



MATCHNow FIX Specification

Version 1.0.17

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1 Introduction

1.1 Overview

Note that this specification is the standard FIX specification to be used for Cboe MATCHNow ECN platform within the TR2 data center.

Cboe members use a subset of the FIX 4.2 protocol for order entry and drop copies.

It is assumed that the reader is familiar with the FIX 4.2 protocol as described at <http://www.fixprotocol.org>. This document describes the differences between the Cboe implementation and the FIX 4.2 standard.

1.2 Data Types

1.2.1 Timestamps

All FIX timestamps are GMT as per the FIX standard. Members are expected to synchronize their clocks with an external time source.

1.2.2 Prices

Members should program their systems to allow execution prices to be returned with up to four decimals. The currency (CAD or USD) will be determined by the symbol being traded.

- Order prices below \$0.50 may use limit prices up to four decimal places in \$0.0001 increments.
- Order prices of \$0.50 or more use limit prices up to three decimal places in \$0.001 increments.

Example:

0.0061, 0.2345, 0.4995	Accepted
1.00001, 0.5005, 0.501	Rejected (invalid increments)
1.0000, 1.00, 1.005, 12.3400, 12.34, 12.345, 12.3450, etc.	Accepted – round 10 th of penny (extra trailing zeroes are ignored).

1.3 Hours of Operation

All times noted are Eastern Time zone (ET) based.

Refer to the web site for the [Cboe Canadian Holiday schedule](#).

Orders entered prior to the start of the Regular Trading Session which are accepted will be queued for trading in the session designated by the order. Once trading begins, queued orders will be released to the respective book and crossing orders will be matched per the opening process.

The MATCHNow market will initiate the scheduling of liquidity crossing auctions at randomized 1-3 second intervals as of 9:30:00 a.m. (ET). The first attempted trade of crossed resting liquidity is therefore on a random microsecond between 9:30:01.000000 and 9:30:02.999999 a.m. (ET). Note that Market Flow IOC orders will be accepted as of 9:30:00 a.m. (ET) , and may trade before the first liquidity crossing auction.

Orders are rejected if they are received outside the hours MATCHNow is available for trading or queuing. All orders remaining after the Regular Trading Session will be cancelled automatically (Execution Reports will be delivered).

1.3.1 Trading Sessions

Session	Start Time (ET)	End Time (ET)
Early Order Acceptance	8:00 a.m.	9:30 a.m.
Regular Trading Session	9:30 a.m.	4:00 p.m.

1.4 Protocol Features

1.4.1 Maximum Open Order Limits

The exchange limits the Maximum number of open orders allowed on a FIX port to 100,000 per port. New orders will be rejected once this limit is breached until the number of open orders drops back below 100,000.

1.4.2 Migration of TCM Constraints to ExecInst

Firms using the pre-migration FIX specification's *TCM Constraint* tag to provide pricing and fill instructions can use this table to determine how to provide the same instructions via the *ExecInst* and *TrueMinQty* tags in this FIX specification.

TCM Constraint (pre-migration)	TIF	Description	ExecInst	Note
PAG = 0	DAY, IOC	Trade midpoint only	M	Default when TIF=DAY.
PAG = 1	IOC <i>only</i>	Trade w/ all	N	N = none (no <i>ExecInst</i>)

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PAG = -1	DAY <i>only</i>	Trade at quote (PNBBO) (size&price restrictions apply)	R	“near-side peg”
PMI = 1	DAY <i>only</i>	Trade at min price improvement	p	(<i>new ExecInst for Cboe</i>)
MEF = <int>	DAY, IOC	True min fill size	n/a	Specified via <i>TrueMinQty(22009)</i>
PIO = 1	IOC <i>only</i>	Trade at mid and MPI (does not cross the spread)	b	Replaces PAG value (<i>new ExecInst for Cboe</i>)

1.4.3 Protected NBBO

The Canadian market distinguishes between the National Best Bid and Offer (NBBO) and the Protected National Best Bid an Offer (PNBBO). The later refers to the best bid and offer of protected prices across all national venues and is referred to as the “PNBBO” throughout this specification.

2 Protocol

2.1 Message Format

FIX messages are ASCII formatted. The member will be provided with a *SenderCompId* and *SenderSubId* that must be sent on every message. The *TargetCompId* for all messages the member sends must be “MNOW”.

All messages the member receives will have the Sender and Target fields swapped.

2.2 Sequence Numbers

Sequence numbers, both inbound and outbound, will be reset to 1 each night during the down time.

Messages are processed in sequence order. Behind sequence messages (other than *Sequence Reset - Reset*) cause immediate logout. Ahead of sequence messages (other than a *Resend Request*) trigger a message recovery via a *Resend Request*.

2.3 Version Compatibility

Cboe uses the FIX 4.2 session protocol.

3 Sessions

The following session messages are supported in both directions:

Message	Type	Comment
Logon	A	Begin session (or resume a broken session).
Heartbeat	0	
Test Request	1	
Resend Request	2	
Reject	3	Malformed message or improper session level handling.
Sequence Reset	4	Both Gap Fill (<i>GapFillFlag=Y</i>) and Reset.
Logout	5	Used to gracefully close session.

3.1 Connectivity and Certification

IP Address	Address to connect to.	Supplied by Cboe.
TCP Port	Port to connect to.	Supplied by Cboe.
SenderCompID	Sent in every FIX message to Cboe.	Supplied by Cboe.
SenderSubID	Sent in every FIX message to Cboe.	Supplied by Cboe.
TargetCompID	Sent in every FIX message to Cboe.	“MNOW”
TargetSubID	Sent in every FIX message to Cboe.	“TEST” for test/certification system. “PROD” for production.

For information on connectivity options to Cboe, refer to the [Cboe MATCHNow Connectivity Manual](#).

All new Members must pass certification before they will be permitted to enter orders in the production marketplace. Certain new order types and options will also require certification before they may be utilized. Contact the Cboe MATCHNow Trade Desk for more information.

3.2 Logon

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	A
108	<i>HeartbeatInterval</i>	Y	Client Heartbeat Interval (in seconds).

The *Logon* must be the first message sent by the member after the TCP connection is established. *EncryptMethod* is ignored (FIX level encryption is not supported).

MATCHNow will wait one second after a *Logon* is received to ensure that no *Resend Request* messages are in flight from the Member. A *Heartbeat* will be sent to indicate that the one second wait period has ended. **Members should not send any orders prior to receiving this first Heartbeat from MATCHNow.**

The IP Address of the member, the *SenderCompID*, *SenderSubID* and *TargetCompID* (defined in table above) and *TargetSubID* (“TEST”/”PROD”) will be validated. If validation fails, the connection will be

dropped without a Reject (to avoid corrupting the members sequence in the case that the member merely mistakenly connected to the wrong port).

If connection is unexpectedly broken, upon reconnection the member may receive a login reply with a sequence number greater than expected. This means that in-flight messages were missed (likely important Execution Reports). The member should issue a `Resend Request` to retrieve the missed messages.

Similarly, MATCHNow will issue a `Resend Request` to the member for messages that it missed. The member may wish to send gap fill messages in place of new orders to avoid re-submission of potentially stale orders.

HeartbeatInterval must be specified by the member in the Logon message. This value will be clamped between 5 and 300 seconds and returned in the logon reply message. We recommend using as low a value as the reliability and latency of your connectivity will allow.

3.3 Heartbeat

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	0
112	<i>TestReqID</i>	N	Required in response to a Test Request.

A `Heartbeat` message should be sent if the agreed upon *HeartbeatInterval* has elapsed since the last message sent. If any message has been sent during the preceding *HeartbeatInterval* a `Heartbeat` message need not be sent.

3.4 Test Request

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	1
112	<i>TestReqID</i>	Y	Auto-generated request ID.

If a *HeartbeatInterval* + 1 seconds have elapsed since the last message received, a `Test Request` should be issued. If another *HeartbeatInterval* + 1 seconds elapse without receiving a message the TCP connection should be dropped. This ensures that a broken TCP connection will be detected even if the TCP stack doesn't notice (this has been observed to happen in WAN environments, particularly when a VPN is involved).

