidSize2	6052	1000.000000
CombinedPtsOffer	6057	-6.65
CombinedPtsBid	6056	-6.85
OfferSpotRate	190	1.0536
BidSpotRate	188	1.0536
TransactTime	60	20070903-10:55:45
ValidUntilTim	62	20070903-10:55:47.754
FutSettDate	64	20070904
FutSettDate2	193	20071004
CheckSum	10	112

Appendix 1 – Message Definitions and Values

Example of Quote in Response to Two-Way Quote Request Spot-1M

BeginString	8	FIX.4.2
BodyLength	9	413
MsgType	35	S
MsgSeqNum	34	61
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070831-16:38:20
QuoteID	117	TXDRSGPN12130604294967292
QuoteReqID	131	G1188578300892
OrdType	40	G
SecurityType	167	FOR
Symbol	55	USD/CAD
Currency	15	USD
OfferPx	133	1.0554
BidPx2	6050	1.054720
OfferForwardPoints	191	0.00
BidForwardPoints2	642	-6.80
OfferSize	135	1000.000000
BidSize2	6052	1000.000000
BidPx	132	1.0554
OfferPx2	6051	1.054740
BidForwardPoints	189	0.00
OfferForwardPoints2	643	-6.60
BidSize	134	1055.40
OfferSize2	6053	1054.72
CombinedPtsOffer	6057	-6.6
CombinedPtsBid	6056	-6.8
OfferSpotRate	190	1.0554
BidSpotRate	188	1.0554
TransactTime	60	20070831-16:38:20
ValidUntilTime	62	20070831-16:38:22.816
FutSettDate	64	20070904
FutSettDate2	193	20071004
CheckSum	10	155

Appendix 1 – Message Definitions and Values

Quote Cancel, FX Outright

The Quote Cancel message is used to indicate that there are no tradable prices for a particular quote request. Upon receiving this message the client application should prohibit any trading on that quote request until quotes are resumed. Note the client application does not need to stop or re-request the quote request.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'Z'	4.2
QuoteCancelType	298	Y	'1'	4.2
QuoteID	117	Y	Barclays quote id, or ' * ' to cancel all Quotes published with respect to the specified QuoteReqID	4.2
QuoteReqID	131	Y	Client quote id	4.2

Figure 6: Example of a Raw FIX FX Quote Cancel

8=FIX.4.2^A9=106^A35=Z^A34=194^A49=BARX PRICES TEST^A56=CLIENT PRICES TEST^A52=20070903 11:12:26^A117=*^A131=C1188817504173^A298=1^A10=071^A

Example of Quote Cancel

BeginString	8	FIX.4.2
BodyLength	9	106
MsgType	35	Z
MsgSeqNum	34	254
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070903-11:17:17
QuoteID	117	*
QuoteReqID	131	C1188817504173
QuoteCancelType	298	1
CheckSum	10	073

Appendix 1 – Message Definitions and Values

New Order Single, FX Spot and Forward

The New Order Single message is used to make orders either at-market (order type = C) or based on a previous quote (order type = D). All orders are either executed or rejected.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'D'	4.2
OrdType	40	Y	'C' at market 'D' previously quoted	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
HandlInst	21	Y	'2'	4.2
ClOrdID	11	Y	Client quote id	4.2
QuoteID	117	N	Conditionally Required when OrderType is 'D', must contain a valid Barclays quote id	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	Y	'1'=BUY, '2'=SELL	4.2
OrderQty	38	Y	CCY amount. Must satisfy MinBidSize and MinOfferSize from respective Quote message, unless you have pre-agreed the option to ignore volume bands limits.	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid timebucket.	4.2
Account	1	N	Account value provided by Barclays. Corresponds to valid Sub Accounts in BARX.	4.2
Price	44	N	Price for OrdType='D'	4.2
TransactTime	60	Y	YYYYMMDD-HH:MM:SS clients UTC stamp.	4.2
Reference 1	6001	N	32 character free text field	4.4
Reference 2	6002	N	32 character free text field	4.4
Reference 3	6003	N	32 character free text field	4.4

8=FIX.4.2^A9=224^A35=D^A49=CLIENT PRICES TEST^A56=BARX PRICES TEST^A34=4^A52=20070903 14:42:01^A40=D^A167=FOR^A21=2^A11=D 1188830521017 ^A55=GBP/USD^A15=GBP^A54=1^A38=5000000.0^A64=20070905^A60=20070903 15:42:01^A78=0^A117=ZEZUZUBA1213168199 9999995 ^A44=2.01845^A10=090^A

Figure 7: Example of a Raw FIX FX Spot Order

Tip: If a new order single is not executed within 15 seconds please trigger an event or alert to call the help desk and confirm the status of the order.

