

High Performance
Market Surveillance

computershare**smarts**



computershare**smarts** (Securities Markets Automated)

high performance market surveillance

Currently in use by 15 exchanges and regulatory bodies around the globe, SMARTS is the most widely used market surveillance system in the world. SMARTS employs mature, high-performance technology and operates in real time. Based on a modular approach, SMARTS is suitable for emerging and established markets.

Protecting market integrity is critical in fast-paced, volatile investment environments. Computershare understands that full-market automation and trading volume growth require the use of surveillance tools to quickly identify and respond to suspicious trading.

With Computershare SMARTS you can

- Rapidly identify abnormal trading, such as prima facie insider trading, front running, marking the close and wash trades
- Scrutinise behaviour in real time—1,800 trades per second for up to 50,000 securities
- Develop your own proprietary models and alerts within SMARTS without programming
- Easily provide graphic support for litigation, to enhance the understanding of non-financial professionals such as prosecutors and juries
- Effortlessly replay, drill down and visualise real-time or historical data

Parameters mode (Market : demo)

Benchmark period length: 10

Cutoff percentile for benchmarks: 99.5%

100.301
Short-term time period: 0.15

100.302
Medium-term time period: 1.00

100.303
Long-term time period: 7

500.501-502.503.510
Threshold change in price over the last ten minutes of trading: 0.2%

Time prior to close for sampling: 0.05

Threshold change in price over the last ten minutes of trading: 3%

Threshold change in price over the last ten minutes of trading: 3%

Ok Cancel

SMARTS makes it easy to update alert parameters.

Powerful data modeling capabilities

The SMARTS database allows users to examine the performance of liquidity, volatility and transaction costs over time. Users can model any concept from any market—in real time or using historical data—creating a clear picture of normal types of market behaviour against which to proactively measure deviations. Built with advanced technology and developed exclusively for financial markets data, the SMARTS database integrates with other platforms, such as Oracle or Excel, through comprehensive reporting and exporting capabilities.

User-customised alert algorithms

SMARTS alerts capture departures from normal trading behaviour, allowing analysts and investigators to act quickly and effectively. SMARTS comes pre-loaded with existing alert algorithms that are the result of research and practice. In addition, SMARTS allows users to build their own alert algorithms using **Alice**, a proprietary language tailored for financial concepts, such as price and volume. Customisation is easy, with no specialised programming, and users retain intellectual property rights to the unique benchmarks and rules they have developed. A simple GUI front-end, **Aldit**, is provided for rapid changes to general alert parameters, enabling non-technical staff to make changes to alert settings.



Graphical representation of data facilitates easy and rapid identification of suspicious trading behaviour.

integrated customisable powerful

Research Trading and Surveillance)

In addition, SMARTS offers the option to include the following modules:

- **Report:** formal data presentation
- **Inform:** presentation of news and company announcements
- **Facts:** tabular representation of market data
- **Collude:** representation of broker-to-broker trade data
- **Events:** analysis of specific market events on trading behaviour

SMARTS also integrates seamlessly with Computershare's complete suite of trading and settlement systems.

The SMARTS alerting capabilities enable users to

- Automate categorisation of alerts by user-defined intensity levels
- Set up automatic delivery of alerts, based on intensity level, to user-defined destinations such as to specific system folders or individual surveillance analysts
- Record time spent processing alerts for later analysis

Visualisation tools for clarity

SMARTS allows analysts to reconstruct trading—drilling down to details such as client name and exact involvement of a trader or broker at any moment in the trading day. Users can access historical data to examine trader behaviour over time, identifying similar or related patterns.

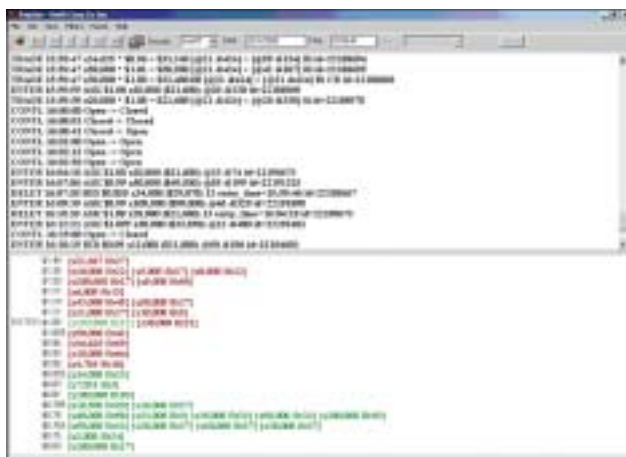
Modular design offers tailored solutions

SMARTS integrated modular design allows users to tailor their SMARTS installation to their specific needs. Every SMARTS installation comes with these core components:

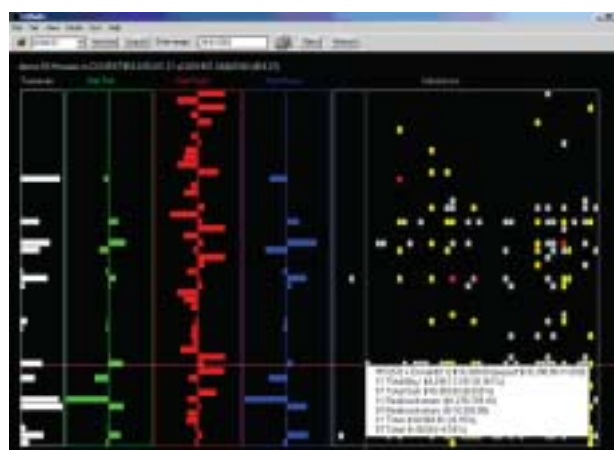
- **Admin:** setting permissions and configuration of user profiles
- **Metrics:** presentation and analysis of market data
- **Alice/Aldit:** alerting language and text editor
- **Almas:** alert management and analysis
- **Spread:** visualisation of trade data in real-time
- **Replay:** detailed step by step replay of trade data

Strength and capability

Computershare Markets Technology has implemented central market systems for exchanges, clearing houses, depositories and surveillance organisations in dozens of national markets. Our extensive understanding of markets, proven project management capability and ongoing research and development programs are backed by the financial strength of a global company. The SMARTS team of dedicated software engineers and security market experts is supported by academic and industry researchers at the Securities Industry Research Centre of Asia-Pacific (SIRCA). Computershare is a world-leading technology provider for the financial and securities industry with offices in ten countries.



Replay enables close scrutiny of market data exactly as it occurred in real time.



Collude shows each broker's trading with other brokers in the market.



market**technology**

orms

smarts

horizon

equator

X-stream

<http://marketstechnology.computershare.com>
<http://smarts.computershare.com>
marketstechnology@computershare.com

Calgary

Telephone +1 403 267 6800
Facsimile +1 403 267 6529

Dubai

Telephone +971 (0) 4 331 2245
Facsimile +971 (0) 331 3212

London

Telephone +44 207 920 0010
Facsimile +44 207 920 0120

Chicago

Telephone +1 312 588 4698
Facsimile +1 312 601 4429

Philippines

Telephone +63 2 848 0720
Facsimile +63 2 848 0727

Sydney

Telephone +61 2 8234 5400
Facsimile +61 2 8234 5455