uTrade

DMA FIX SPECIFICATION

Version: 1.0.0.0

September 1, 2016

Company Overview

uTrade Solutions is a fintech company providing enterprise solutions including Blockchain driven clearing, multi-asset trading platform, algorithms and risk management solutions to financial institutions and their end customers. Our product suite includes the following:

- ✓ **Multi Asset Trading platform:** with full suite application and html5 web-based front ends (Including admin functions, risk management, order management, connectivity to exchanges etc.).
  - It supports trading for all listed products including equities, futures, options, commodities, as well as for non-listed products like FX, CFDs, etc.
- ✓ **Low latency algorithmic trading platform:** Used in exchange co-location environment or in client data centres/cloud for fastest access to markets to execute arbitrage, market making, execution, excel based, quant driven, api based proprietary and various other strategies across all asset classes. It also provide FIX APIs for DMA and Algos access
- ✓ **Open Source, Risk Management, and Custom Solutions**: We also customise and open source some modules of our technologies.
- ✓ **Blockchain Solutions:** uTrade is driving new solutions enabled by the latest technologies including Blockchain. We have built Clearing and KYC focused Blockchain platforms. We are also partnering with clients to guide and provide Blockchain Solutions for their desired workflows. Our existing products include:
  - **uClear** – uClear is a Blockchain based clearing solution for real time clearing and settlement. It allows for any exchange-matching engine to clear trades post execution through a private blockchain, across equities and futures, with real time risk management, reporting and other financial transfer instructions.
  - **KYChain** - KYChain is a KYC platform with mobile and web driven interface for clients to upload their documents and share securely with any institutions, primarily for KYC purpose. Institutions can also contribute back to the data of the users based on permissions.

We have built our products from ground-up with a modular architecture in order to effectively address current and rapidly evolving user needs. We have also filed for 6 patents in India and 1 patent in US/UK to lead innovation in the trading life cycle.

Please watch our video demos at www.youtube.com/utradesolutions

In 2013-2014, uTrade Solutions was recognized as a leading innovative fin-tech start-up by:

FinTech Innovation Lab | RED HERRING ASIA WINNER 100 | NASSCOM® | CII Confederation of Indian Industry

OVERVIEW

This document describes the FIX specification in order to gain access to the uTrade High Frequency Trading System (**µTrade**).

The Financial Information eXchange (FIX) Protocol is a message-based standard developed to facilitate the electronic exchange of information related to financial instruments transactions. Further details can be retrieved at the following link **http://www.fixprotocol.org**

The FIX specification supported is **FIX 4.2**. The FIX messages described in this document include only the required tags and a subset of the optional tags from the FIX standard for the relevant messages. Other optional tags from the FIX standard are not used.

FIX messages and their fields are described in this document along with their description.

In order to handle multi-leg orders some non-standard custom messages have been defined. These user-defined messages and their fields are described in detail later.

SESSION HANDLING

A FIX session is defined as a bidirectional stream of ordered messages between two parties. Basically, it is composed of three parts: Logon to initiate the session, messages exchange and Logout to terminate it.

ADMINISTRATIVE MESSAGES

These messages address the basic needs of the protocol. According to FIX standard, the following messages are supported:

Message	MsgType (Tag 35)	Description
Logon	A	Authenticates a user establishing a connection to a remote system. It must be the first message sent by the Client requesting to initiate a FIX session
Heartbeat	0	Monitors the status of the communication link
TestRequest	1	Forces a Heartbeat from the application on the opposing side
ResendRequest	2	It is sent by the receiving application to initiate the retransmission of messages
Reject	3	It is issued when a message is received but cannot be properly processed due to a session level rule violation
SequenceReset	4	It is used by the sending application to reset the incoming sequence number on the opposing side
Logout	5	It initiates or confirms the termination of a FIX session

APPLICATION MESSAGES

The exchange of business-related information is accomplished through the application messages. This type of message is composed of the standard header followed by the message body and terminated with the standard trailer.

