

# HORIZON Trading Solutions MARKET CONNECTIVITY

## EMEA - CASH MARKETS

### Regulated Markets

|                                                     |                             |
|-----------------------------------------------------|-----------------------------|
| Abu Dhabi Securities Exchange - ADX                 | FIX, Nasdaq ME ITCH         |
| Athens Stock Exchange                               | OASIS IDS - ODL, MDFS, FIX  |
| Borsa Istanbul                                      | Genium INET ITCH, OUCH, FIX |
| Borsa Italiana                                      | Optiq OEG, MDG              |
| Borsa Italiana ETFPlus                              | Optiq OEG, MDG              |
| BX Swiss - Bern eXchange                            | Elastica, FIX, FAST         |
| Copenhagen Stock Exchange                           | NASDAQ OMX ITCH, OUCH, FIX  |
| Dubai Financial Market - DFM                        | FIX, TSMR                   |
| Euronext Stock Exchange - Amsterdam Brussels Dublin | Optiq OEG, MDG              |
| Lisbon Oslo Paris                                   |                             |
| Frankfurt Certificate Stock Exchange (ex-Scoach)    | T7                          |
| Gettex - Munich Stock Exchange                      | FIX                         |
| London Stock Exchange                               | MillenniumIT                |
| Moscow Exchange MICEX-RTS                           | MFIX, FIX/FAST              |
| NASDAQ Baltic (Lithuania, Latvia, Estonia)          | NASDAQ OMX ITCH, OUCH, FIX  |
| NASDAQ Dubai Exchange                               | FIX, TSMR                   |
| NASDAQ Nordic (Sweden, Denmark, Finland, Iceland)   | NASDAQ OMX ITCH, OUCH, FIX  |
| Nordic Growth Market - NGM                          | Elastica, FIX, FAST         |
| Qatar Stock Exchange                                | Millennium FIX, MITCH       |
| Riga Stock Exchange                                 | NASDAQ OMX ITCH, OUCH, FIX  |
| Saudi Stock Exchange - Tadawul                      | GBS FIX                     |
| SIX Structured Products Exchange (ex-Scoach Swiss)  | IMI, OTI, QTI, RDI, STI     |
| SIX Swiss Exchange - SWX                            | IMI, OTI, QTI, RDI, STI     |
| Stockholm Stock Exchange                            | NASDAQ OMX ITCH, OUCH, FIX  |
| Tabadul Exchange Hub (ADX, BHB, MSX)                | MDF, FIX                    |
| Tadawul - Saudi Exchange                            | Genium INET FIX, TIP        |
| Warsaw Stock Exchange                               | UTP, WATS                   |
| Xetra (Bonds, Warrants, Energy, Equities)           | T7                          |

### Multilateral Trading Facilities

|                      |                             |
|----------------------|-----------------------------|
| Cboe Europe Equities | FIX, PITCH, Multicast PITCH |
| Equiduct             | FIX, ITCHMD                 |
| LSE Turquoise        | MillenniumIT                |
| NYSE Arca Europe     | UTP MD, UTP Direct          |

## EMEA - DERIVATIVES MARKETS

|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| Abu Dhabi Securities Exchange - ADX              | FIX, Nasdaq ME ITCH         |
| Athens Stock Exchange                            | OASIS IDS - ODL             |
| Borsa Istanbul                                   | Genium INET ITCH, OUCH, FIX |
| Borsa Italiana SEDEX                             | MillenniumIT                |
| Casablanca Stock Exchange - CSE                  | MillenniumIT                |
| CATS-LS / CATS Direct - CDX                      | FIX                         |
| CATS-OS                                          | FIX                         |
| Eurex                                            | T7 (RDI, ETI, EMDI, OEI)    |
| Euronext Derivatives (including ex-IDEM)         | CCG, Optiq MDG              |
| European Warrant Exchange - Euwax Stuttgart      | FIX                         |
| ICE Futures Europe                               | FIX OS, iMpat               |
| Madrid Futures Exchange - MEFF                   | MEFFGate Trading            |
| Moscow Exchange Futures & Options Market - FORTS | Plaza-2                     |
| NASDAQ Dubai Exchange                            | FIX, TSMR                   |
| NASDAQ Nordic Derivatives                        | OMnet                       |
| Qatar Stock Exchange                             | Millennium FIX, MITCH       |
| SIX Swiss Exchange - SWX                         | STI, QTI, MDI               |
| Tadawul - Saudi Exchange                         | Genium INET FIX, TIP        |
| Warsaw Stock Exchange                            | UTP, WATS                   |

