



Redline's market data solutions source data from a rapidly growing list of direct and consolidated feeds. We subscribe to the feeds we support for testing, customer support, and archiving purposes. We show Market Identifier Codes (MICs) to more precisely identify each trading venue ([www.iso15022.org/MIC/homepageMIC.htm](http://www.iso15022.org/MIC/homepageMIC.htm)). New feeds requested by our customers are quickly coded because we optimize our feed handlers on the industry-standard Intel® Xeon® platform rather than write microcode for specialty hardware. We track Exchange Driven Changes and update our feed handlers as required. Contact Redline for feed feature support details.

Trading applications access fully normalized market data from our ticker plant through the easy-to-use InRush™ API. Composite books provide aggregated views of the most timely and accurate pricing data across venues. With support for advanced features like conflation, user-defined weighted baskets, and subscription filters, your application efficiently receives only the market data required.

Our Order Execution Gateway receives your orders via our API or via our FIX Order Gateway, performs pre-trade risk checks, and then formats and submits each order to the selected venue blazingly fast, tracking order execution status and managing position state throughout the order's life cycle. We certify our Order Execution Gateway with the supported trading venues listed on pages 6 through 8 of this datasheet.

We offer Historical Market Data and Recording Services that enable a time-accurate replay of past trading days to assist in application testing, compliance audits, and market event forensics.

## MARKET DATA FEED HANDLERS - GLOBAL EQUITIES

| Region                        | CO                           | Provider                     | Trading Venue                  | Market Data Feed / Protocol  | MIC                  | Status      |
|-------------------------------|------------------------------|------------------------------|--------------------------------|------------------------------|----------------------|-------------|
| Americas                      | US                           | BATS Global Markets          | BATS BYX Exchange              | Multicast PITCH              | BATY                 | ✓           |
|                               |                              |                              | BATS BZX Exchange              | Multicast PITCH              | BATS                 | ✓           |
|                               |                              |                              | EDGA Exchange                  | Multicast PITCH              | EDGA                 | ✓           |
|                               |                              |                              | EDGX Exchange                  | Multicast PITCH              | EDGX                 | ✓           |
|                               | US                           | Chicago Stock Exchange       | Chicago Stock Exchange         | CHX Book Feed                | XCHI                 | ✓           |
|                               | US                           | IEX Group                    | IEX Investors Exchange         | Top of Book (TOPS v1.5)      | IEXG                 | ✓           |
|                               | US                           | Intercontinental Exchange    | NYSE                           | NYSE Integrated Feed XDP     | XNYS                 | ✓           |
|                               |                              |                              | NYSE                           | NYSE OpenBook Ultra          | XNYS                 | ✓           |
|                               |                              |                              | NYSE                           | NYSE Order Imbalance         | XNYS                 | ✓           |
|                               |                              |                              | NYSE                           | NYSE Trades XDP              | XNYS                 | ✓           |
|                               |                              |                              | NYSE Arca                      | ARCA Integrated XDP          | ARCX                 | ✓           |
|                               |                              |                              | NYSE Arca                      | ARCA Trades XDP              | ARCX                 | ✓           |
|                               |                              |                              | NYSE Arca                      | ArcaBook XDP                 | ARCX                 | ✓           |
|                               |                              |                              | NYSE MKT                       | NYSE MKT Integrated Feed XDP | XASE                 | ✓           |
|                               |                              |                              | NYSE MKT                       | NYSE MKT OpenBook Ultra      | XASE                 | ✓           |
|                               |                              |                              | NYSE MKT                       | NYSE MKT Order Imbalance     | XASE                 | ✓           |
|                               |                              |                              | NYSE MKT                       | NYSE MKT Trades XDP          | XASE                 | ✓           |
|                               |                              |                              | All protected U.S. venues      | CTA - CQS                    |                      | ✓           |
|                               |                              |                              | All protected U.S. venues      | CTA - CQS Binary             |                      | Development |
|                               | All protected U.S. venues    | CTA - CTS                    |                                | ✓                            |                      |             |
|                               | All protected U.S. venues    | CTA - CTS Binary             |                                | Development                  |                      |             |
|                               | US                           | Nasdaq OMX                   | Nasdaq Stock Market            | TotalView ITCH               | XNAS                 | ✓           |
|                               |                              |                              | Nasdaq BX                      | BX TotalView ITCH            | XBOS                 | ✓           |
|                               |                              |                              | Nasdaq PSX                     | PSX TotalView ITCH           | XPHL                 | ✓           |
|                               |                              |                              | All protected U.S. venues      | UTP SIP - UQDF Binary        |                      | ✓           |
|                               |                              |                              | All protected U.S. venues      | UTP SIP - UTDF Binary        |                      | ✓           |
|                               |                              |                              | OTC Bulletin Board quote data  | NASDAQ BBDS                  |                      | ✓           |
| OTC Bulletin Board trade data |                              |                              | NASDAQ TDDS                    |                              | ✓                    |             |
| US                            |                              |                              | National Stock Exchange        | NSX                          | NSX Depth of Book MC | XCIS        |
| US                            | OTC Markets Group            | OTC Real-Time+               | Real-time Level 1 & Level 2    |                              | ✓                    |             |
| CA                            | Chi-X Global                 | Chi-X Canada                 | CHIXMD (TCP)                   | CHIC                         | ✓                    |             |
|                               |                              | Chi-X Canada                 | CHIXMMD (Multicast)            | CHIC                         | ✓                    |             |
|                               |                              | Chi-X Canada                 | CX2                            | XCX2                         | ✓                    |             |
| CA                            | Canadian Securities Exchange | CSE (aka CNSX)               | Pure L1                        | XCNQ                         | ✓                    |             |
| CA                            | Omega ATS                    | Omega ATS                    | Omega ITCH L1                  | OMGA                         | ✓                    |             |
| CA                            | TMX                          | TMX Alpha                    | Alpha TMX QuantumFeed (AQL2)   | XATS                         | ✓                    |             |
|                               |                              | Toronto Stock Exchange (TSX) | QFS QuantumFeed (TQL2)         | XTSE                         | ✓                    |             |
|                               |                              | Toronto Stock Exchange (TSX) | QFS Toronto Broadcast Feed TBF | XTSE                         | ✓                    |             |
|                               |                              | TSX Venture Exchange (TSXV)  | QFS QuantumFeed (VQL2)         | XTSX                         | ✓                    |             |
|                               |                              |                              |                                |                              |                      |             |

