



OPTIONS PRICE REPORTING AUTHORITY
96-Line Multicast Data Distribution Expansion Frequently Asked Questions (FAQs)
Version 1.15 – October 18, 2023 (updates in blue)

OPRA 96-Line Multicast Data Distribution Expansion

1. What change is taking place?

The Options Price Reporting Authority (OPRA) system will be expanding data dissemination from a 48-line to a 96-line multicast data distribution network, with a new OPRA symbol routing schema.

As part of expanding data dissemination from a 48-line to a 96-line multicast data distribution network, and to help facilitate capacity upgrades to the ICE Global Network (IGN), new subnets, rendezvous points, source addresses, and multicast addresses are being introduced (including Global Trading Hours (GTH)). Note that these changes apply to customer connections via both IGN and the NMS Network in Mahwah. (OPRA 96-line Information is also available from the Financial Information Forum (FIF) March 29, 2023, presentation [here](#).)

2. When will the 96-line expansion activation take effect

The activation will take place in two phases:

- Phase 1: migration of the current 48-line symbol distribution schema to new network subnets, rendezvous points, source addresses, and multicast addresses, **effective July 10, 2023 - complete**
- Phase 2: migration of the new symbol distribution schema over 96 lines, **effective February 5, 2024**

3. Will there be new network addresses?

- Yes, with the upgrades of IGN and the NMS Network, there are associated changes to subnets, rendezvous points, source addresses, and multicast addresses.
- New OPRA subnets, rendezvous points, source addresses, and multicast addresses can be found in the appendices of the Common IP Multicast Distribution Network Spec [here](#).
- Once the new network addresses go live on July 10, 2023, at the primary data center, there will be a one-week opportunity to fall back to the old network addresses at the secondary data center. - **complete**

4. Will there be a new symbol routing schema and symbol distribution?

- Yes, the 96-line expansion includes a new symbol schema and new symbol distribution. The schema with the revised symbol distribution going live on February 5, 2024, and for data dissemination replay testing weeknights is located at [here](#) under "OPRA 96 Line Symbol Distribution Table".
- The alpha range and Odd or Even Expiration Month restriction remains, but Odd or Even Expiration Day has been added to the distribution.
- Data for the combination of 'Underlying Symbol + Odd or Even Expiration Month + Odd or Even Expiration Day + Puts or Calls', within the allowed alpha range, will be published on a particular line (new distribution example in separate document).
- Symbol redistribution will be more frequent and coordinated with Data Subscribers.



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5. Are there any changes to the OPRA message formats?

There are no changes to the OPRA message formats; they remain the same.

6. Will there be any functional changes with the new schema and distribution?

There are no functional changes; they remain the same.

Bandwidth Requirements

7. With the expansion to 96-line multicast data distribution network is there any expected increase in bandwidth?

- Yes. As result of additional processing capacity with the 96-line multicast data distribution network, there will be an increase in bandwidth requirements. Information related to the future bandwidth increase can be found below and in the “Data Recipient Notices” section [here](#).
- 48-Line Peak Actuals and 96-Line Projected Peaks:

48-Line Peak Actuals				96-Line Projection			
YTD Peak	Mmsg/sec	Mpkt/sec	Gbit/sec		Mmsg/sec	Mpkt/sec	Gbit/sec
1-ms	81.3	7.2	20.8	1-ms	116.3	16.9	37.3
10-ms	70.1	6.7	18.3	10-ms	100.2	14.8	32.3
100-ms	61.7	6.2	15.8	100-ms	88.2	14.5	28.4

- The 96-Line projection is based on testing the 48-line peak actuals with the 96-line configuration.
- The bandwidth requirements depicted is for one stream only.
- Data Subscribers who receive OPRA should contact their connectivity service providers about bandwidth considerations.

Fallback: 48-Line New Addresses

8. Will fallback to the old addresses be available?

- Yes, in the event a fallback is necessary, fallback will be to the old addresses at the secondary data center.
- Fallback will be available for a period of one week after activation.

Fallback: 96-to-48 Lines

9. Will fallback to the 48-line configuration be available?

- Fallback to the 48-line configuration **will not** be available.
- If OPRA experiences a processing issue related to the 96-line routing or configuration it will be corrected.
- If an OPRA Subscriber experiences a processing issue related to the 96-line routing or configuration, the Subscribers is expected to correct its issue.



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Testing Dates and Activation

10. Parallel Production Testing

- Parallel testing of simultaneous 48-line and 96-line network data dissemination **will not** be available
- Line Integrity messages will be disseminated in production over the 96-line new network addresses beginning April 3, 2023
- The new network addresses with the 48-line dissemination schema will go live on Monday, July 10, 2023. - **complete**
- **The 96-line network with the new dissemination schema will go live Monday, February 5, 2024.**

11. Certification (Cert) System Testing

- Testing has been available for Data Subscribers since **April 3, 2023**
- Cert accommodates 12 output Multicast Lines
- Forms to access Cert along with the Cert Environment Guide are located [here](#).

12. Data Dissemination Replay Testing

- Began Monday, April 3, 2023, weeknights between 8:00-9:00pm ET (15-minute period of queued test data with no data bursts; variable time dependent on the completion of afterhours) over multicast Playback Test channels (not Production channels) using the symbol distribution scheduled to go live on October 9th is located [here](#), under “OPRA 96 Line Symbol Distribution Table” (file will download).