2.2.1 STANDARD HEADER

Field Name	Tag	Required	Description
BeginString	8	Y	FIX.4.2 (Always unencrypted, must be first field in message)
BodyLength	9	Y	(Always unencrypted, must be second field in message)
MsgType	35	Y	(Always unencrypted, must be third field in message)
SenderCompID	49	Y	(Always unencrypted)
TargetCompID	56	Y	(Always unencrypted)
OnBehalfOfCompID	115	C	Required for order creation messages only. Must match with the CustomerID
OnBehalfOfSubID	116	C	Required for order creation messages only. Must match with the TraderID

2.2.2 STANDARD TRAILER

Field Name	Tag	Required	Description
CheckSum	10	Y	(Always unencrypted, always last field in message)

Required column: Y stands for Required, N for Not required, C for Conditional.

ORDER TYPES

Clients may submit the following order types via the New Order request:

Type	Description
Limit	An order that will execute at or better than the specified price. The remainder, if any, is added to the order book or expired in terms of its TimeInForce
Market	An order that will execute at the best prices. Any remainder will be priced and added to the order book or expired in terms of its TimeInForce
Stop	A market order that remains inactive until the market reaches a specified stop price
Stop Limit	A limit order that remains inactive until the market reaches a specified stop price

TIME IN FORCE

The µTrade recognizes the following values:

TimeInForce	Description
Day	An order that will expire at the end of the day
Immediate or Cancel (IOC)	An order that will be executed on receipt and the remainder, if any, immediately cancelled

REQUEST HANDLING

NEW ORDER REQUEST

This request is used by Clients wishing to electronically submit orders for execution. FIX message: **OrderSingle** (MsgType = D)

Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
Account	1	Y	Account specification (up to 10 characters)
ClOrdID	11	Y	Unique identifier of the order as assigned by the Client (up to 32 characters)
HandlInst	21	Y	Valid values: ✓ **1** Automated execution order, private, no Broker intervention
OrderQty	38	Y	Order quantity
OrdType	40	Y	Valid values: ✓ **1** Market ✓ **2** Limit ✓ **3** Stop ✓ **4** Stop Limit
Price	44	C	Required for limit orders
Side	54	Y	Valid values: ✓ **1** Buy ✓ **2** Sell
Symbol	55	Y	Exchange Symbol (TokenNumber)
TimeInForce	59	N	Valid values: ✓ **0** Day (default value) ✓ **3** IOC
TransactTime	60	Y	Time this request was initiated (expressed in UTC)
StopPx	99	C	Required for 40=3 (Stop) or 40=4 (Stop Limit)
MaxFloor	111	N	Size to be shown
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

NEW MULTILEG ORDER REQUEST

This request is used by Clients wishing to electronically submit MultiLeg orders for execution. FIX message: **UserDefined** (MsgType = U1)

Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
Account	1	Y	Account specification (up to 10 characters)
ClOrdID	11	Y	Unique identifier of the order as assigned by the Client (up to 32 characters)
OrdType	40	Y	Valid values: ✓ **2** Limit
Price	44	C	Required for 600=1 (Spread orders)
TimeInForce	59	Y	Valid values: ✓ **0** Day (default value) ✓ **3** IOC
TransactTime	60	Y	Time this request was initiated (expressed in UTC)
MultilegOrdType	600	Y	Type of MultiLeg order. Valid values: ✓ **1** Spread Order ✓ **2** Two Leg Order (Not Supported) ✓ **3** Three Leg Order (Not Supported)
NoLegs	601	Y	Number of repeating Order Leg

Repeating Group			
LegOrderQty	638	Y	Order quantity for the Leg
LegPrice	644	C	Price for the Leg. Required for 600=2 and 600=3
LegSide	654	Y	Side for the Leg. Valid values: ✓ **1** Buy ✓ **2** Sell
LegSymbol	655	Y	Exchange Symbol (TokenNumber) for the Leg
End Repeating Group			
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

NEW ORDER ACKNOWLEDGEMENT

This message is used by µTrade to confirm the receipt of an order or reject it. It is also used for notifying that a Stop Loss order has been triggered or a Market order has been priced.