## MARKET DATA FEED HANDLERS - GLOBAL EQUITIES (CONTINUED)

| Region   | CO                          | Provider                           | Trading Venue  | Market Data Feed / Protocol                      | MIC                 | Status           |   |
|----------|-----------------------------|------------------------------------|--|--|---------------------|------------------|---|
| Americas | BR                          | BM&F Bovespa                       | Bolsa de Valores, Mercadorias e Futuros                | UMDF   | BVMF                | √                |   |
|          | BR                          | Bolsa Institucional de Valores     | BIVA (opening in 2017)                                 | X-Stream INET                                    | tbd                 | Development      |   |
|          | MX                          | Grupo BMV                          | Bolsa Mexicana de Valores<br>Bolsa Mexicana de Valores | INTRA Data Feed H2H<br>INTRA Data Feed Multicast | XMEX<br>XMEX        | √<br>Development |   |
| EMEA     | GB                          | Aquis Exchange                     | Aquis Exchange   | Multicast Binary                                 | AQXE                | √                |   |
|          | GB                          | BATS Chi-X Europe                  | BATS Chi-X Europe - BXE<br>BATS Chi-X Europe - CXE     | Multicast PITCH<br>Multicast PITCH               | BATE<br>CHIX        | √<br>√           |   |
|          | HU                          | CEE Stock Exchange Group           | Budapest Stock Exchange                                | EBS Xetra Multicast                              | XBUD                | √                |   |
|          | SI                          |                                    | Ljubljana Stock Exchange                               | EBS Xetra Multicast                              | XLJU                | √                |   |
|          | CZ                          |                                    | Prague Stock Exchange                                  | EBS Xetra Multicast                              | XPRA                | √                |   |
|          | AT                          |                                    | Wiener Börse (Official Mkt)                            | EBS Xetra Multicast                              | WBAH                | √                |   |
|          | DE                          | Deutsche Börse                     | Frankfurt Stock Exchange - Xetra                       | EBS Xetra Multicast                              | XETR                | √                |   |
|          | NL                          | Euronext                           | Euronext Amsterdam                                     | Euronext Cash L1 & L2 - XDP MC                   | XAMS                | √                |   |
|          | BE                          |                                    | Euronext Brussels                                      | Euronext Cash L1 & L2 - XDP MC                   | XBRU                | √                |   |
|          | PT                          |                                    | Euronext Lisbon  | Euronext Cash L1 & L2 - XDP MC                   | XLIS                | √                |   |
|          | GB                          |                                    | Euronext London  | Euronext Cash L1 & L2 - XDP MC                   | XLDN                | √                |   |
|          | FR                          |                                    | Euronext Paris   | Euronext Cash L1 & L2 - XDP MC                   | XPAR                | √                |   |
|          | UK                          |                                    | Alternext Paris  | Euronext Cash L1 & L2 - XDP MC                   | ALXP                | √                |   |
|          | IE                          |                                    | Irish Stock Exchange                                   | Irish Stock Exchange                             | EBS Xetra Multicast | XDUB             | √ |
|          | IT                          |                                    | LSE Group  | Borsa Italiana Elec. Share Mkt                   | Millennium ITCH L2  | MTAA             | √ |
|          | GB                          | London Stock Exchange              |  | Millennium ITCH L2                               | XLON                | √                |   |
|          | GB                          | London Stock Exchange              |  | Group Ticker Plant L1 & L2                       | XLON                | Development      |   |
|          | GB                          | Turquoise                          |  | Millennium ITCH L2                               | TRQX                | √                |   |
|          | LV                          | Nasdaq OMX Baltic                  | Nasdaq OMX Riga  | Equity TotalView ITCH                            | XRIS                | √                |   |
|          | EE                          |                                    | Nasdaq OMX Tallinn                                     | Equity TotalView ITCH                            | XTAL                | √                |   |
