

Frequently Asked Questions
NASDAQ OMX PHLX Technology Re-platform: XL II

NOTE: The re-platforming of the PHLX XL system was completed on Thursday, July 23, 2009. Please find migration details below and contact [Transaction Services, U.S. Market Sales](#) for any additional questions.

The NASDAQ OMX PHLXSM (PHLXSM) trading system for equity, index and World Currency Options will be migrated to the INET architecture in the second quarter of 2009, subject to regulatory approval. The new system, referred to as XL II, is pending Securities and Exchange (SEC) approval. This document attempts to answer questions that are important to users of the PHLX system. For additional information about this transition, please contact NASDAQ Market Sales at +1 800 846 0477 or sales@nasdaqomx.com.

We are regularly updating this document. To review the most recent changes or additions, please review the highlighted text:

[April 21, 2009 updates](#)

[May 1, 2009 updates](#)

[May 14, 2009 updates](#)

[June 3, 2009 updates](#)

[June 16, 2009 updates](#)

I. Overview

1. Q: Why is PHLX transitioning to the INET platform?

A: The INET platform is a state-of-the-art, flexible, cost-effective trading platform that is used throughout the NASDAQ OMX family. Transitioning to the INET platform will bring economies-of-scale, increased capacity, reduced latency, reduced time of market for new features and improved disaster recovery to PHLX.

2. Q: When will PHLX begin the transition to XL II and how long will the transition period last?

A: The XL II migration is planned to begin [early June](#) 2009 and to be completed by the end of July 2009. The rollout will be done by underlying symbol (i.e. all options series overlying a security will all be deployed on the XL II system one day) and multiple options could be deployed on a given day. PHLX will work to reduce the number of phases of the rollout. As soon as the schedule is available, it will be posted on the NASDAQ OMX Trader[®] website. The system is pending SEC approval.

3. Q: When will the new XL II functionality be available?

A: The XL II functionality is available for testing in late March 2009. The XL II rollout is currently scheduled to begin in **early June** 2009 and to be completed in July 2009, subject to regulatory approval.

4. Q: Will the legacy system continue to run in a parallel period after the new system goes live?

A: The legacy Phlx XL[®] system will remain active concurrently with the PHLX XL II system for some period of time until all symbols are rolled out. During that time, some symbols will trade on the new platform while others will continue to trade on the existing platform until they are converted to XL II. Firms writing to XL II should be sure not to eliminate their old Phlx XL processing until the re-platforming is completed.

II. Connectivity

5. Q: Will XL II be housed at 1900 Market Street or will it be located at another data center?

A: The XL II system will be located within NASDAQ OMX's New York Area and Mid-Atlantic data centers. **PHLX will continue to maintain connectivity to XL II at 1900 Market Street for trading that occurs on the floor using FBMS and X-Station and will provide facilities at that location to support floor operations. However, firms will need to establish their own connectivity to NASDAQ OMX's New York Area data center by the end of the year either through a direct circuit connection or through an Extranet. Firms are also encouraged to obtain connectivity to our Mid-Atlantic data center.**

6. Q: Will the trading floor move from 1900 Market Street to another location?

A: No, there is no plan to move the PHLX trading floor.

7. Q: How will my telecommunications connectivity be affected by the transition and what are the new requirements?

A: Firms that already have connectivity to these locations to access other NASDAQ OMX markets can use their same circuit connectivity to access PHLX XL II. Up to and during the transition to the new system, firms must maintain connectivity for remote access to the current PHLX data center at 1900 Market Street in Philadelphia, PA. **Once the rollout of the new system is complete, firms must connect exclusively to the New York Area and Mid-Atlantic data centers for remote access, including firms that trade on the exchange floor. Connectivity to 1900 Market will provide connectivity to both the Phlx XL and XL II systems during the rollout. After the rollout, firms must connect directly to NASDAQ OMX's New York Area data center by the end of the year either through a direct circuit connection or through an Extranet. Firms are also encouraged to obtain connectivity to our Mid-Atlantic data**

center.

8. Q: Can I use the same logical ports to connect to XL II?

A: While firms are connected to 1900 Market Street through the transition, they will use the same logical ports for XL II and Phlx XL. When firms connect to XL II directly (after the transition), they will use new IP addresses and ports.

9. Q: Will I need to receive a new IP address for each logical SQF, SOF, RMP or FIX port in order to connect to the new facility?

A: Yes.

10.Q: While the transition is occurring between Phlx XL and XL II, will I be able to quote or send orders to either the new facilities or 1900 Market Street data centers?

A: No. During the transition, firms will send and receive all messages to/from the 1900 Market Street data center. After the transition, firms can connect to the new data centers. During transition, messages sent to 1900 Market Street that are for series trading on the XL II system will be forwarded by PHLX to the XL II system.

