Agenda

1. CME Group Risk Management Tools & Services
2. Risk Management Interface Overview
3. RMI API Functionality
4. RMI GUI Functionality
5. Technology Overview
6. CME Group Risk Management Tools Future Enhancements
7. On Boarding & Support
8. Q&A
CME Group Risk Management Tools & Services

Clearing Firms’ ability to manage and contain risk is critical in today’s dynamic world of electronic trading. Risk management has evolved with the growth of algorithmic, high frequency, and Direct Market Access (DMA) trading.

CME Group offers a suite of tools and services to enhance Clearing Firms’ ability to manage these risks:

- **FirmSoft**: View and cancel CME Globex orders via a browser-based interface
- **Drop Copy**: FIX-based interface for delivery of a real-time, duplicate feed of iLink outbound messaging
- **Cancel on Disconnect (COD)**: Automated cancellation of non-GTC/GTD orders when an iLink session disconnects ungracefully
- **CME Globex Credit Controls (GC2)**: pre-execution risk control allows Clearing Firms to set real-time credit limits on Executing Firms
- **GCC Authorized Contacts**: Individuals authorized to call the Global Command Center to check status and cancel orders
CME Globex Credit Controls (GC2) Review

CME Globex Credit Controls (GC2) was launched in 2008 and is intended to complement existing Clearing Firm risk systems and front-end risk tools.

This mandatory tool is intended to provide backstop risk functionality, addressing the high-level risks associated with:

- **Automated Trading Systems (ATS)**
  - High-frequency and algorithmic systems
  - “Runaway” ATS risk

- **Clearing firm customers with DMA access**
  - Customers using own connectivity
  - Customers using proprietary applications direct to CME Globex

- **Catastrophic risk**
  - Provide protections against any type of adverse execution activity
  - Takes infinity risk off the table

- **Real-time functionality with no introduction of latency**
Risk Management Interface Overview
Risk Management Interface Overview

CME Group risk management offerings continue to evolve. On April 1\textsuperscript{st} the new Risk Management Interface (RMI) was introduced.

- RMI Supports more granular, pre-trade risk management for Clearing Firms
- Consists of two components, an API and a GUI
- Allows Clearing Firms to programmatically (API) or manually (GUI) send instructions to block or un-block order entry by a combination of the following required attributes:
  - Execution Firm AND
  - Account AND
  - Derivative type (Futures/Options) AND
  - Side (Buy/Sell) AND
  - Product ***this attribute is optional***
Risk Management Interface Overview

• Clearing Firms’ risk systems can leverage a real-time feed, such as CME Group’s Drop Copy, to perform internal risk calculations which can send account level block (or un-block) instructions via the RMI API

• The RMI GUI can be leveraged to provide a redundant, web-based view into the RMI API activity, or to complement Clearing Firms’ risk systems

• Available only to Clearing Firms and third-party risk application providers
RMI API Functionality
RMI API Functionality

The RMI API is a Web Services solution leveraging HTTP messaging. This allows clearing firms (directly or via certified third-party risk applications) to programmatically:

- Block/un-block new orders and order modifies
- Retrieve active block instructions report
- Request Product to Exchange mapping information

Clearing Firms can take action on trading permissions, programmatically and in real-time
RMI API Functionality

Product Lists for Order Routing

To better support Risk Administrators’ need to block order routing for an entire product group, derivative type, or exchange, the RMI API provides the ability to request product information by:

- All products
- All products for a specific exchange
- All futures for a specific exchange
- All options for a specific exchange
RMI API Functionality

Session Connectivity

The RMI API solution supports both session and “session-less” connectivity

• Credentials are issued to Risk Administrators upon on boarding

• Log in to begin a session

• Log out to close a session

• All API messages must include credentials in the HTTP header

• More than 5 failed logins result in locked access. Risk Administrators must contact the CME Global Command Center to unlock the access

• Ping message supported to persist Risk Administrator’s session
RMI API Functionality

Session-Less Connectivity

• Credentials are issued to Risk Administrators upon on boarding

• RMI API messages must include credentials in the HTTP header

• An authorization is performed for each message

• More than 5 failed authorizations result in locked access. Risk Administrators must contact the CME Global Command Center to unlock the access

• Log in and log out are not required

• Ping message supported to verify API availability
**RMI API Functionality**

**AutoCert+ Certification**

Certification in the AutoCert+ tool is *mandatory* in order to access the RMI API in production.