|          | LT                          |                                    | Nasdaq OMX Vilnius                                     | Equity TotalView ITCH                            | XLIT                | √                |   |
|          | SE                          | Nasdaq OMX Nordic                  | Nasdaq OMX Stockholm                                   | Equity TotalView ITCH                            | XSTO                | √                |   |
|          | FI                          |                                    | Nasdaq OMX Helsinki                                    | Equity TotalView ITCH                            | XHEL                | √                |   |
|          | IS                          |                                    | Nasdaq OMX Iceland                                     | Equity TotalView ITCH                            | XICE                | √                |   |
|          | DK                          |                                    | Nasdaq OMX Copenhagen                                  | Equity TotalView ITCH                            | XCSE                | √                |   |
|          | DK                          | Nasdaq OMX                         | First North Denmark                                    | Equity TotalView ITCH                            | XFND                | √                |   |
|          | EE                          |                                    | First North Estonia                                    | Equity TotalView ITCH                            | FNEE                | √                |   |
| FI       | First North Finland         |                                    | Equity TotalView ITCH                                  | FNFI   | √                   |                  |   |
| IS       | First North Iceland         |                                    | Equity TotalView ITCH                                  | ISEC   | √                   |                  |   |
| LV       | First North Latvia          |                                    | Equity TotalView ITCH                                  | FNLV   | √                   |                  |   |
| SE       | First North Stockholm       |                                    | Equity TotalView ITCH                                  | FNSE   | √                   |                  |   |
| LT       | First North Lithuania       |                                    | Equity TotalView ITCH                                  | FNLT   | √                   |                  |   |
| NO       | Oslo Børs                   | Oslo Børs                          | Millennium ITCH L2                                     | XOSL   | √                   |                  |   |
| CH       | SIX Swiss Exchange          | SIX Swiss Exch. - Blue Chip Shares | SWX IMI Multicast ITCH L2+                             | XVTX   | √                   |                  |   |
|          |                             | SIX Swiss Exch. - Mid/Small-Cap    | SWX IMI Multicast ITCH L2+                             | XSWX   | √                   |                  |   |
| Asia     | AU                          | Australian Securities Exchange     | ASX  | ASX Trade  | XASX                | Development      |   |
|          | HK                          | Hong Kong Exchanges and Clearing   | HKEx   | OMD FullTick (SF) Datafeed MC                    | XHKG                | Development      |   |
|          | IN                          | Bombay Stock Exchange              | BSE  | Real-time BSE_CM,FO,CD L2                        | XBOM                | √                |   |
|          | IN                          | National Stock Exchange of India   | NSE (Equities)   | Real Time Data Feed                              | XNSE                | √                |   |
|          | JP                          | Japan Exchange Group               | Tokyo Stock Exchange (TSE)                             | FLEX Standard, FLEX Full v15.x                   | XTKS                | Development      |   |
|          |                             |                                    | Nagoya Stock Exchange                                  | FLEX Standard, FLEX Full v15.x                   | XNGO                | Development      |   |
|          |                             |                                    | Fukuoka Stock Exchange                                 | FLEX Standard, FLEX Full v15.x                   | XFKA                | Development      |   |
|          | Sapporo Securities Exchange |                                    | FLEX Standard, FLEX Full v15.x                         | XSAP   | Development         |                  |   |
| JP       | Chi-X Global                | Chi-X Japan                        | Multicast Market Data Feed                             | CHIJ   | √                   |                  |   |
| JP       | SBI Japannext               | Japannext PTS                      | ITCH (Day, DayX)                                       | SBIJ   | √                   |                  |   |
|          |                             | Japannext PTS                      | ITCH (Night)   | SBIJ   | √                   |                  |   |
| Global   | All                         | Bloomberg                          | Bloomberg B-PIPE                                       | B-PIPE   |                     | √                |   |

