

Horizon OEMS Solutions

Order & Execution Management System

Introduction —

ABOUT HORIZON

Horizon, a global leading vendor in Market Making, Agency Trading, and Algo Trading Technology, has empowered capital market players for over two decades by building powerful algorithmic technology into its electronic trading platform and offering trading opportunities through direct connectivity to more than 80 exchanges worldwide.

Horizon, a B Corp certified company, enables clients to quickly create, test and implement automated trading strategies in real-time, in line with its “Trade Your Way” philosophy. Its platform can be easily integrated with rich APIs and allows proprietary strategies to be built while keeping traders’ code confidential.

COMPETITIVE ADVANTAGES

Our clients create value by trading **their own way**. We have built an OEMS that provides the must have features required to handle efficiently Client order flow – Care, DMA, DSA – and at the same time, we’re also offering the possibility to Horizon’s client **to differentiate from their competitors** and inject their own intelligence into our OEMS. They may create custom UI, implement tailor-made workflows and interface with any internal system as they require (API, Rest, etc.).

Horizon’s OEMS is the right tool for financial institutions willing to manage efficiently High Touch and Low Touch order flow, automate trading workflows, and leverage our expertise in algorithmic trading.



Cross Asset Class

Derivatives & Equity expertise



Internalization

Internal Matching of the bank’s order flow



Integrated Market Making

All in ONE single platform



Customization

Your own Execution Algorithms & workflows



Product Roadmap

Dynamic and open with focus on client needs



Modern & Modular

Flexible architecture based on the latest technologies

Horizon OEMS Solutions

Client onboarding —

FIX CONNECTIVITY

Horizon supports **point-to-point** FIX client onboarding or through certified connectivity to the main Order Routing Networks (EMSX, CRD...).

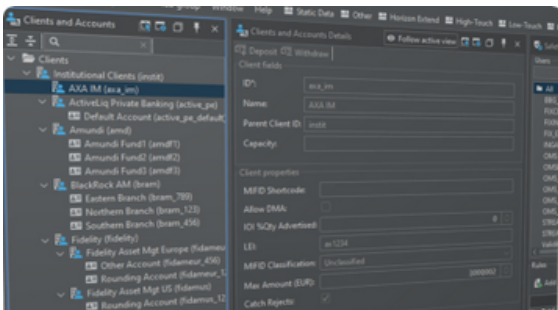
Our **standard**, yet **flexible** **FIX Rules Of Engagement** can be customized to **adjust** to any workflow or client particularities

Compatible with **FIX4.2** **FIX4.4** **FIX5.0** **FIX SBE**



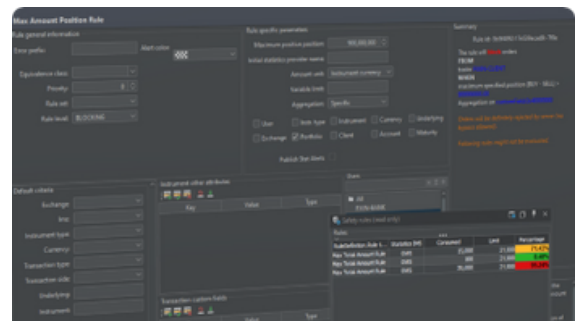
CLIENT SETUP

Simplify the process of client onboarding with native features to identify clients, enrich the message flow and control your risk.



Clients & Accounts

The OEMS offers a complete and **extensible** Client and Account model that can fit any client-specific logic, like **routing, message enrichments, pre-trade risk...**



Pre-Trade Risk

The Safety Pre-Trade Risk module gives full power on enforcing **client risk** checks (credit limits, order checks, authorizations...) and **market risk** checks (price deviation, fat fingers, etc.).



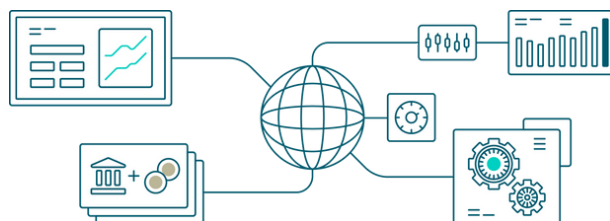
Keep control over your client flow with powerful **routing rules** for both DMA and Care orders.

EXCHANGES

Horizon supports more than **80 exchanges** or trading venues with **Order Entry, Market Data** (static and real-time) and **Wholesale Trading**.

With our solutions, firms can provide low-latency **Sponsored DMA** to their clients.

It covers a wide range of **Traditional** asset classes as well as **Digital Assets**.



