EdgeTrade Agency-Algorithms
FIX Specification

Version1.34 — November 17, 2010

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TABLE OF CONTENTS

1   OVERVIEW

Knight Direct LLC (KD) offers its EdgeTrade Agency-Algorithms both through its front-end trading system, Knight Direct, and through direct FIX connectivity. The algorithmic orders are controlled by customer-specified trading parameters that go beyond those used in standard order types.

1.1   Purpose and Scope

The purpose of this document is to define the FIX specification for clients to send orders electronically through the Knight algorithmic trading platform—with the goal of facilitating connectivity between trading firms as efficiently as possible.   The document is intended as a means to outline the different types of strategy orders available as well as the custom FIX tags used to define their parameters.   These parameters will be specified with a set of common custom tags located in the range 6201–6299.

1.2   References

Document	Website
FIX 4.2 Protocol Specification	http://www.fixprotocol.org/specifications/
FIX 4.0 Protocol Specification	http://www.fixprotocol.org/specifications/

1.3   Document Revision Notes

Version	Date	Name	Description
1.00	08/29/2008	Meaghan Mullins	Adjustments into KCG Infrastructure
1.01	09/09/2008	Meaghan Mullins	
1.02	09/18/2008	Eric Siciliano	Removed Liquidity Paced and Multi-vtrack order types as well as parameters for Dark Switch and Routing preference.
1.03	09/22/2008	Meaghan Mullins	
1.04	09/25/2008	Eric Siciliano	Removed Volume Tracker order type, Random Reserve Tag, FAN BLOCK,
1.05	09/29/2008	Eric Siciliano	Added examples for FAN/COVERT 'style' and Tag vs. Strategy matrix.
1.06	10/10/2008	Eric Siciliano	
1.07	11/03/2008	Meaghan Mullins	Removed execution status (20=3)
1.10	12/01/2008	Eric Siciliano	Added Take Price and Target Price to all strategies. Added Auction field to COVERT. Added Min Dark Qty, Dark Switch to TWAP, VWAP, ARRIVAL-PRICE, SUMO and SMART-VTRACK. Updated values for Style<6210>. Removed Time fields for COVERT and FAN. Updated ARRIVAL-PRICE to use Style in lieu of Tilt.
1.11	01/14/2009	Eric Siciliano	
1.12	01/29/2009	Eric Siciliano	Removed Floating Limit, Floating Offset (6217, 6218) from all strategies.
1.20	02/16/2009	Eric Siciliano	Added new strategy, TARGETCLOSE
1.21	02/25/2009	Eric Siciliano	
1.22	03/23/2009	Eric Siciliano	Added strategies for Canada, VWAP, TWAP, SMART-VTRACK, ARRIVAL-PRICE and SUMO.
1.24	04/17/2009	skakkadath	Added new definitions, FAN order types, removed time component block Removed starttimeType and stoptimeType.
1.25	04/21/2009	skakkadath	Added TIF GTX to FAN
1.27	05/20/2009	skakkadath	Added strategy OASIS
1.28	06/11/2009	skakkadath	Added parameters ,Duration and Print Size Threshold
1.29	08/21/2009	mmullins	Added the SPECIAL strategy
1.30	09/16/2009	skakkadath	Removed ambiguous examples
1.31	12/17/2009	mmullins	Added cancel replace section.

Version	Date	Name	Description
1.32	1/7/10	skakkadath	Added Volume Fraction to OASIS
1.33	3/4/10	mmullins	Adjusted aggression setting in SUMO
1.34	11/17/10	skakkadath	Adjusted style parameters, added discretion, MinQty, GTC and GTD to FAN. Added stop, stop limit and 10b-18 to all strategies. Removed OnClose from SUMO and SMART-VTRACK. Changed the upper bound of Max vol%. Removed OnOpen and OnClose from ARRIVAL-PRICE. Removed screenshots.

2   SUMMARY

Knight's EdgeTrade Agency-Only strategies include smart order execution, benchmark and participation algorithms designed to track down liquidity while seeking best execution within a fragmented marketplace. Offerings include smart order execution strategies such as FAN and COVERT as well as trading benchmarking and percentage of volume types. Access to strategies is available through 3 different venues:

- Knight Direct EMS™
- Leading EMS/OMS trading system providers
- Direct FIX connectivity via client's proprietary systems.

