

Kx Streaming Analytics 4.5

Deliver the insight and context for decisions that matter most

Extracting insights from data enables companies to make better business decisions, but too often more time is spent taming that data rather than tapping its value. As a result, organizations are unable to leverage its opportunities due to the complexities of managing and analyzing the vast volume and velocity of data they experience. The consequences can range from process failure to opportunity loss, or a host of inefficiencies in between that, with the right technology, could be eliminated.

This is true of all industries from finance to Formula 1 racing, from manufacturing to utilities where terabytes and petabytes of data need to be captured and analyzed at ever-increasing speeds to support mission-critical applications. Building and operating a platform that delivers simultaneously high-performance, high-availability, data consistency and accuracy, is difficult and takes time. The alternative is deploying a solution like Kx Streaming Analytics that does it already and gives you back that time – time for actionable insights.

The world of IoT, in particular, is grappling with the enormous challenges and opportunities of big data with one leading analyst estimating that by 2024, at least 50% of enterprise applications in production will be IoT-enabled. For that reason, in version 4.5, we have extended our streaming analytics capabilities with particular focus on system resilience, scalability and enhanced performance that ensure no loss of data and preserve data integrity in the face of extreme conditions. Conditions faced by IoT and industrial deployments where always on, always available, and always right are essential.

CAPTURE ANY DATA



RUN ANYWHERE



ANALYZE AND AUTOMATE



Kx Streaming Analytics Built on the world's fastest time-series database

Kx Streaming Analytics is an integrated platform that runs in the cloud and/or on-premises to enable organizations to reduce costs and improve productivity through anomaly detection, analytics, predictions, corrective action and automation based on both real-time and historical data. It provides full life-cycle data ingestion, processing, analytics, and data management enabling mission-critical operations, 24x7, with no downtime and no data loss - all of your data, in any environment, instantly!

By seamlessly merging streaming data from multiple sources with their historical streams it powers analytics and machine-learning models to unlock insights and take action. Now you can finally start to run those predictive analytics, to automate those processes and to realize those cost-savings and efficiencies you have been promising – fast.

At A Glance



By resolving the technical challenges of capturing, storing and analysing vast amounts of data that overwhelm other systems, Kx Streaming Analytics enables organizations to proactively make better business decisions in real-time.

Highlights

- Ingest more data more quickly with multiple data loaders, sharded tables, and micro-batching
- High availability and fault-resilience to ensure no downtime, no data loss for the most demanding and mission-critical environments with advanced query routing to deliver consistent and accurate results across streaming and historical data
- Scale analytics applications and databases elastically on-line in a high-availability cluster with multi-primary and many secondary nodes
- Enhanced performance and operational management including dashboards and alerts
- Enhanced development / operations to make online upgrades and changes easier

Benefits

- Less time spent on data management, more time for analysis and action
- Identify actionable insights to timescales demanded by the business and customers
- In-built visualization and Machine Learning tool to speed time-to-insights

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Benefits



CAPTURE ANY DATA

Complete: One platform for capturing, storing and analyzing streaming and historical data in multiple formats

Resilient: High-availability, data replication, auto fail-over/fail-back and synchronization for diverse operating environments to protect data and service availability

Open: Easy integration with 3rd party technologies



RUN ANYWHERE

Flexible: Deploy on-premises, in the cloud, on the edge or hybrid variations—the same solution in each case

Extensible: Ability to extend with custom processing, transformations, enrichment, schemas, queries and APIs

Scalable: Ability to scale horizontally and vertically on-line, run in a cluster, ingesting 10s to 100s of TBs per day. Leverage best of breed infrastructure to support diverse workloads at the lowest total cost of ownership