CERTIFIED BROKERS

Connect with more than **50 certified brokers** with direct connectivity (point to point) or route your order flow through an **Order Routing Network** to reach more brokers. Brokers' **algo suites** are fully integrated in the Horizon Trader screens..

MARKET DATA

Horizon offers a wide range of **native connectors** with Exchanges for **instrument referential** and **real-time** market data feed (Level1, Level2 and Level3).

Most industry-leading Market Data Vendors are also supported, including: Bloomberg (BPIPE, Server API...) ICE , Quanthouse ,Refinitiv.



3RD PARTY INTEGRATIONS

Post-Trade Systems

- Middle and Back Office
- Regulatory reporting
- Market Abuse
- TCA & Best Execution reports

Algorithmic Platforms

- Smart Order Router (in-house, external)
- Algo engine (in-house or vendor solution e.g., Itarle, Virtu etc.)
- 3rd party Brokers algo

High-Touch features

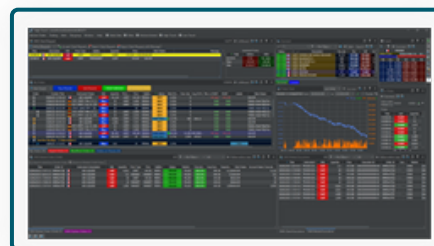
Care Order Management

HORIZON TRADER

Horizon Trader is our main trading application, leveraging years of experience and **proven stability** while offering all the features of the OMS Low-Touch and High-Touch in a **modern UI** and a great user experience.

Fully customizable with conditional formatting, filtering, windows docking, tabs and powerful toolbars.

- Light memory footprint
- Fully customizable
- Light and dark themes available
- Extensible with **Horizon Extend**



ORDER VISUALIZATION & WORKFLOWS



Horizon OEMS provides an extensive permission layer, coupled with Trading **Desk** permissioning and **handover** workflows.



Chinese Walls

Isolate the different order flows. Retail, Institutional, and order flow coming from the Market Making activities are fully segregated within the same platform. It's one true **single platform** that can fit all desks within a financial institution.



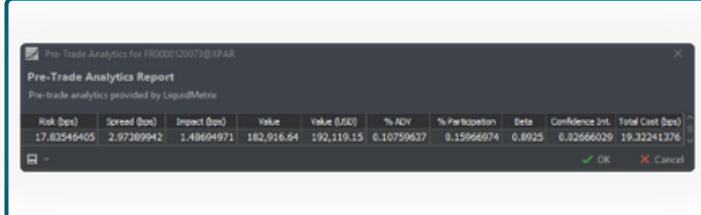
Desk Management

Desk workflows facilitate collaboration, enforce order visibility, enhance risk management and **streamline** operations across and within desks.

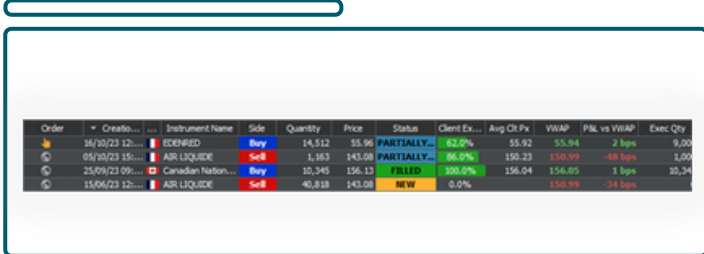
High-Touch features

ANALYTICS & BENCHMARKS

Access single stock and basket-based **Pre-Trade Analytics** right from the Order Book thanks to our integration with leading TCA providers such as ISS LiquidMetrix.



Risk (Bps)	Spread (Bps)	Impact (Bps)	Value	Value (USD)	% ADV	% Participation	Beta	Confidence Int.	Total Cost (Bps)
17.03546405	2.97289942	1.48694971	182,916.64	192,119.15	0.10759637	0.15966974	0.8925	0.82666029	19.22241376



Order	Create...	Instrument Name	Side	Quantity	Price	Status	Client Ex.	Avg Cl Ps	VWAP	P/B vs VWAP	Exec Qty
16/10/23 12:...		EDENRED	Buy	14,512	55.96	PARTIALLY...	62.0%	55.92	55.94	2 bps	9,00
05/10/23 15:...		ASR LIQIDE	Sell	1,163	143.08	PARTIALLY...	86.0%	150.23	150.99	-49 bps	1,00
25/09/23 09:...		Canadian Nat...	Buy	10,345	156.13	FILLED	100.0%	156.04	156.05	1 bps	10,34
10/06/23 12:...		ASR LIQIDE	Sell	40,818	143.08	NEW	0.0%		156.99	-33 bps	

Tightly monitor your **Execution quality** by monitoring in real-time your **Implementation Shortfall** (in amount or bps) versus the main benchmarks.