Smart order execution, benchmark and participation algorithms from EdgeTrade empower clients to maintain market anonymity and reduce overall transaction costs, while achieving their trading objectives. Table 1 below lists a summary and description of each strategy supported.

Table 1 - Summary of Strategy Types

Strategy Name	Description
FAN	Sweeps and probes dark pools and public markets for liquidity. Simultaneously rests and intelligently circulates shares throughout dark pools [and back to ATSs and public markets].
COVERT	Similar to FAN, but is limited to dark pools only. No public markets are accessed.
SUMO	Uses real time and historical liquidity measures to determine speed in completing an order.
VWAP	Participate proportionally with expected volume profile.
TWAP	Spreads executions evenly over designated time period.
ARRIVAL-PRICE	Calculates optimal trade horizon to balance market impact with price risk based on the specified urgency level.
SMART-VTRACK	A Percent of Volume (POV) strategy that dynamically reacts to traded volume. It uses FANs smart order routing logic to aggressively work each wave with best execution as the primary driving force.
TARGETCLOSE	Calculates the optimal trade horizon striving to achieve an execution outcome with minimal price dispersion from the closing print.
OASIS	Uses adaptive liquidity sourcing and anti-gaming logic that leverages both historical information and intraday feedback to execute orders in Small and Mid-cap equities while minimizing market impact.
SPECIAL	Used to define custom strategies.

3   MESSAGE SPECIFICATION

This section details the service supported for electronic trading of strategy orders via FIX, including a definition of each order type as well as specific information of what and what is not supported. Strategies are generally listed in Tag 6101 and accompanying strategy tags. Customization for specific client requests is also available.

3.1   General Service Features

FieldName	Comments
Operating Hours	US market hours 9:30am to 4pm. * Use of, FAN only, pre and post market hours must be coordinated with Electronic Services Group prior to use of the extended hours time in force identifier.
Regions Supported	US, EU and Canada (Canada does not support COVERT and TARGETCLOSE).
Security Types Supported	Listed, NYSE preferred stocks and NASDAQ preferred Stocks. Pink Sheets /OTCBB are supported by FAN only.
Time In Force	DAY orders are supported by all strategies. In addition FAN supports GTX, GTC, GTD, IOC and OPG.
OrderTypes	Market, Limit, Stop and Stop Limit are supported by all strategies. In addition to these Order types FAN supports LOO, LOC, MOO and MOC.
Order Cancels	Supported for open and partially filled orders.
Order Cancel/Replace	Supported for regular FIX fields as specified in the FIX 4.2/4.0 spec, as well as custom strategy tags.
Order Rejects	Session level and business level rejects are supported.

3.2   SEC Rules

3.2.1   REGULATION SHO

Short-sale orders must be accompanied by the custom tag LocateSource (tag 5700). This specifies the broker providing the locate on the instrument being sold short, as required by Regulation SHO.

3.2.2   RULE 10b-18 (Safe Harbor for Issuer Repurchases) – US Only

All US 'Buy' orders (FIX tag 54=1), support the enforcement of Rule 10b-18.

When 10b-18 is checked, the algorithm avoids:
- Participation on the open.
- Creating an up-tick.
- Participation after 15:50 PM
  - If a stop time is not specified, the strategy will use 15:30 PM as its default End-time.
  - The order will be rejected if a stop time after 15:50 PM is entered.

This option is mapped to tag 6212 on the FIX message; with 'Y' indicating the rule is enabled.

A helpful FAQ about the 10b-18 regulation is also available from the SEC.

3.3   Algorithmic Strategies.

The tables below exhibit the FIX tags supported by each strategy. Within each section, the appropriate FIX tags are listed, per strategy. The "Req'd" column uses the following symbols to denote which fields are optional vs. mandatory:
- 'Y' – specifies the tag is required,
- 'N' – specifies the tag is not required,
- 'N*' – specifies the tag is conditionally required.

All common FIX tags are not defined in the sections below. Certain tags can support multiple values. Please Refer to section 4.1 FIX tag Dictionary, to see supported values.