FIX message: **ExecutionReport** (MsgType = 8) Direction: from µTrade to FIX Client

Side	54	As supplied with the original order ("L" for MultiLeg orders)
Symbol	55	As supplied with the original order ("L" for MultiLeg orders)
Text	58	Reason of the Reject (set only when 39=8)
TimeInForce	59	As supplied with the original order or default value
StopPx	99	Stop Price supplied with the original order or not set
ExecType	150	Valid values: ✓ **0** New ✓ **8** Rejected ✓ **D** Restated ✓ **T** Stop Loss Triggered
LeavesQty	151	Quantity of the order open for execution. (Zero for MultiLeg orders)
ExecRestatementReason	378	Valid values (set when 150=D): ✓ **3** Repricing of order
MultilegOrdType	600	Same as in the original request
NoLegs	601	Same as in the original request

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
AvgPx	6	Zero
ClOrdID	11	Unique identifier of the order as assigned by the Client
CumQty	14	Zero
ExecID	17	Unique identifier of the message
ExecTransType	20	Zero (New)
LastPx	31	Zero
LastShares	32	Zero
OrderID	37	Unique identifier of the order (NONE when 39=8)
OrderQty	38	Quantity supplied with the original order
OrdStatus	39	Valid values: ✓ **0** New ✓ **8** Rejected
OrdType	40	As supplied with the original order
Price	44	Price supplied with the original order. In case of Market orders it is the price received from the Exchange

Repeating Group		
LegCumQty	614	Zero
LegOrderQty	638	Same as in the original request
LegPrice	644	Same as in the original request
LegSide	654	Same as in the original request
LegSymbol	655	Same as in the original request
LegLeavesQty	6151	Zero
End Repeating Group		
Standard Trailer	*Component*	

ORDER EXECUTION

This message is used by µTrade to relay fill information on working orders.

FIX message: **ExecutionReport** (MsgType = 8)

Direction: from µTrade to FIX Client

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
AvgPx	6	Calculated average price of all fills on this order
ClOrdID	11	Unique identifier of the order as assigned by the Client
CumQty	14	Total number of shares filled
ExecID	17	Unique identifier of the message
ExecTransType	20	Zero (New)
LastPx	31	Price of this (last) fill
LastShares	32	Quantity of shares bought/sold on this (last) fill
OrderID	37	Unique identifier of the order
OrderQty	38	Quantity supplied with the original order
OrdStatus	39	Valid values: ✓ **1** Partially filled ✓ **2** Filled
OrdType	40	As supplied with the original order
Price	44	Price supplied with the original order. (For Market orders the price received from the Exchange)
Side	54	As supplied with the original order
Symbol	55	As supplied with the original order.
TimeInForce	59	As supplied with the original order or default value
StopPx	99	Stop Price supplied with the original order or not set
ExecType	150	Valid values: ✓ **1** Partially filled ✓ **2** Filled
LeavesQty	151	Quantity of the order open for further execution
UniqueTradeID	6032	Unique identifier of the Trade
Standard Trailer	*Component*	

ORDER REPLACE REQUEST

This request is used by Clients wishing to change the parameters of an existing order. The Client can amend the following data:

- Quantity
- Price
- TimeInForce

FIX message: **OrderCancelReplaceRequest** (MsgType = G)

Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
ClOrdID	11	Y	Unique identifier of the replace request as assigned by the Client (up to 32 characters)
HandlInst	21	Y	Valid values: ✓ **1** Automated execution order, private, no Broker intervention
OrderQty	38	Y	New order quantity
OrdType	40	Y	As supplied with the original order
OrigClOrdID	41	Y	ClOrdID of the order the Client want to amend (up to 32 characters)
Price	44	C	New price (for limit orders)
Side	54	Y	As supplied with the original order
Symbol	55	Y	As supplied with the original order
TimeInForce	59	N	
TransactTime	60	Y	Time this request was initiated (expressed in UTC)
StopPx	99	C	New Stop Price. Required for 40=3 (Stop) or 40=4 (Stop Limit)
MaxFloor	111	N	Size to be shown
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

