



## LIMIT UP-LIMIT DOWN: FREQUENTLY ASKED QUESTIONS

### Q: What is Limit Up-Limit Down (LULD)?

On April 5, 2011, national securities exchanges and the Financial Industry Regulatory Authority, Inc. (FINRA) filed a proposal to establish a new “limit up-limit down” rule to address extraordinary market volatility in U.S. equity markets. The Limit Up-Limit Down (LULD) mechanism is intended to prevent trades in National Market System (NMS) securities from occurring outside of specified price bands. The bands would be set at a percentage level above and below the average reference price of the security over the immediately preceding five-minute period. To accommodate more fundamental price moves, there would be a five-minute trading pause – similar to the pause triggered by the current single-stock circuit breakers – only if trading is unable to occur within the specified price band after 15 seconds. On May 31, 2012, the SEC approved the NMS Plan on a pilot basis.

### Q: When does LULD go into effect?

The current implementation plan is the following:

- Monday, February 4, 2013 – Full LULD Support for Test Symbols
- Monday, April 8, 2013 – LULD Phase 1 Rollout Begins
- Monday, April 8, 2013 – MWCB Rollout
- Friday, May 31, 2013 – LULD Phase 1 Rollout Complete
- Thursday, August 5, 2013 – LULD Phase 2 (Part 1) Rollout Begins excludes last 15 minutes of regular trading.
- Sunday, December 08, 2013 – LULD Phase 2 (Part 2) Rollout is required to be completed covering the whole trading day 9:30 AM – 4:00 PM (according to the Amendment to the NMS Plan the date falls on a Sunday, however the Plan Participants will agree to have this rolled out before on a regular trading day).

### Q: What are the differences between the two phases of LULD?

#### Phase 1

- Effective April 8, 2013.
- Applies to Tier 1 NMS securities only (S&P 500, Russell 1000 and selected exchange-traded products)
- Effective from 9:45 a.m. – 3:30 p.m., ET (or earlier in the case of an early close). Price bands will not include the first 15 minutes or last 30 minutes of trading.

#### Phase 2

- Applies to both Tier 1 & 2 NMS securities (except rights and warrants)
- Phase 2 – Part 1 is effective from 9:30 a.m. – 3:45 p.m., ET (or earlier in the case of an early close)
  - Rollout scheduled to begin August 5, 2013 and complete on before September 30, 2013.
- Phase 2 – Part 2 will add LULD bands for the last 15 minutes of trading from 3:45 p.m., ET - 4:00 p.m. E (or earlier in the case of an early close)
  - Rollout scheduled to begin after the completion of the rollout of Phase 2 Part 1 and completed no later than Sunday December 8, 2013 (or that last trading day Friday December 6th)

**Q: When will this be in effect during the trading day?**

The functionality for Phase 1 will be in effect between 9:45 a.m., ET, and 3:30 p.m., ET. No LULD states or pauses will be called outside of these times. (Note: A pause may extend during Phase 1 until 3:35 p.m. because a pause can be triggered as late as 3:29:59 p.m.) Phase 2, once fully rolled out in both parts, will apply beginning from 9:30 a.m. ET and end at 4:00 p.m. ET each trading day, except in cases of an early scheduled close.

**Q: Will Nasdaq, BX and PSX recognize trading pauses issued by another primary market?**

Yes, the Nasdaq Stock Market, Nasdaq BX, and Nasdaq PSX will pause trading in those securities.

**Q: What securities will be affected?**

Tier 1 (Included in Phase 1): S&P 500, Russell 1000 and selected exchange-traded products.

Tier 2 (Included in Phase 2): All other NMS stocks.

\*Rights and warrants are specifically excluded from this plan in both phases.

**Q: What is the difference between the Limit Up-Limit Down Plan and the Single Stock Circuit Breakers?**

LULD is intended to replace the existing Single Stock Circuit Breakers. During Phase 1 of LULD, the Single Stock Circuit Breakers will still be in effect for non-tier 1 securities.

**Q: What are the percentage parameters that will trigger a “Limit State?” Do the percentages change throughout the trading day? And do the percentages differ based on the price of the stock?**

Chart 1 below summarizes the full details. Effectively, the band percentage changes based on the time of day and differs according to the price of the stocks.