**ASIA - CASH MARKETS**

|                                         |                     |
|-----------------------------------------|---------------------|
| Australian Stock Exchange - ASX         | ITCH, OUCH, FIX     |
| Bursa Malaysia - KLSE                   | BDA                 |
| Hanoi Stock Exchange - HNX              | Various(1)          |
| Ho Chi Minh Stock Exchange - HOSE / HSX | Various(1)          |
| Hong-Kong Stock Connect                 | CCCG                |
| Hong-Kong Stock Exchange - SEHK         | CMG, OMD-C          |
| Indonesia Stock Exchange - IDX          | FIX, ITCH + GLIMPSE |
| Korea Exchange - KRX                    | Koscom NFS          |
| National Stock Exchange - NSE           | CTCL                |
| Shanghai Stock Exchange - SSE           | SBF, FAST           |
| Shenzhen Stock Exchange - SZSE          | SBF, FAST           |
| Singapore Exchange - SGX                | OMX OMNet           |
| Thailand Stock Exchange - SET           | ITCH, OUCH          |
| Tokyo Stock Exchange / JPX Group - TSE  | ArrowHead, TosTNet  |

**ASIA - DERIVATIVES MARKETS**

|                                           |                                                           |
|-------------------------------------------|-----------------------------------------------------------|
| Australian Stock Exchange - ASX           | ITCH, OUCH, FIX                                           |
| Australian Stock Exchange - ASX24         | FIX                                                       |
| Bombay Stock Exchange                     | OMB                                                       |
| Bursa Malaysia - BMD                      | Market Data Platform 3, iLink, EP3 (Single Stock Futures) |
| China Financial Futures Exchange - CFFEX  | CTP, Hundsun                                              |
| Dalian Commodity Exchange - DCE           | Feichuang, CTP, Hundsun                                   |
| Dubai Gold & Commodities Exchange - DGCX  | Cinnober                                                  |
| Dubai Mercantile Exchange                 | NEON/FIX.4.2 (NYMEX)                                      |
| Hanoi Stock Exchange - HNX                | Various(1)                                                |
| Hong-Kong Futures Exchange                | OMX, OMD-D                                                |
| Indonesia Stock Exchange - IDX            | FIX, ITCH + GLIMPSE                                       |
| Korea Exchange                            | Koscom NFS                                                |
| Osaka Securities Exchange / JPX Group     | OMX                                                       |
| Shanghai Futures Exchange - SHFE          | CTP, Hundsun                                              |
| Shanghai Stock Exchange - SSE             | FIX, Hundsun                                              |
| Singapore Exchange - SGX                  | OMX                                                       |
| Thailand Futures Exchange - TFEX          | ITCH, OUCH                                                |
| Tokyo Financial Exchange - TFX            | MM Quote System                                           |
| Zhengzhou Commodity Exchange - ZCE / CZCE | eSunny, CTP, Hundsun                                      |

**AMERICAS - CASH MARKETS**

|                                          |                                           |
|------------------------------------------|-------------------------------------------|
| American Stock Exchange                  | FIX NYSE                                  |
| BM&FBOVESPA - B3                         | PUMA                                      |
| Boston Stock Exchange                    | NASDAQ OMX ITCH, OUCH, FIX                |
| International Securities Exchange - ISE  | FIX Gateway / ISE Depth of Market         |
| New-York Stock Exchange - NYSE           | FIX / ArcaBook, OpenBookRT, OpenBookUltra |
| Toronto Stock Exchange / TMX Group - TSX | FIX                                       |

**AMERICAS - DERIVATIVES MARKETS**

|                                               |                                   |
|-----------------------------------------------|-----------------------------------|
| BM&FBOVESPA                                   | PUMA                              |
| CBOE Futures Exchange                         | FIX / CFN                         |
| Chicago Mercantile Exchange - CME, CME Globex | Market Data Platform 3, iLink     |
| International Securities Exchange - ISE       | FIX Gateway / ISE Depth of Market |
| Kalshi                                        | FIX                               |
| Montreal Exchange / TMX Group - MX            | FIX / STAMP                       |
| New-York Mercantile Exchange - NYMEX          | Market Data Platform 3, iLink     |
| Railbird Exchange                             | FIX                               |
| Rothera                                       | FIX                               |

**FX - FOREIGN EXCHANGE**

|                  |                                  |
|------------------|----------------------------------|
| FXall            | FIX                              |
| Integral FXCloud | FIX Out                          |
| SmartTrade       | FIX Out (orders and market data) |

(1) Native exchange connectivity is usually not possible on these markets ; exchange connectivity is done via bank core systems and requires specific adaptations.



