Virtu MatchIt FIX Specification

December 19, 2024
Version 5.0.9

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General Information

Overview

MatchIt is an ATS that trades U.S. Reg NMS stocks. MatchIt is composed of two sessions – a) MatchIt Main Session – a continuous crossing venue available to Virtu and external broker dealers, b) MatchIt Conditional Session – a conditional order crossing venue available only to Virtu and Virtu affiliates.

Hours of Operation

Regular Session: 9:30:00AM – 4:00:00PM

Half-day Session: 9:30:00AM – 1:00:00PM

FIX Tags by Purpose

MatchIt Standard Header

TAG	FieldName	Format	Req'd	Comments
8	BeginString	String	Y	Protocol Version FIX.4.2
9	BodyLength	Int	Y	Length of Message Body
35	MsgType	String	Y Types	0 = HeartBeat 1 = TestRequest 2 = ResendRequest 3 = Reject 4 = SequenceReset 5 = Logout 8 = ExecutionReport A = Logon D = NewOrderSingle
34	MsgSeqNum	Int	Y	Message Sequence Number (Resets to 1 at the start of each trading day)
49	SenderCompID	String	Y	Identification of the message originator
56	TargetCompID	String	Y	MATCHIT (Identification of the message recipient)
43*	PossDupFlag	Boolean	N	Indicates possible retransmission of this sequence number
97*	PossResend	Boolean	N	Indicates possible retransmission of message under a New sequence number
52	SendingTime	UTCTimestamp	Y	GMT Date/Time Message was sent

MatchIt Standard Trailer

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

MatchIt Logon – from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	A=Logon
98	EncryptMethod	Int	Y	0=None / Other
108	HeartBtInt	Int	Y	MatchIt Heartbeat Interval is 60 seconds. Clients should use a 60 second Heartbeat Interval.

MatchIt Logon – from MatchIt

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	A=Logon
98	EncryptMethod	Int	Y	0=None / Other
108	HeartBtInt	Int	Y	MatchIt Heartbeat Interval is 60 seconds. Clients should use a 60 second Heartbeat Interval.

MatchIt HeartBeat – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	0=HeartBeat
112*	TestReqID	String	N	Required in response to a Test Request

MatchIt Test Request – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	Int	Y	1=TestRequest
112	TestReqID	String	N	Auto-Generated Request ID

MatchIt Resend – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	2=ResendRequest
7	BeginSeqNo	Int	Y	
16	EndSeqNo	Int	Y	0 means +infinity

MatchIt Reject – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	3=Reject
45	RefSeqNum	Int	Y	MsgSeqNo of Rejected Message
371*	RefTagID	Int	Y	
372*	RefMsgType	String	Y	
373*	SessionRejectReason	Int	Y	
58*	Text	String	N	

MatchIt Sequence Reset / Gap Fill – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	4=SequenceReset
36	NewSeqNo	Int	Y	Next expected Sequence Number
123*	GapFillFlag	Boolean	'Y' or 'N' ('Y' is required)	The use of 'Y' is required for common resequencing. 'N' is not recommended, and should only be used in emergency situations that require manual intervention. 'N' causes the SeqNo of the SequenceReset message to be ignored, creating a high possibility of message loss.

MatchIt Logout – to and from Client

TAG	FieldName	Format	Req'd	Comments
35	MsgType	String	Y	5=Logout
58*	Text	String	N	Indicates reason for logout

MatchIt Specific FIX Tags

TAG	FieldName	Format	Req'd	Comments
40	OrdType	Char	Y	1=Market 2=Limit P=Pegged
18	ExecInst	Char	N	M=Mid-price peg (midpoint) P=Market peg (buy on offer / sell on bid) R=Primary peg (buy on bid / sell on offer) 1=Not Held *All MatchIt Orders are considered Not Held ** Values other than "M", "P" or "R" are ignored and IOC Orders default to "P"
110	MinQty	Int	N	Minimum execution size of a given order
9007	NoExecInLockedMarket	Char	N	=Y =N Default Value is set to False. By default we will execute in a locked market
9135	AddLiqOnly	Char	N	=Y =N Default Value is set to False
9137	ExecOptOut	Multiple Value String	N	Default Value is set to opt in A = Allow Highest B= Allow High + Highest Y= Block Low + Lowest Z= Block Lowest
9141	ClientSegmentID	Char	N	Available on client request. Used in Conjunction with MPID to identify a specific client defined order flow type for Liquidity Profile for segmentation purposes Valid values: 1 = Segment1 2 = Segment2 3 = Segment3 4 = Segment4
9882	SupplementalLiqCode	Char	N	Available on client request for fills in the Conditional Session. Valid values: R = Retail order[1] M = Virtu Principal Market Making[2] O = Other

[1] VAL receives orders from other broker dealers for execution by its market making business ("Retail Orders"). VAL may transmit an order to the Conditional Session that represents a Retail Order.