Securities	Time Period	Price Band Percentage
Tier 1 and Tier 2 NMS Securities Reference Price > \$3.00	Market Hours, excluding Open/Close (9:45 AM -to 3:35 PM)	5% (Tier 1) & 10% (Tier 2)
Tier 1 and Tier 2 NMS Securities Reference Price equal to \$0.75 to and including \$3.00	Market Hours, excluding Open/Close (9:45 AM -to 3:35 PM)	20%
Tier 1 & 2 NMS Securities Reference Price Less than \$0.75	Market Hours, excluding Open/Close (9:45 AM -to 3:35 PM)	The lesser of \$0.15 or 75%
Tier 1 and Tier 2 NMS Securities Reference Price > \$3.00	During Market Open/Close 9:30 a.m. and 9:45 a.m. ET 3:35 p.m. and 4:00 p.m. ET	10% & 20% Note: Band % is doubled during these times.
Tier 1 and Tier 2 NMS Securities Reference Price equal to \$0.75 to and including \$3.00	During Market Open/Close 9:30 a.m. and 9:45 a.m. ET 3:35 p.m. and 4:00 p.m. ET	40% Note: Band % is doubled during these times.
Tier 1 and Tier 2 NMS Securities Reference Price less than \$0.75	During Market Open/Close 9:30 a.m. and 9:45 a.m. ET 3:35 p.m. and 4:00 p.m. ET	Lesser of \$0.30 or 150% (upper band only) Note: Band % is doubled during these times

**Q: What happens if a stock has an intraday price move that causes it to move beyond the threshold percentage bands? For example, at 10:30 AM stock XYZ (Tier 1) trading at \$3.01 subject to 5% band and at 10:40 AM falls to \$2.90 does that mean the LULD bands expand to 20%?**

The price band percentage does not change intraday. The previous day’s closing prices on the Primary will be used to determine the reference price bands for that day regardless of intraday price changes.

**Q: How are the reference price(s) that establish the trading bands going to be set?**

The reference price will be the arithmetic mean price of eligible reported transactions over the past 5 minutes. If no trades have occurred in the previous 5 minutes the previous reference price will remain. The reference price will only be updated if the new reference price is at least 1% away in either direction from the current. Both SIPs will republish the current price bands every 30 seconds.

See Chart 2 below:

Time	Price Band Calculation Times	Reference Prices
09:30 a.m. - 09:35 a.m.	First Reference Price	The Opening Price on the Primary Listing Exchange or the midpoint of the Primary’s quote. <b>Effective July 18, 2016</b> , in the event the Opening Auction concludes with no volume, the previous day closing price will be used in lieu of the midpoint of the Primary’s quote. The first Reference Price will be the arithmetic mean price based on the eligible reported transactions over the preceding five minutes.
	First five minutes of trading after the Opening Price If the Primary doesn’t open within five minutes	
09:35 a.m. - 4:00 p.m.	If eligible transactions occurred within the prior five minutes	The Reference Price will be continuously updated to be the arithmetic mean price based on the eligible reported transactions.*
	If NO eligible transactions occurred within the prior five minutes	The Reference Price should be the previous Reference Price available.
Reopenings Following a Trading Pause	If reopening occurs within 10 minutes after pause	The Reference Price will be the reopening price on the Primary following the usual Nasdaq halt cross process.
	If reopening occurs AFTER 10 minutes	The Reference Price will be equal to the last effective reference price before the pause

\*"Eligible reported transactions" - are only those transactions eligible to update last sale price. Therefore, certain on regular way trades, such as VWAP, that qualify for exemptions under NMS Rule 611 are excluded from being calculated.

**Q: What is a “Limit State” and how is it entered?**

TAI NMS Stocks (once all phased in) will enter into a “Limit State” quotation period of 15 seconds if the NBO equals the Lower Price Band (without crossing the NBB), or the NBB equals the upper price band (without crossing the NBO). During the limit state no new reference prices or price bands will be calculated. A stock will exit the limit state when the entire size of all Limit State Quotations are cancelled or executed.

If a limit state exists and trading continues to occur at the price band OR no trading occurs within the price band for more than 15 seconds, then a five-minute trading pause would be enacted.

See Chart 3 below:

Limit State	Entering a Limit State	When the NBBO is resting on a Limit Band Price (and is not a crossed market). Band Price = (ref px) +/- (ref px) x (% parameters).
	During Limit State	Once triggered, lasts 15 seconds. The SIP will not make effective any new Reference Prices or any new Limit Price Bands
	Exiting a Limit State	When the entire size of all Limit State quotes are either executed or cancelled. The SIP will then calculate the Price Bands based on a Reference Price that equals to the average prices of Eligible Reported Transactions of the preceding five minutes (including the Limit State) and disseminate the price bands.
Trading Pauses	Entering a Trading Pause	If the NMS stock does not exit the Limit State after 15 seconds the Primary Listing Exchange declares a Trading Pause.
	During Trading Pause	No trading may occur during the pause. Quotes can be updated and new orders are accepted for Nasdaq stocks. For CQS stocks, Nasdaq will wait until the symbol opens before accepting new orders.
	Reopening after Pause	The Primary will reopen the stock using established procedures. Pause ends when the Primary reports a Reopening Price.
	If the Primary cannot reopen the stock	The Primary must notify the Processor who notifies the public and all trading centers can begin trading upon receiving the notification from the Primary.
	No Reopening price from Primary within 10 minutes.	All trading centers may begin trading.