3.5 Resend Request

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	2
7	<i>BeginSeqNo</i>	Y	Auto-generated request ID.

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16	<i>EndSeqNo</i>	Y	0 means + infinity
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A *Resend Request* message should be processed even if it is received ahead of sequence. Only after re-sending the requested range (all marked *PossDup*='Y', including any gap fills) should *Resend Request* be issued in the opposite direction.

As discussed in the FIX 4.2 specification, it is possible to send an open or closed sequence range in a *Resend Request* (an open range uses sequence zero as the *EndSeqNo*). MATCHNow will honor either type of request but will always issue *Resend Requests* with a closed sequence range.

3.6 Reject

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	3
45	<i>RefSeqNum</i>	Y	<i>MsgSeqNum</i> of rejected message.
371	<i>RefTagID</i>	N	
372	<i>RefMsgType</i>	N	
373	<i>SessionRejectReason</i>	N	
58	<i>Text</i>		

Session level rejects are used to indicate violations of the session protocol or missing (or bogus) fields. These are to be expected during development and certification, while the member is being adapted for MATCHNow, but should be extremely rare in production. Application layer rejects (like *Order Reject* and *Cancel Reject*) are normal.

3.7 Sequence Reset

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	4
36	<i>NewSeqNo</i>	Y	<i>Next expected sequence number.</i>
123	<i>GapFillFlag</i>	N	Sequence Reset – Gap Fill messages (<i>GapFillFlag</i> ='Y') must be received in sequence. Any messages (including any Gap Fills) sent in response to a <i>Resend Request</i> should have <i>PossDup</i> ='Y'. Sequence Reset – Reset (<i>GapFillFlag</i> not 'Y') is used only as a last resort, and always by human intervention, to allow an otherwise hopelessly confused session to be resumed. In these cases, all chances at automatic message recovery are lost.

3.8 Logout

Tag	Field Name	Required	Description
35	<i>MsgType</i>	Y	5
58	<i>Text</i>	N	<i>Indicates reason for Logout.</i>

Either side may issue a Logout to gracefully close the session. The side that issues the Logout should process messages normally until it sees the logout reply, and then break the TCP connection. Cboe will typically only request logout after the scheduled end of FIX session.

4 FIX Messages

4.1 Standard Message Header

Tag	Field Name	Required	Description
8	<i>BeginString</i>	Y	FIX.4.2 Must be first field in message.
9	<i>BodyLength</i>	Y	Length of message following <i>BodyLength</i> field up to and including the delimiter preceding the CheckSum field. Must be second field in message.
35	<i>MsgType</i>	Y	Must be third field in message. 0 = Heartbeat 1 = TestRequest 2 = Resend/Request 3 = Reject 4 = SequenceReset 5 = Logout 8 = ExecutionReport 9 = OrderCancelReject A = Logon D = NewOrderSingle F = OrderCancelRequest G = OrderCancelReplaceRequest UCC = Trade Cancel/Correct
49	<i>SenderCompID</i>	Y	ID of sender: Assigned by Cboe for messages sent to MATCHNow (4 character upper alphanumeric). (<i>TargetCompID</i> for messages from MATCHNow)
50	<i>SenderSubID</i>	Y	Sub ID of sender: Assigned by MATCHNow for messages sent to MATCHNow. (4 digit numeric) (<i>TargetSubID</i> for messages from MATCHNow)
56	<i>TargetCompID</i>	Y	ID of destination (always 'MNOW' for messages sent to MATCHNow) (<i>SenderCompID</i> for messages from MATCHNow)
57	<i>TargetSubID</i>	Y	Sub ID of destination: 'TEST' for messages sent to MATCHNow test/certification system.

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			'PROD' for messages sent to MATCHNow production system. (<i>SenderSubID</i> for messages from MATCHNow)
34	<i>MsgSeqNum</i>	Y	Sequential sequence number for session.
43	<i>PossDupFlag</i>	N	Indicates a message resent from the admin level (has a duplicate sequence number). Default is 'N'.
52	<i>SendingTime</i>	Y	GMT date-time that message was sent.
122	<i>OrigSendingTime</i>	N	For messages with <i>PossDupFlag</i> ='Y', indicates time that message was first sent.
115	<i>OnBehalfOfCompld</i>	Y	Identifies the broker. Provided on every message. Must be the Broker ID of the broker responsible for the order (3 digit numeric identifier, with leading zeros when necessary).
128	<i>DeliverToCompld</i>	N	Identifies the broker (value sent in <i>OnBehalfOfCompld</i>). Used by Cboe on return messages back to client according to standard FIX 4.2 Errata.

4.2 Standard Message Trailer

A standard trailer terminates each message.

Tag	Field Name	Description
10	<i>Checksum</i>	Modulo 256 checksum of all characters in message up to and including the delimiter preceding the <i>Checksum</i> field. Three digits with leading zeros if necessary.

4.3 MATCHNow Specific Fields

The following FIX fields are specific to MATCHNow:

Tag	Field Name	Description
1724	<i>LEIOrderOrigination</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
2883	<i>LEIRoutingArrangementIndicator</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
6655	<i>CorrectedSize</i>	Refer to definition in the Trade Cancel/Correct Section 4.5.3 for more details.
6751	<i>UMIRUserID</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.

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6755	<i>ProgramTrade</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
6757	<i>Jitney</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
6761	<i>Anonymous</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
6763	<i>UMIRRegulationID</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
6776	<i>PrincipalTrade</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
6777	<i>WashTradeIndicator</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
7713	<i>NoTradeFeat</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
7714	<i>NoTradeKey</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
7729	<i>ShortMarkingExempt</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
8002	<i>ConditionalFlag*</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
8005	<i>ConditionalsStatus*</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
8025	<i>LEICustomerAccount</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
8026	<i>LEIAlgorithmID</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
8027	<i>CustomerLEI</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
8028	<i>BrokerLEI</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
9617	<i>ModifySequence</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
9619	<i>CancelOrigOnReject</i>	Refer to definition in the Order Cancel/Replace Section 4.4.3 for more details.
9620	<i>CorrectedPrice</i>	Refer to definition in the Trade Cancel/Correct Section 4.5.3 for more details.
9688	<i>OrigCompID</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
9689	<i>OrigSubID</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.
9882	<i>FeeCode</i>	Refer to definition in the Execution Report Section 4.5.1 for more details.

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22009	<i>TrueMinQty</i>	Refer to definition in the New Order Single Section 4.4.1 for more details.
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4.4 Order Protocol – Member to MATCHNow

4.4.1 New Order Single

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType</i> ='D'
97	<i>PossResend</i>	N	<p>N = (default) indicates a new order. Y = indicates an application level resend and is not supported. The message will be logged, but effectively ignored.</p> <p>For reasons of economy, MATCHNow does not track (in primary storage) the <i>ClOrdID</i> values of orders that are no longer live.</p> <p>For reasons of performance, MATCHNow does not access secondary storage to enforce unique <i>ClOrdID</i> values against orders that are no longer live.</p> <p>Without full duplicate <i>ClOrdID</i> value enforcement, it is not possible to safely implement the full behavior specified in the FIX 4.2 Protocol for <i>PossResend</i> (97)='Y'.</p>
6751	<i>UMIRUserID</i>	Y	Identifies the trader responsible for the order (up to 12 alphanumeric). Also known as "Trader ID".
1	<i>Account</i>	N	<p>Reflected back on Execution Reports associated with this order.</p> <p>16 characters or less</p> <p>Characters in ASCII range 33-126 are allowed.</p> <p>Available via Standard FIX Drop on an opt-in basis at the port level. Available by default on Order by Order FIX Drop.</p>
11	<i>ClOrdId</i>	Y	<p>Day-unique ID chosen by client. 20 characters or less. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe.</p> <p>If the <i>ClOrdId</i> matches a live order it will be rejected as duplicate (unless <i>PossResend</i> (97)='Y', see above).</p>

