OPENING & CLOSING AUCTIONS
Frequently Asked Questions

1. What are the IEX Opening and Closing Auctions?

The IEX Opening and Closing Auctions are price discovery facilities that match orders at a single price. The auctions enable market participants to execute On-Open and On-Close interest and provide unparalleled transparency into the market open and market close. Only IEX-listed securities are eligible for IEX Auctions.

2. How do the auctions work?

IEX accepts On-Open and On-Close order types that are executable only during the Opening or Closing Auction, respectively.

- Leading up to an open or close, IEX disseminates information about any order imbalance that exists among orders on the Opening or Closing Auction Book, along with an indicative opening or closing price.
- In the auction process, the Opening or Closing Auction Book and the IEX Continuous Book are brought together to create a single IEX opening or closing price.
- IEX opening and closing prices are distributed to the Consolidated Tape immediately after the auction occurs.

3. What are the current thresholds for establishing the IEX Opening and Closing Auction prices?

The Opening and Closing Auction threshold is the greater of $0.50 or 10%.

4. How are the thresholds applied to the Opening/Closing Auction Collar?

The threshold of 10% is utilized to calculate a price range for the auction, also known as the auction collar. 10% of the midpoint of the Reference Price Range (generally the Protected National Best Bid and Offer ("Protected NBBO") Midpoint) (with a minimum of $0.50) is added to the National Best Offer that is a protected quotation ("Protected NBO") and subtracted from the National Best Bid that is a protected quotation ("Protected NBB"), when there is a valid Protected NBBO, to establish the threshold price range.

For example, if the Protected NBB/NBO is $10.00 x $11.00, then the Protected NBBO Midpoint equals $10.50 and the threshold value is 10%: 10% x $10.50 = $1.05. This value is then added to the Protected NBO and subtracted from the Protected NBB to obtain the auction's threshold range:

- Protected NBB: $10.00 - $1.05 = $8.95
- Protected NBO: $11.00 + $1.05 = $12.05

Therefore, in this example, the auction can occur within the prices of $8.95 and $12.05. This means $8.95 is the lowest price at which the auction can occur and $12.05 is the highest price at which it can occur. The threshold range (i.e., auction collar) is dynamic; as the Protected NBBO changes, the threshold price range changes.

5. What time do the auctions execute?

At 9:30 a.m. ET (note that all times are Eastern Time), the Opening Auction is initiated and the Opening Auction Book and the IEX Continuous Book are brought together to create a single IEX Opening Auction. IEX opening prices are distributed to the Consolidated Tape immediately after the Opening Auction.

At 4:00 p.m., the Closing Auction is initiated and the Closing Auction Book and the IEX Continuous Book are brought together to create a single IEX Closing Auction. IEX closing prices are distributed to the Consolidated Tape immediately after the Closing Auction.

- As the Closing Auction completes in each stock, after hours trading commences in that stock.

6. How does the Opening (Closing) Auction affect the IEX Official Opening (Closing) Price?

The Opening Auction sets the IEX Official Opening Price. If an issue does not have an Opening Auction, the IEX Official Opening Price is determined by the first regular way last-sale eligible trade reported by IEX at or after 9:30 a.m., when regular trading hours begin.

The Closing Auction sets the IEX Official Closing Price. If a stock does not have a Closing Auction, the last regular way last-sale eligible trade reported by IEX prior to 4:00 p.m. is used as the IEX Official Closing Price.

7. What information about the Opening and Closing Auction is disseminated leading up to the open and close?

Between 9:28 and 9:30 a.m. and 3:50 and 4:00 p.m., IEX disseminates the following information every one second via the IEX Depth of Book and Last Sale feed ("DEEP"), IEX Top of Book and Last Sale feed ("TOPS"), the IEX Data Platform ("IEX API"), and the IEX public website.

- **Reference Price**: The price within the Reference Price Range (generally, the Protected NBBO) at which paired shares are maximized, unexecuted shares are not traded through, and the distance from the Volume Based Tie Breaker is minimized, in that order.
- **Indicative Clearing Price**: The price within the auction collar at which orders in the IEX Opening / Closing Auction Book and Continuous Book would clear against each other.
- **Auction Book Clearing Price**: The price at which orders in the IEX Opening / Closing Auction Book would clear against each other.
- **Paired Shares**: The number of shares on the IEX Opening / Closing Auction Book that IEX is able to pair off at the Reference Price.
- **Imbalance Shares**: The number of shares on the IEX Opening / Closing Auction Book that would remain unexecuted at the Reference Price.
- **Imbalance Side**: The side of the imbalance: B = buy-side imbalance; S = sell-side imbalance; N = no imbalance.
- **Collar Reference Price**: The Volume Based Tie Breaker (generally, the Protected NBBO Midpoint), which was used in calculating the auction's threshold range.
- **Lower Auction Collar**: The lower threshold of the auction collar, which is the lowest price at which the auction can occur and the most aggressive price accepted for sell orders eligible for the IEX Opening (Closing) Auction Book after 9:28 a.m. (3:50 p.m.) (Lock-in Time).
- **Upper Auction Collar**: The upper threshold of the auction collar, which is the highest price at which the auction can occur and the most aggressive price accepted for buy orders eligible for the IEX Opening (Closing) Auction Book after 9:28 a.m. (3:50 p.m.) (Lock-in Time).