**Q: Do open orders remain on the Nasdaq, BX and PSX books during a pause in a Nasdaq-listed security?**

Yes, all open orders on Nasdaq, BX and PSX remain on the book during the limit state or pause, unless they are canceled by the customer. This includes Tape A and B securities on the Nasdaq, BX or PSX books. During a limit state the stock may continue to trade within the price band. However, during the pause only quoting may occur.

**Q: What is a Straddle State and how will Nasdaq handle these states?**

A Straddle State exists when the NBB is below the Lower Price Band while the NBO is inside the price band or when the NBO is above the Upper Price Band and the NBB is within the band. The NMS Stock is not in a Limit State when this occurs. The Primary Listing Exchange may declare a Trading Pause for a security in a Straddle State if trading in that security deviates from normal trading characteristics. Currently, Nasdaq plans to carefully monitor these conditions during the Pilot period and will reserve the discretion to declare a pause as provided for under the Rule.

**Q: How will orders priced aggressively through a Price Band be handled by Nasdaq? (For example, price bands are \$9.00/\$11.00 and a bid is entered for \$11.05)?**

Orders that are priced aggressively outside the bands will be re-priced upon entry to the limit price bands (both IOC and longer time-in-force orders). Non-IOC orders that are slid due to LULD will receive a time-stamp upon being booked and will be treated according to standard price-time priority.

- For limit-priced orders entered via OUCH protocol. Incoming limit-priced orders shall reprice upon entry only once and subsequently will cancel resting limit-priced interest to buy (sell) if Price Bands move such that the price of the resting limit-priced interest to buy (sell) would be above (below) the upper (lower) Price Band.
- For limit-priced orders entered via RASH or FIX protocols. Exchange systems shall reprice multiple times any limit priced interest to buy (sell) to the upper (lower) Price Band if Price Bands move such that the price of resting limit priced interest to buy (sell) would be above (below) the upper (lower) Price Band.

**Q: Will Nasdaq offer members the options to reject vs. price slide?**

No. Nasdaq's behavior will be to re-price aggressive orders to the price band. There is no plan at this time to offer order rejection as an alternative.

**Q: How will Nasdaq handle orders priced passively below or above the price bands? (For example price bands are \$9.00/\$11.00 and a bid is entered for \$8.97)**

Buy orders priced below the lower price bands (and vice versa for sell orders) will be accepted and are eligible for inclusion in the NBBO. However, these orders are outside the price bands and will be non-executable. If the price bands move in such a way that an order that was previously outside the price band is now inside the band, the order will become executable. The SIPs have specific indicators that will identify if a quote is eligible for inclusion in the NBBO calculation. If a quote is 'flagged' non-executable (Category Q, Types E and F) it will not be included in the NBBO.

**Q: What happens if orders that are booked at executable prices (i.e. between the bands) become priced outside the bands due to the limit price band changing?**

Non-IOC or previously slid orders that are booked inside the bands will be cancelled off the book if the price band moves such that an order is subsequently priced outside the band and therefore becomes non-executable (e.g., if the upper price band falls to a price below a previously booked bid, the bid will be cancelled). This includes when the bands tighten at 9:45 AM.

If submitted via OUCH, the previously booked order will be cancelled back to the entering firm. If submitted via RASH/FIX, the system will cancel and re-enter the previously booked order and it will be slid upon entry to the price band. All reentered orders will receive a new timestamp upon re-entry and are treated according to standard price time priority.

### **Q: Will Nasdaq allow for multiple price sliding to occur?**

A: If submitted via OUCH, a previously booked order will either remain on the book or be cancelled back to the entering firm if a more aggressive price becomes permissible due to changes in the LULD price bands. (Firms select which treatment will apply via order port configuration.)

If submitted via RASH/FIX, previously booked orders will be canceled and re-entered (i.e. multiple price slid) as more aggressive prices become permissible under LULD. All re-entered orders will receive a new timestamp upon re-entry and are treated according to standard price time priority.