[2] Please see MatchIt's Form ATS-N, Part II, Item 1a for more information on Virtu Principal Market Making (VPMM)

MatchIt Order Single Message <35=D>

TAG	FieldName	Format	Req'd	Comments
115	onBehalfOfCompID	String	N	Identification of a service bureau client
11	ClOrdID	String	Y	Uniqueness must be guaranteed within a single trading day.
21	HandlInst	Char	Y	1=Automate execution order, private, no Broker intervention
18	ExecInst	Char	N	M=Mid-price peg (midpoint) P=Market peg (buy on offer / sell on bid) R=Primary peg (buy on bid / sell on offer) 1=Not Held *All MatchIt Orders are considered Not Held ** Values other than "M", "P" or "R" are ignored and IOC Orders default to "P"
110	MinQty	Int	N	Minimum execution size of the MatchIt order
55	Symbol	String	Y	Identifies instrument to trade
65	SymbolSfx	String	N	Additional information about the security (e.g. preferred, warrants, etc.).
48	SecurityID	String	N	Security identifier, stated in tag 22
22	IDSource	String	N	1=CUSIP 2=SEDOL 4=ISIN 5=RIC
54	Side	Char	Y	1=Buy 2=Sell 5=Sell Short 6=Sell Short Exempt
114	LocateReqd	Char	N	Y= Indicates Virtu must locate the stock (NOT Accepted) N=Indicates MatchIt subscriber has located the stock
5700	LocateSource	String	N	Entity that has provided the locate of the security
60	TransactTime	UTCTimestamp	Y	Time MatchIt order request was initiated/released by the trader or trading system.
38	OrderQty	Int	Y	Number of shares in the MatchIt order
40	OrdType	Char	Y	1=Market 2=Limit P=Pegged
44	Price	Price	N	Required for Limit orders only
15	Currency	String	N	Identifies the price currency
57	targetSubID	String	N	
59	TimeInForce	Char	Y	0=Day 3=Immediate or Cancel
47	Rule80a	Char	Y	A =Agency Single P = Principal R = Riskless Principal
9007	NoExecInLockedMarket	Char	N	= Y = N Default Value is set to False. By default we will execute in a locked market
9135	AddLiqOnly	Char	N	= Y = N Default Value is set to False
9137	ExecOptOut	Multiple Value String	N	Default Value is set to opt in A = Allow Highest B = Allow High + Highest Y = Block Low + Lowest Z = Block Lowest
9141	ClientSegmentID	Char	N	Available at client request. Used in Conjunction with MPID to identify a specific client defined order flow type for Liquidity Profile for segmentation purposes Valid values:

				1 = Segment1 2 = Segment2 3 = Segment3 4 = Segment4
58	Text	String	N	Free format text string

MatchIt Order Cancel Replace Request Message <35=G>

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	Format	Req'd	Comments
115	onBehalfOfCompID	String	N	Identification of a service bureau client
37	OrderID		N	Unique identifier of most recent order as assigned by MatchIt
41	OrigClOrdID		Y	ClOrdID <11> of the previous order (NOT the initial order of the day) when canceling or replacing an order.
11	ClOrdID	String	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.
21	HandlInst	Char	Y	1=Automate execution order, private, no Broker intervention
18	ExecInst	Char	N	M=Mid-price peg (midpoint) P=Market peg (buy on offer / sell on bid) R=Primary peg (buy on bid / sell on offer) 1=Not Held *All MatchIt Orders are considered Not Held ** Values other than "M", "P" or "R" are ignored and IOC Orders default to "P"
110	MinQty	Int	N	Minimum execution size of a MatchIt order
55	Symbol	String	Y	Identifies instrument to trade
65	SymbolSfx	String	N	Additional information about the security (e.g. preferred, warrants, etc.).
48	SecurityID	String	N	Security identifier, stated in tag 22
22	IDSource	String	N	1=CUSIP 2=SEDOL 4=ISIN 5=RIC
54	Side	Char	Y	1=Buy 2=Sell 5=Sell Short 6=Sell Short Exempt
60	TransactTime	UTCTimestamp	Y	Time MatchIt order request was initiated/released by the trader or trading system.
38	OrderQty	Int	Y	Number of shares in the MatchIt order
40	OrdType	Char	Y	1=Market 2=Limit P=Pegged
44	Price	Price	N	Required for Limit orders only
15	Currency	String	N	Identifies the price currency
59	TimeInForce	Char	Y	0=Day 3=Immediate or Cancel
47	Rule80a	Char	Y	A= Agency Single P=Principal R=Riskless Principal

