FIX Simple Open Framing Header

Version 1.1 Release Candidate 1

Technical Proposal

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v0.1

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Table of Contents

Table of Figures

Document History

Revision	Date	Author	Revision Comments
v0.1	2019-09-11	Don Mendelson Silver Flash LLC	Initial draft

1 Introduction

The FIX High Performance Working Group set about defining a set of additional concrete encodings. The intent of these encodings was to efficiently communicate the FIX trading protocol. A decision was taken early on that none of these encodings be bound in and of themselves solely to the use of FIX Protocol. A problem and a requirement arose during the development of these additional encodings. What mechanism could be provided that would permit message processors, such as network protocol analyzers and heterogeneous communication gateways, to determine an application message boundary and the encoding of that message. After considerable deliberation, an approach was selected to create a simple and primitive message framing header that would communicate two pieces of information, the length of a message and the encoding type of that message. Additional requirements were identified. The goal was to make the framing header open and available to support existing and future encoding types and have the ability to reserve a set of encoding types to permit user defined encodings. The FIX Simple Open Framing Header ("the SOF Header") we believe meets these requirements.

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2 Requirements

2.1 Business Requirements

Solution shall be open to support existing and future encoding types.

Solution shall permit identification of new versions of encodings.

Solution shall support FIX and non-FIX encodings.

2.2 Technical Requirements

Provide a simple mechanism for message processing application to identify the length of a message.

Provide a simple mechanism for message processing applications to identify the encoding of the message.

Provide a mechanism to inventory and publish a list of encoding types.

2.2.1 Byte Order

SOFH Version 1.0 specified byte order as big-endian (most significant byte first) to be consistent with common Internet protocols. However, Intel and compatible processors, which have dominated in recent years, follow a little-endian (least significant byte first) architecture. For these common processors, using big-endian byte order incurs a cost that is small per message but could add significant latency over thousands or millions of messages. Therefore, SOFH version 1.1 RC1 added a provision to use little-endian byte order on agreement of counterparties. (This is consistent with Simple Binary Encoding that allows either byte order.)

2.2.2 New Encoding Types

Codes were added for Simple Binary Encoding version 2.0 big- and little-endian encodings.

3 Issues and Discussion Points

NONE

4 References

Reference	Version	Relevance	Normative

5 Relevant and Related Standards

Related Standard	Version	Reference location	Relationship	Normative
SBE	1.0, 2.0		SOF Header can be used with SBE	
FIX GPB	1.0		SOF Header can be used with FIX encoding using GPB	
FIX	4.2, 4.4, 5.0SP2		SOF Header can be used with FIX Tag=value encodings	
FAST	1.0, 1.1, 1.2		SOF Header can be used with FIX encoding using FAST	
FIX ASN.1	1.0		SOF Header can be used with FIX encoding using ASN.1	
XML			SOF Header can be used with XML	
FIX JSON			FIX plans a FIX standard encoding for JSON	

6 Intellectual Property Disclosure

No disclosures required.

7 Definitions

Term	Definition
CODEC	Encoder / Decoder – a processor that can encode and decode encoded messages.
Message	A stream of 1..n bytes of information of known length and identified encoding.
Network Byte Order	Integer values encoding using Big-Endian byte order.

8 Simple Open Framing Header

The deliverable for Simple Open Framing Header is document Simple Open Framing Header - Technical Specification v1.1 RC1.

Appendix A - Usage Examples (Non-normative)

NONE

Appendix B – Compliance Strategy

NONE