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## OUTBOUND BROKER FIX CONNECTIVITY<sup>(2)</sup>

|                               |                                                                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------|
| ABN Amro                      | Worldwide markets - Cash Equity, Equity Derivatives / Possible from LD4                                    |
| Apex Clearing                 | AMER markets - Cash Equity / Possible from LD4                                                             |
| Bank of America Merrill Lynch | Worldwide markets - Equity Derivatives                                                                     |
| Barclays BARX                 | Worldwide markets - Cash Equity, Equity Derivatives                                                        |
| Bay Crest Partners            | AMER markets - Cash Equity                                                                                 |
| BNP                           | Worldwide markets - Equity Derivatives, ASIA markets - Cash Equity                                         |
| BNP FrontIERS                 | FIX                                                                                                        |
| Calyon CLS                    | FIX                                                                                                        |
| Calyon Frontiers              | FIX                                                                                                        |
| Canaccord                     | TSX - Cash Equity                                                                                          |
| CGS-CIMB                      | KLSE, KRX - Cash Equity                                                                                    |
| Citadel                       | AMER markets - Cash Equity / Possible from LD4                                                             |
| Citi                          | Worldwide markets - Cash Equity, Equity Derivatives                                                        |
| Citic Securities              | Mainland China markets - Equity Derivatives                                                                |
| CLSA                          | FIX                                                                                                        |
| Cowen                         | EU markets - Cash Equity                                                                                   |
| Daiwa                         | ASIA markets - Cash Equity                                                                                 |
| DASH Financial                | US market - Equity Derivatives                                                                             |
| Deutsche Bank                 | Worldwide markets - Equity Derivatives                                                                     |
| EquitaSIM (Specialist)        | Italy market - Cash Equity                                                                                 |
| Goldman Sachs                 | Worldwide markets - Cash Equity, Equity Derivatives / Possible from LD4, ASIA markets - Equity Derivatives |
| ICF (Specialist)              | Frankfurt Scoach exchange                                                                                  |
| Instinet                      | APAC markets - Cash Equity                                                                                 |
| Interactive Brokers           | Worldwide markets - Cash Equity, Equity Derivatives / Possible from LD4 & FR2                              |
| J.P. Morgan                   | Worldwide markets - Cash Equity / Possible from LD4, CBOE - Options                                        |
| Kepler Cheuvreux              | EU markets - Cash Equity                                                                                   |
| Marex                         | Worldwide markets - Commodity Futures                                                                      |
| Maybank                       | SGX, SET - Cash Equity                                                                                     |
| Morgan Stanley                | Worldwide markets - Cash Equity, Equity Derivatives                                                        |
| ODDO BHF                      | EU markets - Cash Equity                                                                                   |
| Saxo Bank                     | Worldwide markets - Cash Equity / Possible from LD4, CME / ICE EU / Eurex - Derivatives                    |
| Shenyin & Wanguo Securities   | FIX                                                                                                        |
| Shinhan Securities            | KRX - Cash Equity, Equity Derivatives                                                                      |
| Société Générale NewEdge      | Worldwide markets - Cash Equity, Equity Derivatives                                                        |
| SwissQuote                    | Spot Cryptocurrencies                                                                                      |
| Tick-TS (Specialist)          | Bern exchange                                                                                              |
| UBS (including Swiskey)       | Worldwide markets - Cash Equity, Equity Derivatives                                                        |
| Virtu - Knight Capital Group  | AMER markets - Cash Equity / Possible from LD4                                                             |
| Vontobel                      | Worldwide markets - Cash Equity, Equity Derivatives                                                        |

(2) Please note these outbound broker connectivity have been built outside a routing network, hence usually requires a re-certification in the client's scope. Also, this list is not exhaustive and new FIX brokers can be added upon demand, following a FIX connectivity certification process.