MatchIt Order Cancel Replace Request Message <35=G> (continued)

TAG	FieldName	Format	Req'd	Comments
114	LocateReqd	Char	N	Y=Indicates Virtu must locate the stock (NOT Accepted) N=Indicated MatchIt customer has located the stock
5700	LocateSource	String	N	Entity that has provided the located of security in the short sell transaction
9007	NoExecInLockedMarket	Char	N	=Y =N Default Value is set to False. By default we will execute in a locked market
9135	AddLiqOnly	Char	N	=Y =N Default Value is set to False
9137	ExecOptOut	String	N	Default Value is set to opt in A = Allow Highest B= Allow High + Highest Y= Block Low + Lowest Z= Block Lowest
58	Text	String	N	Free format text string

MatchIt Order Cancel Request Message <35=F>

TAG	FieldName	Format	Req'd	Comments
115	onBehalfOfCompID	String	N	Identification of a service bureau client
37	OrderID	String	N	Unique identifier of most recent order as assigned by MatchIt
41	OrigClOrdID	String	Y	ClOrdID <11> of the previous order (NOT the initial order of the day) when canceling or replacing an order.
11	ClOrdID	String	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	String	Y	Identifies instrument to trade
65	SymbolSfx	String	N	Additional information about the security (e.g. preferred, warrants, etc.).
48	SecurityID	String	N	Security identifier, stated in tag 22
22	IDSource	String	N	1=CUSIP 2=SEDOL 4=ISIN 5=RIC
54	Side	Char	Y	1=Buy 2=Sell 5=Sell Short 6=Sell Short Exempt
60	TransactTime	UTCTimestamp	Y	Time this order request was initiated/released by the trader or trading system.
38	OrderQty	Int	N	Number of shares in the MatchIt order
58	Text	String	N	Free format text string

MatchIt Execution Report Message <35=8>

The Execution Report <8> message is used to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order (i.e. accept cancel and replace requests)
3. Relay fill information on working orders
4. Reject orders

TAG	FieldName	Format	Req'd	Comments
128	onBehalfOfCompID	String	N	Identification of a service bureau client
50	SenderSubID	String	Y	=KM
37	OrderID		N	Unique identifier of most recent order as assigned by MatchIt
41	OrigClOrdID		Y	ClOrdID <11> of the previous order (NOT the initial order of the day) when canceling or replacing an order.
11	ClOrdID	String	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.
76	ExecBroker	String	N	=KCGM
17	ExecID	String	Y	Unique identifier of execution message as assigned by MatchIt
20	ExecTransType	Char	Y	0=New 1=Cancel 2=Correct
19	ExecRefID	String	N	
150	ExecType	Char	Y	0=New 1=Partial Fill 2=Fill 3=Done for Day 4=Cancelled 5=Replace 6=Pending Cancel 8=Rejected E=Pending Replace
39	OrdStatus	Char	Y	0=New 1=Partially Filled 2=Filled 3=Done for Day 4=Cancelled 5=Replaced 6=Pending Cancel 8=Rejected E=Pending Replace
55	Symbol	String	Y	Identifies instrument to trade
65	SymbolSfx	String	N	Additional information about the security
48	SecurityID	String	N	Security identifier, stated in tag 22
22	IDSource	String	N	1=CUSIP 2=SEDOL 4=ISIN 5=RIC
54	Side	Char	Y	1=Buy 2=Sell 5=Sell Short 6=Sell Short Exempt

MatchIt Execution Report Message <35=8> (Continued)

TAG	FieldName	Format	Req'd	Comments
38	OrderQty	Qty	Y	Number of shares in the order
40	OrdType	Char	Y	1=Market 2=Limit P=Pegged
44	Price	Price	N	Required for Limit orders only
15	Currency	String	N	Identifies the price currency
30	LastMkt	Char	Y	VFMI
59	TimeInForce	Char	Y	0=Day 3=Immediate or Cancel
18	ExecInst	Char	Y	M=Mid-price peg (midpoint) P=Market peg (buy on offer / sell on bid) R=Primary peg (buy on bid / sell on offer) 1=Not Held
47	Rule80a	Char	Y	A= Agency Single P=Principal R=Riskless Principal
29	LastCapacity	Char	Y	1=Agent 2=Cross as agent 3=Cross as principal 4=Principal
32	LastShares	Qty	Y	Quantity executed
31	LastPx	Price	Y	Price of execution
151	LeavesQty	Qty	N	Amount of shares open for further execution in MatchIt
14	CumQty	Qty	Y	0
6	AveragePx	Price	Y	0.000000
75	TradeDate	LocalMktDate	Y	YYYYMMDD
60	TransactTime	UTCTimestamp	Y	Time of MatchIt execution/order creation
21	HandlInst	Char	Y	1=Automate execution order, private, no Broker intervention
110	MinQty	Int	N	Minimum execution size of the MatchIt order
851	LastLiquitityInd	Int	N	1=Added Liquidity to MatchIt 2=Removed Liquidity from MatchIt
9007	NoExecInLockedMarket		N	=Y =N Default Value is set to False. By default we will execute in a locked market
9135	AddLiqOnly		N	=Y =N Default Value is set to False
9882	SupplementalLiqCode	Char	N	Available on client request for fills in the Conditional Session. Valid values: R = Retail order[1] M = Virtu Principal Market Making[2] O = Other
58	Text	String	Y	

