Routing Strategies and Order Types Guide

NASDAQ
THE NASDAQ OMX GROUP

NASDAQ® offers a single, streamlined platform with superior technology and increased trading efficiency. To better serve our customers, NASDAQ provides users with various sophisticated routing strategies and order types and for trading all U.S. equity securities.

Routing Strategies:

SCAN

Attempts to execute against orders available on the NASDAQ book at a price equal to or better than the NBBO. Simultaneously routes to away destinations if the order is larger than what is available on NASDAQ If shares remain unexecuted after routing they are posted on the NASDAQ book. Once the order is posted to the NASDAQ book, if it is subsequently locked or crossed, the system will not route out again.

STGY

Behaves similar to SCAN, except that the order will route out again after posting to the NASDAQ book if the order is subsequently locked or crossed.

SKIP

Behaves like SCAN but does not send orders to non-Reg NMS protected market centers.

SKNY

Behaves like STGY, but opts out of sending orders to non-Reg NMS protected market centers.

LIST

Behaves like SKIP but offers the additional feature of participating in the opening, closing, halt, and IPO crosses on each security's primary listing market.

CART

Checks the BX, PSX and NASDAQ books before optionally posting to the NASDAQ book.

SAVE and QSAV

SAVE accesses BX, PSX, NASDAQ, NYSE, then simultaneously routes to all other protected quotes and additional destinations. If shares remain unexecuted after routing they are posted on the NASDAQ book. Once the order is posted to the NASDAQ book, if it is subsequently locked or crossed, the system will not route out again. QSAV behaves similar to SAVE but checks the NASDAQ book before routing.

SOLV

Behaves like SAVE in that it accesses BX, PSX, NASDAQ, all other protected quotes and additional destinations before posting unexecuted shares to the NASDAQ book, but routes out after posting if the NASDAQ book is subsequently locked or crossed.

TFTY and QTFY

Thrifty (TFTY) accesses BX, low-priced liquidity venues, PSX and NYSE. All orders using the TFTY strategy must have a limit price and must be entered between 9:30 a.m. and 4:00 p.m., ET. QTFY acts the same as TFTY but checks the NASDAQ book before routing.

Immediate-or-Cancel (IOC) orders will not route to NASDAQ. Orders with a Time-in-Force of Day will route to NASDAQ after checking the other destinations and post on NASDAQ.

QDRK

Simultaneously accesses NASDAQ and low cost liquidity venues.

QCST

Behaves similarly to QDRK, but additionally accesses the BX, EDGA and BATS-Y exchanges.

DOTA

Prior to 9:30 a.m., NYSE- and NYSE Amex-listed security orders will be sent to the primary for the open. After the primary listing market opens, ET, DOTA behaves as SCAN. If a DOTA order is received in a security that is not listed on NYSE or NYSE Amex, it will not go to NYSE or NYSE Amex and will behave as SCAN.

DOTM

Prior to 9:30 a.m., NYSE- and NYSE Amex-listed security orders will be sent to the primary for the open. After the primary listing market opens, ET, DOTA behaves as STGY. If a DOTA order is received in a security

that is not listed on NYSE or NYSE Amex, it will not go to NYSE or NYSE Amex and will behave as STGY.

DOTI and DOTZ

Attempts to execute against orders in the NASDAQ book at a price equal to or better than the NBBO. If unfilled, it will then route to BX where it will also attempt to execute at the NBBO or better. If still unfilled, the order will route to NYSE or NYSE Amex where the order will remain until it is executed or cancelled. DOTZ behaves as DOTI but does not route to BX.

MOPP

Routes to all protected quotes equal to or better than its limit price for display size only. Depending on the time-in-force on the order, the remaining shares will be posted to the NASDAQ book or be cancelled back to the entering party. Once an order posts to NASDAQ, it is no longer eligible for routing. Customers can use MOPP to post on the NASDAQ book and sweep all protected quotes, and then print to the FINRA/NASDAQ Trade Reporting Facility™ (TRF™).

MOPB

MOPB is an alternative MOPP-like strategy for firms seeking to sweep protected quotes before printing to the TRF. Like the existing MOPP strategy, MOPB will route to top-of-book quotes as stipulated by Reg NMS. Unlike MOPP, MOPB orders will be cancelled immediately without executing if the MOPB order's quantity is insufficient to clear the protected quantity across all Reg NMS destinations. Additionally, MOPB orders will not post on NASDAQ after sweeping the market.

Directed Orders

This unique order is directed to a market center other than NASDAQ as specified by the entering party. Directed orders do not check the NASDAQ book and are routed at the entered price and entered quantity. If unexecuted, the order (or unexecuted portion thereof) shall be returned to the entering party. This order type can be entered as an Intermarket Sweep Order (ISO), and may only be used for orders with time-in-force (TIF) of Immediate or Cancel (IOC).

NASDAQ Only Order Types:

Intermarket Sweep Orders (ISO)

Indicate that the entering firm has already checked all other protected quotes before coming to NASDAQ. This order will not route. It will trade at NASDAQ's best prices regardless of prices in other market centers.

Post-Only Orders

The Post-Only order is designed to promote displayed liquidity and provide users control over trading costs. Post-Only orders that would lock the NASDAQ book will be posted on the book.