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			Note: MATCHNow only enforces the uniqueness of <i>ClOrdID</i> values among currently live orders. However, it is strongly recommended that firms use unique <i>ClOrdID</i> values for the day.
60	<i>TransactTime</i>	Y	Time order initiated/released. Required by FIX 4.2, but not used by MATCHNow.
55	<i>Symbol</i>	Y	Symbol (upper case) (up to 10 characters).
54	<i>Side</i>	Y	1 = Buy 2 = Sell 5 = Sell Short (client affirms ability to borrow)
38	<i>OrderQty</i>	Y	Number of shares for order, 1 to 999,999,999.
40	<i>OrdType</i>	Y	1 = Market 2 = Limit
44	<i>Price</i>	N	Limit Price. Required for limit orders. If populated for a market order (<i>OrdType</i> (40) = 1), the order will be accepted and behave like a market order (i.e. <i>Price</i> will be ignored). Order rejected if priced finer than the minimum trading increment for the stock.
211	<i>PegDifference</i>	N	Signed dollar value in increments of \$0.005 which is added to the result of peg calculations. If the peg is not on a market increment, the working price will be next available market increment in the signed direction. For example, a primary buy peg of .025 when the market bid is 0.490 will work at 0.520 (bid+0.030) since prices greater than \$0.50 are in whole penny increments. Order rejected if <i>PegDifference</i> is specified without <i>ConditionalFlag</i> (8002) = 0 (Conditional Order) or 1 (firm-up of conditional).
110	<i>MinQty</i>	N	Minimum fill quantity for orders which only interact with liquidity on the target MATCHNow Exchange. Multiple consecutive fills may be created such that their combined size satisfies the <i>MinQty</i> requirement. Default is zero. When the remaining size on an order is less than the defined <i>MinQty</i> , then <i>MinQty</i> will be automatically set to the

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			remaining size if the “Resize Minimum Quantities” port attribute is enabled. See ‘FIX Port Attributes’ for details. Ignored if <i>TrueMinQty</i> is also specified.
22009	<i>TrueMinQty</i>	N	All fills must be at least of size <i>TrueMinQty</i> . When the remaining size on an order is less than the defined <i>TrueMinQty</i> , then <i>TrueMinQty</i> will be automatically set to the remaining size if the “Resize Minimum Quantities” port attribute is enabled. Default is zero.
6750	<i>UMIRAccountType</i>	Y	The capacity for the order. IN = Inventory NC = Non-Client CL = Client ST = Specialist OF = Options Firm Account OT = Options Market Maker BU = Bundled MC = Multi Client
59	<i>TimeInForce</i>	Y	Ø = DAY 3 = IOC (not permitted if any <i>ConditionalFlag</i> (8002) values is provided) 6 = GTD A = EnC (Execute ‘N Cancel: a DAY/GTD order which cancels remainder on a partial fill. Only permitted if <i>ConditionalFlag</i> (8002) = 1.)
126	<i>ExpireTime</i>	N	Required for <i>TimeInForce</i> (59) = ‘6’ (GTD). Optional for <i>TimeInForce</i> (59) = ‘A’ (EnC). Specifies the UTC Date/Time timestamp that the order expires. Valid timestamps must have today’s date and a time within trading hours. Values may be specified at a millisecond level. Must be present if (and only if) <i>TimeInForce</i> =6.
18	<i>ExecInst</i>	N	Single value only (with no trailing space) All values not defined below are rejected. IOC Orders (<u>may</u> specify <i>ExecInst</i>): N = Trade at any eligible price (Default). b = Trade at any eligible price within the PNBBO. M = Trade at the PNBBO midpoint <u>only</u> .

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			<p>Non-IOC Orders (<u>must</u> specify <i>ExecInst</i>):</p> <p>R = Trade at the near-side PNBBO (Size and price restrictions apply)</p> <p>P = Trade at the far-side PNBBO (<i>ConditionalFlag</i>(8002)=0 or 1 only) (Size and price restrictions apply)</p> <p>p = Trade at the less aggressive of PNBBO midpoint or minimum improvement from the PNBBO.</p> <p>M = Trade at the PNBBO midpoint <u>only</u>.</p> <p>o = Odd Lot Liquidity Provider</p>
58	<i>Text</i>	N	Free format text string. Limit of 64 characters.
6755	<i>ProgramTrade</i>	N	Identify this order as part of a program trade (Y or N). Default is 'N'.
6757	<i>Jitney</i>	N	Broker on whose behalf this order is being submitted if different than the executing broker. (3 digit numeric identifier, with leading zeros when necessary).
6763	<i>UMIRRegulationID</i>	N	Does not affect order handling but is reported to feeds. SS = Significant Shareholder IA = Insider
7729	<i>ShortMarkingExempt</i>	N	Used by regulators to identify directional neutral accounts. Directional neutral account Buy order: 54=1, 7729=0 Directional neutral account Sell order: 54=2, 7729=0 Shorts marked SME (54=5 & 7729=0) should be sent as Sells with SME (54=2, 7729=0). Short Exempt no longer exists, so orders that were previously 54=6 for Non Directional accounts, should now be sent as Sells with SME (54=2, 7729=0).
6761	<i>Anonymous</i>	N	Anonymize this order when trade reporting (Y or N). Default is 'N'.
8002	<i>ConditionalFlag</i>	N	Identify this order as a conditional order. 0 = Conditional Order (<i>DAY and GTD only</i>) 1 = Firm Up of Conditional Order 2 = Eligible to Interact with Conditionals (<i>DAY and GTD only</i>) 3 = Ineligible to interact with Conditionals Default is '3'.

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23	<i>IOlid*</i>	N	Must match the <i>CIOrdID</i> (11) of the conditional order being firmed up. Must be present if <i>ConditionalFlag</i> (8002) = 1. Rejected unless <i>ConditionalFlag</i> (8002) = 1.
7713	<i>NoTradeFeat</i>	N	Defines how to prevent a self-trade. Self-trade is identified when the buyer and seller have the same Broker ID (<i>OnBehalfOfCompld</i>) and the same <i>NoTradeKey</i> value. Required if <i>NoTradeKey</i> is present. IB = Ignore match (do not trade) EB = Suppress from Tape
7714	<i>NoTradeKey</i>	N	Identifier for self-trade prevention (alphanumeric of up to length 6). Required for self-trade prevention. Required if <i>NoTradeFeat</i> is present.
1724	<i>LEIOrderOrigination</i>	N	Identify the type of customer sending the order. 5 = Direct access client 6 = Foreign dealer equivalent 7 = Order execution only service <i>Required for regulatory LEI reporting.</i>
2883	<i>LEIRoutingArrangeme ntIndicator</i>	N	Routing arrangement is in place (1 or 0, meaning yes or no, respectively). <i>Required for regulatory LEI reporting.</i>
8025	<i>LEICustomerAccount</i>	N	Account number for clients not eligible to obtain an LEI. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8026	<i>LEIAlgorithmID</i>	N	Unique identifier for the end-client orders automatically generated on a predetermined basis. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8027	<i>CustomerLEI</i>	N	LEI for clients eligible to obtain an LEI including LEI of the foreign dealer equivalent (Encryption Required). (base64 characters: alphanumeric, including plus sign, forward slash, and equals) <i>Required for regulatory LEI reporting.</i>

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8028	<i>BrokerLEI</i>	N	Non-PO IIROC Dealer Member (Correspondent Broker) (alphanumeric of length 2 to 20). <i>Required for regulatory LEI reporting.</i>
	Standard Message Trailer	Y	

4.4.2 Order Cancel Request

Request to cancel an order.