The RMI API is currently available in the New Release environment for testing and certification.

The Customer Support for Electronic Training (CSET) team is the development support team.

Contact your Global Account Manager to begin the testing and certification process.

The RMI GUI does not require certification.
RMI GUI Functionality
RMI GUI Functionality

Web-based interface that allows Clearing Firm Risk Administrators to:

- Block/Un-block order entry at the same levels as the API
  - Execution Firm AND
  - Account AND
  - Derivative type (Futures/Options) AND
  - Side (Buy/Sell) AND
  - Product ***this attribute is optional***

- View current blocks
- View block/un-block history – 10 days or the last 5000 actions

For redundancy, Clearing Firms using the RMI API are strongly encouraged to leverage the RMI GUI as well

Clearing Firms can use the RMI GUI as a stand-alone to complement existing risk systems
RMI GUI Functionality

RMI GUI and GC2 GUI Single Point of Access

RMI GUI is a separate tool from GC2, however it is available via a new tab in the same login screen for Risk Administrators entitled for both tools.

Both tools are now accessible from the new Risk Management Tools page

https://risktools.cmegroup.com/

Current GC2 Risk Administrators are **not** automatically entitled to RMI GUI
RMI GUI Functionality
RMI GUI Screen Shot 1 – Login

**RMI - Block/Unblock**

- **Legal Clearing Entity**: RMI TEST FIRM 925
- **Execution Firm**: 925 - RMI TEST FIRM 925

**Active Blocks**

<table>
<thead>
<tr>
<th>Account Filter</th>
<th>Account ID</th>
<th>Side</th>
<th>Product Type</th>
<th>Product</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Blocked Accounts</td>
<td>1234</td>
<td>Buy</td>
<td>Options</td>
<td>All Products</td>
<td></td>
</tr>
<tr>
<td>All Blocked Accounts</td>
<td>1234</td>
<td>Buy</td>
<td>Futures</td>
<td>All Products</td>
<td></td>
</tr>
</tbody>
</table>
RMI GUI Functionality
RMI GUI Screen Shot 2 – Creating Blocks

RMI - Block/Unblock

Legal Clearing Entity: RMI TEST FIRM 925
Execution Firm: 925 - RMI TEST FIRM 925

Active Blocks

Create Blocks

Block Criteria

Account 5678

Account List

Copy to List

Filters

Product

Product Type

All Exchanges

All Product Types

All Complex Types

Complex Type

Product Type

Side

All Sides

Pending Blocks

<table>
<thead>
<tr>
<th>Account ID</th>
<th>Side</th>
<th>Product Type</th>
<th>Product</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5678</td>
<td>Buy</td>
<td>Futures</td>
<td>All Products</td>
<td></td>
</tr>
<tr>
<td>5678</td>
<td>Sell</td>
<td>Futures</td>
<td>All Products</td>
<td></td>
</tr>
<tr>
<td>5678</td>
<td>Buy</td>
<td>Options</td>
<td>All Products</td>
<td></td>
</tr>
<tr>
<td>5678</td>
<td>Sell</td>
<td>Options</td>
<td>All Products</td>
<td></td>
</tr>
</tbody>
</table>

Actions:
- Block
- Clear Selected
- Remove Selected
- Remove All
### RMI GUI Functionality

**RMI GUI Screen Shot 3 - Blocking**

- **Legal Clearing Entity:** RMI TEST FIRM 925
- **Execution Firm:** 925 - RMI TEST FIRM 925

#### Active Blocks

<table>
<thead>
<tr>
<th>Account ID</th>
<th>Side</th>
<th>Product Type</th>
<th>Product</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234</td>
<td>Buy</td>
<td>Options</td>
<td>All Products</td>
<td></td>
</tr>
<tr>
<td>1234</td>
<td>Buy</td>
<td>Futures</td>
<td>All Products</td>
<td></td>
</tr>
</tbody>
</table>

**Unblock**

**Clear Selected**

*Current as of 04/03/2012 09:57 AM CST*
<table>
<thead>
<tr>
<th><strong>GC2</strong></th>
<th><strong>RMI</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>Optional</td>
</tr>
<tr>
<td>Only available via GUI</td>
<td>Available via API and GUI</td>
</tr>
<tr>
<td>Limits applied at Executing Firm level</td>
<td>Block/Un-block applied at account level</td>
</tr>
<tr>
<td>Stand-alone backstop system to complement Clearing Firms’ existing risk systems</td>
<td>Designed to interface with Clearing Firms’ own risk system for block/un-block messages. (Cancel functionality coming early Q4)</td>
</tr>
<tr>
<td>Position calculations performed based on order activity</td>
<td>No calculations performed. RMI is a customer initiated block/un-block tool</td>
</tr>
</tbody>
</table>
RMI Technology Overview
RMI Technology Overview