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ORDER ROUTING NETWORKS

OUTBOUND

|                                    |         |
|------------------------------------|---------|
| Bloomberg EMSX FIX for OMS Staging | FIX-Out |
| Bloomberg FIX Network              | FIX-Out |
| CQG FIX Connect                    | FIX-Out |
| LSEG Autex Trade Route             | FIX-Out |

INBOUND

|                                           |        |
|-------------------------------------------|--------|
| Bloomberg FIX Network / EMSX              | FIX-In |
| Charles River CRD                         | FIX-In |
| ITG Virtu Financial Net GATE / Triton OMS | FIX-In |
| LSEG Autex Trade Route                    | FIX-In |
| NYFIX                                     | FIX-In |

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REALTIME MARKET DATA VENDORS

|                                                 |                                                      |
|-------------------------------------------------|------------------------------------------------------|
| ActivFinancial                                  | ActivContentGateway API                              |
| Bloomberg                                       | Managed Bpipe (including Zero Footprint), Server API |
| Chi-Tech MarketPrizm                            | MarketPrizm API                                      |
| Exegy (former Vela Trading Technologies)        | MAMA and MAMDA                                       |
| GTN Global Trading Network                      | REST                                                 |
| ICE Data Service - Interactive Data Corporation | CTF, MDG                                             |
| IRESS - QuantHouse                              | FeedOS Java API                                      |
| Lightstreamer                                   | REST, WebSocket, gRPC                                |
| LSEG - Reuters                                  | TREP JRFA (OMM and MD), RTO (EMA API)                |
| Yeonhap Infomax                                 | Global Data Feed                                     |

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CRYPTOCURRENCIES DIGITAL ASSETS

SPOT MARKETS

|                     |                         |
|---------------------|-------------------------|
| ADDX / iSTOX        | FIX                     |
| Binance             | REST / HTTP + WebSocket |
| Bitstamp            | REST / HTTP + WebSocket |
| Bittrex             | REST / HTTP + WebSocket |
| GDAX / Coinbase Pro | REST / HTTP + WebSocket |
| Kraken              | REST / HTTP + WebSocket |

DERIVATIVES MARKETS

|                             |                               |
|-----------------------------|-------------------------------|
| Binance                     | REST / HTTP + WebSocket       |
| CBOE                        | REST / HTTP + WebSocket       |
| Chicago Mercantile Exchange | Market Data Platform 3, iLink |

|                                              |                                                          |
|----------------------------------------------|----------------------------------------------------------|
| Aquariux                                     | FIX In (referential, orders and market data), REST       |
| Arqa QUIK                                    | FIX Out (orders and market data)                         |
| Bclear                                       | SOAP/axis                                                |
| Beacon                                       | FIX (Drop Copy)                                          |
| BigXYT                                       | Java SDK (referential and historical data)               |
| Bloomberg                                    | Multi Product Feed, FIX-In, BTCA                         |
| Corise Technology                            | Gemizip                                                  |
| Cscreen                                      | SOAP/axis                                                |
| CSE - Computer & Systems Engineering Company | IOMSS FIX Out                                            |
| DirectFN Mubasher                            | WebSocket Market Data, FIX Out                           |
| Feichuang                                    | Xspeed API                                               |
| Fidessa (ION)                                | EMMA/OpenAccess, OMAR, FIX Out, MDAPI                    |
| FinIQ                                        | Equity Connect FIX (RFQ)                                 |
| FIS - SunGard GL TRADE                       | GL API, FIX In, FIX Out                                  |
| GBS                                          | FIX Out                                                  |
| Hundsun                                      | TCP2 UFX API                                             |
| IG                                           | OTC FIX Market data                                      |
| LSEG - Reuters                               | Datascope Select, Tick History, EMA Interactive Provider |
| Misys Sophis                                 | FIX (Drop Copy)                                          |
| Murex                                        | FIX (Drop Copy)                                          |
| Rapid Addition                               | FIX In, FIX Out                                          |
| RFQ-hub (Virtu)                              | FIX Out (orders as buy-side)                             |
| RootNet                                      | FIX Out                                                  |
| S&P Global - IHS Markit                      | Markit SOLA API                                          |
| SFIT                                         | Comprehensive Transaction Platform (CTP)                 |
| Terranoha                                    | API                                                      |
| Trading Technologies                         | FIX Out (orders and market data)                         |
| TS Imagine                                   | REST (pricing)                                           |
| Ullink (Broadridge Itiviti)                  | FIX In, FIX Out                                          |
| Ultumus                                      | API                                                      |
| Vectalis                                     | UTS Direct access                                        |

Note: The list of market data vendor integrated with Horizon is available page 4.