

sia EAGLE Surveillance

The sharp-eyed Market Surveillance Tool



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A growing complex scenario

Global financial markets are becoming more and more complex due to increased competition and growing number of instruments and volumes. Predatory behaviours and lack of a level playing field are only some of the risks that could potentially lead to investor's mistrust in financial markets.

Market surveillance plays an unparalleled role in anticipating the potential vulnerability of the financial system. Efficient market surveillance will ensure much needed market stability.

Transparency, security and efficiency through market surveillance will ensure constant control over rules and behaviour.

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The innovative solution for Market Surveillance

sia EAGLE Surveillance represents a next generation technology applying:

- ∴ IOSCO principles at international level and EU Directives at European level, from Market Abuse to MiFID throughout Market Transparency;
- ∴ from compliance duties to market/country benefits directly measurable in basis points of reputation and trading venues/country attractiveness;
- ∴ from internal reference (e.g. only domestic market) to full integration of external data (e.g. non domestic market reference data) and information (e.g. news, financial analyses);
- ∴ from report driven solution to on line engine for detecting market abuse activities to multiple level artificial intelligence solutions.

sia EAGLE Surveillance is a solid framework of functionalities and templates, based on best practice standard already tested and live, suitable to be customized, enhanced and constantly updated to reflect the evolution of the capital markets to be supervised.

sia EAGLE Surveillance provides both real time Rule Engine and daily batch Diagnostic Engine for transaction monitoring. Both Rules and Diagnostics generate alerts if any violation occurs. Market abuse detection through Rules and Diagnostics can be applied on multiple trading venues with different statuses, market models and type of financial instruments.

sia EAGLE Surveillance features

sia EAGLE Surveillance is an open system capable of integrating and managing different data sources (markets, data feeds, news, etc) giving the surveillance department a full overview, both on line and off line, of market and participant behaviour, including cross market trading on multi-listed securities (different currencies included) and OTC contracts (e.g. Swaps, FRAs, Forward, Options).

sia EAGLE Surveillance will assist the surveillance department in its daily operations to ensure:

- ∴ **integrity** of the market;
- ∴ investor **protection**;
- ∴ market **transparency**;
- ∴ **regularity** of Trading sessions.

Qualified partnerships allow SIA to implement technologies with an intimate understanding of regulatory market monitoring processes and

regulated market micro-structure dynamics, driving surveillance software requirements.

sia EAGLE Surveillance is a rule based surveillance system. Rules to be applied on data and related alarms are **fully configurable** and **manageable** by users, while Diagnostics are **ready-to-use processes** with user-defined parameters and thresholds which identify irregular market behaviours, including amongst others: market manipulation, marking the close, wash trades, insider trading, pump and dump, trash and cash, etc.

The system also provides off line analysis tools capable of **book rebuilding** and **statistical analysis** together with a full set of queries and graphs. A friendly user interface facilitates surveillance activities and allows for end user efficiency without compromising accuracy of controls. All the above-mentioned characteristics, together with the diagnostic technology (entirely conceived starting from the European Market Abuse Directive indications and IOSCO principles) make sia EAGLE a unique solution, different from any competitor offering, highly effective in identifying trade compliance violations.

It is worth considering at least the following differentiating characteristics of sia EAGLE:

- ∴ **real time dynamically configurable rule engine**: rules are entirely user configurable, apply to selected transaction fields (orders, trades, quotes and news) and related entities (financial instruments, market participants, traders, investors) through formulas that define conditions using mathematical and logical operators. Rule flexibility allows real time detection and storage (also for future off line use)

of information on specific events (e.g. anomalous price variation or trading volumes), their frequency or sequence, contingent specific market conditions, importance (alarm scoring), comparison with trading behaviour on other venues for the same financial instruments;

- daily batch diagnostic engine:** diagnostics are based on a set of ready-to-use algorithms to identify potential market abuse and manipulation practices via a daily screening of all market transactions (orders, trades, quotes and cancellations) selecting a subset of transactions to be further analyzed with a complete audit process. User can select: time horizons, trading volumes and reference prices to be monitored and filtering lists of markets, securities, issuers, investors (insiders included), intermediaries etc. to focus alerts' processing. Diagnostics currently implemented in sia EAGLE were designed starting from CESR 2002 indications and updated to guarantee full compliance with Market Abuse Directive and IOSCO principles.
- management of rules and diagnostics alerts:** both Rules and Diagnostics may apply to single entities (basic entities) and/or groups of entities (logical entities). Rules and Diagnostics alerts are historically stored for audit purposes and can initiate an audit process.

This process is supported by a native workflow function and references to a potential abuse case;

- case creation around alerts:** when Rules or Diagnostics generate an alert, all related events are automatically registered, historically stored and a specific case is created for audit purposes. Each case contains all relevant data and information about transactions, reference entities, standard behaviours, rules and diagnostics alerts and thresholds involved, hypothesis of specific market abuse case, case status, abuse confirmation or alert ending. Case definition and audit workflow may be specialized depending on type of potential Market Abuse including different steps and involving different internal actors;
- book rebuilding (replay tool):** for each financial instrument and reference time, this function shows all orders and quotes during the day in terms of event type (input, cancellation, execution), time, quote ID, buy side and sell side (order ID, market participant, quantity, price limit, client). The book can be replayed during the trading day and when the market is closed.
- reporting Tools (optional):** Business Objects is the integrated reporting tool, providing powerful inquiry and reporting features to access information stored into the sia EAGLE application databases;

alternative reporting tools may be integrated if required. End-user may create and manage query and reports through a simple and powerful user interface. Reports may be converted into a non-modifiable format (e.g. PDF) and stored into the application database, linked to one or more suspected abuse case.

sia EAGLE Surveillance Technical overview

sia EAGLE Surveillance solution is based on a Service Oriented Architecture (SOA) and supports loosely coupled service interaction and modular configuration.

sia EAGLE has the following main characteristics:

- is based on a logical architectural component** that provides an infrastructure **consistent with the principles of SOA**. SOA principles require the use of implementation-independent interfaces, communication protocols that stress location-transparency and interoperability, and service definitions that are relatively coarse-grained and encapsulate reusable function;
- is implemented as a distributed, heterogeneous infrastructure;**
- provides a suite of core system services and tools to manage the service infrastructure.**

sia EAGLE standard software deployment environments are the following:

sia EAGLE SUB-Systems	Operating System	DBMS
Core Application system	<ul style="list-style-type: none"> :: Linux RedHat :: HP-UX 11i 	Oracle database 10g Enterprise Edition with Oracle Partitioning
Data Integration system	<ul style="list-style-type: none"> :: Linux RedHat :: HP-UX 11i 	Oracle database 10g
Presentation System	MS Windows XP	-

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