FIX PROTOCOL
INDUSTRY-DRIVEN MESSAGING STANDARD℠

FIX Global Foreign Exchange Committee Whitepaper 2
Leveraging FIX 5.0 for Foreign Exchange

Introduction

Since its release in 1994, the FIX (Financial Information eXchange) Protocol has been continuously expanded to support additional asset classes, as well as additional steps in the trade lifecycle. The FIX Global Foreign Exchange Committee (GFX), consisting of organisations active within the foreign exchange (FX) community, was founded in 2003. The group's objective is to enhance the FIX protocol to achieve greater support for the trading of FX.

In 2006 the GFX launched the inaugural FIX Global Foreign Exchange white paper. This paper provided a basic guide to assembling the building blocks required to enable an organisation to Leverage FIX for FX.

The four key building blocks identified were as follows:

1. The FIX protocol
2. A foreign Exchange Order Management System
3. A FIX engine
4. A Communication network.

1) **The FIX Protocol**
The FIX Protocol is a technical specification for the electronic communication of trade-related messages. The latest version is FIX 5.0, which was launched in production ready format in January 2007. One of the primary advantages of FIX is its flexibility. While it is a standardised messaging format, there is no single way of using it and as such, there are a range of ways to implement FIX for FX. Selecting the right way, depending primarily on your FX workflow, is an essential part of ensuring a successful electronic trading operation.

2) **A Foreign Exchange Order Management System**
Organisations use an order management system (OMS) to gather and net orders, potentially linking offices and desks worldwide. Traders use the OMS to execute orders deciding when and how to execute each one, maintaining an audit trail to prove best execution, etc. An OMS can be as simple as a home-grown spreadsheet or as complex as a vendor-maintained system.

3) **A FIX Engine**
A FIX engine is the software that manages the FIX sessions over the network between an organisation and its counterparties. It parses incoming FIX messages and transforms the messages into an internal format that the application can understand. It takes messages from the application and creates FIX messages to send to counterparties.

4) **A Communication Network**
The FIX engine together with a Communication Network, is an organisation's interface to the outside world, connecting it to its counterparties and allowing it to trade and exchange information in a standard fashion.

Whilst the first GFX Whitepaper introduced the building blocks, the second GFX Whitepaper focuses on the recent enhancements to the protocol that were released within FIX 5.0 to facilitate greater support for FX trading.

GFX FIX FX Enhancements Phase 1

When the GFX Committee started to look at how the FIX Protocol could be enhanced the group decided that the initial objective should be to produce a standard method of implementing FIX for FX trading. This could then be referenced by those firms who are already using FIX and by those who are considering a move to electronic FX trading based on FIX.

A key accomplishment in this process was clarifying the “grey” areas in how previous FIX versions handled several FX specific items. FPL defines a field for settlement currency, we make it clear that side is in relation to dealt currency rather than symbol. Forward points are decimal. Fields were added to handle credit issues and Swaps are to be represented by multi-legged orders.

The focus of Phase 1 is on the two primary electronic FX workflows:

- Request For Quote (RFQs)
  - Quotes for spot, outright forwards and FX Swaps
  - Orders and Executions for spot, outright forwards and FX Swaps
  - Trade Capture for OTC Spot Options

- Dealable Streaming Prices (DSPs)
  - Only spot and outright forwards

Request for Quote (RFQ)

RFQs mimic the phone trading model of a client asking one or more dealers for a one or two way price for a specific currency pair, size and tenor (e.g. a two way price for 5 million GBP/USD for spot). The dealers respond with a quote which the client can deal on or pass. During the short time frame of the interaction, the market price may move causing the dealer to update the quote to the client. The GFX determined that RFQs are best represented using the FIX Quote message set. This workflow also handles instances (such as for retail customers) where the dealer gives a single “one off” quote for a fixed period of time which is not updated. To implement this variant of the workflow it is recommended that the user simply omits the expire time in the quote request.

The basic RFQ message flow is as follows:

1. The client sends the quote request for spot, outright forward or swap.
2. The client receives one or more quotes until the expire time (if specified) OR
3. The client receives a single quote by not specifying an expire time.
4. However, only one quote will be live at any point in time.
5. The client can trade against a quote by sending and new order single or new order multileg (swaps).
6. The bank/dealer makes the decision to accept or reject the order and returns an execution report (multileg execution report for swaps).

The following field changes were made to support the RFQ workflow:

- The QuoteRejectReason and New Enum to reject due to insufficient credit.
- The QuoteCancelType and New Enum Value to support cancel quote specified in QuoteID.