### **Q: How will Nasdaq handle pegged orders that would be priced outside the price bands?**

Pegged orders will be repriced to the band price if their pegging instruction would otherwise have resulted in the order being priced at a level more aggressive than the price band. If priced passively outside the bands they will not be price slid, but will not be executable until the peg obtains a current price that is within the LULD bands.

### **Q: How will routing be impacted?**

Routable orders will never be routed at a price more aggressive than the limit price bands. If a routable order's limit is through the price band, the system will attempt to route and execute the order as if it were priced at the limit price band.

### **Q: What is the maximum allowable pause time?**

Maximum allowable pause time is 10 minutes.

### **Q: Who reopens the stock after pause?**

The Primary Listing Exchanges reopens the stocks after pauses. The Nasdaq Stock Market will reopen its listings following its standard halt cross procedures.

### **Q: If the maximum pause time of 10 minutes is reached AND the Primary Listing Exchange does not re-open, can other venues begin trading the stock?**

Yes. If after 10 minutes Nasdaq is unable to complete a Halt Cross process and disseminate a first print, then participants on their own initiative can resume trading (See chart 3).

### **Q: Who is responsible for the calculation and dissemination of Price Bands?**

The Processors (UTP/SIAC) for each NMS stock shall calculate and disseminate to the public a Lower Price Band and an Upper Price Band.

### **Q: What format changes will the UTP SIP be implementing for Limit Up-Limit Down?**

In support of Limit Up-Limit Down, the UTP SIP:

- Introduced a new administrative message to relay Limit Up-Limit Down Price Bands: This new Category A – Type P message format will be calculated and disseminated by the UTP SIP via UQDF, UTDF and OMDF during normal market hours.
- Introduced new UTP Participant Best Bid and Offer (BBO) Quotation message formats with Limit Up-Limit Down Indicator and SIP Generated Update fields: Designed to replace the existing message formats, the UTP

Participant BBO Short Form Quotation will be identified as Category Q – Type E and the UTP Participant BBO Long Form Quotation will be Category Q – Type F.

- Modified the Trading Action – Cross SRO message format to support new Action and Reason code values associated with Limit Up-Limit Down. In the event of a trading pause, the UTP SIP is asking the primary market center to send a new action code of “P” (Pause) and a new reason code of “LULDP”. From a processing perspective, the UTP SIP will not wipe out UTP participant quotes if it receives the “P” action code.

**Q: Does Nasdaq calculate and disseminate a Net Order Imbalance Indicator (NOII) during the trading pause?**

Yes. Nasdaq calculates a NOII value – including the reference price and paired shares – at five-second intervals during the quotation only window of the Pause. The NOII data is available in raw data format via the Nasdaq TotalView data feed product suite (Totalview and NOIView datafeeds).

**Q: Does Nasdaq also reflect the trading pause conditions via the Nasdaq Trader website?**

Yes, trading pauses are included on the Trading Halt page of the Nasdaq Trader website. Please refer to the Self-Enrollment page for information on how to sign up for automatic email notifications.

**Q: What if a regulatory halt (e.g., due to material news) is called during the five minute trading pause?**

A: The five-minute quote period for the LULD pause will be discontinued and a new pause/halt will begin. In the event that a security status is changed to halted during the pause, the Nasdaq UTP SIP and Nasdaq proprietary data feeds disseminate a new Trading Action message with the Action value of “H” and an existing regulatory Reason Code.

**Q. Is Nasdaq planning to provide a Compliance Tool for firms to track Limit Up Limit down?**

Yes. Nasdaq has a compliance tool that helps firms track trades reported to the FINRA/Nasdaq Trade Reporting Facility (TRF) that are at or outside of the LULD pricing bands for the security. In addition, the tool will have a historical look up feature to track pricing band changes. Please contact Adam Messick at [adam.messick@nasdaq.com](mailto:adam.messick@nasdaq.com) or +1 212 231 5449 for questions or click [here](#).

**Q: In the unlikely event that the limit/up/down price bands are (1) not generated or disseminated by the SIPs, or (2) unable to be received by Nasdaq’s exchanges due to technical failures or otherwise what will happen to orders?**

Nasdaq will promptly investigate the issue and repair as soon as practicable while providing notice to our Members and the industry that the price band protections are not currently being supported. Orders will be executable irrespective of their executable status prior to the price bands’ generation failure.

**Q. How will Nasdaq’s market making quoting requirements change as a result of LULD?**

Nasdaq is currently reviewing our existing market making quoting requirements as they relate to LULD based on recent feedback from the SEC. We will provide an update shortly.

**Q. How does Nasdaq plan to handle the close in the event a LULD pause occurs?**

A: Nasdaq is currently working on a rule filing that once published will detail the way in which Nasdaq is going to process an orderly close in our listed names that due extraordinary volatility may pause during the last 10 minutes of regular trading.