MULTILEG ORDER REPLACE REQUEST

This request is used by Clients wishing to change the parameters of an existing MultiLeg order. The Client can amend the following data:

- Quantity
- Price
- TimeInForce

FIX message: **UserDefined** (MsgType = U2)

Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
ClOrdID	11	Y	Unique identifier of the order as assigned by the Client (up to 32 characters)
OrdType	40	Y	As supplied with the original order
OrigClOrdID	41	Y	ClOrdID of the order the Client wants to amend (up to 32 characters)
Price	44	C	New price (Required for 600=1)
TimeInForce	59	N	
TransactTime	60	Y	Time this request was initiated (expressed in UTC)
MultilegOrdType	600	Y	As supplied with the original order
NoLegs	601	Y	As supplied with the original order
Repeating Group			
LegOrderQty	638	Y	New order quantity for the Leg
LegPrice	644	N	New price for the Leg (Required for 600=2 and 600=3)
LegSide	654	Y	As supplied with the original order
LegSymbol	655	Y	As supplied with the original order
End Repeating Group			
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

ORDER REPLACE ACKNOWLEDGEMENT

This message is used by µTrade to confirm changes to an existing order.

FIX message: **ExecutionReport** (MsgType = 8)

Direction: from µTrade to FIX Client

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
AvgPx	6	Calculated average price of all fills on the order. (Zero for MultiLeg orders)
ClOrdID	11	Unique identifier of the replace request as assigned by the Client
CumQty	14	Total number of shares filled. (Zero for MultiLeg orders)
ExecID	17	Unique identifier of the message
ExecTransType	20	Zero (New)
LastPx	31	Zero
LastShares	32	Zero
OrderID	37	Unique identifier of the order
OrderQty	38	Quantity supplied with the original order (Not set for MultiLeg orders)
OrdStatus	39	Valid values: ✓ **1** Partially filled (if the order has been partially hit) ✓ **5** Replaced
OrdType	40	As supplied with the original order
OrigClOrdID	41	As supplied with the original order
Price	44	Price supplied with the original order
Side	54	As supplied with the original order. ("L" for MultiLeg orders)
Symbol	55	As supplied with the original order. ("L" for MultiLeg orders)
TimeInForce	59	As supplied with the original order or default value
StopPx	99	Stop Price supplied with the original order or not set
ExecType	150	**5** Replaced
LeavesQty	151	Quantity of the order open for (further) execution. (Zero for MultiLeg orders)
MultilegOrdType	600	Same as in the original request
NoLegs	601	Same as in the original request
Repeating Group		
LegCumQty	614	Total number of shares filled for the Leg
LegOrderQty	638	Same as in the original request
LegPrice	644	Same as in the original request
LegSide	654	Same as in the original request
LegSymbol	655	Same as in the original request
LegLeavesQty	6151	Quantity of the Leg open for (further) execution
End Repeating Group		
Standard Trailer	*Component*	

ORDER REPLACE REJECT

This message is used by µTrade upon receipt of a Replace Request which cannot be honoured. FIX message: **OrderCancelReject** (MsgType = 9)

Direction: from µTrade to FIX Client

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
ClOrdID	11	Unique identifier of the replace request as assigned by the Client
OrderID	37	Unique identifier of the order
OrdStatus	39	Order Status value after this Reject is applied
OrigClOrdID	41	As supplied with the original replace request
Text	58	Reason of the Reject
CxlrejReason	102	Valid Values: ✓ **0** Too late to cancel ✓ **1** Unknown order ✓ **2** Broker option
CxlRejResponseTo	434	**2** (OrderCancelReplaceRequest)
Standard Trailer	*Component*	

ORDER CANCEL REQUEST

This request is used by Clients wishing to cancel all of the remaining quantity of an existing order.

