



Routing User Guide

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Revision History

Date	Initials	Description of changes
6-27-06	RJG	Document creation.
11-15-06	RJG	NTM and routing rule approval revisions
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Introduction

The Chicago Stock Exchange's order sending firm connectivity has been modified to support routing to the following destinations:

- Off-Exchange market makers connected to CHX's network;
- CHX Institutional Brokers;
- The CHX Matching System (routing symbol ECHX); and,
- Order routing vendors that interface with CHX's network.

Each of the above services is considered a facility of the Exchange; as such, order-sending firms must be an Exchange Participant to use this new routing functionality.

I. CHX Default Routing

To route to the above-listed destinations without making changes to FIX or CMS messaging, order sending firms can establish or change default routing instructions by e-mailing CHX at chxrouting@chx.com. CHX Help Desk staff will also be available at 312-663-2111 to assist order-senders with default routing explanations and selections. The above process will allow order sending firms to route orders to various destinations on an issue or order sending firm level. This form of routing is known as CHX Default Routing and the below routing fields will be available.

- **Primary Routing Destination Issue Level** – Permitted destinations include CHX Matching System, selected off-Exchange market makers, CHX Institutional Brokers and selected routing vendors. If an order sending firm identifies both an Issue Level and Order Sending Level Destination (and the destinations are different), orders will be routed to the Issue Level Primary Routing Destination.
- **Primary Routing Destination Order Sending Level** – The same destinations listed above are permitted. If a Primary Routing Destination Issue Level parameter does not exist for an order sender then the Primary Routing Destination Order Sending Level will be used for routing. If neither a Primary Routing Destination Issue Level nor Order Sending Level parameter exists, the order will be routed to the Matching System.

- **Secondary Routing Destination** – Allowable routes are the Matching System, off-Exchange market makers, CHX Institutional Brokers and selected routing vendors.
- **Secondary Value Threshold** – If the value of the order is less than this specified threshold amount, the order will be routed to the Primary Routing Destination. If the value of the order is greater than or equal to the specified value, the order will be routed to the Secondary Routing Destination. (Routing using the Secondary Value Threshold will be checked before routing pursuant to the Secondary Volume Threshold.)
- **Secondary Volume Threshold** - If the volume of the order is less than the specified threshold amount, the order will be routed to the Primary Routing Destination. If the order volume is greater than or equal to the specified volume, the order will be routed to the Secondary Routing Destination. (Routing using the Secondary Volume Threshold will be checked after routing pursuant to the Secondary Value Threshold).
- **Alternate Routing Destination** – If the Primary or Secondary Destination cancels or rejects an order and the order is routable and the Do Not Route field (see below) is not set then all or any part of the order will be routed to the Alternate Routing Destination as specified by the order sender.
- **Do Not Route** – CHX will route orders to the Alternate Routing Destination unless an order does not contain specified routing instructions and the Do Not Route field is populated for the issue or the order sending firm, in which case the order will be returned to the sender. Allows order sending firms to specify that orders that do not contain routing instructions be returned if rejected or cancelled by an initial destination.

CHX Default Routing is designed to permit order sending firms to specify Primary, Secondary and Alternate Routing Destinations at the order sending firm and at the issue symbol level. Secondary Value and Volume Thresholds may also be set at the issue and order-sending levels as well. If an issue based routing record exists for an order sender then the issue based routing instructions will override the instructions at the order sending firm level. If a field at the issue level is not populated then the order sending firm level record will be used for routing. If no Primary Routing Destinations are specified then orders will be routed to the CHX Matching System. Orders that are not eligible for the Matching System will be rejected. Information about orders that are eligible for the Matching System is contained in Article 20 of the Exchange's Rules (see http://www.chx.com/rules/index_rules.htm).

Your firm may change the default routing selections described above, or make other routing selections, by e-mailing the CHX at chxrouting@chx.com. Unless the CHX announces otherwise, changes to routing decisions made before 1 p.m. (Central Time), ordinarily will be effective for the next business day. Changes made after 1 p.m. (Central Time) ordinarily will not be effective until a full business day has passed.

As new issues commence trading pursuant to Unlisted Trading Privileges (UTP), the existing firm level destinations and settings will be used as the initial route.