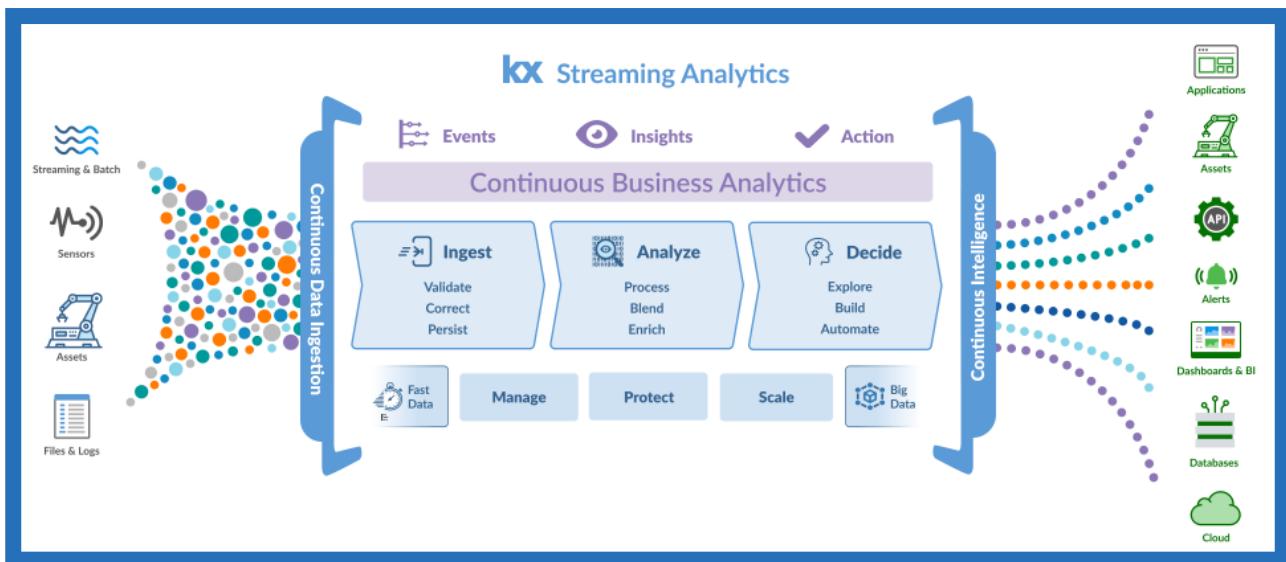


ANALYZE AND AUTOMATE

Immediate: View results “in the moment” with microsecond response times on streamed data for actionable insights

Comprehensive: Real-time analytics blending streaming and historical data for both structured and semi-structured data with embedded machine learning. Advanced query routing across data in motion and at rest to deliver consistent and accurate results across databases and nodes

Actionable Continuous Intelligence: Automate processes and take corrective action based on sensor data with auditable history



Sample Applications

- Financial trading and risk management
- Market surveillance and fraud detection
- Data hubs and energy markets
- Meter and sensor data management
- Factory automation and process control
- Asset monitoring and predictive maintenance
- Digital twin
- Advanced historian and operational analytics
- Anomaly detection and root cause analysis
- Field/edge analytics and control applications
- Real-time product quality analysis
- Predictive maintenance
- Aerodynamic tunnel analytics
- Energy and grid management

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Feature Details

In version 4.5 we have extended capabilities to support industrial IoT mission-critical systems, focusing on resilience, performance, scalability, and development and operations. In combination, these enhancements ensure the continuity, accuracy and availability of data-driven insights in the face of challenging conditions in industrial environments.

Data Ingestion

Ingest more data more quickly

- Multiple parallel data loaders with sharded table support
- Micro-batching to support variable data rates and message sizes from source systems



**CAPTURE
ANY DATA**

Data Protection and Integrity

Ensure data consistency and no data loss

- Shared-nothing architecture for databases in a cluster
- Real-time in-order data replication
- Real-time mediation across redundant data feeds, ensuring continuous ingestion and processing
- Low-latency distributed state information of all nodes and databases
- Advanced query routing for data in motion and at rest across all databases and nodes
- Store anywhere - local disk (with RAID), SAN, NAS, parallel file systems, and cloud
- Point-in-time database snapshots for backups and data migration

High Availability & Fault Resilience

Run applications and databases 24x7 on any infrastructure topology

- Support 24x7 “always on” production operations
- High-availability clusters with node quorum determination
- No single points-of-failure
- Real-time data replication
- Hot/Hot Hot/Warm Hot/Cold and DR deployment topologies
- Fast detection of failure conditions and fail-over
- Manual and automated synchronization and fail-back options
- Configurable tolerance for triggering fail-over of feeds, processes and nodes



**RUN
ANYWHERE**

Flexible Deployment and Development / Operations (Dev/Ops)

Run applications and databases on the cloud, on-premise and edge

- Enhanced memory management with configurable tier migration
- Advanced monitoring of platform, application processes, and nodes
- In-built dashboard visualization and alerts
- Online upgrades to database schemas, APIs, analytics and code
- Non-disruptive online database schema conversions
- Live full or partial database copies for development, testing and analytics
- Table replication and extracts to deliver data to third party systems

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Feature Details (continued)

Scalability

Scale analytics applications and databases elastically on-line

- Tiered storage and compression keeping all data on-line cost-effectively
- On-line data migration across local storage, SAN, NAS and cloud to optimize performance and storage costs
- Clustered nodes and sharded data feeds supports scaling ingestion and analytic performance
- Add/move/remove nodes and data feeds to add capacity and migrate workloads
- Service classes for rapid scaling and managing of compute resources



ANALYZE AND AUTOMATE

Performance

Faster analytics on higher volume and velocity data to deliver actionable insights

- Advanced query routing and load balancing while data is in the data stream and at rest
- Sharded tables
- Staggered periodic processes and virtual in-memory partitions
- Active secondary for improved query performance and machine learning
- Optimized system maintenance processes to deliver consistent low-latency response



About Kx

Kx is a division of FD, a global technology provider with 20 years of experience working with some of the world's largest finance, technology, automotive, manufacturing and energy institutions. Kx Streaming Analytics, built on the kdb+ time-series database, is an industry leading high-performance, in-memory computing, streaming analytics and operational intelligence platform. It delivers the best possible performance and flexibility for high-volume, data-intensive analytics and applications across multiple industries. The Group operates from 14 offices across Europe, North America and Asia Pacific, including its headquarters in Newry, and employs more than 2,500 people worldwide.

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