## MARKET DATA FEED HANDLERS - GLOBAL DERIVATIVES

| Region   | CO   | Provider                          | Trading Venue  | Market Data Feed / Protocol  | MIC  | Status                               |
|----------|------|-----------------------------------|--|--|--|--------------------------------------|
| Americas | US   | BATS Global Markets               | BATS Options<br>EDGX Options Market  | Options Multicast PITCH<br>Options Multicast PITCH   | BATO<br>EDGO   | ✓<br>Development                     |
|          | US   | Boston Options Exchange           | Boston Options Exchange (BOX)  | High Speed Vendor Feed (HSVF)  | XBOX   | ✓                                    |
|          | US   | Chicago Board Options Exchange    | CBOE<br>CBOE<br>CBOE<br>CBOE Futures Exchange<br>One Chicago   | C2 (CSM)<br>CBOE (CSM)<br>CBOE (CSM) Complex Options<br>CFE (CSM)<br>ONE (CSM)   | C2OX<br>XCBO<br>XCBO<br>XCBO<br>XCBO<br>XOCH                 | ✓<br>✓<br>✓<br>✓<br>✓                |
|          | US   | Chicago Mercantile Exchange       | CBOT<br>CME (all channels)<br>COMEX<br>KCBT<br>MGEX<br>NYMEX   | Globex Binary<br>Globex Binary (MBP, MBO)<br>Globex Binary<br>Globex Binary<br>Globex Binary<br>Globex Binary  | XCBT<br>XCME<br>XCEC<br>XKBT<br>XMGE<br>XNYM                 | ✓<br>✓<br>✓<br>✓<br>✓<br>✓           |
|          | US   | Intercontinental Exchange         | ICE Futures<br>ICE Futures<br>ICE Futures<br>ICE Futures<br>NYSE Amex<br>NYSE Amex<br>NYSE Arca<br>NYSE Arca | iMPact TOP Implied Order Feed<br>iMPact TOP Implied Price Feed<br>iMPact TOP Order Feed<br>iMPact TOP Price Feed<br>ArcaBook Options AMEX TOP<br>ArcaBook Options AMEX Depth<br>ArcaBook Options ARCA TOP<br>ArcaBook Options ARCA Depth | IFUS<br>IFUS<br>IFUS<br>IFUS<br>AMXO<br>AMXO<br>ARCO<br>ARCO | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓ |
|          | US   | International Securities Exchange | ISE<br>ISE Gemini<br>ISE Mercury   | ISE TOP Quote (Binary)<br>ISE TOP Quote (Binary)<br>ISE TOP Quote (Binary)   | XISX<br>GMNI<br>MCRY   | ✓<br>✓<br>✓                          |
|          | US   | Nasdaq OMX                        | Nasdaq OMX BX Options<br>Nasdaq OMX PHLX<br>Nasdaq OMX PHLX<br>Nasdaq Options Market (NOM)                   | BX Options TOP<br>PHLX Orders<br>TOPO Quotes & Trades<br>NOM Options BONO  | XBXO<br>XPHO<br>XPHO<br>XNDQ                                 | ✓<br>✓<br>✓<br>✓                     |
|          | US   | SIAC                              | All protected U.S. Options venues  | OPRA Binary  | OPRA   | ✓                                    |
|          | BR   | BM&F Bovespa                      | Bolsa de Valores, Mercadorias e Futuros  | UMDF   | BVMF   | Development                          |
|          | CA   | TMX                               | Montréal Exchange (MX)   | HSVF Futures & Options (TCP & MC)  | XMOD   | ✓                                    |
|          | MX   | Chicago Mercantile Exchange       | MexDer Futures & Options   | Globex Binary MDP 3.0  | XEMD   | ✓                                    |
|          | EMEA | AE                                | Chicago Mercantile Exchange  | DME Futures & Options  | Globex Binary MDP 3.0  | DUMX                                 |
| DE       |      | Deutsche Börse                    | Eurex Exchange<br>Eurex Exchange   | Eurex/NTA EMDI<br>Eurex/NTA L2 EOBI  | XEUR<br>XEUR   | ✓<br>✓                               |
| GB       |      | Chicago Mercantile Exchange       | CME Europe - Derivatives   | Globex Binary MDP 3.0  | CMED   | ✓                                    |