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType='F'</i>
97	<i>PossResend</i>	N	'N' (default) indicates a new cancel. 'Y' Indicates an application level unsolicited resend. If <i>ClOrdID</i> has not yet been seen, the cancel is treated as normal. If <i>ClOrdID</i> already exists, the resent cancel is ignored.
11	<i>ClOrdID</i>	Y	Day-unique cancel ID chosen by member. 20 characters or less. Characters in ASCII range 33-126 are allowed, except for comma, semicolon, and pipe. Duplicate order <i>ClOrdIDs</i> will be rejected (or ignored if <i>PossResend='Y'</i>).
41	<i>OrigClOrdID</i>	N	<i>ClOrdID</i> of the order to cancel. <i>OrderID</i> must be sent if <i>ClOrdID</i> is not.
37	<i>OrderID</i>	N	<i>OrderID</i> supplied by MATCHNow on the order acknowledgement. <i>ClOrdID</i> must be sent if <i>OrderID</i> is not.
60	<i>TransactTime</i>	N	Time cancel initiated/released. Required by FIX 4.2 but not used by MATCHNow.
1724	<i>LEIOrderOrigination</i>	N	Identify the type of customer sending the order. 5 = Direct access client 6 = Foreign dealer equivalent 7 = Order execution only service <i>Required for regulatory LEI reporting.</i>
2883	<i>LEIRoutingArrangementIndicator</i>	N	Routing arrangement is in place (1 or 0, meaning yes or no, respectively). <i>Required for regulatory LEI reporting.</i>

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8025	<i>LEICustomerAccount</i>	N	Account number for clients not eligible to obtain an LEI. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8026	<i>LEIAlgorithmID</i>	N	Unique identifier for the end-client orders automatically generated on a predetermined basis. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8027	<i>CustomerLEI</i>	N	LEI for clients eligible to obtain an LEI including LEI of the foreign dealer equivalent (Encryption Required). (base64 characters: alphanumeric, including plus sign, forward slash, and equals) <i>Required for regulatory LEI reporting.</i>
8028	<i>BrokerLEI</i>	N	Non-PO IIROC Dealer Member (Correspondent Broker) (alphanumeric of length 2 to 20) <i>Required for regulatory LEI reporting.</i>
	Standard Message Trailer	Y	

4.4.3 Order Cancel/Replace Request

Request to modify an order. Only *Price*, *OrderQty*, and *OrdType* may be adjusted.

The presence of any of *Program Trade*, *Jitney*, *UMIRRegulationID*, or *Short Sale Exempt* will cause the message to be rejected.

Other fields (including *ExecInst*) will be ignored, and the value from the original order will be re-used.

Changes in *OrderQty* result in an adjustment of the current order's *OrderQty*. The new *OrderQty* does not directly replace the current order's *LeavesQty*. Rather, a delta is computed from the current *OrderQty* and the replacement *OrderQty*. This delta is then applied to the current *LeavesQty*. If the resulting *LeavesQty* is less than or equal to zero, the order is cancelled. This results in safer behavior when the modification request overlaps partial fills for the current order, leaving the Member in total control of the share exposure of the order.

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The Cancel/Replace message will only be accepted if the original order can be successfully removed. Requests which cannot be processed will be rejected using the Cancel Reject message. The Cancel Reject message will provide the *ClOrdID* and *OrigClOrdID* values which were specified on the Cancel/Replace message for identification.

A Cancel/Replace should not be issued until the ack for the previous Cancel/Replace has been received for that order (or the acknowledgement for the first Cancel/Replace Request). The FIX handler will reject a new Cancel/Replace if it has not seen the prior Cancel/Replace message from the Matching Engine.

A maximum of 1,295 Cancel/Replace requests may be made to a single order each trading day. Once the 1,295th modification is made, the next user-generated message on the order should be a Order Cancel request. The limit is 1,679,615 Cancel/Replace requests on a single order each trading day.

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType</i> ='G'
97	<i>PossResend</i>	N	'Y' Indicates an application level resend. If the <i>ClOrdID</i> does not indicate an already pending Cancel/Replace, the Cancel is treated as normal. If <i>ClOrdID</i> does indicate an already pending Cancel/Replace then the resent Cancel/Replace is ignored. 'N' (default) indicates a new Cancel/Replace.
1	<i>Account</i>	N	Ignored – Value preserved from original order.
11	<i>ClOrdId</i>	Y	Day-unique ID chosen by member. 20 characters or less. Characters in ASCII range 33-126 are allowed, except for comma, semicolon, and pipe. Duplicate order <i>ClOrdIDs</i> will be rejected ¹ (or ignored if <i>PossResend</i> ='Y').
41	<i>OrigClOrdID</i>	Y	<i>ClOrdID</i> of the order to replace. In the case of multiple changes to a single order, this will be the <i>ClOrdID</i> of the most recent accepted change.
37	<i>OrderId</i>	N	<i>OrderId</i> supplied by MATCHNow on the order acknowledgement. In the case of multiple changes to a single order, this will be the <i>OrderId</i> from the most recent acknowledgement.

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60	<i>TransactTime</i>	Y	Time Cancel/Replace initiated/released.
55	<i>Symbol</i>	N	Ignored – value preserved from original order
54	<i>Side</i>	N	Ignored – value preserved from original order
38	<i>OrderQty</i>	N	Number of shares for order. This will modify the <i>OrderQty</i> of the current order; it does not directly set the remaining quantity.
40	<i>OrdType</i>	N	1 = Market 2 = Limit Defaults to original order if not sent. May replace Limit with Market and vice versa.
44	<i>Price</i>	N	Limit Price. Order rejected if priced finer than the minimum trading increment for the symbol.
18	<i>ExecInst</i>	N	Ignored – value preserved from original order
9619	<i>CancelOrigOnReject</i>	N	N = Leave original order alone. Y = Cancel original order if replacement fails (an unsolicited Cancel report will be sent for original order in this case). Default is configurable per port (N if not configured).
6755	<i>Program Trade</i>	N	Ignored – value preserved from original order
6757	<i>Jitney</i>	N	Ignored – value preserved from original order
6763	<i>UMIRRegulationID</i>	N	Ignored – value preserved from original order
7729	<i>ShortMarkingExempt</i>	N	Ignored – value preserved from original order
1724	<i>LEIOrderOrigination</i>	N	Identify the type of customer sending the order. 5 = Direct access client 6 = Foreign dealer equivalent 7 = Order execution only service <i>Required for regulatory LEI reporting.</i>
2883	<i>LEIRoutingArrangementIndicator</i>	N	Routing arrangement is in place (1 or 0, meaning yes or no, respectively). <i>Required for regulatory LEI reporting.</i>
8025	<i>LEICustomerAccount</i>	N	Account number for clients not eligible to obtain an LEI.

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			All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8026	<i>LEIAlgorithmID</i>	N	Unique identifier for the end-client orders automatically generated on a predetermined basis. All characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe. <i>Required for regulatory LEI reporting.</i>
8027	<i>CustomerLEI</i>	N	LEI for clients eligible to obtain an LEI including LEI of the foreign dealer equivalent (Encryption Required). (base64 characters: alphanumeric, including plus sign, forward slash, and equals) <i>Required for regulatory LEI reporting.</i>
8028	<i>BrokerLEI</i>	N	Non-PO IIROC Dealer Member (Correspondent Broker) (alphanumeric of length 2 to 20) <i>Required for regulatory LEI reporting.</i>
	Standard Message Trailer	Y	

¹ Cancel/Replace messages that merely reduce *OrderQty* may be overlapped if the existing *ClOrdID* is re-used. This is the only case where re-use of the existing *ClOrdID* is allowed.

4.5 Order Protocol – MATCHNow to Member

4.5.1 Execution Report

This section contains all possible fields that are sent in Execution Reports. Not all fields are sent on each Execution Report. Additional or unexpected FIX fields on all FIX messages should be ignored.

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType</i> ='8'
20	<i>ExecTransType</i>	Y	0 = New 3 = Status
17	<i>ExecID</i>	Y	Day-unique id of execution message. Will be zero for <i>ExecTransType</i> of Status (3).