11.Q: Can I use the same logical port to send quotes and orders to either facility at the same time?

A: No. Different ports and addresses will be used at different facilities.

12.Q: How long can I continue to remotely connect to 1900 Market using my current circuits?

A: PHLX will announce a plan after the completion of the migration to XL II that will contain information regarding when messages will no longer be forwarded from 1900 Market Street to the new facilities.

III. Programming Interfaces

13.Q: Will the new XL II functionality be available using current SQF and FIX versions?

A: Appendix A (Phlx XL and XL II Interface Specification Summary) to this document provides more details regarding different Application Protocol Interfaces (API) versions. The XL II system is forwards and backwards compatible with the most recent version of all Phlx XL APIs. However, under XLII, older API versions will have some data fields zero filled. Please refer to the [API Version Table](#) for specifics. Firms that want to take full advantage of XL II functionality should make changes to newer API versions, which can be developed and installed prior to the rollout of the XL II system.

After the rollout is complete a new SQF version (6.0) will be available to directly connect to XL II. This version will allow firms to bypass the Phlx XL

SQF interface and will provide additional imbalance reason codes.

14.Q: What SQF, FIX, SOF or RMP versions will be supported under XL II?

A: The XL II versions of the APIs are as follows: SQF 5.0.1.1, FIX 2.0, SOF 5.0.1, RMP 4.2.1a. Appendix A of this document outlines the differences in the APIs. The XL II system is forwards and backwards compatible with the most recent version of all Phlx XL APIs. However, under XLII, older API versions will have some data fields zero filled. Please refer to the [API Version Table](#) for specifics.

IV. Functionality

15.Q: What are the possible routing strategies in XL II and what do they do?

A: The possible routing strategies in XL II are FIND, SRCH and DNR. Only customer orders are routed by the system. Other origin types sent with a routing instruction will have the routing instruction ignored and the order will not route.

An order marked as **FIND** will route from the PHLX book upon receipt (after a time period to allow XL II participants to interact with the order). FIND orders will also route whenever the options series in which they are entered go through an opening process to start the day or as a result of a halt. A FIND order that has routed but would lock or cross the ABBO market will have its price modified so that it posts on the PHLX book at the ABBO locking price, but be displayed in the National Market System as one tick away from the ABBO locking price. For example, a FIND BUY order for 1.10 that would cross a 1.05 away offer will route to the displayed ABBO size at 1.05. If contracts remain from the order after routing, it will post on the PHLX book at 1.10 and be displayed on the OPRA feed at 1.05.

An order marked as **SRCH** will route upon receipt and will route each time an away market is detected with a price that locks or crosses the order. For example, a SRCH BUY order for 1.10 that would cross a 1.05 away offer will route to the displayed ABBO size at 1.05. If contracts remain from the order after routing, it will post on the PHLX book at 1.10 and be displayed on the OPRA feed at 1.05. If another market were to lock or cross the 1.05 bid, the SRCH order would be routed to the away market locking or crossing the bid.

An order marked as **DNR** will never route from PHLX to another market. A DNR order that would lock or cross the market will have its price modified so that it posts on the PHLX book at the locking price but be displayed in the National Market System as one tick away from the locking price. For example, a DNR BUY for 1.10 that would cross a 1.05 offer will post on the PHLX book at 1.05 and be displayed on the OPRA feed at 1.00.

To designate a routing strategy, Tag 76 (ExecBroker) is set to FIND, SRCH or DNR.

16. Is there a default routing strategy if an order does not have one designated?

A: Yes, the default routing strategy for all orders will be SRCH unless there is an alternate strategy designated.

17. Q: Is there routing functionality that will no longer be supported in XLII?

A: PHLX will no longer support the sending of outbound "P" (Principal) orders on behalf of PHLX members to other exchanges.

18.Q: What are the different types of Sweeps in the XL II system?

A: The different types include Market Sweeps, Opening Sweeps and Auction Sweeps.

19.Q: How have Sweeps been changed in the XL II system?

A: Book Sweeps have been replaced with Market Sweeps in the XL II system. A Market Sweep will execute against multiple order price levels up to, and including, the first quote level it will exhaust.

Auction and Opening Sweeps have been introduced with the XL II system. These sweeps allow participants to put interest on the book at multiple price levels. The interest is only valid for the Opening or Auction during which that sweep was entered. Opening sweeps may only be entered by a quoting participant. Opening sweeps will be rejected if the sending participant does not have a corresponding valid width quote for the same badge number in the system.

20. Q: What happens if I send a quote wider than the allowable parameter width prior to an option opening?

A: A wide quote prior to the open is considered an invalid quote by the exchange per exchange rules. The XL II system will disregard all wide quotes prior to the open. No notice will be sent by the system to the quoting firm. Subsequent quotes during the opening process will not be required to include a re-entry flag in order to be considered in the market. If subsequent quotes are wide and the option has yet to open, those quotes will also be disregarded by the system.

