Document Version	1.1
Document Date	October 13, 2020

This document is an FAQ maintained by the MEMX Member Experience and Market Ops teams.

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  - What market data protocols are supported?
  - o Does MEMX provide pre-trade risk controls on incoming orders?
  - o What trading controls does MEMX offer to its Members?
  - o Does MEMX support mass cancels?
  - o What are the fees for connecting and market data?
  - $\circ~$  What are the transaction fees for MEMX?
  - o Which order types and modifiers will be supported?
  - o Does MEMX route to away markets?
  - o Does MEMX provide directed routing to other markets?
  - What symbology is used?
- Protocol Details
  - o MEMO (MEMbers Order)
    - What is the difference between Replay and Stream modes?
    - <u>Is it possible to have both Replay/Stream behaviors for the same session?</u>
    - Please explain exchange matching engine failover and how it affects my session connectivity.
    - What if my MEMO Port fails?
    - Can I start a session with an old identifier?
    - How many sessions does a MEMO port support?
    - <u>Is disconnecting the TCP session equivalent to a graceful logout?</u>
    - Should I expect heartbeat messages at regular intervals regardless of other messages on the connection?
    - For the provision of CMS symbology, will an appended suffix within tag 55 be rejected?
    - Will the exchange reject a new order on the receipt of a duplicate ClOrdID?
    - The spec identifies a reason for a cancel reject as duplicate order ID, but not new order reject?
    - For Cancel requests the specification states that either OrigClOrdID or OrderID fields must be present. Can both identifiers be present on the order?
    - Is MassCancelRequest performed across the MPID + optional CancelGroupID?
    - <u>Is there any setting to prevent or reject Mass Cancels for a session?</u>
    - <u>Is ExecID unique for both sides of the same exchange cross?</u>
    - <u>Can we opt out of some server messages e.g. PendingNew/PendingCancel?</u>
    - What message is sent back for Self Trade Prevention cancels?
    - What is the default setting for order routing? Does the exchange apply any default behavior if the order doesn't

contain this explicit instruction?

- Is the OrderID used in the MEMO specifications correlated with the OrderID in the MEMOIR Market Data specifications?
- Do MEMO SBE and FIX protocols have 100% feature parity as far as trading functionality is concerned?
- What is the max message rate supported for SBE TCP?
- The heartbeat interval is configurable, any guidance regarding the interval range?
- What is an RST packet sent in response to invalid client request?
- Are all execution reports sequenced?
- What messages are not sequenced?
- o MEMOIR Protocol Details
  - What is expected heartbeat interval to maintain Gap fill and Snapshot TCP connections throughout the day?
  - Are there limitations on number of packets per retransmission request, the timeliness of retrains requests, or the number of retransmission requests per day?
  - Can you tell me more about the "ReplayRequest", "ReplayBegin", "ReplayComplete", "ReplayAllRequest" messages?
- Contacting MEMX
  - o Who do I call if I have questions?

## **Getting Started Trading**

#### What are the general steps required to become a Member?

- 1. Establish network connectivity
- 2. Complete the MEMX Member Application & Submit Documentation
- 3. Initialize and Setup the MEMX Operations Portal
- 4. Platform/MDE Testing
- 5. Formal Certification

#### What is the on-boarding process for Extranet Providers?

MEMX partners with approved network providers that operate financial extranets that aggregate multiple customers. They typically provide low cost, value-added services including connectivity for the MEMX exchange, order entry facilitation, and receipt of multicast market data. Approved Extranet Providers will be listed on our User Portal, including provider contact information and a link to the firm's website. In order to be approved as and maintain status as a MEMX Extranet Provider, the provider is required to meet and maintain certain requirements, including monthly reporting obligations.

# Can one become a market data subscriber without becoming a Member?

Yes, market data can be consumed by entities other than exchange members, or prior to exchange membership.

# **Membership Application**

#### What are the application steps for a new trading member?

- 1. Collect information. Member goes to our on-boarding site at memxtrading.com and completes the on-boarding process.
- Generate documents. The system uses the collected information from the on-boarding process to pre-populate the onboarding documents.
- 3. **Collect electronic signature(s).** MEMX sends completed documents to users for electronic signature by Authorized Signature
- 4. Email approval. MEMX will email the Authorized Signer that all documents have been received and are in good order.
- Members send supporting documents when appropriate. Broker-Dealers applying for membership also need to send a set of supporting documents.

# What are the minimum document requirements to become a member?

- Member Application
- User Agreement
- Router Agreement
- Clearing Letter
- Connectivity Services Agreement

#### documentation?

- Sponsored Access Application
- Market Maker Application
- Service Bureau Application
- · Extranet Application
- Market Data User Agreement

#### What is required to become a market data subscriber only?

Complete a Market Data User Agreement and request connectivity for distribution of the data.

