



# **FIX Simple Open Framing Header Release Candidate 1 Technical Proposal**

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## Document History

Revision	Date	Author	Revision Comments
v0.0	2014-01-24	Jim Northey LaSalle Technology	Initial documentation of HPWG Cross Subgroup framing header design.
v0.1	2014-02-21	Jim Northey LaSalle Technology	Updates after HPWG review on Feb 21.
v0.2	2014-04-24	Hanno Klein Deutsche Börse Group	Minor changes for GTC submission.
v0.3	2014-09-08	Hanno Klein Deutsche Börse Group	Minor changes for public review.

# 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.

## 1.1 Authors

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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 References

Reference	Version	Relevance	Normative

### 5 Relevant and Related Standards

Related Standard	Version	Reference location	Relationship	Normative
SBE	1.0		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	
FIX BSON			FIX plans a FIX standard encoding for BSON	

### 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 Ending byte order.

## 8 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.

### 8.1 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:

#### 8.1.1 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  $2^{32}$ .

#### 8.1.2 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 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
FIX JSON	0xF500
FIX BSON	0xFB00



### **8.1.3 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.

### **8.1.4 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.

## **8.2 Encoding of the Simple Open Framing Header**

The Simple Open Framing Header shall be encoded using unsigned binary integer values in Network Byte Order.

### **8.3 Visibility of Framing Header values**

The Message\_Length and Encoding\_Type shall be made available to the CODEC.

## **Appendix A - Usage Examples (Non-normative)**

NONE

## **Appendix B – Compliance Strategy**

NONE