Appendix 1 – Message Definitions and Values

Example of Single Order for Spot

BeginString	8	FIX.4.2
BodyLength	9	224
MsgType	35	D
SenderCompID	49	CLIENT-PRICES-TEST
TargetCompID	56	BARX-PRICES-TEST
MsgSeqNum	34	4
SendingTime	52	20070903-14:42:01
OrdType	40	D
SecurityType	167	FOR
HandlInst	21	2
ClOrdID	11	D1188830521017
Symbol	55	GBP/USD
Currency	15	GBP
Side	54	1
OrderQty	38	5000000.0
FutSettDate	64	20070905
TransactTime	60	20070903-15:42:01
NoAllocs	78	0
QuoteID	117	ZEZUZUBA12131681999999995
Price	44	2.01845
CheckSum	10	090
Reference 1	6001	N
Reference 2	6002	N
Reference 3	6003	N

Appendix 1 – Message Definitions and Values

New Order Single, FX Swaps

The Swap New Order Single message is similar to the Spot/Forward order message but both legs must be specified. Mismatched swaps will only be supported to a specified tolerance, which by default is 10%.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'D'	4.2
OrdType	40	Y	'G' = Forex Swap 'H' = Previously Quoted Forex Swap	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
HandlInst	21	Y	2'	4.2
ClOrdID	11	Y	Client quote id	4.2
QuoteID	117	N	Conditionally Required when OrderType is 'H', must contain a valid Barclays quote id	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	Y	'1'=BUY, '2'=SELL Applies to the 2nd leg or future portion of the Swap (Far Leg)	4.2
OrderQty	38	Y	CCY amount (Near Leg)	4.2
OrderQty2	192	Y	CCY amount (Far Leg)	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid timebucket. (Near Leg)	4.2
FutSettDate2	193	Y	Value date YYYYMMDD or valid timebucket. (Far Leg)	4.2
Account	1	N	Account value provided by Barclays. Corresponds to valid Sub Accounts in BARX.	4.2
Price	44	N	Price for OrdType='H' (As per Quote, Near Leg)	4.2
Price2	640	N	Price for OrdType='H' (As per Quote, Far Leg)	4.2
TransactTime	60	Y	YYYYMMDD-HH:MM:SS clients UTC stamp.	4.2
Reference 1	6001	N	32 character free text field	4.4
Reference 2	6002	N	32 character free text field	4.4
Reference 3	6003	N	32 character free text field	4.4

Figure 8: Example of a Raw FIX FX Swap Order

```
8=FIX.4.2^A9=257^A35=D^A49=CLIENT PRICES TEST^A56=BARX PRICES TEST^A34=6^A52=20070903 14:57:03^A40=H^A167=FOR^A21=
2^A11=H1188831423284 ^A55=USD/CAD^A15=USD^A54=2^A38=1000.0^A192=1000.0^A64=20070904^A193=20071004^A60=20070903
15:57:03^A78=0^A117=WGXRJSXZ 12131714294967293^A44=1.0527^A640=1.052015^A10=123^
```

Appendix 1 – Message Definitions and Values

Example of Single Order for Swap

BeginString	8	FIX.4.2
BodyLength	9	257
MsgType	35	D
SenderCompID	49	CLIENT-PRICES-TEST
TargetCompID	56	BARX-PRICES-TEST
MsgSeqNum	34	6
SendingTime	52	20070903-14:57:03
OrdType	40	H
SecurityType	167	FOR
HandlInst	21	2
ClOrdID	11	H1188831423284
Symbol	55	USD/CAD
Currency	15	USD
Side	54	2
OrderQty	38	1000.0
OrderQty2	192	1000.0
FutSettDate	64	20070904
FutSettDate2	193	20071004
TransactTime	60	20070903-15:57:03
NoAllocs	78	0
QuoteID	117	WGXRJSXZ12131714294967293
Price	44	1.0527
Price2	640	1.052015
CheckSum	10	123