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			<p>Unique across all matching units on a given day. Note: <i>ExecIDs</i> will be represented on ODROP and FIXDROP ports as nine character, base 36 ASCII. Leading zeros should be added if the converted base 36 value is shorter than nine characters.</p> <p>Example conversion:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Decimal</th> <th>Base 36</th> </tr> </thead> <tbody> <tr> <td>28294005440239</td> <td>A1234B567</td> </tr> <tr> <td>76335905726621</td> <td>R248BC23H</td> </tr> <tr> <td>728557228187</td> <td>09AP05V2Z</td> </tr> </tbody> </table>	Decimal	Base 36	28294005440239	A1234B567	76335905726621	R248BC23H	728557228187	09AP05V2Z
Decimal	Base 36										
28294005440239	A1234B567										
76335905726621	R248BC23H										
728557228187	09AP05V2Z										
18	<i>ExecInst</i>	N	Copied from order.								
150	<i>ExecType</i>	Y	<p>Reason for this Execution Report:</p> <p>0 = New (acknowledgement of new order) 1 = Partial Fill 2 = Fill 3 = DoneForDay 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected D = Restated E = Pending Replace</p> <p>For Standard FIX Drop, only '1' or '2' will be sent and will always equal <i>OrdStatus</i> (39). For Order by Order FIX Drop, all execution information will be sent. Refer to section 6.2.</p>								
11	<i>ClOrdID</i>	Y	<p>ClOrdID of the order being accepted, executed or rejected. -or- ClOrdID of the cancel or replace request. -or- ClOrdID of the order subject to unsolicited cancel (OrigClOrdID will not be present).</p>								
41	<i>OrigClOrdID</i>	N	ClOrdID of the order being cancelled or replaced (for a solicited Cancel or Cancel/Replace, otherwise not present).								
37	<i>OrderId</i>	Y	OrderId (supplied by MATCHNow).								
39	<i>OrdStatus</i>	Y	<p>State of order.</p> <p>0 = New</p>								

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FIX Specification (Version 1.0.17)

			<p>1 = Partially Filled 2 = Filled 3 = DoneForDay 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected E = Pending Replace</p> <p>For FIX Drop, only '1' or '2' will be sent and will always equal <i>ExecType</i> (150). For Order by Order FIX Drop, all execution information will be sent.</p>
103	<i>OrdRejReason</i>	N	<p>Only used when <i>ExecType</i> is Rejected (8).</p> <p>0 = Exchange option 1 = Unknown symbol 2 = Exchange closed 3 = Order exceeds limit 5 = Unknown order 6 = Duplicate order 8 = Stale order</p>
1	<i>Account</i>	N	Copied from order. For Order by Order FIX Drop, all execution information will be sent.
55	<i>Symbol</i>	Y	Copied from order.
54	<i>Side</i>	Y	Copied from order.
38	<i>OrderQty</i>	Y	Copied from order. On restatements (150 = D) the <i>OrderQty</i> may be updated.
44	<i>Price</i>	N	Copied from order.
211	<i>PegDifference*</i>	N	Copied from order.
59	<i>TimeInForce</i>	N	Copied from order.
126	<i>ExpireTime</i>	N	Copied from order if <i>TimeInForce</i> is GTD (6) or EnC (A).
32	<i>LastShares</i>	N	Quantity of shares traded on this fill (zero for non-fills).
31	<i>LastPx</i>	N	Price of this fill (zero for non-fills).
151	<i>LeavesQty</i>	Y	<p>Quantity of shares still open for further execution.</p> <p>Will be zero if order is dead, otherwise will be <i>OrderQty</i> (38) - <i>CumQty</i> (14).</p>

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FIX Specification (Version 1.0.17)

			Note: It is possible for <i>LeavesQty</i> to be zero when <i>ExecType</i> (150) = 5 indicating that the order is dead.
14	<i>CumQty</i>	Y	Cumulative quantity of shares executed for this order.
6	<i>AvgPx</i>	Y	Average price of executions for this order weighted by trade size. Zero if <i>CumQty</i> is zero.
375	<i>ContraBroker</i>	N	The Broker ID (3 digit identifier) of the contra party on this fill. This tag is present if (and only if) <i>OrdStatus</i> is 1 (partially filled) or 2 (filled). <i>ContraBroker</i> will be '001' if the contra party was marked as anonymous.
378	<i>ExecRestatementReason</i>	N	Only present when 150=D. 5 = Reduction of <i>OrderQty</i> (38)
9882	<i>FeeCode</i>	N	Specific fee code associated with execution. See Appendix A: Fee Code Table for the respective market for possible values. Fee codes may be 1 or 2 alphanumeric characters.
9617	<i>ModifySequence</i>	N	FIX Drop only. Base 36 number of times order has been replaced.
9688	<i>OrigCompID</i>	N	FIX Drop only. <i>TargetCompID</i> of original FIX exec report. FIX Drop port must be configured to send this optional field.
9689	<i>OrigSubID</i>	N	FIX Drop only. <i>TargetSubID</i> of original FIX exec report. FIX Drop port must be configured to send this optional field.
60	<i>TransactTime</i>	Y	GMT date-time that transaction occurred.
58	<i>Text</i>	N	If present, indicates reason for reject or cancel. Format is one letter reason code followed by colon and space followed by free form text message. (e.g. "N: No Liquidity at price"). The specific text the system delivers may vary from the text listed below, to provide clarification of the reject reason. Reason codes are one of the following: A = Admin (includes many formatting & tag value errors) D = Duplicate identifier (e.g., ClOrdID) H = Halted I = Incorrect data center J = Too late to cancel K = Order rate threshold exceeded M = Order size exceeded

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FIX Specification (Version 1.0.17)

			<p>N = Not Executed O = <i>ClOrdID</i> doesn't match a known order U = User requested X = Order expired Y = Symbol not supported Z = Unforeseen reason j = Order is below min required quantity y = Order received by MATCHNow during replay</p>
6755	<i>ProgramTrade</i>	N	Copied from order.
6757	<i>Jitney</i>	N	Copied from order.
6763	<i>UMIRRegulationID</i>	N	Copied from order.
7729	<i>ShortMarkingExempt</i>	N	Copied from order.
6761	<i>Anonymous</i>	N	Copied from order.
8002	<i>ConditionalFlag</i>	N	Copied from order.
8005	<i>ConditionalStatus</i>	N	Present on a conditional order's firm-up invitation. 5 = Firm order request message
6751	<i>UMIRUserID</i>	Y	Copied from order.
110	<i>MinQty</i>	N	Copied from order.
22009	<i>TrueMinQty</i>	N	Copied from order.
6750	<i>UMIRAccountType</i>	Y	Copied from order.
1724	<i>LEIOrderOrigination</i>	N	Copied from order.
2883	<i>LEIRoutingArrangementIndicator</i>	N	Copied from order.
8025	<i>LEICustomerAccount</i>	N	Copied from order.
8026	<i>LEIAlgorithmID</i>	N	Copied from order.
8027	<i>CustomerLEI</i>	N	Copied from order.
8028	<i>BrokerLEI</i>	N	Copied from order.
6776	<i>PrincipalTrade</i>	N	Present on executions where Broker executed a Principal trade. If present, value is Y.
6777	<i>WashTradeIndicator</i>	N	Present on executions where Broker executed a wash trade. If present, value is Y.
851	<i>LastLiquidityInd</i>	N	Present for fills (<i>ExecType</i> (150) =1 (partially filled), 2(filled).