3.3.1   FAN

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit 5=Market on close B=Limit on close
44	Price	N*	
54	Side	Y	
55	Symbol	Y	
59	TimeInForce	Y	Valid values: 0=DAY 1=GTC 2=OPG 3=IOC 5=GTX, Dependent on session time. Refer to section 4.1 6=GTD
65	SymbolSfx	N*	
110	MinQty	N	
111	Display Size(Max Floor)	N	
114	LocateReqd	N*	
389	Discretion Offset	N	Positive floating point.
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: fan FAN
6208	I Would Price	N	Refer to section 4.1

6210	Style	N	Valid values:
			-100 (Passive+)
			 -1 (Passive)
			  0 (Neutral)
			  1 (Aggressive-Default)
			  100 (Aggressive+)

6258	Market Stop Price	N	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2

Market On Open orders should be sent with FIX tag 40=1 and 59=2. Limit On Open orders should be sent with FIX tag 40=2 and 59=2.

3.3.2 COVERT

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
44	Price	N*	
54	Side	Y	
55	Symbol	Y	
59	TimeInForce	Y	Valid values: 0=DAY 3=IOC
65	SymbolSfx	N*	
110	MinQty	N	
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: covert COVERT
6208	I Would Price	N	Refer to section 4.1
6210	Style	N	Valid values: -100 (Passive+) -1 (Passive) 0 (Neutral) 1 (Aggressive- default) 100 (Aggressive+)
6258	Market Stop Price	N	Refer section 4.1
6212	10b-18	N	Refer to section 3.2.2
6262	Auction	N	Refer to section 4.1

Passive and Passive + orders will be treated as Peg Prime. These orders should preferably be sent with FIX tags 40=P and 18=R instead of 6210= -100 or -1.
Neutral orders will be treated as Peg Mid. These orders should preferably be sent with FIX tags 40=P and 18=M instead of 6210=0.
Aggressive and Aggressive+ orders will be treated as Peg Market. These orders should preferably be sent with 40=P and 18=P instead of 6210=1 or 100.

3.3.3   SUMO

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
55	Symbol	Y	
65	SymbolSfx	N*	
54	Side	Y	
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
44	Price	N*	
21	HandlInst	Y	Valid value: 1
59	TimeInForce	Y	Valid value: 0=Day
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: sumo SUMO
6206	OnOpen	N	Refer to section 4.1
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol %	N	Refer to section 4.1
6210	Style	N	Valid values: <= -1 (Aggressive) 0 (More Aggressive -default) >= 1 (Aggressive+)
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	DarkMinQty	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions
6212	10b-18	N	Refer to section 3.2.2

3.3.4 VWAP

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
55	Symbol	Y	
65	SymbolSfx	N*	
54	Side	Y	
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
44	Price	N*	
21	HandlInst	Y	Valid value: 1
59	TimeInForce	Y	Valid value: 0=Day
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: vwap VWAP
6206	OnOpen	N	Refer to section 4.1
6207	OnClose	N	Refer to section 4.1
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol %	N	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2
6213	Tilt	N	Refer to section 4.1
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	DarkMinQty	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
6264	Print Size Threshold	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions

3.3.5 TWAP

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
55	Symbol	Y	
65	SymbolSfx	N*	
54	Side	Y	
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
44	Price	N*	Refer to section 4.1
21	HandlInst	Y	Valid value: 1
59	TimeInForce	Y	Valid value: 0=Day
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: twap TWAP
6206	OnOpen	N	Refer to section 4.1
6207	OnClose	N	Refer to section 4.1
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol %	N	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2
6213	Tilt	N	Refer to section 4.1
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	DarkMinQty	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
6264	Print Size Threshold	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions

3.3.6 ARRIVAL-PRICE

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
55	Symbol	Y	
65	SymbolSfx	N	
54	Side	Y	
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
44	Price	N*	
21	HandlInst	Y	Valid value: 1
59	TimeInForce	Y	Valid value: 0=Day
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid values: arrival-price ARRIVAL-PRICE
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol %	N	Refer to section 4.1
6210	Style	N	Valid values: --100 (Passive+) -1 (Passive) 0 (Neutral -default) 1 (Aggressive) 100 (Aggressive+)
6212	10b-18	N	Refer to section 3.2.2
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	DarkMinQty	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions

