

Product White Paper: Patsystems Risk Informer

The Challenge

Patsystems Risk Informer has been designed to provide sophisticated post-trade risk management across all asset classes in real-time. It integrates seamlessly with diverse data sources and can be extended to support all asset classes within the clearer's portfolio. The provision of accurate and timely information on the margin obligations for traders on derivatives exchanges is a pressing and commercially sensitive requirement and Risk Informer helps clearers avoid excessive administrative costs due to issues with reconciliation.

The Solution

Risk Informer is an event-driven risk management system that calculates initial margin and Profit and Loss (P&L), as well as limit assessments and associated alerts, in real-time. Risk Informer processes recognised events, for example trade fills and price updates, as soon as they are received.

The system calculates key risk management metrics such as initial margin requirements on an intra-day basis, using official, clearing organisation-sourced parameter files. A key strength of the system is that information is drawn from disparate sources, including clearing systems as well as client back offices, and then aggregated and processed in order to derive required risk values.

All relevant information can be analysed by means of an extensive, and intensive, 'slice and dice' approach. The clearer is able to investigate how a particular value for initial margin is derived, or the reason for an account recording a large loss, for example by drilling down through layers of aggregated data until underlying positions become clear.

As a real-time system, Risk Informer ensures that banks and clearers do not have to wait for an overnight process to be completed before becoming aware of potential problems with client trading, such as high margin obligations in excess of available cash resources. Consequently, clearers are able to manage client behaviour far more effectively intra-day and so help to minimise the incidence of excessive risks carried by clients.

Business Benefits

Risk Informer is designed to provide the following value-add services:

- Real-time margin calculation for exchange-traded futures and options, equities, CFDs and FX using official methods sourced from the relevant organisations
- Ability to monitor intra-day risk for Direct Market Access (DMA) clients
- Provide consolidated position management and reconciliation across multiple data sources
- Ability to integrate stand-alone analytical modules, such as SPAN margining, and apply the latest available parameter files, including intra-day updates, released by clearing organisations
- Seamless integration with multiple data sources, including:
 - Trading systems and market price feeds
 - Exchange feeds supplying trade data and settlement prices (e.g. TREX)
 - Back office systems supplying data on accounts and liquidity
- Structured presentation of core data, allowing an extensive 'slice and dice' analysis of trading data
- Stress testing capability with flexible 'what if' scenarios to analyse the impact of specific events on a client's risk profile, such as proposed trades or anticipated price changes
- View of option positions, prices and Greeks based upon underlying contract movements
- Derive accurate futures prices based on spreads
- Cross-exchange product offsetting (e.g. Brent crude versus WTI)
- Offsetting between assets (e.g. currency futures and FX forwards)
- Customisable alerts defined by risk administrators