## MARKET DATA FEED HANDLERS - GLOBAL DERIVATIVES (CONTINUED)

| Region | CO  | Provider                     | Trading Venue                    | Market Data Feed / Protocol | MIC  | Status      |
|--------|-----|------------------------------|----------------------------------|-----------------------------|------|-------------|
| EMEA   | NL  | Euronext                     | Euronext Derivatives Markets     | XDP                         | many | Development |
|        | GB  | Intercontinental Exchange    | ICE Futures Europe               | iMPact TOP                  | IFEU | ✓           |
|        | GB  | London Metal Exchange (HKEx) | LME                              | LMeselect Real-Time         | XLME | ✓           |
|        | IT  | LSE Group                    | Borsa Italiana - Derivatives Mkt | HSVF                        | XDMI | Development |
| Asia   | JP  | Tokyo Commodity Exchange     | TOCOM                            | Next J-Gate ITCH            | XTKT | ✓           |
|        | JP  | Japan Exchange Group         | Osaka Exchange                   | Next J-Gate ITCH            | XOSE | ✓           |
|        | KR  | Chicago Mercantile Exchange  | KRX Futures                      | Globex Binary MDP 3.0       | XKFE | ✓           |
|        | MY  |                              | BMD Futures                      | Globex Binary MDP 3.0       | MDEX | ✓           |
|        | SG  | Intercontinental Exchange    | ICE Futures Singapore            | iMPact TOP Price Feed       | IFSG | Development |
| Global | All | Bloomberg                    | All B-PIPE consolidated data     | B-PIPE                      |      | ✓           |

## MARKET DATA FEED HANDLERS - FIXED INCOME

| Region   | CO | Provider   | Trading Venue    | Market Data Feed / Protocol | MIC  | Status      |
|----------|----|------------|------------------|-----------------------------|------|-------------|
| Americas | US | Nasdaq OMX | Nasdaq eSpeed    | eSpeed ITCH                 | ESPD | ✓           |
|          | US | ICAP       | BrokerTec        | ITCH                        | BTEC | ✓           |
| EMEA     | UK | ICAP       | BrokerTec Europe | OMex                        | BTEE | Development |

## MARKET DATA FEED HANDLERS - FOREIGN EXCHANGE

| Region | Provider                    | Liquidity Provider Venue               | Market Data Feed / Protocol  | Status*     |
|--------|-----------------------------|--|--|-------------|
| Global | Deutsche Bank               | Autobahn FX                            | FIX 4.x (Rapid)  | ✓           |
|        | Bank of America             | BAML FX                                | FIX 4.x  | ✓           |
|        | Barclays Capital            | BARX FX                                | FIX 4.x  | ✓*          |
|        | Commerzbank                 | Commerzbank                            | FIX 4.x  | ✓*          |
|        | BNP Paribas                 | Cortex FX                              | FIX 4.x  | ✓*          |
|        | Credit Suisse               | Credit Suisse                          | FIX 4.x  | ✓*          |
|        | Cürex Group                 | Cürex FX ECN                           | FIX 4.x  | ✓           |
|        | State Street Global Markets | Currenex                               | FIX 4.x and UDP ITCH   | ✓           |
|        | Dukascope Bank SA           | Dukascope                              | FIX 4.x  | ✓*          |
|        | ICAP EBS BrokerTec          | EBS Market<br>EBS Market<br>EBS Market | EBS AI - FIX 5.x and XML<br>EBS Live - XML<br>EBS Live Ultra - PriceStream | ✓<br>✓<br>✓ |

\* Contact Redline for supported versions.