3.3.7 SMART-VTRACK

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
54	Side	Y	
55	Symbol	Y	
59	TIF	Y	Valid value: 0=Day
65	SymbolSfx	N*	
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid Values: smart-vtrack SMART-VTRACK
6206	OnOpen	N	Refer to section 4.1
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol%	Y	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	DarkMinQty	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
6264	Print Size Threshold	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions

3.3.8 TARGETCLOSE

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
54	Side	Y	
55	Symbol	Y	
59	TIF	Y	Valid value: 0=Day
65	SymbolSfx	N*	
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid Values: targetclose TARGETCLOSE
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions
6212	10b-18	N	Refer to section 3.2.2
6263	Duration	N	Refer to section 4.1

3.3.9   OASIS

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
54	Side	Y	
55	Symbol	Y	
59	TIF	Y	Valid value: 0=Day
65	SymbolSfx	N*	
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid Values: oasis OASIS
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol%	N	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2
6258	Market Stop Price	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1

3.3.10   SPECIAL

TAG	FieldName	Req'd	Comments
11	ClOrdID	Y	
21	HandlInst	Y	Valid value: 1
38	OrderQty	Y	
40	OrdType	Y	Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit
54	Side	Y	
55	Symbol	Y	
59	TIF	Y	Valid value: 0=Day
65	SymbolSfx	N*	
110	MinQty	N	
111	Display Size(Max Floor)	N	
114	LocateReqd	N*	
389	DiscretionOffset	N	
5700	LocateSource	N*	Refer to section 3.2.1
6101	Strategy	Y	Valid Values: special SPECIAL
6206	OnOpen	N	Refer to section 4.1
6207	OnClose	N	Refer to section 4.1
6208	I Would Price	N	Refer to section 4.1
6209	Max Vol%	N	Refer to section 4.1
6210	Style	N	Refer to section 4.1
6212	10b-18	N	Refer to section 3.2.2
6213	Tilt	N	Refer to section 4.1
6258	Market Stop Price	N	Refer to section 4.1
6260	DarkSwitch	N	Refer to section 4.1
6261	Dark Min Qty	N	Refer to section 4.1
6262	Auction	N	Refer to section 4.1
6263	Duration	N	Refer to section 4.1
6264	Print Size Threshold	N	Refer to section 4.1
168/6203	Start Time	N	UTCTimestamp: use tag 6203 with FIX 4.2 and 168 with older versions
126/6205	End Time	N	UTCTimestamp: Use tag 6205 with FIX 4.2 and 126 with older versions

3.4   Order Cancel Replace Request

The order cancel/replace request is used to change the parameters of an existing order.

Only a limited number of fields can be changed via the cancel/replace request message, these fields are in blue text.

NOTE When modifying ExecInst <18> fields in a replacement order, it is necessary to re-declare all ExecInst <18> in the replacement order. ExecInst <18>'s will not be carried forward from the original order to the replacement unless re-declared.

TAG	FieldName	Req'd	Comments
115	onBehalfOfCompID	N*	
37	OrderID	N	
41	OrigClOrdID	Y	
11	ClOrdID	Y	
18	ExecInst	Y	Refer to section 3.3 and 4.1
55	Symbol	Y	
65	SymbolSfx	N	
48	SecurityID	N	
22	IDSource	N	
54	Side	Y	
60	TransactTime	Y	
38	OrderQty	Y	
40	OrdType	Y	Refer to section 3.3 and 4.1
44	Price	Y	
15	Currency	N	
59	TimeInForce	Y	Refer to section 4.1
126	ExpireTime	N	Time/Date of order expiration
114	LocateReqd	N*	
5700	LocateSource	N*	Refer to section 3.2.1
58	Text	N	
6101	Strategy	Y	Refer to section 4.1
6206	OnOpen	N	Refer to section 3.3 and 4.1
6207	OnClose	N	Refer to section 3.3 and 4.1
6208	I Would Price	N	Refer to section 3.3 and 4.1
6209	VolumeFraction	N	Refer to section 3.3 and 4.1
6210	Style	N	Refer to section 3.3 and 4.1
6212	10b-18	N	Refer to section 3.2.2
6213	Tilt	N	Refer to section 3.3 and 4.1
6258	Market Stop Price	N	Refer to section 3.3 and 4.1
6260	DarkSwitch	N	Refer to section 3.3 and 4.1
6261	Dark Min Qty	N	Refer to section 3.3 and 4.1
6262	Auction	N	Refer to section 3.3 and 4.1
6263	Duration	N	Refer to section 3.3 and 4.1
6264	Print Size Threshold	N	Refer to section 3.3 and 4.1