II. Pre-Opening Route Cutoff Time Logic

Prior to the Opening Route Cutoff Time (an internal CHX parameter), messages will queue to a destination, e.g., an off-Exchange market maker. Once a destination connects to CHX, messages in queue will route to the destination. If a destination does not connect to CHX before the Open Route Cutoff Time, all messages in queue to that destination will be flagged as 'Do Not Route' and rejected back to the sender. Before the Opening Route Cutoff Time, CHX routing to an Alternative Routing Destination will not be available and orders that are not accepted by a Primary or Secondary Routing Destination or the destination specified on the order will be rejected back to the sender. The Opening Route Cutoff Time will be a specific clock time determined by the Exchange and will be no later than 1 hour before 8:30 AM (Central Time).

III. Post-Opening Cutoff Time Routing Logic

After the Opening Route Cutoff Time has passed, if the Primary or Secondary Routing Destinations is not connected or rejects the order, then the order will be eligible for routing if the Do Not Route field, FIX Tag 7374 or CMS Line 1A designation specifies that the order is eligible for routing. CHX will route orders to the Alternate Routing Destination unless the order does not contain routing instructions and the Do Not Route field is populated or the order is specifically designated 'Do Not Route' in Tag 7374 or CMS Line 1A.

IV. Specified Destination Routing

CHX will also support the ability of an order sending firm to designate each order for routing to a specific destination (i.e., a selected off-Exchange market maker, CHX Institutional Broker, CHX Matching System or selected routing vendor). To use Specified Destination Routing, order sending firms must include the destination symbol in the order and therefore must make a messaging change. If the order is cancelled or rejected by the specified destination, then the order will be returned to the sender.

If a FIX order sending firm elects to designate routing to a specified destination on an order by order basis, the *DeliverToCompID* field (or Line 1A for CMS) will be used to route orders. If the order cannot be routed to the specified *DeliverToCompID* (CMS Line 1A) destination, e.g., the issue is not traded by the destination, the order will be returned to the sender irrespective of whether the order is routable per the user defined Tag 7374 (CMS Line 1A) or Do Not Route default setting.

APPENDIX I - Examples

Note: *The below examples using sample destination symbols are for illustrative purposes only. Routing destination symbols are determined by the receiving destination and CHX.*

A. Default Routing Examples

I. Primary Routing Destination (Pre-Opening Route Cutoff Time)

In the below example, order sender WXYZ enters an order prior to the Opening Route Cutoff Time and the DeliverToCompID field is not specified. Order sending firm WXYZ has established the CHX Default Routing parameters as below.

- ⇒ Primary Routing Destination (Issue Level) = MMXY
- ⇒ Secondary Routing Destination (Issue Level) = IBAB
- ⇒ Secondary Value Threshold (Issue Level) = \$100,000
- ⇒ Secondary Volume Threshold (Issue Level) = 5000
- ⇒ Alternate Routing Destination (Issue Level) = VEND
- ⇒ Primary Routing Destination (Firm Level) = MMDE
- ⇒ Secondary Routing Destination (Firm Level) = IBXY
- ⇒ Secondary Value Threshold (Firm Level) = \$500,000
- ⇒ Secondary Volume Threshold (Firm Level) = 10000
- ⇒ Alternate Routing Destination (Firm Level) = VEND
- ⇒ Do Not Route = Not Populated

Tag	Field Name	Value
49	SenderCompID	WXYZ
35	MsgType	D (Order-Single)
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
59	TimeInForce	1 (GTC)

WXYZ has entered a Primary Routing Destination at the issue level which is different than the firm level; as such, the issue level Primary Routing Destination is used for routing. The entered order's value (\$80,000) and volume (1000) are less than the Secondary Value and Volume issue level Thresholds, respectively. As such, the above order is routed to MMXY. If the order cannot be routed to MMXY because MMXY has not connected before Opening Route Cutoff Time, the order will be rejected. Although WXYZ has specified an Alternate Routing Destination and the order is routable because it is not designated as 'Do Not Route', the order is rejected because routing to the Alternate Routing Destination is not available for orders received prior to the Opening Route Cutoff Time.

II. Primary Routing Destination (Post-Opening Route Cutoff Time)

In the next example, an order is received after the Opening Route Cutoff Time. The order sender WXYZ has set up the below CHX Default Routing parameters.