Trading System

Order Entry Gateway

Match Engine

Alternate Message Feed (e.g. Drop Copy)

RMI

RMI API

RMI User Interface

GC2

CME Group

Automated Risk System

Risk Admin

Clearing Member Firm

- Block/Unblock instructions
- Retrieve active blocks
- Retrieve product information

Login via System Credentials

- Block/Unblock instructions
- View active blocks
- View historical instructions

Login via SMART Click ID

- Set limit exposure
- View current positions
- View block status

Login via SMART Click ID

Block/Unblock

Clip Size

CME Globex

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RMI Technology Overview

Order Entry Gateway

RMI:
- Compares Firm/Account to known blocks
- Accepts or rejects order
- No additional latency (vs. accounts with blocks)
  - Hash lookup
  - All orders compared in table

GC2:
- Compares incoming Order Quantity against Clip Size(s)
- Accepts or rejects order
- Level playing field

- Block/Unblock instructions
- Retrieve active blocks
- Retrieve product information

Login via SMART Click ID

Matching Engine

CME Group

CME Globex

Clip Size

RMI

RMI User Interface

GC2

Login via System Credentials

Automated Risk System

Risk Admin

Clearing Member Firm

Login via SMART Click ID

Set limit exposure
View current positions
View block status
### RMI Technology Overview

<table>
<thead>
<tr>
<th>Risk Feature</th>
<th>GC2</th>
<th>RMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforcement Level</td>
<td>Execution Firm</td>
<td>Account</td>
</tr>
<tr>
<td>Enforcement Mechanism</td>
<td>Clip Size</td>
<td>Block Instructions</td>
</tr>
<tr>
<td>Algorithm</td>
<td>Dynamic per Trade Activity</td>
<td>Static</td>
</tr>
<tr>
<td>Persistence (across trading weeks)</td>
<td>Working Positions (via GT orders)</td>
<td>Block Instructions</td>
</tr>
</tbody>
</table>
CME Group Risk Management Tools
Future Enhancements
CME Group Risk Management Tools Future Enhancements

CME Globex Credit Controls (GC2) – Q3 2012

• Mid-week adds functionality supported
  • Clearing firms will have the ability to apply credit controls to CME Globex Execution Firms that have been newly created or transferred during the week
  • Currently GC2 limits for CME Globex Execution Firms created mid-week take affect on Sunday prior to market open

RMI API – Q4 2012

• Ability to cancel working orders (including GTCs/GTDs) with a single instruction from the RMI API

Stay tuned to the CME Globex Notices for more information regarding these enhancements
On Boarding & Support
On Boarding & Support

- To request access to the RMI API or GUI, Clearing Firm Administrators must complete Schedule 6 Exhibit D (API access) or Exhibit E (GUI access) to the CME Connection Agreement found here:

  http://www.cmegroup.com/connectionagreement

- Only authorized CME Group Clearing Firm Administrators will have the ability to authorize access for RMI Risk Administrators
  - Credentials for the RMI API are issued to Risk Administrators
  - Risk Administrators will use a SMART Click user ID and a secure link to access the RMI GUI

- Please contact your Global Account Manager to request more information on certification and production access

- The Global Command Center provides first level production support for the RMI
Contacts & Resources

Web Site
http://www.cmegroup.com/rmi
- Includes presentation and links to all technical and functional documentation
  http://www.cmegroup.com/tools-information/webhelp/
- Link to the RMI GUI Web Help doc (under “Risk Management Tools”)

Key Contacts

Global Account Management
- On boarding, certification, basic functionality questions
- US (312) 930-8700
- Europe 44 20 3379 3754
- Asia 65 6593 5574
- globalaccountmanagement@cmegroup.com

Clearing House Risk Management
- Risk management or policy questions
- Clearing House Risk Hotline (312) 648-3888
- Clearingriskmanagement@cmegroup.com

Global Command Center
- Production Support
- US (312) 456-2391, choose Option 3
- Europe 44 20 7623 4708, choose Option 3
- Asia 65 6223 1357, choose Option 3
Questions & Answers