Appendix 1 – Message Definitions and Values

Execution Report, FX Spot and Forward

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'8'	4.2
OrdType	40	Y	'C' at market, 'D' previously quoted	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
ClOrdID	11	Y	Unique client order ID	4.2
OrderID	37	Y	Barclays unique tradeID	4.2
ExecID	17	N	Barclays assigned ID.	4.2
ExecTransType	20	Y	'0' trade response, '3' status enquiry response	4.2
ExecType	150	Y	'2' Filled, '8' Rejected	4.2
OrdStatus	39	Y	As ExecType	4.2
OrdRejReason	103	N	If rejected, reason for rejection '0' NACK, '1' invalid message or tag value, '2' server busy, '3' trade or credit limit failure, '5' unknown quote id supplied, '6' duplicate ClOrdID supplied, '8' supplied message was stale	4.2
Text	58	N	Freeform error description	4.2
HandlInst	21	Y	'2'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	Y	'1'=BUY, '2'=SELL	4.2
Price	44	Y	Price of the deal (Represents the dealt rate)	4.2
LastPx	31	Y	Same as Price	4.2
LastQty	4.2	Y	Last Qty	Last Qty
OrderQty	38	Y	CCY amount	4.2
SecondaryQty	6054	Y	Calculated side amount	Barclays extension
LastForwardPoints	195	N	Fwd points	4.2
LastSpotRate	194	N	Spot rate	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket	4.2
LeavesQty	151	Y	'0'	4.2
CumQty	14	Y	As OrderQty	4.2
AvgPx	6	Y	'0'	4.2
USI	22051	N	Universal Swap Identifier for the trade. As per the Dodd-Frank reporting requirement, there is no requirement to assign USI for Spot trades	Custom
MidRate	22061		Mid-rate. As per the Dodd-Frank reporting requirement there is no requirement to provide a mid-rate for ON, TN and Spot trades	Custom
TransactTime	60	Y	YYYYMMDD-HH :MM:SS client UTC stamp	4.2
Reference 1	6001	N	32 character free text field	4.4
Reference 2	6002	N	32 character free text field	4.4
Reference 3	6003	N	32 character free text field	4.4

Figure 9 Example of a Raw FIX FX Spot Execution

8=FIX.4.2^A9=329^A35=8^A56=CLIENT PRICES TEST^A34=6^A49=BARX PRICES TEST^A52=20070903 14:42:00^A6=0.000000^A11=D1188830521 017 ^A14=5000000.000000^A15=GBP^A17=D1188830521017^A20=0^A21=2^A31=2.018450^A32=5000000.000000^A37=00QKQ0000I^A38=500 0000.000000^A39=2^A40=D^A44=2.018450^A54=1^A55=GBP/USD^A60=20070903 14:42:00^A64=20070905^A150=2^A151=0^A167=FOR^A6054 =10092250.000000^A10=133^A

Appendix 1 – Message Definitions and Values

Example of Execution Report for Spot Trade

BeginString	8	FIX.4.2
BodyLength	9	329
MsgType	35	8
TargetCompID	56	CLIENT-PRICES-TEST
MsgSeqNum	34	6
SenderCompID	49	BARX-PRICES-TEST
SendingTime	52	20070903-14:42:00
AvgPx	6	0.000000
ClOrdID	11	D1188830521017
CumQty	14	5000000.000000
Currency	15	GBP
ExecID	17	D1188830521017
ExecTransType	20	0
HandlInst	21	2
LastPx	31	2.018450
LastQty	32	5000000.000000
OrderID	37	00QKQ0000I
OrderQty	38	5000000.000000
OrdStatus	39	2
OrdType	40	D
Price	44	2.018450
Side	54	1
Symbol	55	GBP/USD
TransactTime	60	20070903-14:42:00
FutSettDate	64	20070905
ExecType	150	2
LeavesQty	151	0
SecurityType	167	FOR
SecondaryQty	6054	10092250.000000
CheckSum	10	133