Substantial changes were made to the Quote message set to support the trading of swaps:

- Utilise the Multileg messages and NoLegs repeating group.
- Therefore, deprecate the "number 2" fields (e.g. OrderQty2) that were added for simple FX swaps in FIX4.1.

- New field AggressorIndicator has been added to identify whether the party receiving the execution is the aggressor (This can be important for fee calculation).
- Enhanced field SettlType to support FX tenors based on days (Dx), weeks (Wx), months (Mx) and years (Yx) as well as broken dates, spot and spot next.
- New field CalculatedCcyLastQty has been added to represent the quantity of the other side of the currency trade (It can be derived from LastQty and LastPx).
- New fields LegSettlCurrency and LegRefID have been added.
- New fields BidSwapPoints, OfferSwapPoints, LegBidForwardPoints and LegOfferForwardPoints have been added to the Quote message.
- New field SwapPoints has been added to the New Order Multileg message.
- New fields LastSwapPoints and LegLastForwardPoints have been added to the Execution Report message.

Dealable Streaming Prices

Some clients wish to have a continual stream of prices to trade on, rather than making a series of requests for quotes. The data stream can contain price/size tiers (known as vector prices) where the price varies with deal size. This model is called Dealable (or Executable) Streaming Prices. The GFX determined that DSPs are best represented by the FIX Market Data message set because its efficiency benefits greatly reduce network bandwidth (In the future, the efficiency of DSPs will likely be further improved through use of FIX FAST Compression).

The basic DSP message flow is as follows:

1. The client sends a market data request.
2. The client receives a market data snapshot followed by incremental refreshes.
3. The client sends a new order single to trade against a specific QuoteID, specified in the market data message.
4. The bank/dealer makes the decision to accept or reject the order and returns an execution report.

The following field changes were made to support the DSP workflow:

- MDEntrySpotRate and MDEntryForwardPoints have been added to the snapshot and incremental messages.
- QuoteType and New Enum have been added for indicative and tradeable rates.
- SettlType has been added to request, snapshot and incremental to specify the value date.
- MDReqRejReason and New Enum have been added for reject due to insufficient credit.

Summary of Message Support for FX Trading in FIX 5.0

	Spot	Outright Forwards	Swaps	OTC Spot Options
Basic Order Flow				
Quotes				
Market Data				
Allocations				
Confirms / Affirms				
Trade Reporting				

Green = full support

Green
= Full Support
Yellow
= Partial Support
Red
=Minimal or no Support

GFX FIX FX Enhancements Phase 2

Having now achieved significantly improved functionality within basic FX order flows the GFX is turning its attention to additional FX instruments and workflows that require greater support. In the coming months the group will be focusing on the following areas:

- Additional instruments:
  - Non-Deliverable Form (NDFs).
- Additional workflows:
  - Negotiation for swaps and multileg products(e.g. to support automated work flows where the outright rate may not change but the spot and forward point components are negotiated).
  - Single Spot Portfolios (SSPs).
  - Post trade allocations (buy-side to sell-side).
  - Prime Brokerage allocation and give-ups (between customer, executing broker and prime broker).
  - Enhanced modelling of the workflows of ECNs, exchange style platforms and FX portals.

The launch of FIX 5.0 delivered greater messaging support not only within the FX markets but also for many other industry sectors. For more information please review the appendix which provides an overview of the enhancements.

If you would like to find out more about FIX for FX and the support available, please visit the FPL Global Foreign Exchange Committee webpage, which may be located at www.fixprotocol.org/committees/gfxc . Alternatively, please feel free to contact the author of this White Paper Mr. Jack Lemonik, Chair of the FPL Global Foreign Exchange Marketing and Education Subcommitttee by email at jacklemonik@optonline.net

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Appendix - FIX 5.0

FIX 5.0 significantly extends the functionality provided by the FIX 4.4 specification which was released in April 2003. FIX 5.0 addresses the latest issues and developments faced by the financial services industry including the spread of electronic trading within additional product areas and throughout the trade lifecycle, growing market data volumes and increased regulatory pressure. The additional functionality includes, but is not limited to enhanced support for Foreign Exchange trading.

The impetus for calling this release of the protocol FIX 5.0 is to establish the framework for separating the FIX Session layer from the FIX Application layer. In the past, FIX has always been defined in conjunction with the FIX Session specification. In recognition of other types of messaging transport technology in the market today, FPL has created a framework in which the FIX Application layer can be used independently of the FIX Session layer. There are actually 2 protocols included within this release:

- FIX.5.0 – solely the application version
- FIXT.1.1 – the session layer is backward compatible with older FIX versions, therefore allowing the user to mix application versions on the same FIX session.