- ⇒ Primary Routing Destination (Issue Level) = MMXY
- ⇒ Secondary Routing Destination (Issue Level) = IBAB
- ⇒ Secondary Value Threshold (Issue Level) = \$100,000
- ⇒ Secondary Volume Threshold (Issue Level) = 5000
- ⇒ Alternate Routing Destination (Issue Level) = VEND
- ⇒ Primary Routing Destination (Firm Level) = MMDE
- ⇒ Secondary Routing Destination (Firm Level) = IBXY
- ⇒ Secondary Value Threshold (Firm Level) = \$500,000
- ⇒ Secondary Volume Threshold (Firm Level) = 10000
- ⇒ Alternate Routing Destination (Firm Level) = VEND
- ⇒ Do Not Route = Not Populated

Tag	Field Name	Value
49	SenderCompID	WXYZ
35	MsgType	D (Order-Single)
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
59	TimeInForce	1 (GTC)

As before, WXYZ has entered a Primary Routing Destination at the issue level which is different than the firm level; therefore, the issue level record is used for routing. The entered order's value (\$80,000) and volume (1000) are less than the Secondary Value and Volume issue level Thresholds. As such, the order is routed to MMXY. If the order cannot be routed to MMXY or is rejected, the order will be re-routed because the message does not contain a 'Do Not Route' instruction and the Do Not Route flag is not populated. The order sender could override this behavior by setting the Do Not Route default route field. WXYZ has input VEND as its issue level Alternative Routing Destination. As such, the order would be re-routed to VEND (assume this symbol represents an outbound order routing vendor that interfaces with CHX's network). If delivery to VEND fails or is rejected, the order will be rejected back to its sender.

III. Secondary Routing Destination

Below is an example of order routing to the Secondary Routing Destination. Assume that order sender ABCD has set up the below CHX Default Routing parameters.

- ⇒ Primary Routing Destination (Firm Level) = MMDE
- ⇒ Secondary Routing Destination (Firm Level) = IBXY
- ⇒ Secondary Value Threshold (Firm Level) = \$75,000
- ⇒ Secondary Volume Threshold (Firm Level) = 1500
- ⇒ Alternate Routing Destination (Firm Level) = VEND
- ⇒ Do Not Route = Y

Tag	Field Name	Value
49	SenderCompID	ABCD
35	MsgType	D (Order-Single)
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
59	TimeInForce	1 (GTC)

Order sender ABCD has entered a Primary Routing Destination at the firm level; however, no issue level Primary Routing Destination instructions have been established with CHX. Thus, the firm level record is used for routing. The entered order's value (\$80,000) is greater than the Secondary Value Threshold; as such, the order is routed to IBXY, the order sending firm established Secondary Routing Destination. If the order cannot be routed to IBXY or is rejected, the order will not be re-routed because the order does not contain routing instructions and the Do Not Route field is set to Y. Even though ABCD has input VEND as its Alternative Routing Destination, the order would not be re-routed.

B. Specified Destination Routing

I. Specified Destination Routing to off-Exchange Market Maker

In this example, the order sending firm ABCD has changed its messaging to specify delivery of the order to destination MMXY in Header Tag 128 *DeliverToCompID* (see CHX FIX Link Specification for more detail). Additionally, ABCD has established the following CHX Default Routing parameters listed below.

- ⇒ Primary Routing Destination (Firm Level) = MMDE
- ⇒ Secondary Routing Destination (Firm Level) = IBXY
- ⇒ Secondary Value Threshold (Firm Level) = \$50,000
- ⇒ Secondary Volume Threshold (Firm Level) = 500
- ⇒ Alternate Routing Destination (Firm Level) = VEND
- ⇒ Do Not Route = Not Populated

Tag	Field Name	Value
49	SenderCompID	ABCD
128	DeliverToCompID	MMXY
35	MsgType	D (Order-Single)
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
59	TimeInForce	1 (GTC)
7374	RoutingInst	0 (Route)

Since ABCD has specified that the above order be delivered to MMXY, the order will be routed to MMXY irrespective of CHX Default Route Primary Routing Destination, Secondary Value and Volume Thresholds or Secondary Routing Destination parameters. If MMXY does not accept or rejects the order then the order will be rejected to its sender irrespective of *RoutingInst* designation.