FIX message: **OrderCancelRequest** (MsgType = F) Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
ClOrdID	11	Y	Unique identifier of the cancel request as assigned by the Client (up to 32 characters)
OrderQty	38	Y	Quantity supplied with the original order
OrigClOrdID	41	Y	ClOrdID of the order the Client want to cancel (up to 32 characters)
Side	54	Y	As supplied with the original order
Symbol	55	Y	As supplied with the original order
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

MULTILEG ORDER CANCEL REQUEST

This request is used by Clients wishing to cancel all of the remaining quantity of an existing MultiLeg order.

FIX message: **UserDefined** (MsgType = U3) Direction: from FIX Client to µTrade

Field Name	Tag	Required	Description
Standard Header	*Component*	Y	
ClOrdID	11	Y	Unique identifier of the order as assigned by the Client (up to 32 characters)
OrigClOrdID	41	Y	ClOrdID of the order the Client wants to cancel (up to 32 characters)
MultilegOrdType	600	Y	As supplied with the original order
NoLegs	601	Y	As supplied with the original order
Repeating Group			
LegOrderQty	638	Y	As supplied with the original order
LegSide	654	Y	As supplied with the original order
LegSymbol	655	Y	As supplied with the original order
End Repeating Group			
Standard Trailer	*Component*	Y	

Required column: Y stands for Required, N for Not required, C for Conditional.

ORDER CANCEL ACKNOWLEDGEMENT

This message is used by µTrade to confirm the cancellation of an existing order. FIX message: **ExecutionReport** (MsgType = 8)

Direction: from µTrade to FIX Client

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
AvgPx	6	Calculated average price of all fills on the order. (Zero for MultiLeg orders)
ClOrdID	11	Unique identifier of the cancel request as assigned by the Client
CumQty	14	Total number of shares filled. (Zero for MultiLeg orders)
ExecID	17	Unique identifier of the message
ExecTransType	20	Zero (New)
LastPx	31	Zero
LastShares	32	Zero
OrderID	37	Unique identifier of the order
OrderQty	38	Quantity supplied with the original order (Not set for MultiLeg orders)
OrdStatus	39	**4** Cancelled
OrdType	40	As supplied with the original order
OrigClOrdID	41	As supplied with the original cancel request
Price	44	Price supplied with the original order
Side	54	As supplied with the original order. (“L” for MultiLeg orders)
Symbol	55	As supplied with the original order. (“L” for MultiLeg orders)
TimeInForce	59	As supplied with the original order or default value
StopPx	99	Stop Price supplied with the original order or not set
ExecType	150	**4** Cancelled
LeavesQty	151	Zero
MultilegOrdType	600	Same as in the original request
NoLegs	601	Same as in the original request
Repeating Group		
LegCumQty	614	Total number of shares filled for the Leg
LegOrderQty	638	Same as in the original request
LegPrice	644	Same as in the original request
LegSide	654	Same as in the original request
LegSymbol	655	Same as in the original request
LegLeavesQty	6151	Zero
End Repeating Group		
Standard Trailer	*Component*	

ORDER CANCEL REJECT

This message is used by µTrade upon receipt of a Cancel Request which cannot be honoured. FIX message: **OrderCancelReject** (MsgType = 9)

Direction: from µTrade to FIX Client

Field Name	Tag	Description
Standard Header	*Component*	
Account	1	As supplied with the original order
ClOrdID	11	Unique identifier of the cancel request as assigned by the Client
OrderID	37	Unique identifier of the order
OrdStatus	39	Order Status value after this Reject is applied
OrigClOrdID	41	As supplied with the original cancel request
Text	58	Reason of the Reject
CxlrejReason	102	Valid Values:
		✓ **0** Too late to cancel ✓ **1** Unknown order ✓ **2** Broker option
CxlRejResponseTo	434	**1** (OrderCancelRequest)
Standard Trailer	*Component*	