## MARKET DATA FEED HANDLERS - FOREIGN EXCHANGE (CONTINUED)

| Region           | Provider  | Liquidity Provider Venue                           | Market Data Feed / Protocol   | Status*          |   |
|------------------|---|--|-------------------------------|------------------|---|
| Global           | FastMatch   | FastMatch - Real Time                              | FIX 4.x                       | √                |   |
|                  | ICAP  | Fusion FX NDFs                                     | Fix 5.x                       | √                |   |
|                  | Thomson Reuters   | FXall<br>FXall Bankstream                          |                               | FIX 4.x          | √ |
|                  |   |  |                               | FIX 5.x          | √ |
|                  | FXCM  | FXCM Pro   | FIX 4.x                       | √*               |   |
|                  | FXSpotStream  | FXSpotStream (FSS)<br>FXSpotStream (FSS) Mid-Match |                               | FIX 4.x          | √ |
|                  |   |  |                               | FIX 4.x          | √ |
|                  | Chicago Mercantile Exchange   | Globex Foreign Exchange Facility (GFX)             | FIX 4.x                       | √                |   |
|                  | Goldman Sachs   | Goldman Sachs                                      | FIX 4.x                       | √*               |   |
|                  | GAIN Capital  | GTX  | FIX 4.x                       | √*               |   |
|                  | BATS Global Markets   | Hotspot FX   | FIX 4.x and ITCH              | √                |   |
|                  | HSBC  | HSBC FX  | FIX 4.x                       | √*               |   |
|                  | JP Morgan Chase   | JP Morgan FX                                       | FIX 4.x                       | √*               |   |
|                  | LMAX Exchange   | LMAX Interbank<br>LMAX Professional (MTF)          |                               | FIX 4.x          | √ |
|                  |   |  |                               | FIX 4.x          | √ |
|                  | Morgan Stanley  | Morgan Stanley                                     | FIX 4.x                       | √                |   |
|                  | Moscow Exchange   | MOEX   | FIX 4.x                       | √                |   |
|                  | Natixis   | Natixis FX   | FIX 4.x                       | √*               |   |
|                  | Nomura  | NomuraLive   | FIX 4.x                       | √                |   |
|                  | Nordea Markets  | Nordea e-Markets                                   | FIX 5.x                       | √                |   |
|                  | Integral  | Open Currency Exchange (OCX)                       | FIX 4.x                       | √                |   |
|                  | Tradition Group   | ParFX  | FIX 4.x                       | √                |   |
|                  | Royal Bank of Scotland  | RBS Marketplace                                    | FIX 4.x                       | √*               |   |
|                  | Thomson Reuters   | Reuters FX Matching<br>Reuters FX Matching         | MAPI<br>Binary Multicast Feed | √<br>Development |   |
|                  | Royal Bank of Canada  | Royal Bank of Canada                               | FIX 5.x                       | √*               |   |
|                  | SBI Liquidity Market  | SBILM  | FIX 4.x                       | √*               |   |
| Société Générale | Société Générale  | FIX 4.x  | √*                            |                  |   |
| UBS              | UBS   | FIX 4.x  | √                             |                  |   |
| Wells Fargo      | Wells Fargo Integral<br>Plus others required by Masa Capital,<br>new EBS feed, etc. | FIX 4.x  | √*                            |                  |   |

\* Contact Redline for supported versions.