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FIX Specification (Version 1.0.17)

			<p>1 = Trade added liquidity 2 = Trade Removed liquidity 4 = Auction Trade 8 = Conditional Trade</p>
7733	<i>SelfTrade</i>	N	<p>Present on executions where Broker executed a self trade using <i>NoTradeFeat</i> (7713) = EB (suppress from tape). If present, value is Y.</p> <p>This tag is optionally present if <i>ExecType</i> (150) = 1 (partially filled) or 2 (filled).</p>
7713	<i>NoTradeFeat</i>	N	<p>Defines how to prevent a self-trade. Self-trade is identified when the buyer and seller have the same Broker ID (<i>OnBehalfOfCompId</i>) and the same <i>NoTradeKey</i> value. Required if <i>NoTradeKey</i> is present.</p> <p>IB = Ignore match (do not trade) EB = Suppress from Tape</p> <p>Present if <i>ExecType</i> (150) = '1' (partially filled) or '2' (filled).</p>
7714	<i>NoTradeKey</i>	N	<p>Identifier for self-trade prevention (alphanumeric of up to length 6). Required for self-trade prevention. Required if <i>NoTradeFeat</i> is present.</p> <p>Present if <i>ExecType</i> (150) = 1 (partially filled) or 2 (filled). Present on FIX Drop.</p>
109	<i>ClientID</i>	N	<p>Indicates client identifier (up to 16 characters). This tag is present when <i>ExecType</i> (150) = 2 (filled) for Dark Pool originated liquidity, otherwise not present if <i>ExecType</i> (150) = 1 (partially filled) or 2 (filled).</p>
76	<i>ExecBroker</i>	N	<p>Identifies the Introducing Broker if applicable. This tag is present only on drop feeds, and only for conditional sponsored broker orders and trades. When an Introducing Broker is not used, it will identify the Executing Broker.</p>
15	<i>Currency</i>	N	<p>The currency of the symbol that has been traded.</p> <p>USD = United States Dollar CAD = Canadian Dollar</p> <p>Present if <i>ExecType</i> (150) = '1' (partial filled) or '2' (filled).</p>
	<i>Standard Message Trailer</i>	Y	

4.5.2 Cancel Reject

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FIX Specification (Version 1.0.17)

Rejects a `Cancel` or `Cancel/Replace` request.

When a `Cancel/Replace` is rejected, by default the original order is left alive. A `Cancel Reject` should not be used as a sign that the original order has been cancelled. Even if the `CancelOrigOnReject = Y` option is being used a separate “unsolicited” cancel will be sent to close out the original order.

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType</i> ='9'
11	<i>ClOrdID</i>	Y	<i>ClOrdID</i> from the <code>Cancel</code> or <code>Cancel/Replace</code> request.
41	<i>OrigClOrdID</i>	Y	<i>ClOrdID</i> of the order that failed to be cancelled or replaced.
37	<i>OrderID</i>	Y	<i>OrderID</i> of order that failed to be cancelled or replaced. Represents the originating/initial order in an order chain. 'NONE' if <i>CxlRejReason</i> is Unknown (1).
39	<i>OrdStatus</i>	Y	Order Status of order that failed to be cancelled or replaced.
1	<i>Account</i>	N	Copied from <code>Cancel</code> or <code>Cancel/Replace</code> request.
434	<i>CxlRejResponseTo</i>	Y	This reject is in response to a: 1 = <code>Cancel</code> 2 = <code>Cancel/Replace</code>
102	<i>CxlRejReason</i>	N	0 = Too late to cancel 1 = Unknown order 3 = Already pending cancel or pending replace
58	<i>Text</i>	N	Free form text message.
	Standard Message Trailer	Y	

4.5.3 Trade Cancel/Correct

Sends a `Trade Cancel/Correct` message for a trade break.

`Trade Cancel/Correct (UCC)` is an optional message that is enabled by default at the port level. The price or size of a trade may be corrected, all other details remain the same. Trade cancels and corrections do not alter live order state.

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FIX Specification (Version 1.0.17)

Tag	Field Name	Req'd	Description
35	Standard Message Header	Y	<i>MsgType</i> ='UCC'
1	<i>Account</i> (effective 08/01/22)	N	Trading account specified by the trader.
20	<i>ExecTransType</i>	Y	1 = Trade Cancel 2 = Trade Correct
17	<i>ExecID</i>	Y	Day-unique id of execution message.
19	<i>ExecRefID</i>	Y	Refers to the <i>ExecID</i> of the message being cancelled or corrected.
37	<i>OrderID</i>	Y	<i>OrderID</i> of the original trade being cancelled/corrected.
11	<i>ClOrdID</i>	Y	<i>ClOrdID</i> of the original trade being cancelled/corrected.
55	<i>Symbol</i>	Y	Copied from original trade being cancelled/corrected (Available in FIX Drop).
54	<i>Side</i>	Y	Copied from original trade being cancelled/corrected.
851	<i>LastLiquidityInd</i>	Y	Copied from original trade being cancelled/corrected.
9882	<i>FeeCode</i>	N	Only for Trade Corrects. Corrected fee code.
9620	<i>CorrectedPrice</i>	N	Only for Trade Corrects. Corrected price.
6655	<i>CorrectedSize</i>	N	Only for Trade Corrects. Corrected size.
32	<i>LastShares</i>	Y	Quantity of shares on the original trade being cancelled/corrected.
31	<i>LastPx</i>	Y	Price on the original trade being cancelled/corrected.
60	<i>TransactTime</i>	Y	GMT date-time of cancel/correct.
6751	<i>UMIRUserID</i>	Y	Identifies the trader responsible for the order being cancelled/corrected (up to 12 alphanumeric). Also known as "Trader ID".
	Standard Msg Trailer	Y	

5 Special Order Types and Features

The following provides clarifying information that will enable Members to successfully enter orders on MATCHNow Dark Pool.

This is not meant to be an exhaustive list of all FIX tags that accompany that order type; rather, this identifies the key tags and provides additional information regarding certain order types and features. Please refer to the New Order section above for field description details.

5.1 Conditional Orders

MATCHNow supports conditional orders via a two-step process consisting of conditional order matching (uncommitted orders) and firm order matching (committed orders). A conditional order is entered and later firmed up for execution via the following process. Note that a regular liquidity-providing order can elect to interact with conditional orders.

5.1.1 Conditional Order

- Conditional orders sent to MATCHNow represent uncommitted quantity and order parameters that the participant is potentially willing to trade. MATCHNow will only use conditional orders to match participants together and it will only execute trades once firm orders are received.
- Conditional orders must be of “large” size: they must be either at least 51 board lots and have at least \$30,000 notional value or have at least \$100,000 notional value (in the currency of the symbol being traded). Any orders submitted below this threshold will be rejected. Liquidity-providing orders must also meet these same size and notional value checks to interact with the conditional orders, if so elected. Once the remaining quantity of the Liquidity providing order falls below the defined thresholds it will no longer be eligible to trade conditionally.

5.1.2 Invitation

- When MATCHNow identifies a contra to the conditional order, a request is sent inviting the subscriber to firm up. The invitation will always be for the full conditional order quantity sent to MATCHNow so that no size information about the contra-party will be disclosed.
- The firm-up request comes in the form of an unsolicited FIX status message of the original conditional order with tags as described below. The subscriber is expected to send a firm-up order on receipt of the invitation, within 1 second.
 - *OrdStatus*(39) = 0 (New)
 - *ExecTransType*(20) = 3 (Status)
 - *ExecType*(150) = D (Restated)
 - *ConditionalStatus*(8005) = 5 (Invited)

5.1.3 Response (“firm-up order”)

- The participant may respond to the invitation by sending a firm order to MATCHNow (i.e. an order having tag *IOId(23)* populated with the *ClOrdID(11)* value of the conditional and *ConditionalFlag(8002) = ‘1’*).
- The participant should never send an order with an *IOId(23)* unless responding to an invitation. MATCHNow will reject any firm-up orders that are not in response to a live invitation.

5.1.4 Response (“rejection”)

- The participant may actively reject an invitation by sending a cancellation request to MATCHNow for the conditional order.

5.1.5 Result (firm-up traded)

- If traded, MATCHNow will send a cancellation of the conditional order followed by an execution report of the firm-up order with a fill or partial fill order status.
- The subscriber may send a new conditional order after the fill to represent the remaining quantity in the MATCHNow conditional venue.
- All trades will be priced at or inside the current Protected National Best Bid/Offer (‘PNBBO’).
- All firm-up trades will be broker-preferenced.
- If partially traded, the firm-up order will remain open and tradable with future interactions.

5.1.6 Result (no trade of firm-up)

- Orders may not trade due to various reasons including limit prices, min quantities, or the contra-side not responding in time to their own invitation.
- If not traded (or only partially traded), the firm-up order will remain open and tradable with future interactions.
- Firm-up orders can be cancelled at any time. Expiry times are also supported and can be used at any time.