The IEX Auction Information message is available via DEEP, TOPS, and the IEX API. DEEP and TOPS are available via a wide array of market data vendors and service bureaus, and also directly from IEX. The IEX API is available from the IEX public website. Additionally, IEX Auction Information is available on the IEX public website. All auction information is provided free of charge. To learn more, please visit IEX Market Data or IEX Apps.

ORDER TYPES

8. Which order types are eligible for the auctions?

Opening Auction

Queued Regular Hours Orders (Opening Auction Book)

- Executable from 9:30 a.m. to 4:00 p.m., including during the Opening Auction.
- Includes limit DAY or GTX orders, and non-routable market DAY orders queued before the auction.
- Limit orders received after 9:28 a.m. (Lock-in Time) are accepted for the Opening Auction, subject to the hyper-aggressive price restrictions. Limit orders are rejected after 9:29:50 a.m. (Lock-out Time) until the market opens.
- Market Orders received after 9:28 a.m. will be rejected until the market opens.

On-Open Orders (Opening Auction Book)

- Executed only during the Opening Auction.
- Market-On-Open ("MOO") orders must be received prior to 9:28 a.m.
- Limit-On-Open ("LOO") orders received after 9:28 a.m. are accepted for the Opening Auction, subject to the hyper-aggressive price restrictions. LOO orders are rejected after 9:29:50 a.m.

System Hours Orders (Continuous Book)

- Executable from 8:00 a.m. to 5:00 p.m., including during the Opening Auction.
- Includes limit SYS or GTT orders. No market orders execute during pre/post-market hours.
- Lock-in and Lock-out Time restrictions do not apply to orders on the Continuous Book.

Closing Auction

On-Close Orders (Closing Auction Book)

- Allow investors to specifically request an execution at the closing price.
- Accepted beginning at 8:00 a.m.; executable only during the Closing Auction.
- Market-On-Close ("MOC") orders must be received prior to 3:50 p.m. (Lock-in Time).
- Limit-On-Close ("LOC") received after 3:50 p.m. are accepted for the Closing Auction, subject to the hyper-aggressive price restrictions. LOC orders are rejected after 3:59:50 p.m. (Lock-out Time).

Regular Hours Orders and System Hours Orders (Continuous Book)

- Posted and available for execution immediately during the Regular Market Session, and may participate in the Closing Auction.
- Includes limit DAY, GTX, SYS, and GTT orders.

- Includes pegged orders.
- Lock-in and Lock-out Time restrictions do not apply to orders on the Continuous Book.

9. What are the hyper-aggressive restrictions enforced after the Lock-in Time of the auctions?

Hyper-aggressive Auction Orders are rejected after the Lock-in Time for the Opening and Closing Auctions. The restriction applies to LOO orders and limit orders with a TIF of DAY or GTX received after 9:28 a.m. for the Opening Auction, as well as LOC orders received after 3:50 p.m. for the Closing Auction. Specifically, such buy (sell) orders priced above (below) the latest Upper (Lower) Auction Collar are rejected after the Lock-in Time. Note that MOO, market DAY, and MOC orders are also considered Hyper-aggressive Auction Orders and are rejected after the applicable Lock-in Time. Orders accepted between the Lock-in Time and the Lock-out Time are price setting in IEX Auctions, and are not treated as imbalance only.

10. Do paired shares and imbalance shares include orders entered after the Lock-in Time?

Yes. Specifically, LOO orders and limit orders with a TIF of DAY or GTX accepted after 9:28 a.m. for the Opening Auction, as well as LOC orders accepted after 3:50 p.m. for the Closing Auction are included in the number of paired shares and imbalance shares.

11. How is the execution priority of non-displayed orders on the IEX Continuous Book determined after the auction pricing process is complete?

To minimize information leakage of non-displayed orders resting within the spread, IEX uses a unique method to calculate the auction price, as well as the Indicative Clearing Price after the Lock-in Time. Non-displayed orders on the Continuous Book with a resting price within the Reference Price Range (generally, the Protected NBBO) are priced to the Protected NBBO – sell orders are priced to the Protected NBO and buy orders are priced to the Protected NBB – when determining the auction price, but remain ranked and eligible to execute during continuous trading and in the auction at their resting price. After the auction price is calculated, non-displayed orders are treated the same as displayed limit orders at their resting price, if any, with non-displayed priority, and without updating their timestamp used for time priority.

12. Is short selling permissible at the Auctions?

Yes, subject to applicable short sale rules.

13. Is the Manning Rule applicable to the Opening and Closing Auction?

Yes. The Manning Rule and all other market rules that pertain to the regular trading day apply to the IEX Opening and Closing Auction. In particular, when determining its Manning Rule obligations, a market participant must consider executions that result from the Opening and Closing Auctions since those executions occur during normal trading hours.