### Connectivity

#### Which data centers host the MEMX exchange?

MEMX has a data center presence in Secaucus NY4, Chicago ORD1 and Chicago CH1. The primary trading platform is in the NY4 Secaucus data center and secondary data center is in Chicago. MEMX equalizes latency for order entry and market data dissemination to all participants in the NY4 location, but does not equalize from NY5. MEMX supports connectivity via direct cross-connects, Extranet Providers and Telco Providers.

Facility	Primary	DR	UAT	Equalization	Address
Equinix NY4	Yes	No	Yes	Yes	755 Secaucus Rd, Secaucus NJ 07094
Cyxtera ORD1	No	Yes	Yes	No	350 E Cermak Rd, 7th Fl Chicago IL 60616
Equinix CH1	No	Yes	Yes	No	350 E Cermak Rd, 5th Fl Chicago IL 60616

#### What connectivity methods are available?

Users may choose any of the following access methods:

- Direct Colocation Connection (DCC)
- Telco Provider
- Extranet Provider

 $Further \ details \ on \ connectivity \ are \ available \ in \ the \ xNET \ Connectivity \ Specification \ available \ at \ \underline{memxtrading.com/connectivity}$ 

# What kind of physical connectivity will be offered to access MEMX?

All user DCC network connections must be single mode optical fiber. The xNET supports 10G, 25G, 40G, and 100G Ethernet interface types. 40G may only be provisioned as a 4 X 10G Ethernet port-channel. 100G may be provisioned as a 4 X 25G Ethernet port-channel or a 1 X 100G Ethernet interface. The connection termination will be dictated by the choice of Ethernet interface selected.

For resiliency, MEMX requires participants to connect through redundant "A" and "B" feeds and DCC connections are provisioned in A/B pairs. Each A/B connection pair terminates at different network devices at the xNET. A/B path diversity for multicast data distribution is required and maintained regardless of user interface configuration or preference. It is recommended that users advertise their source networks on both interfaces for maximum redundancy.

Both order entry and market data will be available over a single connection. Everyone will have the fastest path to our markets. We will offer a level playing field for everyone and never charge a higher fee for faster access to our markets.

### What are the steps to begin network connectivity testing?

- Download the MEMX xNET Connectivity Specification <a href="http://memxtrading.com/connect">http://memxtrading.com/connect</a>
- Register for Connectivity via MEMX site <a href="https://memxtrading.com/connect/request/login">https://memxtrading.com/connect/request/login</a>
- Sign Connectivity Services Agreement & Receive Letter of Authorization

# **Trading on MEMX**

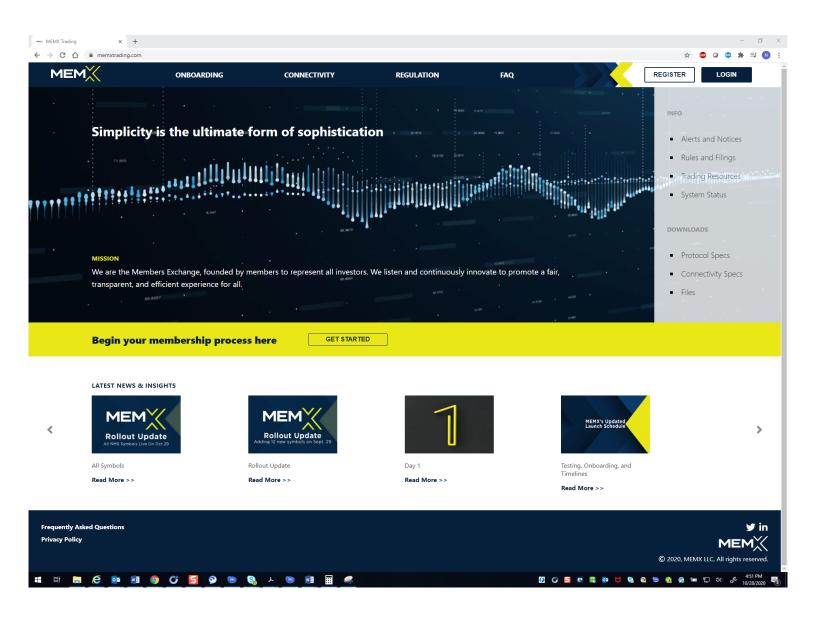
### What technical specifications are available?

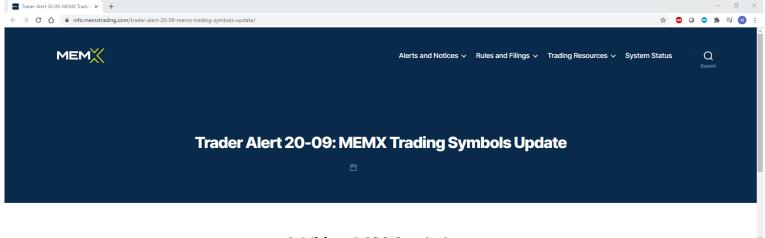
Technical specifications are available at <a href="https://memxtrading.com/specs">https://memxtrading.com/specs</a> and include the following documents.