Symbology For placing Order

Tags:

Tag Name : Symbol

Tag Number : 55

Example :

DEFAULT TATASTEEL

DEFAULT USDINR

Tag Name : LegOrdSymbol

Tag Number : 655

Example :

DEFAULT TATASTEEL

DEFAULT USDINR

If user specifies only TATASTEEL, system will automatically convert it into DEFAULT TATASTEEL

Tag Name : ExDestination

Tag Number : 100

Possible Values : BSECM, BSEFO, BSECDS, NSECM, NSEFO, NSECDS etc.

Tag Name : SecurityType

Tag Number : 167

Possible Values :

CS = Common Stock

FUT = Future

OPT = Option

Tag Name : MaturityDay, MaturityMonthYear

Tag Number : 205, 200

Example :

28 July, 2016

MaturityDay -> 28

MaturityMonthYear -> 201607 -> July 2016

Tag Name : PutOrCall

Tag Number : 201

Possible Values :

0 = Put

1 = Call

Tag Name : StrikePrice

Tag Number : 202

Example :

34500 -> 345.00

655025 -> 65.5025

Single Order

Common Stock:

For BSECM TATASTEEL or NSECM TATASTEEL

167 - CS

100 - BSECM or NSECM

55 - DEFAULT TATASTEEL or TATASTEEL

Future:

For BSEFO TATASTEEL 30JUN2016 or NSEFO TATASTEEL 30JUN2016

167 - FUT

100 - BSEFO or NSEFO

55 - DEFAULT TATASTEEL or TATASTEEL

205 - 30

200 - 201606

Options (Call and PUT):

For BSEFO TATASTEEL 30JUN2016 34500 Call or NSEFO TATASTEEL 30JUN2016 34500 Call

or

For BSEFO TATASTEEL 30JUN2016 34500 Put or NSEFO TATASTEEL 30JUN2016 34500 Put

167 - OPT

100 - BSEFO or NSEFO

55 - DEFAULT TATASTEEL or TATASTEEL

205 - 30

200 - 201606

201 - 0 or 1

202 - 34500

Broker will be DEFAULT for NSE/BSE.

Expiry format is

MaturityMonthYear - Year:Month 201606 -> June 2016

MaturityDay - 30

Strike price is 34500 -> 345.00

Symbology for NSE and BSE Currency Derivative Segment:

Future:

For BSECDS USDINR 28JUN2016 or NSECDS USDINR 28JUN2016

167 - FUT

100 - BSECDS or NSECDS

55 - DEFAULT USDINR or USDINR

205 - 28

200 - 201606

Options (Call and PUT):

167 - OPT

100 - BSECDS or NSECDS

55 - DEFAULT USDINR or USDINR

205 - 28

200 - 201606

201 - 0 or 1

202 – 680000

Spread orders:

For BSEFO TATASTEEL 30JUN2016 28JUL2016 or NSEFO TATASTEEL 30JUN2016 28JUL2016

Leg1 (Repeating Group 1)

167 - FUT

100 - BSEFO or NSEFO

655 - DEFAULT TATASTEEL or TATASTEEL

205 - 30

200 - 201606

Leg2 (Repeating Group 2)

167 - FUT

100 - BSEFO or NSEFO

655 - DEFAULT TATASTEEL or TATASTEEL

205 - 28

200 - 201607

Multileg IOC orders (Two Leg IOC and Three Leg IOC):

Individual Leg Detail (Repeating Group)

167 - FUT or OPT

100 - BSEFO or NSEFO

655 - DEFAULT TATASTEEL or TATASTEEL

205 - 30

200 - 201606

201 - 0 or 1

202 - 34500

Need to fill every leg detail like LegOrdSymbol, exchange, security type, maturity day, maturity year month, putorcall, strike price for all legs depending upon multileg order type (2Leg or 3Leg).

uTrade's Client presence

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