3.5 Order Cancel Request

TAG	FieldName	Req'd	Comments
115	onBehalfOfCompID	N*	Identification of a service bureau client
37	OrderID	N	Unique identifier of most recent order as assigned by Knight
41	OrigClOrdID	Y	ClOrdID <11> of the previous order (NOT the initial order of the day) when canceling or replacing an order.
11	ClOrdID	Y	Unique identifier of replacement order as assigned by institution. Note that this identifier will be used in ClOrdID <11> field of the Cancel Reject <3> message if the replacement request is rejected.
55	Symbol	Y	Identifies instrument to trade
65	SymbolSfx	N	Additional information about the security (e.g. preferred, warrants, etc.).
48	SecurityID	N	Security identifier, stated in tag 22
22	IDSource	N	1=CUSIP 2=SEDOL 4=ISIN 5=RIC
54	Side	Y	1=Buy 2=Sell 5=Sell Short
60	TransactTime	Y	Time this order request was initiated/released by the trader or trading system.
38	OrderQty	N	Number of shares in the order
58	Text	N	Identifies the price currency

3.6 Standard Header

TAG	FieldName	Req'd	Comments
8	BeginString	Y	FIX.4.2
9	BodyLength	Y	
35	MsgType	Y	0=HeartBeat 1=TestRequest 2=ResendRequest 3=Reject 4=SequenceReset 5=Logout 8=ExecutionReport A=Logon D=NewOrderSingle
49	SenderCompID	Y	Identification of the message originator
56	TargetCompID	Y	DTTX (Identification of the message recipient)
115	OnBehalfOf CompID	N	Identification of trading counterpart when messages are arriving via a third party
128	DeliverToCompID	N	Identification of trading counterpart when messages are arriving via a third party
34	MsgSeqNum	Y	Message Sequence Number (Resets to 1 at the start of each trading day)
50	SenderSubID	N	
57	TargetSubID	N	
116	OnBehalfOfSubID	N	
129	DeliverToSubID	N	
43	PossDupFlag	N*	Indicates possible retransmission of this seq num
97	PossResend	N*	Indicates possible retransmission of msg under a New sequence number
52	SendingTime	Y	GMT Date/Time Message was sent

3.7 Standard Trailer

TAG	FieldName	Req'd	Comments
10	CheckSum	Y	Integer byte count of message length without the CheckSum field.

4 APPENDIX

4.1 FIX Tag Dictionary

TAG	FieldName	Format	Comments
1	Account	String	Account identifier as agreed between client and executing venue.
6	AvgPx	Price	Average price of all executions on the order.
7	BeginSeqNo	int	

8	BeginString	string	Protocol Version.
			Valid values:
			     FIX.4.2
			     FIX.4.0

9	BodyLength	int	Length of Message Body
10	CheckSum	string	Integer byte count of message length without the CheckSum field
11	ClOrdID	String	Must be unique for each order throughout the trading day, across all stocks and sides from the same FIX Session ID. Due to OATS reporting requirements, please note that the ClOrdID (OATS RoutedOrderID), must be limited to 20 characters in length and unique for a given day.
14	CumQty	Qty	Total number of shares executed
15	Currency	Currency	Identifies currency used for price.
16	EndSeqNo	int	0 means +infinity
17	ExecID	string	Unique identifier of execution message as assigned by executing venue. Uniqueness must be guaranteed within a single trading day or the life of a multi-day order
18	ExecInst	char	ignored
19	ExecRefID	String	Identifier used with cancel and correct transactions

20	ExecTransType	char	Identifies transaction type.
			Valid values:
			     0=New
			     1=Cancel
			     2=Correct
			Note: In the event of a cancelled execution (20=1), the cancelled qty may be reinstated for trading. See tag 14 (cumqty) and tag 151 (leaves qty).
			In the event of a corrected execution (20=2) AFTER a cancel replace, a combination of a correction on the original clordid, plus a new execution on the current clordid, will be used.