Protocol	Description
MEMX-TCP	A Session Level TCP-based transport protocol for reliable delivery of business messages.
MEMX-UDP	A Session Level UDP-based transport protocol for best-effort delivery of business messages.
MEMO SBE	The native binary protocol used for order submission on MEMX.
MEMO FIX	The Classic FIX (ASCII Tag/Value) protocol used for the exchange of information related to securities transactions on MEMX.
MEMOIR Depth	A real-time full depth-of-book feed offered directly from MEMX.
MEMOIR Top	A real-time top-of-book feed offered directly from MEMX that provides the best bid and best offer on the exchange.
MEMOIR Last Sale	A real-time trade feed offered directly from MEMX that provides reporting, cancellation and correction of exchange executions.
Drop Copy	A Drop Copy in Classic FIX protocol providing information related to trades executed on MEMX.

# What order entry protocols are supported?







### Additional 493 Symbols on Wednesday, October 21, 2020

The remainder of the S&P 500 components, plus the 24 instruments below will be added to the existing symbols.

ABEV SQQQ ACB KCAC APHA KCAC+ BBD KCAC= KKR KKR-A CX ITUB KKR-B NGD KKR-C NNDM TDW+A VST+A OID SPXU NSPR+B SWN TDW+B

See our Instrument Directory for the Full List Here

#### NOTES:

- NMS routing is not currently enabled, MEMX will provide an update when we plan to enable it.
- ALL NMS test symbols are available.

← Trader Alert 20-08: BCP/DR Testing Scheduled SR-MEMX-2020-13: Proposal to Enable → for October 24, 2020 Members to Designate Orders as Retail Orders







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#### Day 1

JONATHAN KELLNER ON SEPTEMBER 21, 2020



A quick update on our first day of trading. We executed our first trade at 7:48:43 AM, 100 shares of ED at \$73.90. Over the course of the day, MEMX traded 60,957 shares on 857 executions and had 25 firms execute trades. All in all, it was a successful first day and another important step in our journey to transform the exchange landscape.

We greatly appreciate all the engagement from our members. While we are only trading seven symbols, the reason we go through a phased rollout like this is so we can identify how the system performs in a variety of conditions and with gradually increased activity. Today was incredibly helpful in those efforts. Getting through our first settlement cycle will be an important next step. We look forward to expanding our symbol universe. But, first and foremost, we are committed to minimizing any potential market disruption.

We also took the time today to honor an amazing woman and her contributions to our country. At 2:27PM we observed a moment of silence in recognition of Ruth Bader Ginsburg – serving twenty-seven years as the second woman appointed to the Supreme Court.

We start again tomorrow with pre-market trading at 7AM EST in advance of our normal trading session at 9:30AM EST.

We will keep you updated on our progress, thank you for your support!

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All Symbols October 27, 2020



Rollout Update September 25, 2020



Day 1







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#### Rollout Update

JONATHAN KELLNER ON SEPTEMBER 25, 2020



We are very happy with our first week of live trading. Since launch, MEMX has traded over 1 million shares in 7 symbols from 31 different members.

The team has done a great job reacting to issues, communicating with clients and resolving problems. The feedback we are getting is that our launch has gone well so far and we are taking the right approach. We appreciate the broad support from the street and believe our efforts to ensure that we have a diverse set of liquidity on our exchange is paying off.

They say, "Game day feels different than practice," and we agree. The insights gained from executing real orders this week have been incredibly valuable to the team. While pre-launch testing helped fine tune the system, we learned so much more in just a few days in production. Clients are interacting with each other and our technology under live market conditions using their production strategies.

Given the progress we have made and the feedback we have received, it makes sense to leverage the real time trading insights we are now getting each day to optimize system performance and ensure our members are experiencing the technology in the way it was designed.

As a result, we have updated our timeline to allow for more functionality releases in our rollout cycle.

We now plan to add 12 symbols on Tuesday, Sept. 29

- NOK which is an ADR
- DIA which is an ETF
- DIA's top 10 constituents (UNH, HD, AMGN, CRM, MCD, MSFT, V, GS, MMM, HON)

From there we will take a methodical approach to rolling out more names with the goal of being live in all NMS names in October. We want to maintain flexibility to adjust both timing and additional listed names as we go. After achieving the technology milestones and system performance metrics we have targeted, we will be sure to communicate with our members in advance of any changes.

Thank you for the engagement and feedback this week. And thank you for your continued support of MEMX!

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