21.Q: Are there fields which are ignored today under XL, which could impact orders in XLII?

A: Yes, tag 76 (ExecBroker) is used by some Firms today. However, the only meaningful values for this field under XL II are SRCH, FIND and DNR. If this field is filled in under XL II with any other value, that information will be ignored and the order will be treated as a SRCH order. Also, some fields may be zero filled under XL II. Please refer to the [SOF specifications](#) for more details.

22.Q: Are there other changes in the way the system acts that should be noted?

A: Yes, firms may only specify a Clearing Account under tag 440 with a length of five (5) characters or less. Currently, XL silently truncates all tag 440 information with a length of greater than five (5) characters. However, XLII will reject orders with a Clearing Account (tag 440) of more than five (5) characters.

V. Data Feeds

23.Q: Will new data feeds be offered?

A: Yes, NASDAQ OMX plans to offer several feeds. The first, subject to regulatory approval, is proposed to be a new, direct, low-latency market data feed called Top-Of-PHLX-Options (TOPO). The feed will include the same Best Bid and Offer (BBO) and last sale information currently sent to the Options Price Reporting Authority (OPRA). Sent directly to subscribers, this TOPO feed will give firms a competitive advantage by offering minimal latencies. Other data feeds are being considered.

24.Q: What is the bandwidth required to support the new TOPO feed?

A: Bandwidth recommendation for the compressed feed will be 50 Mbits/sec per stream. Compression will be done using the Fix Adapted for Streaming (FAST) protocol. Compression specs will be forthcoming.

25.Q: Is the TOPO Spec available?

A: Yes, the spec for TOPO is available on the [NASDAQ OMX Trader website](#).

26.Q: When will the TOPO feed be available?

A: Both the uncompressed and compressed versions of the TOPO feed will be available for testing in July 2009. Production data over both TOPO feeds will be available at the end of the transition to XL II, which is expected to be late July, 2009. As updates and enhancements are made, new versions will be published.

VI. Action Steps

27.Q: What do I have to do day one?

A: Firms must be on the most current version of RMP (4.2.1) in order to take advantage of the backwards compatibility for the new system. Other current versions of the PHLX APIs (SQF, SOF and FIX) will be compatible with XL II. However, under XLII, older API versions will have some data fields zero filled. Please refer to the [API Version Table](#) for specifics.

Traffic sent to PHLX for symbols that have been transitioned to the XL II system will be rerouted by PHLX to the XL II system. If a participant gets

the PHLX Risk Management (RMP) feed or the Specialized Order Feed (SOF), messages for orders on the Phlx XL system and the XL II system will be sent over a single feed.

The XL II system will default all of your firm's orders to route upon receipt and will route each time an away market is detected with a price that locks or crosses the order (SRCH). If a firm wants their order to be handled differently, another routing strategy, FIND or DNR, must be stipulated in tag 76 (ExecBroker). A firm may also define an alternate default routing strategy by Firm Mnemonic. All orders sent using that firm mnemonic will use the default routing strategy assigned unless otherwise stipulated on the order.

Firms will also receive unsolicited UR OUT messages for orders that cannot be traded or routed in certain circumstances. Quoting participants will also receive unsolicited purge messages for quotes due to single symbol side exhaust, rapid fire, trading halts and invalid quote prices.

28.Q: How should I prepare?

A: Order Flow Providers should make system changes to send certain orders (as determined by their firm) as DNR, FIND or SRCH (see definitions above) for a routing strategy.

Quoting participants should prepare their systems to read and respond to imbalance messages, which will indicate additional interest in the book. Quoters should also make changes to their systems to enter Market Sweeps, which may execute against multiple order price levels up to, and including, the first quote level it will exhaust. Responses to Sweep Orders received over SQF will include an average price and total execution size. Quoters also will be able to enter Sweeps at multiple price points during an auction to provide liquidity at different levels.

VII. Testing

29.Q: Will there be Certification Testing for the XL II system?

A: We recommend all firms undergo Certification Testing for XLII

Order Flow Providers:

We strongly encourage all order flow providers to test in order to verify that their systems can handle unsolicited OUT messages (a UR OUT without an associated cancel message), can send different routing strategies (SRCH, FIND, DNR) and to verify that their interface works well with the system.

Quoting Participants:

We encourage all quoting participants to test in order to verify Market Sweep orders, receipt of and response to imbalance messages and their ability to accept and process average priced executions on the SQF.

The XL II test facility is currently available. Certification Testing can be schedule through Herman Gottfried at +1 215 496 5678.