Appendix 1 – Message Definitions and Values

Execution Report, FX Swap

Name	Tag	Req'd	Description	Version
OrdType	40	Y	'G' Forex Swap, 'H' previously quoted Forex Swap	4.2
SecurityType	167	Y	'FOR' ('FXNDF' for NDF)	4.2
ClOrdID	11	Y	Unique client order ID	4.2
OrderID	37	Y	Barclays unique tradeID	4.2
ExecID	17	N	Barclays assigned ID.	4.2
ExecTransType	20	Y	'0' trade response, '3' status enquiry response	4.2
ExecType	150	Y	'2' Filled, '8' Rejected	4.2
OrdStatus	39	Y	As ExecType	4.2
OrdRejReason	103	N	If rejected, reason for rejection: '0' NACK, '1' invalid message or tag value, '2' server busy, '3' trade or credit limit failure, '5' unknown quote id supplied, '6' duplicate ClOrdID supplied, '8' supplied message was stale.	4.2
Text	58	N	Freeform error description	4.2
HandlInst	21	Y	'2'	4.2
Symbol	55	Y	CCY/CCY eg GBP/USD	4.2
Currency	15	Y	CCY	4.2
Side	54	Y	'1'=BUY, '2'=SELL Applies to the 2nd leg or future portion of the Swap (Far Leg). Side on near leg will be the opposite.	4.2
Price	44	Y	Price, Near Leg	4.2
Price2	640	Y	Price, Far leg	4.2
LastPx	31	Y	Last Price, Near Leg	4.2
LastPx2	6059	Y	Last Price, Far Leg	4.2
LastQty	32	Y	Last Qty, Near Leg	4.2
LastQty2	6058	N	Last Qty, Far Leg	4.2
OrderQty	38	N	CCY amount, Near Leg	4.2
OrderQty2	192	Y	CCY amount, Far Leg	4.2
SecondaryQty	6054	Y	Calculated side amount, Near Leg	Barclays extension
SecondaryQty2	6055	Y	Calculated side amount, Far Leg	Barclays extension
LastForwardPoint	195	N	Fwd points, near Leg (Not present when SP)	4.2
LastForwardPoints2	641	N	Fwd points, Far leg	4.2
LastSpotRate	194	N	Spot rate, Near Leg	4.2
LastSpotRate2	6060	N	Spot rate, Far Leg	4.2
FutSettDate	64	Y	Value date YYYYMMDD or valid time bucket. (Near Leg)	4.2
FutSettDate2	193	Y	Value date YYYYMMDD or valid time bucket. (Far Leg)	4.2
LeavesQty	151	Y	'0'	4.2
CumQty	14	Y	As OrderQty	4.2
AvgPx	6	Y	'0'	4.2
USI	22051	N	Universal Swap Identifier for the trade. As per the Dodd-Frank reporting requirement, there is no requirement to assign USI for Spot trades	Custom
USI2	22052	N	Universal Swap Identifier for the far leg of the trade. As per the Dodd-Frank reporting requirement, there is no requirement to assign USI for Spot trades	Custom
MidRate	22061	N	Mid-rate. As per the Dodd-Frank reporting requirement there is no requirement to provide a mid-rate for ON, TN and Spot trades	Custom
TransactTime	60	Y	YYYYMMDD-HH :MM:SS client UTC stamp	4.2
Reference 1	6001	N	32 character free text field	4.4
Reference 2	6002	N	32 character free text field	4.4
Reference 3	6003	N	32 character free text field	4.4

Appendix 1 – Message Definitions and Values

Example of Execution Report for Swap Trade

BeginString	8	FIX.4.2
BodyLength	9	432
MsgType	35	8
TargetCompID	56	CLIENT-PRICES-TEST
MsgSeqNum	34	6
SenderCompID	49	BARX-PRICES-TEST
SendingTime	52	20070903-14:57:02
AvgPx	6	0.000000
ClOrdID	11	H1188831423284
CumQty	14	1000.000000
Currency	15	USD
ExecID	17	H1188831423284
ExecTransType	20	0
HandlInst	21	2
LastPx	31	1.052700
LastPx2	6059	1.052015
LastQty	32	1000.000000
LastQty2	6058	1000.000000
OrderID	37	00QKQ0000N
OrderQty	38	1000.000000
OrderQty2	192	1000.000000
OrdStatus	39	2
OrdType	40	H
Price	44	1.052700
Price2	640	1.052015
Side	54	2
Symbol	55	USD/CAD
TransactTime	60	20070903-14:57:03
FutSettDate	64	20070904
FutSettDate2	193	20071004
ExecType	150	2
LeavesQty	151	0
SecurityType	167	FOR
LastSpotRate2	6060	1.052700
LastForwardPoints2	641	-6.8500
SecondaryQty	6054	1052.700000
SecondaryQty2	6055	1052.010000
CheckSum	10	145