## ORDER EXECUTION GATEWAY - EXCHANGE INTERFACES FOR EQUITIES, DERIVATIVES AND FIXED INCOME

| Region   | CO                              | Provider   | Trading Venue   | Execution Gateway Protocol     | Status   |
|----------|---------------------------------|--|---|--------------------------------|--|
| Americas | US                              | BATS Global Markets  | BATS BYX Exchange   | BATS Binary Order Entry (BOE2) | ✓  |
|          |                                 |  | BATS BYX Exchange   | BATS FIX2                      | ✓  |
|          |                                 |  | BATS BZX Exchange   | BATS Binary Order Entry (BOE2) | ✓  |
|          |                                 |  | BATS BZX Exchange   | BATS FIX2                      | ✓  |
|          |                                 |  | BATS Options  | BATS Binary Order Entry (BOE2) | ✓  |
|          |                                 |  | BATS Options  | BATS FIX2                      | ✓  |
|          |                                 |  | EDGA Exchange   | BATS Binary Order Entry (BOE2) | ✓  |
|          |                                 |  | EDGA Exchange   | BATS FIX2                      | ✓  |
|          |                                 |  | EDGX Exchange   | BATS Binary Order Entry (BOE2) | ✓  |
|          |                                 |  | EDGX Exchange   | BATS FIX2                      | ✓  |
|          |                                 |  | US  | Boston Options Exchange        | Boston Options Exchange<br>Boston Options Exchange |
|          | US                              | Chicago Board Options Exchange   | C2<br>CBOE<br>CBOE Futures Exchange                                   | C2 CMI 2.0                     | ✓  |
|          |                                 |  |   | CBOE CMI 2.0                   | ✓  |
|          |                                 |  |   | CFE CMI 2.0                    | ✓  |
|          | US                              | Chicago Mercantile Exchange  | CME<br>CME  | CME Globex iLink 2.x           | ✓  |
|          |                                 |  |   | CME Globex iLink 2.x MSGW      | ✓  |
|          | US                              | Citigroup Global Markets   | Citi/ATD  | CORE DMA                       | ✓  |
|          | US                              | ICAP   | BrokerTec   | OMex                           | ✓  |
|          | US                              | Intercontinental Exchange  | ICE<br>NYSE<br>NYSE<br>NYSE AMEX<br>NYSE Arca<br>NYSE MKT<br>NYSE MKT | ICE FIX Order Server 3.x       | ✓  |
|          |                                 |  |   | NYSE CCG Binary                | ✓  |
|          |                                 |  |   | NYSE CCG FIX                   | ✓  |
|          |                                 |  |   | ARCA Direct 4.x Binary         | ✓  |
|          |                                 |  |   | ARCA Direct 4.x Binary         | ✓  |
|          |                                 |  |   | NYSE CCG Binary                | ✓  |
|          |                                 |  |   | NYSE CCG FIX                   | ✓  |
|          | US                              | International Securities Exchange  | ISE   | ISE FIX                        | ✓  |
|          | US                              | JP Morgan Chase  | JPMX (dark pool)  | JISU FIX 4.x                   | ✓  |
|          | US                              | Level ATS  | Level ATS   | Level FIX                      | ✓  |
|          | US                              | Miami International Holdings   | MIAX Options Exchange   | FIX 4.x                        | ✓  |
| US       | Morgan Stanley                  | Morgan Stanley   | Morgan Stanley Speedway DMA   | ✓                              |  |
| US       | Nasdaq OMX                      | Nasdaq<br>Nasdaq BX<br>Nasdaq OMX BX<br>Nasdaq OMX NOM<br>Nasdaq OMX PHLX<br>Nasdaq PSX<br>Nasdaq eSpeed | Nasdaq OUCH 4.x   | ✓                              |  |
|          |                                 |  | Nasdaq OUCH 4.x   | ✓                              |  |
|          |                                 |  | NOM/BX FIX 4.x  | ✓                              |  |
|          |                                 |  | NOM/BX FIX 4.x  | ✓                              |  |
|          |                                 |  | PHLX XL FIX 4.x   | ✓                              |  |
|          |                                 |  | Nasdaq OUCH 4.x   | ✓                              |  |
|          |                                 |  | eSpeed OUCH   | ✓                              |  |
|          |                                 |  | NXT Direct (DMA) FIX 4.x  | ✓                              |  |
| US       | Pershing LLC                    | Pershing<br>Pershing Electronic Market<br>Making   | Pershing DMA  | ✓                              |  |
|          |                                 |  | PEMM  | ✓                              |  |
| US       | Susquehanna International Group | SIG  | SIG DMA   | ✓                              |  |
| CA       | TMX                             | Montréal Exchange<br>Toronto Stock Exchange (TSE)  | MX SAIL   | ✓                              |  |
|          |                                 |  | TSX-FIX 4.x   | ✓                              |  |

## ORDER EXECUTION GATEWAY - EXCHANGE INTERFACES (CONTINUED) FOR EQUITIES, DERIVATIVES AND FIXED INCOME

| Region | CO | Provider                         | Trading Venue         | Execution Gateway Protocol     | Status      |
|--------|----|----------------------------------|-----------------------|--------------------------------|-------------|
| EMEA   | UK | ICAP                             | BrokerTec             | OMex                           | Development |
|        | DE | Deutsche Börse                   | Eurex                 | Enhanced Trading Interface ETI | ✓           |
|        | GB | Chicago Mercantile Exchange      | CME Europe            | CME Globex iLink 2.x           | ✓           |
|        | GB | Intercontinental Exchange        | ICE Futures Europe    | ICE FIX Order Server 3.x       | ✓           |
|        | GB | London Metal Exchange (HKEx)     | LME                   | FIX 4.x                        | ✓           |
| Asia   | IN | Bombay Stock Exchange            | BSE                   | Enhanced Trading Interface ETI | ✓           |
|        | IN | National Stock Exchange of India | NSE (Equities)        | CTCL                           | ✓           |
|        | JP | Tokyo Commodity Exchange         | TOCOM                 | TOCOM Next J-Gate OMex         | ✓           |
|        | JP | Japan Exchange Group             | Osaka Exchange        | OSE Next J-Gate OMex           | ✓           |
|        | SG | Intercontinental Exchange        | ICE Futures Singapore | ICE FIX Order Server 3.x       | ✓           |