21	HandlInst	char	Instructions for handling of orders. Valid values: 1=Automated execution order, private, no Broker intervention

22	IDSource	String	Identifies source of the SecurityID
			Valid Values:
			     1=CUSIP
			     2=SEDOL
			     4=ISIN
			     5=RIC

31	LastPx	Price	Price of this (last) fill
32	LastShares	Qty	Shares executed on this (last) fill
34	MsgSeqNum	int	Message Sequence Number (Resets to 1 at the start of each trading day)

35	MsgType	string	Defines message type. Valid Values: A=Logon 0=HeartBeat 1=TestRequest 2=ResendRequest 3=Reject 4=SequenceReset 5=Logout 8=ExecutionReport D=NewOrderSingle 9= Order Cancel Reject F=Order Cancel Request G= Order Cancel/Replace Request
36	NewSeqNo	int	Next expected Sequence Number
37	OrderID	String	Unique identifier for order, assigned by executing venue.
38	OrderQty	Qty	Number of shares sent to execution venue
39	OrdStatus	char	Current status of the order. Valid values: 0=New 1=Partially filled 2=Filled 3=Done for day 4=Canceled 5=Replaced 6=Pending Cancel 8=Rejected 9=Suspended A=Pending New C=Expired E=Pending Replace
40	OrdType	char	Order type. Valid values: 1=Market 2=Limit 3=Stop 4=Stop limit 5=Market on close (FAN ONLY) B=Limit on close (FAN ONLY)
43	PossDupFlag	Boolean	Indicates possible retransmission of this sequence number. Valid values: Y=Possible duplicate N=Original transmission
44	Price	Price	Price per share Note: If OrdType='1' (Market), this tag will be ignored.
45	RefSeqNum	int	MsgSeqNo of Rejected Message
47	Rule80A (Order Capacity)	char	Order Capacity. Valid values: A=Agency single order P=Principal W=All other orders as agent for other member Note: The customer is responsible for filling in this field with Program Order and Index Arbitrage information correctly. KD will forward the order restriction information, but change the order capacity to "Agency".
48	SecurityID	String	Security identifier, consistent with the type specified in tag 22
49	SenderCompID	string	Identification of the message originator
50	SenderSubID	String	Value used to identify specific message originator

52	SendingTime	UTC Timestamp	Time of message transmission (always expressed in UTC (Universal Time Coordinated, also known as "GMT")
54	Side	char	Side of this order. Valid values: 1= Buy 2= Sell 5= Sell short
55	Symbol	String	Ticker symbol. Note: KD supports either a fully qualified symbol name in tag 55, with suffix delimited by a period (e.g. RIO.PRA), or a combination of symbol and suffix (e.g. 55=RIO, 65=PRA), but NOT both (e.g. 55=RIO.A 65=PR).
56	TargetCompID	string	DTTX (Identification of the message recipient)
57	TargetSubID	String	Value used to identify specific individual or unit intended to receive message. 'ADMIN' reserved for administrative messages not intended for a specific user. Valid value: 57=ALGO (to identify algo orders)
58	Text	String	May be used for special purposes by prior arrangement, or as a passive memo field ignored unless otherwise pre-arranged.
59	TimeInForce	char	Specifies how long the order remains in effect. The default is DAY. Valid values: 0=Day (Default) 2=At the Opening (OPG) (FAN ONLY) 3=Immediate or Cancel (IOC) 5=Good Till Crossing (GTX) (FAN ONLY) GTX Note: Allows trading from premarket (4:00 AM EST) through the regular market hours into the postmaket hours (till 8:00 PM EST). Coordinate FIX session time with Electronic Service Group (esg@knight.com) to cover pre and post market hours trading.
65	SymbolSfx	String	Additional information about the security (e.g. preferred, warrants, etc.). Also See Tag 55 notes
76	ExecBroker	String	Identifies executing / give-up broker. Standard FINRA MPID is preferred.
97	PossResend	Boolean	Indicates that message may contain information that has been sent under another sequence number. Valid Values: Y=Possible resend N=Original transmission
98	EncryptMethod	int	Method of encryption. Valid values: 0=None / Other
103	OrderRej Reason	int	Cause of Order rejection. Valid values: 0=Broker option 1=Unknown symbol 2=Exchange closed 3=Order exceeds limit 4=Too late to enter 5=Unknown Order 6=Duplicate Order 7=Duplicate of verbal order 8=Stale order
108	HeartBtInt	int	The Heartbeat Interval is 60 seconds. Clients should use a 60 second Heartbeat Interval.
109	ClientID	String	Firm identifier used in third party transactions
110	MinQty	Qty	Minimum number of shares to be executed from a given order.
111	MaxFloor	Qty	Maximum number of shares, within an order, to be displayed in the public market at any given time.
112	TestReqID	string	Auto-Generated Request ID to be returned in the resulting heartbeat