Figure 10: Example of a Raw FIX FX Swap Execution

8=FIX.4.2^A9=432^A35=8^A56=CLIENT PRICES TEST^A34=6^A49=BARX PRICES TEST^A52=20070903 14:57:02^A6=0.000000^A11=H1188831423284 ^A14= 1000.000000^A15=USD^A17=H1188831423284^A20=0^A21=2^A31=1.052700^A6059=1.052015^A32=1000.000000^A6058=1000.000000^A37=00QKQ0000 N^A38=1000.000000^A192=1000.000000^A39=2^A40=H^A44=1.052700^A640=1.052015^A54=2^A55=USD/CAD^A60=20070903 14:57:03^A64=20070904^ A193=20071004^A150=2^A151=0^A167=FOR^A6060=1.052700^A641= 6.8500^A6054=1052.700000^A6055=1052.010000^A10=145^A

Appendix 1 – Message Definitions and Values

Business Message Reject

This message may be sent (if configured) for a number of reasons including if:

- a **snapshot** price is unavailable

- an unknown message type is received (conformance testing should eliminate this happening in production)

- unknown identities are detected

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'j'	4.2
RefMsgType	372	Y	The message type which caused this reject	4.2
RefMsgSeqNum	45	Y	The sequence number of the rejected message	4.2
BusinessRejectReason	380	Y	If rejected, reason for rejection: '0' Other, '1' Unknown ID, '2' Unknown Security, '3' Unsupported Message Type, '4' Application not available '5' Conditionally Required Field Missing	4.2
BusinessRejectRefId	379	Y	The id of the message (eg quote request id) causing this reject	4.2
Text	58	Y	'No price available' or other text describing the issue	4.2

Figure 11: Example of a Raw FIX Business Message Reject

8=FIX.4.2^A9=133^A35=j^A34=59^A49=BARX PRICES TEST^A56=CLIENT PRICES TEST^A52=20070903-15:23:22^A45=59^A372=R^A379=G118883
2988017 ^A380=4^A58=No price available^A10=220^A

Example of Business Message Reject

BeginString	8	FIX.4.2
BodyLength	9	133
MsgType	35	j
MsgSeqNum	34	59
SenderCompID	49	BARX-PRICES-TEST
TargetCompID	56	CLIENT-PRICES-TEST
SendingTime	52	20070903-15:23:22
RefSeqNum	45	59
RefMsgType	372	R
BusinessRejectRefID	379	G1188832988017
BusinessRejectReason	380	4
Text	58	No price available
CheckSum	10	220

Appendix 1 – Message Definitions and Values

Resend Request

This message will be sent by the receiving party if an unexpected incoming sequence number is received.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'2'	4.2
BeginSeqNo	7	Y	# of first message being requested	4.2
EndSeqNo	16	Y	# of last message being requested or '0' for all	4.2

Sequence Reset

This message can be sent by the resending party in response to a resend request where the resending party is unable to replay the requested messages, or in the case of a request to replay administrative messages. You should avoid using 123=N except in case of serious difficulties.

Name	Tag	Req'd	Description	Version
MsgType	35	Y	'4'	4.2
GapFill	123	N	'Y' for SeqReset-GapFill or 'N' for SeqReset-Reset	4.2
NewSeqNo	36	Y	Highest # of the sequence numbers being skipped.	4.2

Appendix 2 – Currency Ranking

The notation CCY1/CCY2 (where CCY1 and CCY2 are the standard EBS 3 letter currency abbreviations) means the amount of CCY2 that will be returned for 1 unit of CCY1.

Rank	Code	Description
1	EUR	Euro
2	GBP	Pound Sterling
4	AUD	Australian Dollar
5	NZD	New Zealand Dollar
6	FJD	Fijian Dollar
7	BWP	Botswana Pula
8	USD	US Dollar
9	CAD	Canadian Dollar
10	CHF	Swiss Franc
11	LVL	Latvia Lats
12	LTL	Lithuanian Litas
13	HRK	Croatian Kuna
14	EEK	Estonian Kroon
15	BGN	Bulgarian Lev
16	SGD	Singapore Dollar
17	PLN	Polish Zloty
18	TRY	New Turkish Lira
19	ILS	Israeli Shekel
20	DKK	Danish Krona
21	ZAR	South African Rand
22	HKD	Hong Kong Dollar
23	NOK	Norwegian Krone
24	AED	UAE Dirham
25	SEK	Swedish Krona
26	BBD	Barbados Dollar
27	BHD	Bahraini Dinar
28	MXN	Mexican Peso
29	INR	Indian Rupee
30	ISK	Iceland Krona
31	JMD	Jamaican Dollar
32	JOD	Jordanian Dinar
33	KWD	Kuwaiti Dinar
34	MAD	Moroccan Dirham
35	OMR	Rial Omani
36	QAR	Qatari Rial
37	SAR	Saudi Riyal
38	THB	Thai Baht
39	TND	Tunisian Dinar
40	XCD	East Caribbean Dollar
41	CZK	Czech Koruna
42	SKK	Slovakian Koruna
43	BRL	Brazilian Real
44	ARS	Argentine Peso
45	UYU	Uruguayan Peso
46	CLP	Chilean Peso
47	TWD	Taiwanese Dollar
48	ANG	Netherland Antillian Guilder