30. Q: Will there be Mandatory Testing for the XLII system?

A: Yes, we will be holding Mandatory Production Testing in Carteret. Every firm must connect during one of the following dates:

April 25

May 2

May 9

Firms will be able verify connections as well as free trade during these sessions. This will be their opportunity to run any mock trading scenarios they would like to test. Production testing will be run from 9:00am – 4:00 pm on these dates. Firms should contact the Technical Management Group (TAMG) at +1 215 496 5310 to schedule testing.

31.Q: Will PHLX provide a test script?

A: No, PHLX will not provide a test script, however, every firm should develop scenarios unique to the way their business will interact with the PHLX XL II system. They can then test these scenarios during their Production Testing session.

VIII. More Information

32.Q: Are the new specs available for the XL II system?

A: The new specs are available on the [NASDAQ OMX Trader website](#). These documents are updated frequently and should be reviewed to ensure you are aware of the latest information.

33.Q: Whom do I contact to order circuits to NASDAQ OMX Data Centers?

A: Information regarding connection to the NASDAQ OMX Data Centers can be found on the [NASDAQ OMX Trader website](#).

34.Q: How do I receive Technical Alerts pertaining to XL II?

A: An archive of alerts can be found on the [NASDAQ OMX Trader website](#). If you are not currently receiving these alerts via email, please sign up using the [Enrollment Form](#).

35.Q: If I have questions in the meantime, whom should I contact?

A: The NASDAQ Market Sales team at +1 800 846 0477 or sales@nasdaqomx.com.

PHLX XL and XL II Interface Specification Summary

Specification	Phlx XL	XL II
FIX	<ul style="list-style-type: none"> • Current production version is v2.0. • Changes may be required by firms to meet the spec message formats changes for outbound message symbology content. • Optional message spec format changes made to support symbology content on inbound messages (optional until symbology conversion). • No protocol changes. • No functional behavior changes at logical layer. • Symbology supported in release 2.0. • Contact information updated. 	<ul style="list-style-type: none"> • Current production version is v2.0. • Changes may be required by firms to meet the spec message formats changes for outbound message symbology content. • Optional message spec format changes made to support symbology content on inbound messages (optional until symbology conversion). • No protocol changes. • Functional behavior changes at logical layer to support Search, Find and Do Not Route order directives. • Symbology supported in release 2.0. • Disaster/Recovery Support to be implemented following the completed implementation of XL II. • Contact information updated.

<p>SQF</p>	<ul style="list-style-type: none"> • Current version v5.0.1.1 and earlier remain supported. • No changes required by firms to meet the spec message formats or protocol. • No functional behavior changes at logical layer. • Symbology supported in release 5.0.1.1. • Contact information updated. 	<ul style="list-style-type: none"> • Current version v5.0.1.1 and earlier remain supported. • No changes required by firms to meet the spec message format or protocol. • Functional behavior changes at logical layer for sweep messages (Open, Auction and Market Sweeps), purge notifications (Open purge and system purge) and opening notifications (Auction notification). • Symbology supported in release 5.0.1.1. • Disaster/Recovery Support to be implemented following the completed implementation of XL II. • Contact information updated.
<p>SOF</p>	<ul style="list-style-type: none"> • Current version v5.0.1 and earlier remain supported. • No changes required by firms to meet the spec message formats or protocol. • No functional behavior changes at logical layer. • Symbology supported in release 5.0.1. • Contact information updated. 	<ul style="list-style-type: none"> • Current version v5.0.1 and earlier remain supported. • No changes required by firms to meet the spec message formats or protocol. • Functional behavior changes at logical layer to order_id uniqueness inter-day and the content of various volume fields. • Symbology supported in release 5.0.1. • Disaster/Recovery Support to be implemented following the completed implementation of XL II. • Contact information updated.

<p>RMP</p>	<ul style="list-style-type: none"> • Current version v4.2.1a only supported version. • Changes are required by firms to meet the spec message format modifications to Trade_ID_number which is expanded from 6 to 8 bytes. • No changes by firms required to meet protocol. • Functional behavior changes at logical layer include Trade_ID_number behavior changes. The class symbol (optional) is available in messages. • Symbology supported in release 4.2.1a. • Contact information updated. 	<ul style="list-style-type: none"> • Current version v4.2.1a only supported version. • Changes are required by firms to meet the spec message format modifications to Trade_ID_number which is expanded from 6 to 8 bytes. • No changes by firms required to meet protocol. • Functional behavior changes at logical layer include spaced filled TA_NUM, Branch_code and Branch_seq_no. Also, the Trade_ID_number behavior semantics have changed. The class symbol (optional) is available in messages. • Symbology supported in release 4.2.1a. • Disaster/Recovery Support to be implemented following the completed implementation of XL II. • Contact information updated.
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