The features added to FIX 5.0 support new or augmented business processes which have been formally incorporated in the specification through individual Extension Packs. Extension Packs represent a set of discreet functionality that has been requested by a FPL working group, committee or member and approved by the FPL Global Technical Committee for inclusion into the protocol. FIX 5.0 introduces 24 separate Extension Packs, each contributing to the additional level of support. Each Extension Pack is an enhancement to the existing FIX Repository, defining enhancements to messages and components needed to support a specific piece of functionality or product area. This Whitepaper focuses on Extension Pack 21, the FX Phase 1 Extensions.

Additionally, FIX 5.0 includes a Transport Independence Framework which separates the FIX session layer from the application layer. This framework enables different message versions to be used within the same FIX session. For example, this will enable a firm to use FIX 4.4 Allocation messages on the same FIXT.1.1 session that is carrying FIX 4.0 Order and Execution messages. Under the new framework, the session and application layer are now separately delineated. The session layer has been designated as FIXT.1.1 and the application layer as FIX.5.0 or earlier. This significantly reduces the financial investment required to support new functionality and new releases, while improving scalability.

The functionality provided by the Transport Independence Framework will give the market even greater flexibility by allowing FIX messages to be carried over other transports such as:

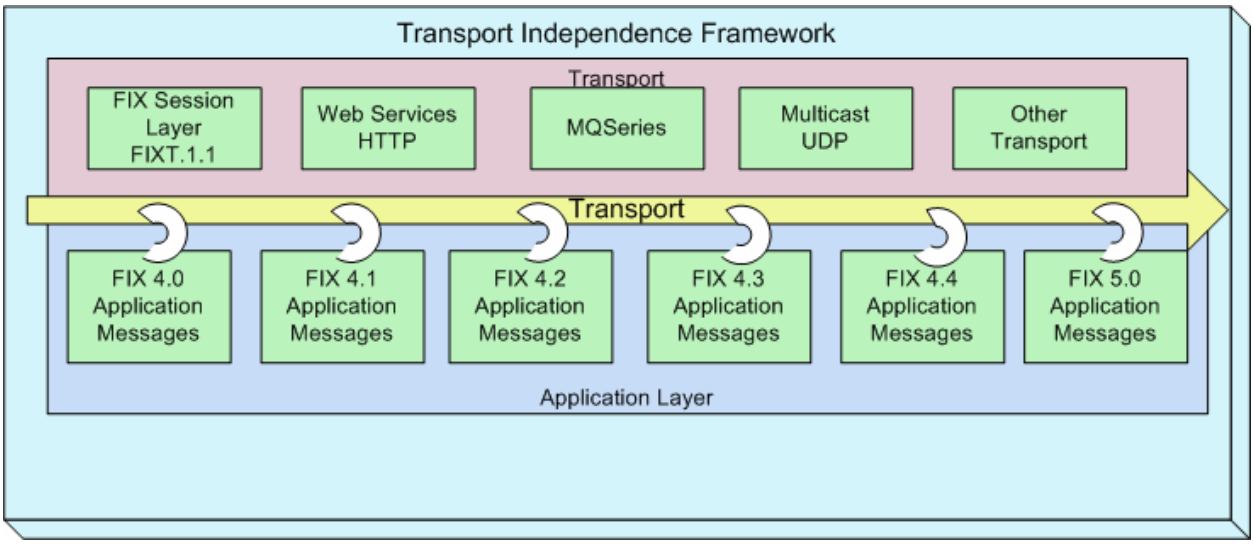
- Web Services - for firms who do not need the low latency requirements of traditional FIX versions, but want low-cost, high-scalability deployment

- FIX Session (FIXT.1.1) - the primary transport for FIX messages for well over a decade facilitates compatibility with the existing tag = value syntax and allows incremental deployment of functionality in later releases

- FIX Adapted for Streaming℠ Session Control Protocol (FAST SCP) - for users with the most demanding latency requirements

- Enterprise Middleware – for firms using open source and commercial middleware solutions

The diagram below illustrates how various transport mechanisms, including the FIX Session layer, can be used to carry the full suite of FIX Application versions.



The FIX 5.0 specification is publicly available and downloadable from the FPL website at www.fixprotocol.org/specifications.