Rank	Code	Description
49	BMD	Bermudan Dollar
50	BSD	Bahamian Dollar
51	BZD	Belize Dollar
52	EGP	Egyptian Pound
53	GHC	Ghanian Cedi
54	KYD	Cayman Island Dollar
55	LKR	Sri Lankan Rupee
56	MYR	Malaysian Ringgit
57	PHP	Phillipine Peso
58	PKR	Pakistan Rupee
59	SCR	Seychelles Rupee
60	TTD	Trinidad & Tobago Dollar
61	VUV	Vanatu Vata
62	UAH	Ukrainian Grivna
63	RUB	Russian Ruble
64	GHS	Ghanaian Cedi
65	CNH	Chinese Yuan offshore
66	CNY	CNY Chinese Renminbi
67	KES	Kenyan Shilling
68	LSL	Lesotho Loti
69	MUR	Mauritius Rupee
70	NAD	Namibia Dollar
71	SZL	Swaziland Lilangeni
72	JPY	Japanese Yen
73	NGN	Nigerian Niara
74	MWK	Malawi Kwacha
75	TZS	Tanzanian Shilling
76	COP	Chilean Peso
77	UGX	Ugandan Shillin
78	ZMK	Zambian Kwacha
79	ZWD	Zimbabwean Dollar
80	HUF	Hungarian Florint
81	KRW	Korean Won
82	RON	Romanian Leu
83	RSD	Serbian Dinar
84	MGA	Malagasy Ariary
85	IDR	Indonesian Rupiah
86	KZT	Kazakhstan Tenge
87	VEB	Venezuela Bol
88	PEN	Peruvian Nuevo Sol

Table 4: Standard currency Rankings

The ordering of a currency pair is standard and can be derived from the above ranked list. To form a valid pair the higher ranked currency must be placed first (hence it is USD/JPY and not JPY/USD). Where a currency is available in both deliverable and non-deliverable forms you should specify 167=FOR for the deliverable and 167=FXNDF for the non-deliverable. This list is not exhaustive and not all currency pairs are available for pricing in the test environment. Currencies required in production must be discussed with your business contact at Barclays as part of your Onboarding requirements.

Appendix 3 – Do's and Don'ts for FX FIX

Do's

Logon and Logout

- **Do** use the FIX 4.2 protocol and specify 8=FIX.4.2 in all messages

- **Do** use tag 141=Y for pricing. (Prices would not be valid once a session is restarted)

- **Do** wait a small amount of time before sending application messages (QuoteRequest/Order) after logon. The recommended time is heartbeat interval/2. This allows any synchronization to happen following a disconnect

- **Do** send a logout message when intentionally disconnecting your session. Failure to do so would result in your disconnection being considered abnormal, which may require further investigation

Quote Requests and Quotes

- **Do** insure each quote request id is unique in the day

- **Do** try and make each quote request id 'readable'. A quote request id of GBPUSD-1M-uniqueId makes any log file analysis easier (in the event of issue resolution). This is not a requirement, and if your system does not support this then it is not a problem

- **Do** make sure you can process a QuoteCancel message. These are used to indicate that a price is currently unavailable, or the last price is stale. Prices will resume once they are available again

Don'ts

Logon and Logout

- **Do not** use tag 141=Y for **trading**. Sequence numbers on the trading session must be reset only once a day to ensure message recovery in the event of an intraday failure

Quote Requests and Quotes

- **Do not** resubmit a streaming quote request for a particular currency pair-amount-tenor without unsubscribing first. If no quote is received for a streaming quote request then it means none is available. If the quote request has an error in it, then a MassQuoteAcknowledgement (message type b) will be returned

Appendix 4 – Frequently Asked Questions (FAQ)

How long must I wait for a BusinessMessageReject?