Supported Benchmarks:

VWAP

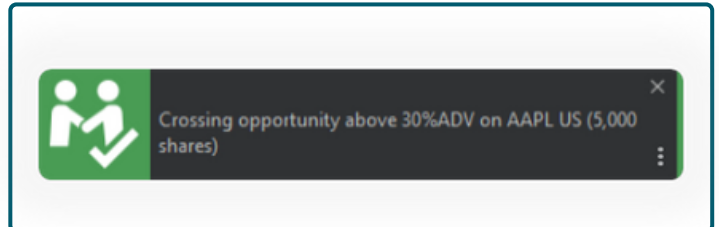
Limit VWAP

ArrivalPrice

Yest. Closing

Horizon Notify offers a complete suite of order-related alerts and notifications, including:

- Configurable Crossing Opportunities (HT vs HT, HT vs LT)
- Client Watch List
- Rejected Orders
- Stale Orders



Horizon Notify is fully integrated with **Horizon Extend** and its scripting capabilities (Java, API etc.). New **custom alerts** can be easily implemented by clients and can integrate third party applications.

AUTOMATED CARE

Implement **automatic release rules** for your Care order flow, so that traders on the desk focus on more revenue generative tasks. Child orders will be created instantaneously on incoming client orders that match the auto-release rule criteria.

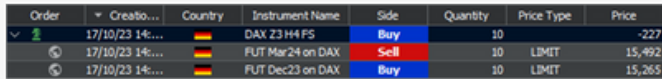
Release rules can be set **on one or a combination** of the following information: time, order amount, exchange, asset class, client, etc.

High-Touch features

COMPOSITE & ORDER STITCHING

Order composites allow grouping client orders (same instrument and side) into one single order on the market. Executions will be reported to each individual client order with the same average price.

Horizon Composite feature supports different **distribution rules**, **execution reporting policy** and **average price** calculation. We have implemented a flexible and robust way of managing complex scenarios like detaching a constituent, adding new constituents and more generally updating the Composite Order configuration throughout its lifecycle.



Order	Creatio...	Country	Instrument Name	Side	Quantity	Price Type	Price
17/10/23 14:...		Germany	DAX 23 H4 F5	Buy	10		-227
17/10/23 14:...		Germany	FUT Mar24 on DAX	Sell	10	LIMIT	15,492
17/10/23 14:...		Germany	FUT Dec23 on DAX	Buy	10	LIMIT	15,265

With **Strategy Composites** (aka Order Stitching), Horizon OEMS allows the creation of derivative strategies using existing client orders as outright legs. Executions of the strategy will be dispatched on each leg.

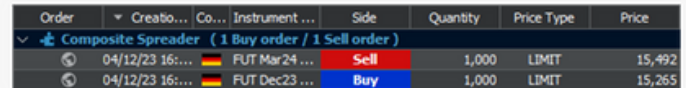


The Order Splitting feature allows a transparent slicing of a Care order into two smaller orders that can be executed separately. Split orders can be stitched/composited with other orders.

The combination of our **Order Composite and Splitting** features simplifies drastically the management of large portfolio rebalancing during future rolls.

AUTOMATED ORDER LISTS

Automated Order Lists let you group client orders and delegate their execution to an algorithm or automate.



Order	Creatio...	Co...	Instrument ...	Side	Quantity	Price Type	Price
Composite Spreader (1 Buy order / 1 Sell order)							
04/12/23 16:...		Germany	FUT Mar24 ...	Sell	1,000	LIMIT	15,492
04/12/23 16:...		Germany	FUT Dec23 ...	Buy	1,000	LIMIT	15,265



Basket Trading (Index Arb)

Allows to trade a basket of stocks versus a hedge. It aims at detecting and taking opportunities to arbitrate an index future against the index basket.



Composite Spreader

Allows automated trading of a spread between multiple legs. The Composite Spreader can be defined using ratios or quantities, target prices or a spread.



Pairs Trading

Allows automated trading of two instruments. It is used for market making and arbitrage trading. The instruments known as a primary and a hedge are bound by simple formulas computing order prices and quantities.

