NTX Options Market System Settings

1. Hours of Operation

7:30 a.m. ET – System begins accepting orders.

9:25 a.m. ET – System begins accepting quotes that can be considered for the opening process.

9:30 a.m. ET - System begins disseminating imbalance and price information for the opening auction.

9:30 a.m. ET – System begins executing orders.

4:00 p.m. ET – System stops accepting and executing equity options orders.

4:15 p.m. ET – System stops accepting and executing ETF and Index Options orders.

2. Execution Algorithm (See Options 3, Section 10 of the NTX Options Rules):

- **Pro Rata** – Under this execution algorithm, Customer orders are executed before all other participant types ("Customer Priority") in price/time priority among all Customer orders at a given price. After all Customer orders at a given price are executed, executions will be allocated pro rata among Market Maker interest based on their size as a percentage of the total size among all Market Makers at that price level. After all Customer orders and Market Maker interest is executed, any remaining executions will be allocated pro rata among all other participant interest at that price level.
- **Price/Time** – Under this execution algorithm, Customer orders are executed before all other participant types ("Customer Priority") in price/time priority among all Customer orders at a given price. After all Customer orders at a given price are executed, all other orders and quotes, regardless of participant type, are executed in time priority at a given level.

3. Opening Cross

NTX will open an option for trading after 9:30 a.m. in a given symbol if the Primary Listing Market for the Underlying Security has quoted or traded.

- **Opening Valid Width NBBO Differentials Table** – The table of values defined as an acceptable bid/ask differential in order to establish a "Valid Width NBBO." *Options 3, Section 8(a)(8)*

Non-Penny Issues:

Option Price	Maximum bid/ask differential
0-1.00	0.50
1.01-2.00	0.50
2.01-3.00	0.80
3.01-5.00	0.80

Option Price	Maximum bid/ask differential
5.01-7.00	1.00
7.01-10.00	1.00

Standard Penny Issues (excluding SPY/IWM/QQQQ):

Option Price	Maximum bid/ask differential
0-1.00	0.20
1.01-2.00	0.22
2.01-3.00	0.25
3.01-5.00	0.30
5.01-7.00	0.40
7.01-10.00	0.50
10.01-15.00	0.60
15.01-20.00	0.80
20.01-30.00	1.20
30.01-40.00	1.60
40.01+	2.00

Special Penny Issues (SPY/IWM/QQQQ):

Option Price	Maximum bid/ask differential
0-0.40	0.10
0.41-1.00	0.15
1.01-2.00	0.18
2.01-3.00	0.20
3.01-5.00	0.25
5.01-7.00	0.30
7.01-10.00	0.45
10.01-15.00	0.60
15.01-20.00	0.80
20.01-30.00	1.00
30.01-40.00	1.20
40.01+	1.60

- **Order Imbalance Indicator Timer** – 200 milliseconds – Dissemination interval of Opening Order Imbalance messages. *Options 3, Sec.8*
- **Number of Imbalance Process Iterations Before an Opening with an Imbalance** – 4 iterations - Number of times the system will repeat the imbalance process before opening with a remaining imbalance. *Options 3, Sec 8*
- **Opening Cross Range Table** – The table of values added to the Valid Width NBBO offer and subtracted from the Valid Width NBBO bid to establish NTX's maximum Opening Cross Range. *Options 3, Sec.8*

Non-Penny Issues (S):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.10	0.20
1.01-2.00	0.15	0.25

Quoted Option Price	ATR	LEAPS ATR
2.01-3.00	0.20	0.30
3.01-5.00	0.30	0.45
5.01-7.00	0.40	0.60
7.01-10.00	0.50	0.75
10.01-15.00	0.60	0.90
15.01-20.00	0.60	0.90
20.01-30.00	0.80	1.20
30.01+	1.00	1.50

Standard Penny Issues (P):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.07	0.14
1.01-2.00	0.10	0.20
2.01-3.00	0.15	0.30
3.01-5.00	0.20	0.40
5.01-7.00	0.25	0.50
7.01-10.00	0.30	0.60
10.01-15.00	0.50	0.75
15.01-20.00	0.60	0.90
20.01-30.00	0.80	1.20
30.01+	1.00	1.50

Special Penny Issues (E) (SPY/IWM/QQQQ):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.05	0.10
1.01-2.00	0.07	0.14
2.01-3.00	0.07	0.14
3.01-5.00	0.10	0.20
5.01-7.00	0.15	0.30
7.01-10.00	0.20	0.40
10.01-15.00	0.30	0.45
15.01-20.00	0.40	0.60
20.01-30.00	0.50	0.75
30.01-40.00	0.60	0.90
40.01+	0.80	1.20

- **Number of Away Exchanges Required to be Open if Valid Width NBBO not Present** – 2 – Number of away exchanges which must be open for NTX to open without a Valid Width NBBO being present. *Options 3, Section 8(f)(2)*
- **Forcing Opening Cross** – 9:45am – Time, provided the primary underlying has opened, when NTX will open when no trade is possible, a Valid Width NBBO is not present, and the required number of away exchanges have not opened. *Options 3, Section 8(k)(3)(E)*
- **Opening Order Cancel Timer** – 30 seconds – Period of time after the primary market underlying has opened and NTX has not initiated an Opening Cross, at which all non-GTC orders submitted over FIX in the affected option will be cancelled back to the sending firm. This feature is optional to participants and is engaged at the firm mnemonic level. *Sec.8(c)(2)*

- **Opening Route Timer** – 200 ms – Amount of time the system waits before routing to an away market as part of the opening process.