6 Implementation Notes

6.1 Automatic Cancel on Disconnect or Malfunction

All open orders for a subscriber will be cancelled automatically if no messages have been received from the member for two heartbeat intervals. This is done to prevent orders from being stuck in an unknown state in the event of telecommunications failure. Subscribers should choose their heartbeat interval carefully based on the latency and reliability of their telecommunications channel. The minimum supported interval is 5 seconds, and this is also the recommended interval if the latency and reliability of your telecommunications channel support it. Execution Reports for the automatically cancelled orders are available upon reconnection. Subscribers are responsible for rerouting orders to other market centers based on their business needs. This should be rare, but all open orders may also be cancelled in the event of a complete or partial system malfunction.

6.2 Independent Software Vendor (ISV) Configuration

ISVs require special configuration. *ClOrdId* values are required to be unique only within a given *OnBehalfOfCompld*. Execution Report and Cancel Reject messages sent by MATCHNow will have the *DeliverToCompld* set. **Orders must be cancelled or replaced using the same *OnBehalfOfCompld* as was sent on the Order.**

7 FIX Drop

MATCHNow offers two types of FIX Drop ports (Standard FIX Drop and Order by Order FIX Drop). Both port types do not accept orders. Their purpose is to provide real time information about order flow. They may be configured to send order flow based on various combinations of information relating to specific subscriber firms and/or sessions. With proper authorization (e.g. clearing or sponsored relationships), a single FIX Drop session can be used to obtain information about multiple subscribers.

7.1 Standard FIX Drop

Standard FIX Drop ports only send execution information (i.e. Execution Reports where *ExecType* (150) is Partially Filled (1) or Filled (2)). Refer to the Execution Report section above for details on standard execution reports.

7.2 Order by Order FIX Drop

Order by Order FIX Drop ports are designed to send more than execution information.

All order message types are supported including, but not limited to Acknowledgements (150=0), Partially Filled (150=1), Filled (150=2), Cancelled (150=4), Replaced (150=5), Rejected (150=8), Order Cancel Rejects (35=9) and optionally (if configured at the port level) Trade Breaks (35=UCC). If the Rejects/Cancel are due to incomplete clearing information, they may be unavailable on Order by Order FIX Drop ports.

Users of Order by Order FIX Drop must always be prepared to receive new/unknown FIX tag and FIX tag values for BOE/FIX ports being monitored. MATCHNow reserves the right to add new FIX tags and to update values distributed on Order by Order FIX Drop with no notice.

7.3 FIX Drop Port Attributes

Unless specified, both types of FIX Drop ports can be configured with the following features:

Attribute	Default	Description
Send Trade Breaks	Yes	Enables Trade Cancel/Correct messages (35=UCC). Please note that enabling these messages on Order by Order FIX Drop port will be dependent on Trade Cancel/Correct messages remaining enabled on corresponding FIX order entry ports.
Unique Wash Execution Ids	No	Appends a '.B' or '.S' to <i>ExecID</i> (17) on all trades.
Concatenate Compld and SubId	No	Requires all FIX traffic to contain concatenated (combined) Compld and SubIds.
Send <i>OrigCompID/OrigSubID</i>	No	Send <i>OrigCompID</i> (9688) and <i>OrigSubID</i> (9689).
Send <i>Account</i>	Yes	Send <i>Account</i> (1).

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Send <i>OrdType</i>	Yes	Send <i>OrdType</i> (40). Standard FIX Drop only. Order by Order FIX Drop will receive FIX Tag 40 based on FIX order entry port attribute "Echo Tag 40 on Ack".
Send Wash Trades	Yes	Send trades identified by MATCHNow system as wash trades. Standard FIX Drop only.

8 FIX Port Attributes

The table below lists FIX port attributes that are configurable on the port or firm level. Changes to these attributes can be made by sending a written request to support@matchnow.ca.

Attribute	Default	Description
Allow Short Sales	Yes	Allows or disallows short sales.
Allow Test Symbols Only	No	Allow or disallow orders in non-test symbols.
Maximum Order Size	999,999,999	Maximum number of shares allowed per order.
Maximum Order Dollar Value	Unlimited	Maximum order dollar value per order.
Cancel on ME Disconnect	Yes	When set to “No”, this setting allows orders to remain open on a Matching Unit failover. When set to “Yes”, all open orders associated with a session are immediately cancelled in the event of loss of connectivity to a Matching Unit. In any event, if a failover takes longer than five minutes, all orders are cancelled unconditionally.
Cancel on Disconnect	<i>Option #1</i>	MATCHNow will offer Subscribers two options for cancelling orders as a result of a session disconnect: <ul style="list-style-type: none"> 1. Cancel Continuous Book Orders Only (default) 2. Do Not Cancel Any Open Orders
Send Trade Breaks	Yes	Enables Trade Break Messages (35=UCC).
Resize Minimum Quantities	Yes	When the remaining size on an order is less than the defined <i>MinQty</i> , then <i>MinQty</i> will be automatically set to the remaining size (default) or the order will be cancelled back.
Concatenate CompId and SubId	No	Requires all FIX traffic to contain concatenated (combined) Comp and SubIds.
Cancel on Reject	No	Cancels an order upon a modify reject for that order.
Unique Wash Execution Ids	No	Appends a ‘.B’ or ‘.S’ to <i>ExecID</i> (17) on all trades.
Echo Tag 40 on Ack	Yes	Return <i>OrdType</i> (40) value on FIX Ack. Note that this value will also be returned on Order by Order FIX DROP.
Microsecond Timestamp Granularity	Yes	Display microsecond level timestamp granularity for <i>TransactTime</i> (60), <i>OrigTime</i> (42) and <i>SendingTime</i> (52). These tags default to millisecond or second granularity.
Reject Orders on DROP Port Disconnect	No	Allows Subscriber/Sponsoring Firms to associate a DROP port(s) to an order entry port(s). Once the association has been established, if no DROP ports

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Attribute	Default	Description
		associated with an order entry port are connected, reject orders on the order entry port until at least one of the DROP port session connections have been established.
Reject Orders on DROP Port Timeout (s)	30	Only applicable for sessions where “Reject Orders on DROP Port Disconnect” has been enabled. When the last associated DROP port for the order entry session has disconnected, the reject/cancel actions will be taken on the order entry session if an associated DROP port has not reestablished its connection in the defined time. Minimum value allowed is 20.
Cancel Open Orders on DROP Port Disconnect	No	Only applicable for sessions where “Reject Orders on DROP Port Disconnect” has been enabled. If all DROP ports associated with an order entry port become disconnected, cancel all open orders on the order entry port.
Session Close Handling	<i>Option #3</i>	<p>Customize message that would normally be sent at the regular market (4:00 p.m. ET). Also functional during early close situations.</p> <p>Options supported are as follows:</p> <ol style="list-style-type: none"> 1. Send Cancels (Default) – A Cancel message will be sent for all expired orders. 2. Suppress Cancels – No message will be sent and it is the Member’s responsibility to close all expired orders in their system. 3. Send DoneForDay – A DoneForDay message will be sent in place of the Cancel message for each order that has expired and is no longer eligible for execution. DoneForDay messages are sent via <i>OrdStatus</i> (39) = ‘3’ and <i>ExecType</i> (150) = ‘3’.
Port Order Rate Threshold	Default = 5000 msgs/sec Max allowed = 5000 msgs/sec	The maximum allowed message rate on the session. When the first non-administrative message is received, a one second window begins. During the second no more than 4,999 additional non-administrative messages will be allowed within that window. If the rate is exceeded all new orders in the time window are rejected, modifies are treated as cancels, and cancels are processed.