13. Industry Tests/Confidence Tests/Activations

- **Monday, April 3, 2023:**
 - a) Activation of OPRA 96-lines and GTH lines with Line Integrity messages (new addresses)
 - b) Began OPRA 96-Line data dissemination nightly replay (new network addresses; new schema)
 - c) Began OPRA 96-Line testing in CERT (new test schema)
- **Saturday, May 20, 2023: Industry Test #1 - complete**
 - a) Session 1 (9:00AM-10:30AM): OPRA and GTH test data over new network addresses with existing 48-line symbol distribution schema at the primary data center and failover to secondary data center over new network addresses
 - b) OPRA Restart (10:30AM-11:30AM)
 - c) Session 2 (11:30AM-12:30PM): fallback/failover to the secondary data center over old network addresses



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- **Saturday, June 3, 2023: Industry Test #2 - complete**
 - a) Session 1 (7:00AM-10:30AM): OPRA GTH (7:00-8:00AM) and 48-lines (9:00-10:30AM), lines test over new network addresses with existing 48-line symbol distribution schema; GTH and OPRA failover testing to secondary data center on new network addresses
 - b) OPRA Restart (10:30AM-11:30AM)
 - c) Session 2 (11:30AM-1:00PM): OPRA 96-lines over new network addresses with new symbol distribution schema; OPRA failover testing to secondary data center on new network addresses
- **Saturday, June 10, 2023: Industry Test #3 - complete**
 - a) **OPRA GTH**
 - Session 1: (7:00-8:00AM): test data over new network addresses at primary data center and failover to secondary data center over new network addresses
 - OPRA GTH Restart (8:00-9:00AM)
 - Session 2: (9:00-10:00AM): test data over new network addresses at primary data center and failover to secondary data center over existing network addresses
 - b) **OPRA**
 - Session 1: (9:00-10:15AM): 48-lines with existing symbol distribution schema at primary data center and failover to secondary data center over new network addresses
 - OPRA Restart (10:15-11:00AM)
 - Session 2 (11:00AM-12:00PM): 48-lines with existing symbol distribution schema at the primary data center and failover to the secondary data center over existing network addresses
 - OPRA Restart (12:00-12:45PM)
 - Session 3 (12:45PM-1:45PM): OPRA 96-lines with new distribution schema over new network addresses
 - OPRA Restart (1:45PM-2:30PM)
 - Session 4 (2:30PM-3:30PM): OPRA 96-lines capacity test data over new multicast addresses.
- **Saturday, July 8, 2023: Confidence Test (New Network Addresses) - complete**

9:00AM-10:30AM: OPRA with existing 48-line symbol distribution at Primary Data Center only on new network addresses (Secondary Data Center remain existing network addresses); preparation to go live
- **Monday, July 10, 2023: Activation (New Network Addresses) - complete**

OPRA with existing 48-line symbol distribution live at Primary Data Center only on new network addresses (Secondary Data Center still on current network addresses)



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- **Saturday, July 15, 2023: Industry Test #4 - complete**
 - a) OPRA Secondary Data Center on new network addresses preparation to go live
 - b) OPRA 96-Line Industry Test Session 1 (9:00-10:30AM): OPRA Primary and Secondary Data Centers with new 96-line symbol distribution schema
 - c) OPRA Restart (10:30-11:15AM)
 - d) OPRA 96-Line Industry Test Session 2 (11:30AM-1:45PM): Capacity testing
- **Monday, July 17, 2023: Activation - complete**

OPRA 96-line live with existing 48-line symbol distribution schema live on new network addresses at Secondary Data Center
- **Saturday, August 26: GTH Confidence Test (Primary Data Center) / OPRA Industry Test #5 - complete**
 - a) **OPRA GTH**
 - OPRA GTH Confidence Test (7:00-8:30AM): GTH lines over new network addresses at Primary Data Center; preparation to go live
 - b) **OPRA**
 - Session 1 (9:30AM-12PM): OPRA 96-lines with new distribution schema over new network addresses
 - OPRA Restart (12:00PM-12:45PM)
 - Session 2 (12:45PM-3:15PM): Capacity Testing
- **Sunday, August 27: GTH Activation (Primary Data Center) - complete**

GTH lines live at Primary Data Center on new network addresses (Secondary Data Center still on current network addresses)
- **Saturday, September 9: GTH Confidence Test (Secondary Data Center) - complete**

GTH lines over new network addresses at Secondary Data Center preparation to go live (simultaneously with the annual MWCB Levels 1/2/3 test)
- **Sunday, September 10: GTH Activation (Secondary Data Center) - complete**

GTH lines live at Secondary Data Center on new network addresses
- **Saturday, September 16, 2023: Industry Test #6 - complete**
 - a) OPRA 96-Lines Session 1: OPRA Primary and Secondary Data Centers with new 96-line symbol distribution schema (9:00-10:30AM)
 - b) OPRA 96-Lines Session 2: Failover testing (11:00-11:30AM)
 - c) OPRA Restart: 12:00-12:45PM
 - d) OPRA 96-Lines Session 3: Capacity testing (12:45-3:15PM)



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- **Saturday, September 30, 2023: Capacity Test - complete**
 - a) OPRA 96-Lines: Capacity testing (10:25AM-12:35PM)
- **Saturday, November 18, 2023: Industry Test #7 - Functional and Capacity Tests**
 - a) OPRA 96-Lines: Functional testing *with revised symbol distribution*
 - b) OPRA 96-Lines: Capacity testing
- **Saturday, January 20, 2024: Industry Test #7 - Functional and Capacity Tests**
 - a) OPRA 96-Lines: Functional Testing *with revised symbol distribution*
 - b) OPRA 96-Lines: Capacity Testing
- **Saturday, February 3, 2024: Confidence Test**
 - a) OPRA 96-Lines with new schema distribution at Primary and Secondary Data Centers preparation to go live
- **Monday, February 5, 2024: Go-Live**
 - a) OPRA 96-Lines live with new schema distribution at Primary and Secondary Data Centers