4. Additional Timers

- **Order Exposure Period** – 200 milliseconds – The amount of time the system allows participants to interact with interest which triggered an Order Exposure Alert. *Options 5, Section 4*
- **Route Timer** – 200 milliseconds – The amount of time the system will allow participants to interact with a FIND or SRCH order before the order is routed after the opening or re-routed to an away market. This timer runs concurrently with the Order Exposure Period. *Options 5, Section 4*
- **PRISM Auction Duration** – 200 milliseconds – The duration of the PRISM Auction. *Options 3, Section 13*

5. Acceptable Trade Range Protection

NTX uses Acceptable Trade Range Protection (ATR) to automatically set dynamic boundaries that limit the prices at which an order can execute. If an order's price is through a boundary price, the order will execute at prices at or within the boundary price. If the order is not fully executed at those prices, it will post at the boundary price for a short period of time to allow the market to refresh before continuing to execute at more aggressive prices. The posted order is available for execution at the boundary price during this short refresh period. *Options 3, Section 15(b)(1)*

- **Acceptable Trade Range (ATR) Posting Period** – 200 milliseconds - Amount of time an order or quote will be posted at the boundary price of an ATR to allow the market to refresh before continuing to execute at more aggressive prices.
- **Acceptable Range Table** – The table of values added or subtracted from the reference price to establish NTX's Acceptable Range for executions of remaining contracts from an initiating quote or order. NTX's Acceptable Range will be rounded to the nearest Minimum Price Variation (MPV) without exceeding the allowable Acceptable Range based on the following table values.

Non-Penny Issues (S):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.10	0.20
1.01-2.00	0.15	0.25
2.01-3.00	0.20	0.30
3.01-5.00	0.30	0.45
5.01-7.00	0.40	0.60
7.01-10.00	0.50	0.75
10.01-15.00	0.60	0.90
15.01-20.00	0.60	0.90
20.01-30.00	0.80	1.20
30.01+	1.00	1.50

Standard Penny Issues (P):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.07	0.14
1.01-2.00	0.10	0.20
2.01-3.00	0.15	0.30
3.01-5.00	0.20	0.40
5.01-7.00	0.25	0.50

Quoted Option Price	ATR	LEAPS ATR
7.01-10.00	0.30	0.60
10.01-15.00	0.50	0.75
15.01-20.00	0.60	0.90
20.01-30.00	0.80	1.20
30.01+	1.00	1.50

Special Penny Issues (E) (SPY/IWM/QQQQ):

Quoted Option Price	ATR	LEAPS ATR
0-1.00	0.05	0.10
1.01-2.00	0.07	0.14
2.01-3.00	0.07	0.14
3.01-5.00	0.10	0.20
5.01-7.00	0.15	0.30
7.01-10.00	0.20	0.40
10.01-15.00	0.30	0.45
15.01-20.00	0.40	0.60
20.01-30.00	0.50	0.75
30.01-40.00	0.60	0.90
40.01+	0.80	1.20

- **Iterations of ATR** – 5 iterations – Number of iterations that ATR may occur before an aggressively priced order or quote will be cancelled back to the sending participant.
- **Order Price Protection** – Incoming limit orders will be rejected when priced through the contra-side BBO (NBBO and internal market BBO) by more than the greater of:
  – 50% when the contra side BBO is greater than $1.00
  – 100% when the contra side BBO is $1.00 or less, and
  – $0.05 *Options 3, Section 15 (a)(1)*
- **Market Order Cancel Timer** - 4 Seconds – Participants can designate that their Market Orders not executed after this pre-established period of time to be cancelled, once an option series has opened for trading
- **Market Order Spread Protection** - $5.00 – Maximum bid/ask differential permissible for a Market Order to be accepted by the trading system; if the bid/ask differential is wider than $5.00, a Market Order submitted into the system will be rejected. All symbols are configured at 5.00, with the following exceptions:

Symbol	Width
AZO	$20.00
BIO	$20.00
BKNG	$22.00
BLK	$20.00
CHE	$20.00
CHTR	$20.00
CMG	$20.00
EQIX	$20.00
ISRG	$20.00

Symbol	Width
LMT	$20.00
MELI	$20.00
MKL	$22.00
MTD	$20.00
NDX	$100.00
NOC	$20.00
ORLY	$20.00
REGN	$20.00
ROP	$20.00
SIVB	$20.00
TDG	$20.00
TSLA	$20.00
Y	$20.00

6. Message Traffic Mitigation

- **Message Traffic Mitigation** - The exchange shall disseminate an updated bid and offer price together with the associated size to OPRA when the bid or offer price changes, the quantity decreases or the quantity increases by an amount greater than or equal to 10%. Options 3, Section 26

7. Market Wide Risk Protection

The system will maintain separate counts over rolling time periods specified by the member for each count of:

1. The total number of orders entered into regular order book.
2. The total number of contracts traded in regular orders.

If the member exceeds any threshold that they have set, the system will automatically reject all subsequent incoming orders entered by the member on that venue. (KillSwitch). The time period must be set for a minimum of one second.

For members that do not specify values, the default values will be utilized. The default values are as per the below table:

Threshold	Simple instrument
Max order Count	20,000
Max Order Count Timer	1 second
Max Order Count Action	KillSwitch
Max Trade Volume	100,000
Max trade Volume Timer	1 second
Max Trade Volume Action	KillSwitch

For more information, contact U.S. Market Sales at +1 800 846 0477 (Option #2).