FIX Simple Open Framing Header Technical Specification

Version 1.1 Release Candidate 1

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THIS DOCUMENT IS A RELEASE CANDIDATE FOR A PROPOSED FIX TECHNICAL STANDARD. A RELEASE CANDIDATE HAS BEEN APPROVED BY THE GLOBAL TECHNICAL COMMITTEE AS AN INITIAL STEP IN CREATING A NEW FIX TECHNICAL STANDARD. POTENTIAL ADOPTERS ARE STRONGLY ENCOURAGED TO BEGIN WORKING WITH THE RELEASE CANDIDATE AND TO PROVIDE FEEDBACK TO THE GLOBAL TECHNICAL COMMITTEE AND THE WORKING GROUP THAT SUBMITTED THE PROPOSAL. THE FEEDBACK TO THE RELEASE CANDIDATE WILL DETERMINE IF ANOTHER REVISION AND RELEASE CANDIDATE IS NECESSARY OR IF THE RELEASE CANDIDATE CAN BE PROMOTED TO BECOME A FIX TECHNICAL STANDARD 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.

3 Issues and Discussion Points

NONE

4 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	1.0		Header can be used with FIX encoding using JSON	

5 Intellectual Property Disclosure

No disclosures required.

6 Definitions

Term	Definition
CODEC	Encoder / Decoder – a processor that can encode and decode encoded messages.
Little-Endian Byte Order	Encodes the least significant byte first and the most significant byte last
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. Encodes the most significant byte first and the least significant byte last

7 Simple Open Framing Header

The Simple Open Framing Header is six octets in length consisting of two fields, the Message_Length and Encoding_Type. The purpose of the Simple Open Framing Header will provide a simple mechanism to process messages from a stream that can have multiple encodings. Message processors are then able to skip over (ignore) any messages for which a CODEC is unavailable.

7.1 Simple Open Framing Header Fields

The Message Framing Header shall consist of two fields.

The Simple Open Framing Header is defined to contain the following information:

7.1.1 Message_Length field

The Message_Length shall be defined to be the length in octets (i.e. bytes) of a message inclusive of the length of the Simple Open Framing Header.

The Message_Length field shall be the first field in the Simple Open Framing Header.

The Message_Length field shall be four octets in length, permitting a maximum message size of 2^32.

7.1.2 Encoding_Type field

The Encoding_Type field shall be defined to be an integral enumeration whose value range shall be managed by the FIX Trading Community. The Encoding_Type shall include well known encodings. The Encoding_Type shall reserve a range of values for user defined encodings.

The Encoding_Type field shall be the second field in the Simple Open Framing Header.

The Encoding_Type field shall be two octets in length, permitting the identification of 2^16 distinct encoding types.

The following encoding types are defined initially as part of the standard. Future encoding types will be defined as part of the standards process.

Simple Open Framing Header – Encoding_Types

Encoding_Type	Values
Private User Defined	0x0001 through 0x00FF
FIX SBE Version 1.0 Big-Endian	0x5BE0
FIX SBE Version 1.0 Little-Endian	0xEB50
FIX SBE Version 2.0 Big-Endian	0x5BE1
FIX SBE Version 2.0 Little-Endian	0xEB51
FIX GPB Version 1.0	0x4700
FIX ASN.1 PER Version 1.0	0xA500
FIX ASN.1 BER Version 1.0	0xA501
FIX ASN.1 OER Version 1.0	0xA502
FIXTV	0xF000
FIXML SCHEMA Version 1.0	0XF100
FIX FAST	0xFA01 – 0xFAFF

Encoding_Type	Values
FIX JSON	0xF500

7.1.3 Use of Private User Defined Encoding_Types

User defined values shall not be published.

User defined values shall not be considered to be unique and are to be implemented by counterparty agreement.

7.1.4 Registration of additional Encoding_Types

Encoding_Types will be reviewed and approved by the FIX Global Technical Committee. The intent of this standard is to provide open registration. The registration shall not be limited to only FIX encodings.

7.2 Encoding of the Simple Open Framing Header

By default, the Simple Open Framing Header shall be encoded using unsigned binary integer values in Network Byte Order (big-endian). However, by bilateral agreement between counterparties, little-endian byte order may be used.

7.3 Visibility of Framing Header values

The Message_Length and Encoding_Type shall be made available to the CODEC.

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.

NONE

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).

NONE

8 Appendix

This section is informational

8.1 Simple Binary Encoding (SBE)

The following composite type may be added to an SBE message schema to represent the encoding of Simple Open Framing Header using SBE encoder/decoder mechanisms. Byte order would be controlled by the `byteOrder` attribute of the `<messageSchema>` element.

```
<composite name="sofh">
    <type name="messageLength" primitiveType="uint32"/>
    <type name="encodingType" primitiveType="uint16"/>
</composite>
```