Price-To-Comply Orders

Comply with the Reg NMS Order Protection Rule and Locked and Crossed market rule by re-pricing and converting into a non-displayed order. Buy orders will be priced at the inside offer and sell orders will be priced at the inside bid. If the market moves, the order will be re-priced to the new inside. In addition, if the market moves such that the display of the original entered price would not result in a locked market, the order will be displayed at its original entered price.[1]

Supplemental Orders

Non-displayed orders that add liquidity only and always execute at the NBBO. Orders will only execute against incoming routable orders that are the same size or smaller than the aggregate Supplemental Order interest at the price level, and are only eligible for execution during regular market hours. This order type has a lower priority at a given price level than displayed or other non-displayed orders.

NASDAQ Cross Order Types:

On-Open Orders
Specifically request an execution at the opening price.
- Can be limit-on-open or market-on open.
- Accepted beginning at 4:00 a.m., ET, each day.

Imbalance-Only Open Orders
Provides liquidity intended to offset on-open orders during the Opening Cross.
- Must be priced (limit); no market imbalance-only orders.
- Imbalance-only buy/sell orders only execute at or above/below the 9:30 a.m., ET, offer/bid.

[1] Orders entered via OUCH will be re-priced upon entry if necessary, but will not continue to re-price as the market moves. However, firms may configure their OUCH ports such that if an order would be re-priced more aggressively, it will be canceled back to the firm.

2

• Accepted beginning at 4:00 a.m., ET, each day.

On-Close Orders
Specifically request an execution at the closing price.
• Can be limit-on-close or market-on-close.
• Accepted beginning at 4:00 a.m., ET, each day.

Imbalance-Only Close Orders
Provides liquidity intended to offset on-close orders during the Closing Cross.
• Must be priced (limit); no market imbalance-only orders.
• Imbalance-only buy/sell orders only execute at or above/below the 4:00 p.m., ET, bid/ask.
• Accepted beginning at 4:00 a.m., ET, each day.

> NASDAQ Crossing Network
> (All Times Eastern)
>
> Opening Cross
> 9:30 a.m.
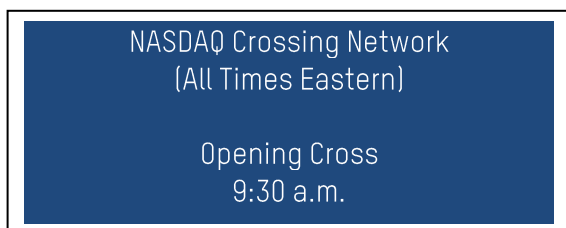
Attributes of NASDAQ Order Types:

Anonymous
Orders leverage NASDAQ's anonymous MPID (NSDQ), allowing you to be displayed in the market place without revealing your MPID.

Reserve
Orders allow you to display only a fraction of your entire order.
• Have a round lot display size and corresponding non-display size.
• Incoming order flow has access to both the display and non-display portion of a booked reserve order.
• Minimum share quantity for a displayed order is 100 shares; this amount is replenished when the amount falls below 100 shares.

Pegged
Orders allow clients to price orders relative to the current market price for a security.
• Only supported between 9:30 a.m. and 4:00 p.m., ET.
• Offsets allow a client to peg an order with an incremental difference, in $0.01 increments, from the NBBO and can be either positive (higher price) or negative (lower price).
• There are three types of pegged orders:

o Primary Peg: Peg an order to the same side of the market.
o Market Peg: Peg an order to the opposite side of the market.
o Mid-Point Peg: Peg an order to the mid-point of the market. These orders will peg in half-penny increments in the event of an odd spread.

Minimum Quantity
Minimum Quantity (MinQty) functionality allows users to request a minimum share amount on each execution for all time-in-forces (TIF). It is available on OUCH and FIX order protocols. Orders with Minimum Quantity instructions will always be non-displayed and instructions are not routable.

Discretionary
Orders are displayed on the book at one price while passively trading at a more aggressive discretionary price. The discretionary portion of the order is not entered on the book, and only becomes active as an IOC order when shares are available within the discretionary range. Discretion can also be combined with Pegging, Reserve and non-DOT routing strategies.

Non-Display
Orders are hidden from the marketplace. All incoming order flow can interact with hidden orders until hidden size is exhausted at the specified price.

Time-In-Force (TIF) Options Available For Order Types:

Time-In-Force	Behavior (all times Eastern)
Market Hours Immediate or Cancel	Immediately executable upon entry between 9:30 a.m. to 4:00 p.m., or canceled.
System Hours Immediate or Cancel	Immediately executable upon entry between 4:00 a.m. to 8:00 p.m., or canceled.
Market Hours Day	Executable between 9:30 a.m. to 4:00 p.m., on the day the order is entered.
System Hours Day	Executable between 4:00 a.m. to 8:00 p.m., on the day the order is entered.
Good-til-Market Close	Executable between 4:00 a.m. to 8:00 p.m. If entered prior to the closing cross any unexecuted orders will be returned to entering party after the Closing Cross; if entered after the cross will be treated as SIOC.
Market Hours Good 'til Canceled	Executable between 9:30 a.m. to 4:00 p.m., on the day the order was submitted until canceled or order is 365 days old.
System Hours Good 'til Canceled	Executable between 4:00 a.m. to 8:00 p.m., on the day the order was submitted until canceled or order is 365 days old.
System Hours Expire Time	If not executable upon entry, any unexecuted shares shall remain available for execution for the amount of time specified by the entering party.
Crosses	Not eligible for Opening and Closing Crosses.
	Good-til-Canceled TIFs
Do Not Reduce Orders	If a dividend is processed for a stock, the order price will not be adjusted.
Do Not Increase Orders	If a dividend is processed for a stock, the order quantity will not be adjusted.