Low-Touch features

DMA/DSA Order Management

Full-control on your DMA flow —

ROUTING RULES



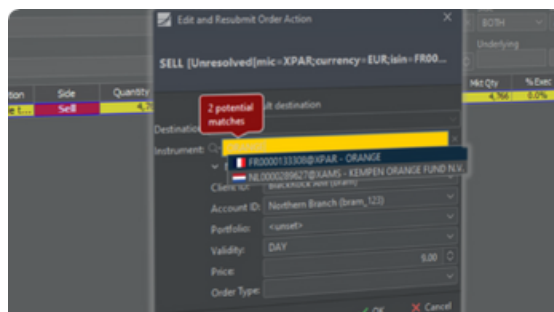
The Low-Touch Routing Rules engine allows defining unlimited and customized routing rules depending on the order attributes, the order instrument, the associated client properties and any other external information you would like to include in your rules. The rules are editable through a **dedicated screen** and can be updated in real-time.

MONITOR & MANAGE EXCEPTIONS



Order Monitoring

Monitor **large volumes** of orders and identify easily the trades that matter. With **powerful filtering, flexible tabs** and **notifications**, stay on top of your electronic order flow and focus only on the exceptions.



Edit and Resubmit

Define which **rejects should be staged** to the trading desk and repair & resend the order seamlessly. Low-Touch Exception management lets you **quickly deal with errors** and manage more order flow.

Low-Touch features

RE-ROUTING

- Automatic re-routing when a destination is unresponsive (algo box, broker etc.)
- Manual re-routing to a new destination (High Touch desk etc.)
- Client is never impacted, everything happens within the trading platform

ORDER PARKING

- Collect order flow at any time regardless of the exchange opening hours
- Release order flow at predefined times
- Manage your unreleased order flow: visualize, accept modification and cancel requests

ALGO WHITE LABELLING (DSA)

- Expose your own algos and/or your brokers' algos to your clients
- Maintain the list of algos and algo parameters to be used by your clients
- Monitor your clients' order algo execution

SYNTHETIC MODALITIES

- Standardize your offering of order types and validities for all destinations
- Synthesize order types not supported on a specific destination: iceberg, pegged, ghost etc.
- Emulate Good Till Date, Good Till Cancel on exchanges that do not support natively those validities



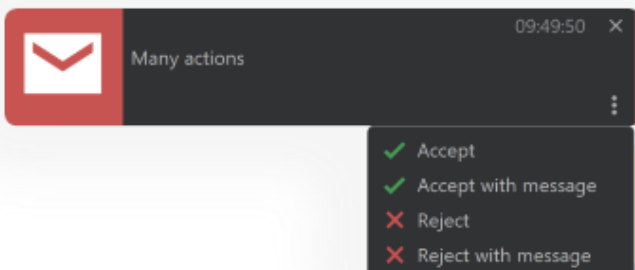
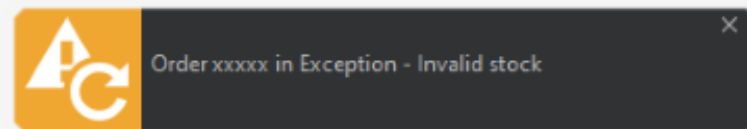
Additional Features

HORIZON NOTIFY

With bigger volumes of data and increasingly complex systems, it is paramount to get **the right information** at the right time in the right place. **Horizon Notify** addresses this challenge by offering a modular, distributed and flexible Notification framework.

This **subscription-based** system allows users to get only the notifications they need, with contextual actions, handover workflows, optional forward/copy rules, re-route to email, Teams, Symphony, etc.

Horizon Notify is an open system that integrates easily with other systems to either publish/relay alerts from other applications or push notifications to 3rd party systems.



It is **natively embedded** in the Horizon Trader application to provide rich and intuitive notification popups, alert blotter and subscription view.


Additional Features


HORIZON EXTEND


Horizon Extend makes it possible to go beyond the features available off-the-shelf and **implement custom** logic, algorithms and integrations. This well-documented extension framework is comprised of **language agnostic** APIs (Rest API, FIX protocol...) as well as **Java/Scala APIs** to interact with the core of the platform.


- Customize from the inside
- Build using the application native API
- Seamless integration with the user interface
- Automated testing/back-testing capabilities


- Fully integrated with the platform
- Wide knowledge support
- Complete Intellectual Property protection


 **Integrate**
Custom analytics
in the OEMS

 **Build**
An automatic reject
recycling logic

 **Publish**
Your own business
notifications

 **Develop**
A best-in-class IS
execution algo

 **Automate**
OMS Order basket
imports

 **Customize**
Our native Hedging
automatons