BusinessMessageRejects are only applicable when making snapshot quote requests. The time to receive a BMR can be up to 60 seconds. BusinessMessageRejects are never sent in response to a streaming quote request.

What bandwidth should I be considering for my LVC?

The bandwidth requirements vary, but the general advice is to allocate roughly 512K for 50 streaming subscriptions. This really applies to the majors. On less liquid currency pairs the bandwidth requirement drops.

Are volume bands inclusive at the maximum and minimum on each quote?

Volume bands are not inclusive of the lower amount (eg quote for 3mio to 5mio is actually trade-able from 3000000.01 to 5mio).

Why do you require the fields 'symbol' and 'price' when I could just use the QuoteID?

The price is required since it is possible to offer a better price than that given. Specifying symbol and price ensures there is no ambiguity in the order.

Why do you use a pricing and trading session over FIX?

It makes support much simpler since the logs can be easily tracked. It also allows trading to be stopped if required (though that has never been needed). Additionally it means only the trading session will require session recovery (old prices mean nothing so the pricing session can use sequence reset upon logon).

Does snapshot pricing use volume bands?

Yes, snapshot quotes will have a lower boundary which must not be exceeded in the order.

Should I cancel the streaming quote request when it is rejected?

No, if you get a quote acknowledgement (MsgType = b) rejecting your QuoteRequest you do not need to send a QuoteRequest with tag 6065 = -1.

Do I have to use unique QuoteRequestIDs?

This is not enforced but recommended. This helps with support issues. Similarly we recommend using QuoteRequestIDs that are related to the item being requested (eg EURUSD-5m-SP-1). Again this would make any support much easier to resolve.

I've read your RoE and completed my development, how quickly can I be put into production?

Usually the process that takes the longest time is the LVC connectivity (via Radianz, TNS or Savvis). So it is important to get the process of getting connected to Barclays started in the early stages of development. When development is completed, you will need to run through some Conformance Tests (see Appendix 6 – Conformance Test). If they are completed correctly you will be migrated to our staging environment (usually the following Monday), and into production a week after that.

Are all prices Tradable?

All prices are tradable subject to credit checking, and throttling mentioned earlier.

Appendix 5 – How to Trade Swaps Correctly

When making orders on Swaps (or indeed quote requests) the side field implies the intention on the Far leg (sometimes known as the right-hand side of the swap). Determining which price to use is based upon the side and the currency required. The following logic describes how to select the correct prices to use.

Consider an Order for currency pair CCY1/CCY2. The intention (buy/sell) is the client's intention.

1. Buy CCY1

This means Buying CCY1 Far Leg, Selling CCY1 Near Leg (and Selling CCY2 Far Leg, Buying CCY2 Near Leg)

To Buy CCY1 Far Leg, use Offer Price (Tag 6051=OfferPx2) ie Tag 640 on order = Tag 6051 on Quote

To Sell CCY1 Near Leg, use Bid Price (Tag 132=BidPx) ie Tag 44 on order = Tag 132 on Quote

(Key FIX Tags: 54=1 15=CCY1, 55=CCY1/CCY2)

2. Sell CCY1

This means Selling CCY1 Far Leg, Buying CCY1 Near Leg (and Buying CCY1 Far Leg, Selling CCY2 Near Leg)

To Sell CCY1 Far Leg use Bid Price (Tag 6050=BidPx2) ie Tag 640 on order = Tag 6050 on Quote

To Buy CCY1 Near Leg use Offer Price (Tag 133=OfferPx) ie Tag 44 on order = Tag 133 on Quote

(Key FIX Tags: 54=2 15=CCY1, 55=CCY1/CCY2)

3. Buy CCY2

This means Buying CCY2 Far Leg, Selling CCY2 Near Leg

To Buy CCY2 Far Leg use Bid Price (Tag 6050=BidPx2) ie Tag 640 on order = Tag 6050 on Quote

To Sell CCY2 Near Leg use Offer Price (Tag 133=OfferPx) ie Tag 44 on order = Tag 133 on Quote

(Key FIX Tags: 54=1 15=CCY2, 55=CCY1/CCY2)

4. Sell CCY2

This means Selling CCY2 Far Leg, Buying CCY2 Near Leg

To Sell CCY2 Far Leg use Offer Price (Tag 6051=OfferPx2) ie Tag 640 on order = Tag 6051 on Quote

To Buy CCY2 Near Leg use Bid Price (Tag 132=BidPx) ie Tag 44 on order = Tag 132 on Quote

(Key FIX Tags: 54=2 15=CCY2, 55=CCY1/CCY2)

Appendix 6 – Conformance Tests

The Spot Forward conformance test is to show that your implementation conforms to the RoE specified here, and also to let you familiarise yourself with the Barclays FX trading model.