[1] VAL receives orders from other broker dealers for execution by its market making business ("Retail Orders"). VAL may transmit an order to the Conditional Session that represents a Retail Order.

[2] Please see MatchIt's Form ATS-N, Part II, Item 1a for more information on Virtu Principal Market Making (VPMM)

1 Self-Cross Prevention

MatchIt Self Cross Prevention

Orders entered in to MatchIt can be subject to self-cross. MatchIt does offer the ability to prevent self-crossing on both IOC and Day orders, to enable this on your session(s) please reach out to the ESG team at **esg@virtu.com** or 888-302-9197

2 Risk Management

MatchIt supports the following session level risk controls: Max Order Size and Maximum Notional Value per order, as well as Maximum Daily Notional Value. To learn more about this feature or to enable this on your session(s) please reach out to the ESG team at **esg@virtu.com** or 888-302-9197.

3 Document revision notes

Version	Date	Description
1.0	8/21/2008	Specification for amended MatchIt ATS filing
1.01	8/27/2008	Minor modifications for ATS spec compliance
1.02	9/9/2008	Tag 100 introduced, 376 removed and replaces with 57, as well as ATS filing adjustments
2.0	9/29/08	Final version for new filing
3.0	2/14/21	General updates
3.1	3/11/11	Added tag 851
3.2	11/16/11	Added tags 9007 and 9135
4.0	6/5/12	Added tags 336, 9136 and support for MatchIt Session II
4.1	3/10/14	Added tag 9137
4.2	4/8/14	Minor revisions to Tag 9137
4.3	6/9/14	Removed Tag 388 & 389 Added Values for tags 9007, 9135, & 9136 Added description for “ULOIndicator”
4.4	9/18/14	Updated Tag 18 Values Updated Tag 76 Values
4.5	4/1/15	Removed ULO Indicator, Removed ‘2’ and added ‘A’, B’, ‘Y’, ‘Z’ to 9137. Removed ‘KM2’, added Self-Cross Prevention & Risk Management section
4.5.1	1/8/16	Added ”E” value to 9137 – ExecOptOut field
4.5.2	4/12/16	Added “6” to Side for Sell Short Exempt, Updated field type for tag 18 (String), and Update description for tag 18
4.5.3	4/27/16	Updated Cancel/Replace Message, removed Post Session, removed tag 336, updated Self-Cross description
5.0	5/11/16	Final clean-up for updated MatchIt Upgrade
5.0.1	9/21/16	Removed tag 100
5.0.2	10/17/16	Updated Tag 18 Description
5.0.3	9/11/17	Update various information related to Virtu acquisition of KCG. Removed “E” value from 9137 ExecOptOut field. SS DAY Market Peg orders now handled as Mid Peg in Tag 18.
5.0.4	2/01/18	Added Fix Tag 9141 ClientSegmentID to be used in conjunction with MPID for liquidity profile scoring purposes
5.0.5	3/15/19	Added Fix Tag 9882 SupplementalLiqCode and updated LastMkt to VFMI.
5.0.6	8/29/19	Removed multiple values for tag 9137 + updated to new Virtu template + Removed tag 50 /57 from execution report + added appendix for segment based blocking
5.0.7	1/24/20	Added Fix Tag 29 LastCapacity to the Execution Message Report section
5.0.8	11/9/20	Removed default ExecInst for Day orders
5.0.9	4/20/22	Included which fields are replaceable on the cancel/replace requests

4 Appendix

Liquidity Profile Blocking in MatchIt:

Provider Instruction\Remover Segment	1 Highest	2 High	3 Neutral	4 Low	5 Lowest	ExecOptOut (tag 9137)
Allow Highest	O	X	X	X	X	A
Allow High and Highest	O	O	X	X	X	B
Block Low and Lowest	O	O	O	X	X	Y
Block Lowest	O	O	O	O	X	Z
Default / No Blocking	O	O	O	O	O	(none)

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