14. Does IEX guarantee Market-On-Close ("MOC") orders in the Closing Auction?

No, the Opening and Closing Auctions provide unparalleled transparency which encourages market participants to provide necessary liquidity to offset any market order imbalance. LOC orders continue to be accepted after the Lock-in Time and may offset any imbalance until the Lock-out Time. Orders on the IEX Continuous Book are accepted until the auction and may offset any imbalance as well.

15. When are Regular Hours Orders too late to queue for the Opening Auction?

Regular hours orders received after 9:28 a.m. are accepted for the Opening Auction, subject to the hyper-aggressive price restrictions. Non-routable market orders with a TIF of DAY received after 9:28 a.m. and limit orders with a TIF of DAY or GTX received after 9:29:50 a.m. are too late to participate in the Opening Auction. Late orders are rejected after the applicable cut-off described above and must be resubmitted after the market opens.

16. If a firm sends in a MOO/MOC or LOO/LOC order after the Lock-in Time, is it rejected?

- MOOs (MOCs) entered after the Lock-in Time at 9:28 a.m. (3:50 p.m.) are not accepted.
- LOOs (LOCs) entered after the Lock-in Time at 9:28 a.m. (3:50 p.m.) are accepted for the Opening (Closing) Auction, subject to the hyper-aggressive price restrictions.
- LOOs (LOCs) entered after the Lock-out Time at 9:29:50 a.m. (3:59:50 p.m.) are not accepted.

17. If a firm sends in a MOO/MOC or LOO/LOC order that does not get executed, will they receive a cancellation message?

Yes. A cancellation message will be returned to the firm after the auction occurs.

18. Which price is used to execute On-Open / On-Close orders? What happens for market and limit orders?

The auction process considers all orders on the IEX Book and the Reference Price Range (generally, the Protected NBBO) at the time of the auction. Non-displayed orders on the Continuous Book with a resting price within the Reference Price Range are priced to the Protected NBBO – sell orders are priced to the Protected NBO and buy orders are priced to the Protected NBB – when determining the auction price, but remain ranked and eligible to execute in the auction at their resting price. The auction price is based on the following steps:

1. Maximize the number of shares executed.
2. Do not trade through unexecuted orders.
3. Minimize the distance from the Volume Based Tie Breaker (the midpoint of the Reference Price Range).

The Opening Auction price determines the IEX Official Opening Price for each stock that has an auction. If a stock does not have an Opening Auction, the IEX Official Opening Price is determined by the first regular way last-sale eligible trade reported by IEX at or after 9:30 a.m., when regular trading hours begin.

The Closing Auction price determines the IEX Official Closing Price for each stock included in the Closing Auction. If a stock does not have a closing auction, the last regular way last-sale eligible trade reported by IEX prior to 4:00 p.m. is used as the IEX Official Closing Price.

IMBALANCE INFORMATION DISSEMINATION

19. When does IEX begin its dissemination of IEX Auction Information?

IEX begins disseminating IEX Auction Information at 9:28 a.m. for the Opening Auction and 3:50 p.m. for the Closing Auction.

20. Where can I access IEX Auction Information for the open?

IEX Auction Information is available via the IEX Depth of Book and Last Sale feed ("DEEP"), IEX Top of Book and Last Sale feed ("TOPS"), the IEX Data Platform ("IEX API"), the IEX public website, IEX Historical Data ("IEX HIST"), and select market data distributors and service bureaus. All auction information is provided by IEX free of charge.

Firms should check with their vendors and service bureaus for more information on how they can access the auction data.

OTHER

21. Do IEX Auctions access liquidity from other venues?

No. Only interest on the IEX Book is eligible to participate in IEX Auctions.

22. Is there special processing for odd lot orders?

Odd lots follow regular IEX processing.

23. Can pegged orders participate in the Closing Auction? And if so, can Primary and Discretionary Peg orders exercise discretion to participate in the Closing Auction?

Yes, if pegged orders reside on the IEX Continuous Book, they will participate in the Closing Auction at their current resting price. Yes, Primary and Discretionary Peg orders to buy (sell) may exercise price discretion up (down) to the Closing Auction price, except during periods of quote instability. When exercising price discretion, such orders are ranked behind any non-displayed interest at the auction price for the duration of the Closing Auction. If multiple orders are exercising price discretion during the Closing Auction, they maintain their relative time priority at the auction price. On-Close orders cannot be pegged or exercise discretion.

MORE INFORMATION

For more information about IEX Auctions:

- Contact IEX Market Operations at 646.343.2300 or marketops@iextrading.com
- Visit https://iextrading.com/trading/listed/
- Review the IEX Auction Process Specification

Current DEEP and TOPS subscribers will receive IEX Auction Information as part of the latest feeds. Visit https://iextrading.com/trading/market-data/ or contact IEX Market Operations for more information about receiving DEEP or TOPS. A list of market data vendors and service bureaus may also be found on the above link.

To view a guide on how to access IEX Auction Information through the web, see the IEX Apps.

To view instructions on how to enter auction orders, see the IEX FIX Specification.

MORE INFORMATION

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