## OPTIONS

### Q. Do NOM, BX Options and PHLX pause options trading when the primary exchange of an underlying security has initiated a trading pause?

Yes. NOM, BX Options and PHLX pause trading in options when a trading pause has been initiated on an underlying security.

### Q. When do NOM, BX Options and PHLX resume trading for options on underlying securities subject to a trading pause?

NOM, BX Options and PHLX commence an opening process similar to the normal options opening when a trading resumption (Trading Action = T) message is received over the UTP data feeds.

### Q. During a pause state, does NOM, BX Options and PHLX keep open orders on their book?

Yes. NOM, BX Options and PHLX will keep all open orders during the pause. Firms have the ability to cancel open orders.

### Q. Do NOM, BX Options, and PHLX accept new orders during the pause?

When a pause in the underlying is triggered causing the options to halt on PHLX, NOM and BX Options any standing market maker quotes on the system will be purged. During the pauses, NOM, PHLX and BX Options can accept new orders, quotes and cancel/replaces.

### Q. Will there be changes to the handling of orders as a result of LULD?

Yes. Market orders, including retail market orders, in options on underlying securities will be rejected (prior to accepting) during the Limit States and Straddle States in the underlying NMS stock. Stop market orders will be accepted during Limit States and Straddle States, but if a stop is triggered during either the order will be cancelled back (this applies to only Stop Market Orders and not Stop Limit Orders). Stop Orders apply only to PHLX as BX Options and NOM do not offer Stop Orders. PHLX shall also cancel any Complex Orders that are market orders residing in the System if they are about to be executed.

### Q. Will an option open if the underlying NMS stock is on a Limit or Straddle state?

No.

### Q. Will there be any changes to quoting obligations?

Yes. PHLX, NOM and BX will subtract from the total number of minutes in a trading day that specialists, Registered Options Traders (“ROT’s”) or Market Makers are required to quote the time period when the underlying NMS stock was in a Limit State or Straddle State.

### Q. Will there be any changes to Obvious and Catastrophic Error Rules?

Yes. On PHLX, electronic trades are not subject to an obvious error or catastrophic error review pursuant to Rule 1092(a)(i) or (ii) nor are they subject to nullification or adjustment pursuant to Rule 1092(c)(ii)(E) or (F). Nevertheless, they are reviewable under Rule 1092(c)(ii)(A) - (D). Nothing in this provision shall prevent electronic trades from review on Exchange motion pursuant to Rule 1092(e)(i)(B). On NOM and BX Options, trades are not subject to an obvious error



or catastrophic error review pursuant to Chapter V, Sections 6(b) or 6(f). Nothing in this provision shall prevent trades from review on Exchange motion pursuant to Chapter V, Section 6(d)(i).

### Basic LULD Scenarios:

Phase 1 Scenario: Stock WXYZ last sale is \$20.00 at 10:32 a.m. with the NBBO at \$20.00/\$20.01. Market Maker 1 bids \$21.00. A Limit State is now triggered. The Reference Price is \$20.00, lower band is \$19.00 / upper band is \$21.00 (5%). Securities Information Processors or SIP flags the banded quotes as a "Limit Condition Quotation" with a 15 Second Limit State. Market Maker 1 cancels the quote, NBB updates to \$20.00 and trading resumes.

Phase 2 Scenario: Stock ABCD last sale is \$4.00 at 9:42 a.m. (double bands) with the NBBO at \$4.00/\$4.01. Market Maker 2 offers \$3.60. A Limit State is now triggered. The Reference Price is \$4.00, lower band is \$3.60 / upper band is \$4.40 (10%). SIP flags banded quotes as a "Limit State Quotation" with a 15 Second Limit State. Market Maker 2 cancels the quote and re-enters a quote at \$4.01 and trading resumes.

Trading Pause Scenario: Stock DEFG last sale is \$10.00 at 11:50 a.m. with the NBBO at \$10.01/\$10.02. Market Maker 3 offers \$9.00. A Limit State is now triggered. The Ref Price is \$10.00, lower band is \$9.00 / upper band is \$11.00 (10%). SIP flags the banded quotes as a "Limit State Quotation" with a 15 second state. Market Maker 3 quote does not cancel and the 15 second limit state expires. A five-minute Trading pause in DEFG is declared by the Primary Listing Exchange. Bids and offers are entered and displayed during the five-minute Pause/Quote Only State. The Primary Listing Exchange then reopens the stock using its established procedures and the pause ends when the Primary Listing Exchange reports a reopening price.

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