

FIX Performance Session Layer

Version 1.0

Technical Proposal

April 15, 2021

v0.2

Proposal Status: Submitted

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# Document History

| **Revision** | **Date** | **Author** | **Revision Comments** |
| --- | --- | --- | --- |
| v0.1 | April 8, 2021 | Don Mendelson  Silver Flash LLC | Initial draft |
| V0.2 | April 15, 2021 | GTC | Updated TOC, layout |
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The above document history section, including date, author, and comments, is required to track editing changes to the document. List revisions in **ascending order**. Please insert additional rows in the table as needed.

Template version information:

r0.0: 2013-03-13 Initial draft

r0.1: 2013-03-27

r0.2: 2013-08-16 Clarified Section 2, provided subsections for "Business Requirements" and "Technical Requirements". Updated instructions.

# Introduction

Provide an introduction to the content, purpose, or impetus of the proposal; the business need / problem being solved; and the scope. Include and label any references, supporting documentation, and related proposals. If the proposal is based on existing implementations, describe them here in the appropriate subsections. It is recommended that a "Summary of Proposed Changes" sub-section be provided within this section.

The High Performance Working Group was formed with the goal of improving the fit-for-purposefulness of FIX for high performance.

Recent improvements in the speed of hardware, software, and network connections (such as in co-location solutions) are putting pressure on the FIX protocol and highlighting some inefficiencies of the current version of the protocol (e.g., excessive echoing of input values, inefficient encoding). New financial applications such as high-frequency trading and market data feeds pose new performance requirements. In recent years, several financial organizations have avoided the performance limitations of FIX and introduced new proprietary protocols that are optimized for speed. These proprietary interfaces have been offered, sometimes along with a FIX interface, to support high-speed transactions and/or data feeds.

The current performance limitations of FIX can be removed by making changes and additions at multiple levels of the protocol. At the *application* level, there is a need to define less-verbose versions of some FIX messages and to streamline the message flow. At the *presentation* level, there is a need to provide new encodings that are faster and more compact than the traditional Tag=Value encoding of FIX. At the *session* level, there is a need to specify a new lightweight session protocol with basic recovery options. The High Performance Working Group is drafting a set of specifications and guideline documents to address all these aspects.

FIX Performance Session Layer (FIXP) is a lightweight protocol designed to replace FIXT for high performance use cases. It supports both point-to-point exchange of application messages as well as multicasts for market data and the like.

Notable FIXP features:

* Negotiable delivery guarantees, supporting asymmetrical flows
* Separates session identifier from business entity identifiers
* Well isolated from other layers:
  + Binary encoding, but wire format independent for both session and application messages
  + Transport independent; works on TCP streams as well as datagram-oriented transports

## Promotion to Technical Standard

The FIXP specification was refined through four release candidates, and it was published as a Draft Standard in 2019. For a FIX Draft Standard to be promoted to final Technical Standard, it should be accepted without further major modifications, and at least two interoperable implementations should be demonstrated. The first criterion has been met since no objections or change requests have been registered in any of the public forums since the Draft Standard was published.

As for implementations, FIX Trading Community published a reference implementation in GitHub project FIXTradingCommunity/silverflash that demonstrates all features of the protocol. In production, CME is using FIXP as part of its iLink 3 Binary Order Entry Protocol. Numerous firms and vendors implement their side of the sessions, so we deem that this meets the interoperability criterion. Other FIX members also plan FIXP usage.

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# Requirements

No new requirements have been prioritized since version 1.0 Draft Standard.

# Issues and Discussion Points

Even after the enhancements of version 1.0 Technical Standard, the following issues remain for future discussion.

The information in this section can be presented in table or numbered list format or sub-sections of descriptive text. Include issues and important discussion points that arose during the sub-committee or working group's effort to develop the gap analysis proposal. Also include resolutions of the issues and discussion points. The items will aid in understanding the thought process and tracks for the decisions made.

## WebSocket usage

Use of FIXP over a WebSocket transport has been addressed in FIXP version 1.1, already available for download as Draft Standard (<https://www.fixtrading.org/standards/fixp/>).

# ReferencesAuthors should list references used in created the technical standard proposal

* Reference – reference used to create the standard or related to the proposed technical standard.
* Version – version of reference
* Relevance – Relevance of specification to standard.
* Relationship – relationship of the related standard to the technical standard being proposed. Can be: **Extends** the related standard, **Overlaps** with related standard, **Incorporates** related standard, **Inspiration** fromrelated standard, **Uses** related standard, **Replaces** related standard.
* Normative – Yes – this reference contains provisions incorporated into this specification.

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| **Reference** | **Version** | **Relevance** | **Normative** |
| FIX Performance Session Layer  Version 1.0  Technical Specification |  | Specification submitted with this proposal | Yes |
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# Relevant and Related Standards

Authors should provide a list of any standards that are relevant or related to the technical standard being proposed.

* Related Standard – name of related standard (can be an acronym if widely known).
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| **Related Standard** | **Version** | **Reference location** | **Relationship** | **Normative** |
| Simple Open Framing Header | Draft Standard | <https://www.fixtrading.org/standards/fix-sofh> | Optional usage at presentation layer | Yes |
| Simple Binary Encoding | Technical Standard | <https://www.fixtrading.org/standards/sbe> | Optional usage at presentation layer | Yes |
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# Intellectual Property Disclosure

Authors should provide a list of any intellectual property

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| **Related Intellection Property** | **Type of IP (copyright, patent)** | **IP Owner** | **Relationship to proposed standard** |
| None |  |  |  |
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# Definitions

This section, if included, should contain explicit definitions for terms used in the technical standard.

* **Term** – term used in
* **Definition** - The definition of the term. If a term has different definitions in different contexts or for different asset types, include and identify fully these differing definitions. If the definition is copied or paraphrased from a source, identify the source in parentheses after the definition.

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| **Term** | **Definition** |
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# Deliverables

This section will contain the actual technical specification. Recommended that subheadings be used as necessary.

## Specifications

Full specifications for FIXP are available in separate document *FIX Performance Session Layer: Version 1.0 Technical Specification* (www.fixtrading.org/standards/fixp).

## Resources

The following resources are available in GitHub project [FIXTradingCommunity/fixp-specification](https://github.com/FIXTradingCommunity/fixp-specification) (requires a free GitHub user ID).

### SBE Message Schema for FIXP

XML file SBEschemaForFIXP.xml defines the encoding of FIXP session messages in Simple Binary Encoding version 1.0. It conforms to the XML schema for SBE message schemas.

### Repository File for FIXP

XML file FixRepositoryForFIXP.xml defines the FIXP session messages in the format of FIX Repository 2010 Edition.

### Orchestra File for FIXP

XML file OrchestraForFIXP.xml defines the FIXP session messages in the format of FIX Orchestra version 1.0. It was mechanically translated from the repository file listed above.

# Appendix A - Usage Examples

This is a required section where the sub-committee or working group can provide whole or fragments of example FIX messages with actual or dummy data. These examples are useful for illustrating usage or rules specific to the business domain covered in the proposal.

Examples are provided in the specification document.

# Appendix B – Compliance Strategy

The technical standard must include some plan for measuring compliance with the standard. This will either be test suites, a validation tool (such as an XML Schema document as an example).

Not yet developed.