## ORDER EXECUTION GATEWAY - FX LIQUIDITY PROVIDER INTERFACES

| Region | Provider                    | Venue  | Execution Gateway Protocol    | Status*     |
|--------|-----------------------------|--|-------------------------------|-------------|
| Global | Deutsche Bank               | Autobahn FX  | FIX 4.x                       | ✓           |
|        | Bank of America             | BAML FX  | FIX 4.x                       | ✓           |
|        | Barclays Capital            | BARX FX  | FIX 4.x                       | ✓*          |
|        | BGC Partners                | BGC FX (Midmatch, No Regrets, Indicative)          | FIX 4.x                       | ✓           |
|        | Commerzbank                 | Commerzbank  | FIX 4.x                       | ✓*          |
|        | BNP Paribas                 | Cortex FX  | FIX 4.x                       | ✓*          |
|        | Credit Suisse               | Credit Suisse                                      | FIX 4.x                       | ✓*          |
|        | Cürex Group                 | Cürex FX ECN                                       | FIX 4.x                       | ✓           |
|        | State Street Global Markets | Currenex   | FIX 4.x                       | ✓           |
|        | Dukascopy Bank SA           | Dukascopy  | FIX 4.x                       | ✓*          |
|        | ICAP                        | EBS Market - EBS Ai                                | FIX 5.x                       | ✓           |
|        | FastMatch                   | FastMatch - Real Time                              | FIX 4.x                       | ✓           |
|        | Thomson Reuters             | FXall<br>FXall Bankstream<br>FXall Mid Book        | FIX 4.x<br>FIX 5.x<br>FIX 4.x | ✓<br>✓<br>✓ |
|        | FXCM                        | FXCM Pro   | FIX 4.x                       | ✓           |
|        | FXSpotStream                | FXSpotStream (FSS)<br>FXSpotStream (FSS) Mid-Match | FIX 4.x<br>FIX 4.x            | ✓<br>✓      |

\* Contact Redline for supported versions.

## ORDER EXECUTION GATEWAY - FX LIQUIDITY PROVIDER INTERFACES (CONTINUED)

| Region      | Provider                    | Venue                                     | Execution Gateway Protocol | Status |
|-------------|-----------------------------|---|----------------------------|--------|
| Global      | Chicago Mercantile Exchange | Globex Foreign Exchange Facility (GFX)    | FIX 4.x                    | √      |
|             | Goldman Sachs               | Goldman Sachs                             | FIX 4.x                    | √*     |
|             | BATS Global Markets         | Hotspot FX                                | FIX 4.x                    | √      |
|             | HSBC                        | HSBC FX                                   | FIX 4.x                    | √*     |
|             | JP Morgan Chase             | JP Morgan FX                              | FIX 4.x                    | √*     |
|             | LMAX Exchange               | LMAX Interbank<br>LMAX Professional (MTF) | FIX 4.x                    | √      |
|             |                             |   | FIX 4.x                    | √      |
|             | Moscow Exchange             | MOEX                                      | FIX 4.x                    | √      |
|             | Morgan Stanley              | Morgan Stanley                            | FIX 4.x                    | √      |
|             | Natixis                     | Natixis FX                                | FIX 4.x                    | √*     |
|             | Nomura                      | NomuraLive                                | FIX 4.x                    | √      |
|             | Nordea Markets              | Nordea e-Markets                          | FIX 5.x                    | √      |
|             | Integral                    | Open Currency Exchange (OCX)              | FIX 4.x                    | √      |
|             | Tradition Group             | ParFX                                     | FIX 4.x                    | √      |
|             | Royal Bank of Scotland      | RBS Marketplace                           | FIX 4.x                    | √*     |
|             | Thomson Reuters             | Reuters Interbank, Prime Broker Client    | FIX 5.x                    | √      |
|             | Royal Bank of Canada        | Royal Bank of Canada                      | FIX 5.x                    | √*     |
|             | SBI Liquidity Market        | SBILM                                     | FIX 4.x                    | √*     |
|             | Société Générale            | Société Générale                          | FIX 4.x                    | √*     |
|             | UBS                         | UBS                                       | FIX 4.x                    | √      |
| Wells Fargo | Wells Fargo Integral        | FIX 4.x                                   | √*                         |        |

\* Contact Redline for supported versions.

This information is subject to change without notice.

**BOSTON • NEW YORK • LONDON • HONG KONG • BELFAST**  
**SALES@REDLINETRADING.COM • WWW.REDLINETRADING.COM**

InRush and Redline are trademarks of Redline Trading Solutions, Inc.

© 2017 Redline Trading Solutions, Inc. // GTV-DS-1701