Virtu MatchIt FIX Specification

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Version 5.0.4

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Information contained in this document is applicable for external subscribers transmitting orders to MatchIt. Virtu Americas LLC may transmit orders to MatchIt in other message formats not available to external subscribers. For more information please review the MatchIt Execution Protocols or Form ATS extract document available at https://www.virtu.com/about/transparency/ or consult your MatchIt relationship manager.

Any questions regarding this document may be sent to the Electronic Services Group:

Electronic Services
Virtu Americas LLC
300 Vesey St.
New York, NY 10282
Phone: 888.302.9197
FAX: 212.418.0123
Email: esg@virtu.com

https://www.virtu.com/about/transparency/

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300 Vesey Street, New York NY 10282 | Tel: 1 212 418 0100 | Fax: 1 212 418 0123

General Information

Overview

MatchIt is an anonymous crossing venue that brings together a variety of sources of non-displayed liquidity from broker-dealers. These sources include third party liquidity providers, third party institutional brokers, DMA flow from third-party broker-dealers, Virtu Americas LLC's and it affiliates' market making businesses, Virtu Americas LLC's and its affiliates' proprietary trading flows, and agency and principal algorithmic order flow from Virtu Electronic Trading and Virtu Financial Capital Markets.

Hours of Operation

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

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	NITE (Identification of the message recipient)
43*	PossDupFlag	Boolean	N	Indicates possible retransmission of this seq num
97*	PossResend	Boolean	N	Indicates possible retransmission of msg 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 default to "M" for DAY orders and "P" for IOC Orders Market Peg "P" will be handled as Mid-Point Peg for DAY short sell orders in Tick Size Pilot Group 2 symbols.
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	Support for multiple values separated by space 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	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 at client request. Provides additional details for fills in which the contra party is Virtu's market maker Valid values: R = Street Bound "retail" order[1] M = Virtu's market maker O = Other

[1] VAL's wholesale market maker (VCMM) receives held order flow from other broker-dealers. These include online brokers, regional broker-dealers, our EU Affiliate, and small orders from institutional customers handled on a held basis ("Retail Firms"). VCMM transmits principal orders to MatchIt to fill orders from Retail Firms. Collectively, we refer to these orders as "Retail Order Flow".

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 default to "M" for DAY orders and "P" for IOC Orders Market Peg "P" will be handled as Mid-Point Peg for DAY short sell orders in Tick Size Pilot Group 2 symbols.
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=Indicated MatchIt customer has located the stock
5700	LocateSource	String	N*	Entity that has provided the locate of the security
60	TransactTime	UTCTimestamp	Y	Time this 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	Y	
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	Support for multiple values separated by space Default Value is set to opt in A = Allow Highest B= Allow High + Highest

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				Y= Block Low + Lowest Z= Block Lowest
9141	ClientSegmentID	Char	N	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 default to "M" for DAY orders and "P" for IOC Orders Market Peg "P" will be handled as Mid-Point Peg for DAY short sell orders in Tick Size Pilot Group 2 symbols.
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 this 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	Y	
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

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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	Multiple Value String	N	Support for multiple values separated by space 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

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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	Identifies the price currency

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
115	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 KM
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 KM
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

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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	Y	
15	Currency	String	N	Identifies the price currency
57	targetSubID	String	N	
30	LastMkt	Char	Y	VFMI
50	SenderSubID	Char	N	Value echoed from tag 57 on 35=D message
57	TargetSubID	Char	N	Value echoed from tag 50 on 35=D message
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
32	LastShares	Qty	Y	Qty 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 at client request. Provides additional details for fills in which the contra party is Virtu's market maker Valid values: R = Street Bound "retail" order[2] M = Virtu's market maker O = Other
58	Text	String	Y	

[2] VAL's wholesale market maker (VCMM) receives held order flow from other broker-dealers. These include online brokers, regional broker-dealers, our EU Affiliate, and small orders from institutional customers handled on a held basis ("Retail Firms"). VCMM transmits principal orders to MatchIt to fill orders from Retail Firms. Collectively, we refer to these orders as "Retail Order Flow".

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. 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	Name	Description
1.0	8/21/2008	Meaghan A. Mullins	Specification for amended MatchIt ATS filing
1.01	8/27/2008	Meaghan A. Mullins	Minor modifications for ATS spec compliance
1.02	9/9/2008	Meaghan A. Mullins	Tag 100 introduced, 376 removed and replaces with 57, as well as ATS filing adjustments
2.0	9/29/08	Meaghan A. Mullins	Final version for new filing
3.0	2/14/2011	Meaghan A. Mullins	General updates
3.1	3/11/11	Meaghan A. Mullins	Added tag 851
3.2	11/16/11	Meaghan A. Mullins	Added tags 9007 and 9135
4.0	6/5/12	Meaghan A. Mullins	Added tags 336, 9136 and support for MatchIt Session II
4.1	3/10/14	Rachele Princiotto	Added tag 9137
4.2	4/8/2014	Rachele Princiotto	Minor revisions to Tag 9137
4.3	6/9/2014	Chris Calcaterra	Removed Tag 388 & 389 Added Values for tags 9007, 9135, & 9136 Added description for “ULOIndicator”
4.4	9/18/2014	Chris Calcaterra	Updated Tag 18 Values Updated Tag 76 Values
4.5	4/1/15	Chris Calcaterra	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	Chris Calcaterra	Added ”E” value to 9137 – ExecOptOut field
4.5.2	4/12/16	Chris Calcaterra	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	Chris Calcaterra	Updated Cancel/Replace Message, removed Post Session, removed tag 336, updated Self-Cross description
5.0	5/11/16	Chris Calcaterra	Final clean-up for updated MatchIt Upgrade
5.0.1	9/21/16	Chris Calcaterra	Removed tag 100
5.0.2	10/17/16	Chris Calcaterra	Updated Tag 18 Description
5.0.3	9/11/17	Tom Hochleutner	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	Tom Hochleutner	Added Fix Tag 9141 ClientSegmentID to be used in conjunction with MPID for liquidity profile scoring purposes
5.0.5	3/15/19	Tom Hochleutner	Added Fix Tag 9882 SupplementalLiqCode and updated LastMkt to VFMI.

Electronic Services
T. 888.302.9197 | F. 212.418.0123
esg@virtu.com | www.virtu.com
Virtu Americas LLC
300 Vesey Street | New York, New York 10282