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Attribute	Default	Description
Symbol Order Rate Threshold	5000 msgs/sec	Functions the same as the Port Order Rate Threshold but is calculated at the symbol level. It is capped by the Port Order Rate Threshold.
Make Conditional Eligible	No	Allows Firms to default LP orders to be eligible to interact with Conditional orders. When set to 'Yes', <i>ConditionalFlag</i> (8002) field on non-OLPP Day orders will be set '2' (eligible to interact with Conditionals).
Default <i>ExecInst</i> for IOC	N	If this port attribute is set, IOC orders without an <i>ExecInst</i> (18) will be assigned: M = Midpoint b = Min price improvement N = No <i>ExecInst</i> , trade at any price
Default <i>NoTradeFeat</i>	None	If this port attribute is set, orders without <i>NoTradeFeat</i> (7713) specified will be assigned: None = No self trade prevention IB = Ignore match (do not trade) EB = Suppress from Tape
Default <i>NoTradeKey</i>	None	If this port attribute is set, orders without <i>NoTradeKey</i> (7714) specified will be assigned the value that is set here. Alphanumeric with max length of 6 characters.
Service Bureau Port	No	When set to 'No' only allow Broker ID of the subscriber that owns the port. If set to 'Yes' allow all Broker IDs to be sent on the port.

9 Contact Information

Please e-mail questions or comments regarding this specification to tradedeskca@cboe.com.

Appendix A: Fee Code Table

The fee code table below identifies the possible values for *Fee Code* (9882), which is returned on order entry and drop copy *Execution Report* messages for all trade messages.

Fee Code	Description	Rate (per share)
A	Mid-point Passive (Stocks >= \$5)	0.0010
B	Mid-point Active (Stocks >= \$5)	0.0010
C	Mid-point Passive (Stocks \$1 - \$4.995)	0.0005
CA	Conditional (Stocks >= \$5)	0.0010
CB	Conditional (Stocks \$1 - \$4.995)	0.0005
CC	Conditional (Stocks < \$1)	0.0001
CD	Conditional Debenture	0.00002
CE	Conditional ETF	FREE
CZ	Conditional (Sponsored)	0.0050
D	Mid-point Active (Stocks \$1 - \$4.995)	0.0005
E	Mid-point Passive (Stocks < \$1)	0.0001
F	Mid-point Active (Stocks < \$1)	0.0001
G	ETF Passive	FREE
H	ETF Active	0.0005
I	MPI Passive (Stocks >= \$5)	0.0010
J	MPI Active (Stocks >= \$5)	0.0010
K	MPI Passive (Stocks \$1 - \$4.995)	0.0005
L	MPI Active (Stocks \$1 - \$4.995)	0.0005
M	MPI Passive (Stocks < \$1)	0.0001
N	MPI Active (Stocks < \$1)	0.0001
O	ATT Passive (Stocks < \$1)	0.0001
P	ATT Active (Stocks < \$1)	0.0001
Q	ATT Passive (Stocks >= \$1)	0.0002
R	ATT Active (Stocks >= \$1)	0.0002
S	Debentures Passive	0.00002
T	Debentures Active	0.00002
U	Odd lot Passive	FREE
V	Odd lot Active	FREE
X	Unintentional Cross	FREE

Revision History

Document Version	Date	Description
1.0.0	05/11/21	Initial version.
1.0.1	06/22/21	<p>Removed reference to Jitney in description for <i>NoTradeFeat</i> (7713) field as Jitney is ignored for self trade prevention.</p> <p>Corrected <i>NoTradeKey</i> (7714) field description to indicate field length can be up to 6.</p> <p>Corrected <i>Text</i> (58) field description in Execution Report section by removing 'C' reason code.</p> <p>Added <i>UMIRAccountType</i> field to Execution Report section.</p> <p>Removed Send "UMIRAccountType" field from FIX Drop Port Attributes and "Echo Tag 6750 on Ack" from FIX Port Attributes sections.</p> <p>Updated <i>PegDifference</i> (211) field on New Order Single message to indicate orders are also accepted when <i>ConditionalFlag</i> (8002) = 1 (firm-up of conditional).</p> <p>Changed 'greyed out' conditionals fields and text to black, removed related footnotes, and added section 5.1 "Conditional Orders" to provide additional information regarding the trading of conditionals.</p> <p>Added value of "4 = Auction Trade" to <i>LastLiquidityInd</i> (851).</p> <p>Updated <i>TimelnForce</i> (59) description to indicate IOC is not permitted if any <i>Conditional Flag</i> (8002) value is provided.</p>
1.0.2	08/27/21	Removed <i>RiskReset</i> (7692) from New Order Single message as this field is not valid for the MATCHNow platform.
1.0.3	09/10/21	<p>In Migration of TCM Constraints to ExecInst table, corrected value of ExecInst value that indicates Trade midpoint only from 'm' to 'M'.</p> <p>Added new <i>SelfTrade</i> (7733) field to Execution Report message.</p>
1.0.4	09/22/21	Added note to Send Wash Trades port attribute to indicate attribute is only applicable to the FIX Drop port.
1.0.5	10/04/21	Added notes to <i>NoTradeFeat</i> (7713) and <i>NoTradeKey</i> (7714) to indicate that an order must have both of these fields or neither.
1.0.6	10/20/21	Removed <i>TradeLiquidityIndicator</i> (9730) as this field is not supported.

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1.0.7	11/12/21	<p>Removed <i>UMIRAccountType</i> (6750) value of 'MP' as this has been deprecated.</p> <p>Added '3 = Ineligible to interact with Conditionals' value to <i>ConditionalFlag</i> (8002) field.</p> <p>Added "Make Conditional Eligible" FIX Port Attribute.</p> <p>Added note indicating <i>ClOrdID</i> (11) valid characters exclude the comma, semicolon, and pipe.</p> <p>Updated section 5.1.6 - Result (no trade of firm-up).</p>
1.0.8	12/03/21	<p>Noted <i>CustomerLEI</i> (8027) allows for base64 characters.</p> <p>Added new 'Default <i>ExecInst</i> for IOC' port attribute.</p> <p>Noted partially traded firm-up orders will remain open and tradable with future interactions.</p>
1.0.9	01/11/22	<p>Corrected instance of <i>TargetCompID</i> from "MN" to "MNOW".</p> <p>Corrected description of Jitney (5757) to indicate leading zeros are accepted in the field.</p> <p>Added <i>NoTradeFeat</i> (7713), <i>NoTradeKey</i> (7714), and <i>ClientID</i> (109) to Execution Report section.</p>
1.0.10	01/18/22	<p>Added new "Default <i>NoTradeFeat</i>" and "Default <i>NoTradeKey</i>" FIX port attributes.</p> <p>Added Appendix A: Fee Code Table.</p>
1.0.11	01/21/22	<p>Added <i>DeliverToCompID</i> (128) as this is returned by MATCHNow on all FIX messages back to client as part of standard FIX 4.2 Errata.</p> <p>Updates to <i>ExecInst</i> to correct case on 'b' and 'o' values.</p> <p>Added 'Service Bureau Port' to FIX Port Attributes.</p>
1.0.12	02/04/22	<p>Documented system limit of 1,295 <i>Cancel/Replace</i> requests per order per day.</p> <p>Added values '6' and 'E' to <i>ExecType</i>(150) and <i>OrdStatus</i>(39).</p>
1.0.13	02/11/22	<p>Updated <i>LEICustomerAccount</i> (8025) and <i>LEIAlgorithmID</i> (8026) that all characters in ASCII range 32-126 are allowed, excluding comma, semicolon, and pipe.</p>
1.0.14	02/18/22	<p>Added conversion information to <i>ExecID</i> (17) in the Execution Report.</p> <p>Added <i>ExecBroker</i> (76) to the Execution Report.</p>
1.0.15	03/29/22	<p>Added <i>Currency</i> (15) to Execution Report section.</p> <p>Updated <i>NoTradeFeat</i> (7713) description to indicate that <i>NoTradeFeat</i> (7713) will be present on execution reports when <i>ExecType</i> (150) = '1' (Partial Fill) or '2' (Fill).</p> <p>Added <i>UMIRUserID</i> (6751) to Trade <i>Cancel/Correct</i> messages.</p>

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1.0.16	04/22/20	1,679,615 Cancel/Replace requests per order per day will be allowed effective 05/06/22.
1.0.17	07/15/22	Added <i>Account</i> (1) to Trade Cancel/Correct messages (effective 08/01/22) .