114	Locate Reqd	Boolean	Indicates whether the broker is to locate the stock in conjunction with a short sell order. Valid values: N=Indicates the broker is not required to locate
115	OnBehalfOf CompID	String	Value used to identify firm originating message if the message was delivered by a third party
116	OnBehalfOf SubID	String	Value used to identify specific message originator (i.e. trader) if the message was delivered by a third party

123	GapFillFlag	Boolean	Indicates that the Sequence Reset message is replacing administrative or application messages which will not be resent.
			Valid values:
			    Y=Gap Fill message, MsgSeqNum field valid
			    N=Sequence Reset, ignore MsgSeqNum
			The use of 'Y' is required for common resequencing. 'N' is not recommended, and should only be used in emergencies that require manual intervention. 'N' causes the SeqNo of the SequenceReset message to be ignored, creating a high possibility of message loss.

126	ExpireTime	UTC Timestamp	Time/Date of order expiration (always expressed in UTC (Universal Time Coordinated, also known as "GMT")
128	DeliverToCompID	String	Value used to identify the firm targeted to receive the message if the message is delivered by a third party
129	DeliverToSubID	String	Value used to identify specific message recipient (i.e. trader) if the message is delivered by a third party

150	ExecType	char	Describes the specific ExecutionRpt (i.e. Pending Cancel) while OrdStatus will always identify the current order status (i.e. Partially Filled)
			Valid values:
			    0= New
			    1= Partial fill
			    2= Fill
			    3= Done for day
			    4= Canceled
			    5= Replaced
			    6= Pending Cancel
			    8= Rejected
			    9= Suspended
			    A= Pending New
			    C= Expired
			    E= Pending Replace

151	LeavesQty	Qty	*N.B:* cancelling an algorithmic order may lead to an incomplete out, specifically when it is too late for the algorithm to cancel a pending on-the-close order. In such a case the algorithm will issue a Canceled report (ExecType = '4') for the order with a non-zero LeavesQty set to the number of shares pending for execution.
168	EffectiveTime	UTC Timestamp	Time the details within the message should take effect (always expressed in UTC (Universal Time Coordinated, also known as "GMT")
371	RefTagID	int	
372	RefMsgType	string	
373	SessionReject Reason	int	
389	DiscretionOffset	Float	Relative to the specified limit price of the order. Please note, tag 388 is not supported.
6101	Strategy	String	This tag is case-sensitive. String can be either upper case or lower case, can't be a mix of upper and lower cases. Valid values: FAN, COVERT, VWAP, TWAP, SUMO, ARRIVAL-PRICE, SMART-VTRACK, TARGETCLOSE, OASIS, SPECIAL
6206	OnOpen	Boolean	Participate on the open? If absent, an order-specific default will be used. If False ('N'), the order will not participate on the open. If True ('Y'), it is a suggestion that the order participate on the open, if possible and appropriate. Valid values: Y, N