Not all the tests need to be run. The actual tests required will be based upon your trading profile (for example if you never trade on the secondary currency then those tests need not be run).

The tests are outlined below:

ID	Test	Purpose	Comment
1	Start stream in base currency, and deal in base currency.	To show that client application trades on the correct side of the quote.	
2	Using stream from test 1 deal in secondary currency.	To show that client application trades on the correct side of the quote.	
3	Same as tests 1 and 2 but dealing below lower boundary of volume band.	To show that client application deals below the actual volume band limit (when volume banding can not be handled).	The setting to allow this needs to be discussed with your connectivity manager.
4	Same as tests 1 and 2 but streaming in secondary currency.	To show that client application trades on the correct side of the quote.	It is generally not a good idea to deal on quotes based on secondary currency, but if it is required then this test must be passed.
5	Place at-market orders.	To show client application can handle at-market orders.	
6	Same as tests 1, 2 and 4 but using snapshot pricing.	To show client application handles snapshot prices.	Snapshot quotes have a limited lifetime, which must be handled by client application. Generally streaming dealing is encouraged.
7	Same as test 1 but streaming quote with the intention in the quote request.	To show client can handle one-way quotes.	This is less common method of getting quotes, as usually both bid and offer are required.
8	Same as test 6 but getting snapshot quote with the intention in the quote request.	To show client can handle one-way quotes.	This is less common method of getting quotes, as usually both bid and offer are required.
9	Streaming Forward prices for standard tenors and broken dates.	To show client can trade forwards correctly.	This is the same set of tests as for spots, but using tenors and broken dates (if necessary).
10	Trading multiple times on the same quote.	To show that client application updates with each new quote, and that client can trade multiple times on same quote.	
11	Trading above the quote limit.	To show that client application checks trade amount against quote limit.	Ideally client application should not even send the order, rather than send an order that will be rejected.
12	Handling throttle exceptions.	To show client 'recognises' throttle breaching.	There are throttles in place, and though production configuration should be set to suit client requirements, if there is excessive trading, the throttle may kick in.
13	Recognises unconfirmed orders.	To show that client has some notification should an exception not be received.	In the unlikely event that an execution report does not get returned, the client needs to have a process in place which gets started after a timeout (suggested value 60 sec).
14	Client pulls prices upon quote cancel.	If there are no prices currently available, Barclays sends a QuoteCancel for that currency pair. The client application should prohibit trading on that request, until prices return.	
15	Client handles precision pricing.	To show that pricing to more than the usual amount of decimal places is accepted by client application.	

Appendix 7 – NDF Streams

When requesting prices or placing orders for NDF currencies or NDF Swaps, you will need to send 167=FXNDF. The below table lists the more common NDF currencies that are supported for streaming and the time periods that they are available.

- Outside of the time periods listed pricing is by RFQ only

- Please do not request RFQ for a currency when the market is closed for that currency

- If you receive a reject for an RFQ please do not re-request that currency for 30 minutes

Currency Pair	Comment
USDBRL	Live pricing is available from NYK 08:05 to NYK 17:00.
USDCNY	Live pricing is available from HKG 09:30 to NYK 16:00.
USDIDR	Live pricing is available from SGP 09:00 to NYK 16:00.
USDINR	Live pricing is available from SGP 09:00 to NYK 16:00.
USDKRW	Live pricing is available from SGP 08:00 to NYK 16:00.
USDMYR	Live pricing is available from SGP 09:00 to NYK 16:00.
USDPHP	Live pricing is available from SGP 09:00 to NYK 16:00.
USDRUB EURRUB	Live pricing is available 24/5.
USDTWD	Live pricing is available from SGP 09:00 to NYK 16:00.

For the latest guidance on currencies available, crosses, timings and those currencies available by RFQ only please see our website at **http://www.barx.com/emfx_overview/EMFX_Tipsheet.pdf**, or speak with your Barclays business contact.

Barclays contact information	
Implementation and on-boarding support	**Production support**
BCS FIX Connectivity Email FoxFIXConnectivity@barclays.com	BCS Support Group Email BARXSupport@barclays.com
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