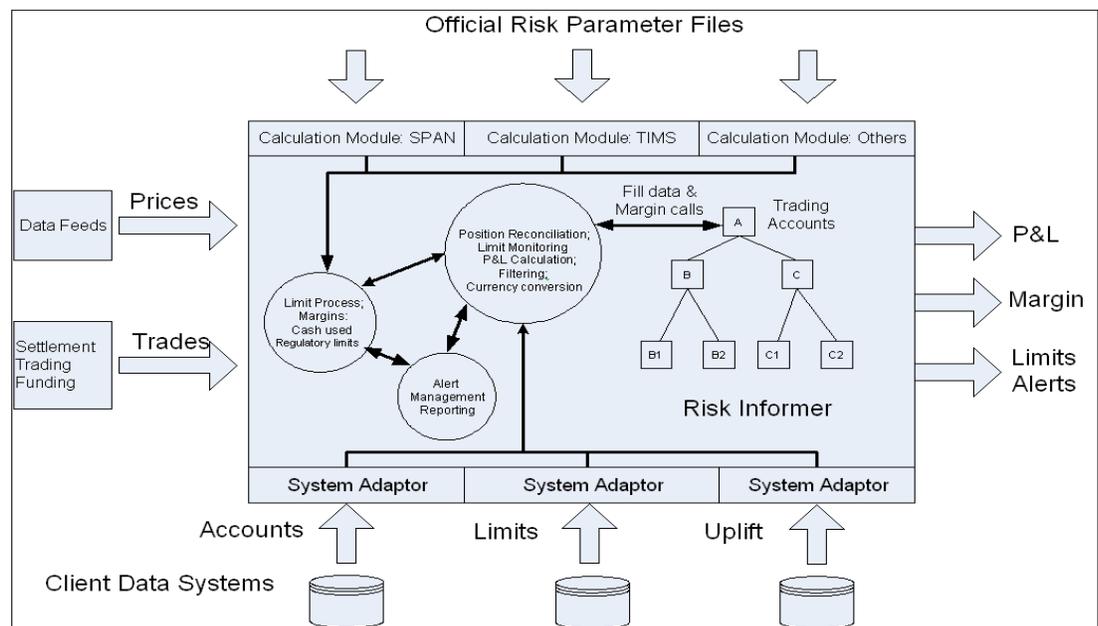
Technical Details

Risk Informer is able to interface with multiple external systems supplying key data, including:

- Exchange feeds supplying filled trade data and settlement prices
- Client back office systems supplying data on accounts and liquidity
- Market price feeds
- Risk parameter files from clearing organisations

Distinct modules are available for each of the margin calculation methods implemented on the system. Similarly, standard interfaces are available for each of the client-specific systems supplying underlying data (such as accounts, limits, etc). The core system focuses on processing events, such as new fills, price updates, risk parameter updates or limit amendments, in real-time.

The following diagram provides an illustration of the Risk Informer implementation model:



Risk Limits

Central to Risk Informer is the ability to specify limits against key data, monitor the behaviour of the data under limit and implement pre-defined actions whenever a limit condition is reached. This means that specific actions, such as email or SMS messages, can be generated whenever a specific limit condition is triggered. All updates and amendments are processed in real-time.

Risk Alerts

Risk Informer supports the definition and implementation of alerts, whereby pre-defined limits, already being monitored by the system, can have a range of messages associated with the status of the limit. Where appropriate, boundary conditions against the underlying limit can be defined (e.g., minimum qualifying value, maximum qualifying value) and a suitable Alert Message defined. Risk Informer also allows SMS or email addresses to be specified against alerts, allowing different messages to be sent to different groups of users depending on severity.

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The status of all active alerts against limits can be reviewed from a single alert monitor screen. User-configurable colour coding provides a heatmap view of all limits in place. An alert monitor displays the latest message released against a given alert, alongside date and time of the alert and the email settings for messages.

Trade Entry

There are two ways for trade data to be introduced into Risk Informer: manual entry via a trade ticket, or the default method of automated entry via a data feed. Data feeds are asynchronous, event-driven processes able to interface with exchange-specific (e.g., TREX) or system-specific data sources. All trade data is captured in real-time.

Margin Calculation

Risk Informer implements margin calculation methods sourced directly from the principal clearing organisation for an exchange. In doing so, the system is able to apply officially sourced parameter and valuation files without intervention. Consequently, all projected security valuations, including those for complex instruments such as options, are drawn from the official market reference source, rather than calculated independently by Risk Informer.

Risk Informer supports the application of different margin rates depending on jurisdiction. Account type is explicitly recognised by Risk Informer as a data attribute, and the appropriate definition is applied as part of the margin calculation process.

About Patsystems

Total FlexAbility

We deliver tailored solutions, built from modular components, to enhance derivatives trading performance and trade processing. Our solutions can range from a plug-and-play module to address a specific issue, to complete high-performance trading systems with global access to an extensive list of key Exchanges.

We work in partnership with our customers to deliver robust systems that align with their business strategies – and have done since our foundation in 1994.

Numerous leading banks, trading houses, hedge funds and professional traders around the world rely on Patsystems' technology for electronic trading in derivatives, FX, energy and other asset classes.

Key Business Areas

Trading systems

- Industry-leading technology for professional traders: front-end and back-end systems that deliver global connectivity on a single screen.

Exchange systems

- A complete end-to-end exchange solution that offers matching, clearing and settlement for derivatives and commodity exchanges.

Risk systems

- Sophisticated pre- and post-trade risk management solutions across multiple asset classes in real time.