6207	OnClose	Boolean	Participate on the close? If absent, an order-specific default will be used. If False ('N'), the order will not participate on the close. If True ('Y'), it is a suggestion that the order participate on the close, if possible and appropriate. Valid values: Y, N
6208	I Would Price	Price	When the market price drops to this level (rises for sells) the order becomes a Fan Aggressive order.
6209	Max Vol%	Float	The maximum or target fraction of the security's trading volume at which this order should participate. Valid range: .01–.99 (not including 0) 2 decimal places accepted (e.g. .25 = 25%).
6210	Style	float	Trading style – meaning is derived from the context of the algorithm. Refer to Algorithmic strategy section 3.3 for the valid values of style per strategy. For example, on a VWAP order, style indicates the aggressiveness with which trading should take place. Valid Values: -100 (Passive+) -1 (Passive) 0 (Neutral -default) 1 (Aggressive) 100 (Aggressive+)
6212	10b-18	Boolean	If True ('Y'), trading will respect the 10b-18 safe-harbor rules for corporate buy-back purchases. This value is ONLY applicable to US "buy" (54=1) orders. Valid values: Y, **N** (default)
6213	Tilt	Float	The amount to front- or back-load the underlying volume curve. Valid range: -10 — 10, (**0** default) *The usage of the Style tag to indicate Tilt is supported, but deprecated. KD prefers that the Tilt tag be set directly when applicable.
6258	Market Stop Price	Price	When the market price rises (drops for sells) the order becomes a Fan Aggressive order.
6260	DarkSwitch	Boolean	If liquidity is available in a dark pool, the algorithm will act as a FAN order ignoring the POV limit, get the shares, and then return to acting as order. Any volume acquired during the "dark switch" will not be applied to the volume target. Valid values:Y or N
6261	Dark Min Qty	Qty	minimum execution size
6262	Auction	Boolean	Valid Values: Y or N (default) Allows covert to participate in point-in-time auctions in addition to continuous crosses. If covert has an order in an auction and the trader attempts to cancel the order, the cancel will be held up until the auction is complete.
6263	Duration	Int(minute)	This field can be used instead of stop time to specify the order's time range. The duration should be specified in number of minutes. Example: duration of two minutes should be specified as 2, not 120.Duration will be truncated to the close. If an order is entered at 15:50 with a duration of 15,the order will stop at 16:00.
6264	Print Size Threshold	Integer	Specifies the minimum print size that will be ignored from consideration of the volume in question.For example, if set to 30,000 on a 10% SMART-VTRACK order and if three prints hit the tape – {800, 35000, 5000), the algorithm will ignore the 35,000-share print, and use a traded volume of 5800 as the gauge of participation. The value must be a non-negative integer. 0 will be interpreted as an instruction to use the default, which is to ignore from consideration of the benchmark any prints over 500,000 shares or over 1% of the Average Daily Volume for the last 20-day trading period (the lesser of the two values).
9882	Liquidity	String	Indicator of the order adding/removing liquidity to/from the destination, or being routed away. Valid Values: A=Added Liquidity R=Removed Liquidity X=Routed

4.2 Custom Fields vs. Strategies

Custom Fields	Fan	Covert	Sumo	VWAP	TWAP	Arrival Price	Smart Vtrack	Target Close	Oasis	Special
OnOpen <6206>			√	√	√	√	√			√
OnClose <6207>			√	√	√	√	√			√
I Would Price <6208>	√	√	√	√	√	√	√		√	√
Max Vol% <6209>				√	√	√	√		√	√
Style <6210>	√	√	√			√				√
10b-18 <6212>	√	√	√	√	√	√	√	√	√	√
Tilt <6213>				√	√					√
Market Stop Price <6258>	√	√	√	√	√	√	√		√	√
Dark Switch <6260>			√	√	√	√	√			√
Dark Min Qty <6261>			√	√	√	√	√			√
Auction <6262>		√								√
Start Time <168/6203>			√	√	√	√	√	√	√	√
End Time <126/6205>			√	√	√	√	√	√	√	√
Duration <6263>			√	√	√	√	√	√	√	√
Print sizeThreshold<6264>				√	√		√			√