AVEVA™ Historian

Capture and store high-fidelity industrial data. AVEVA Historian is a process database integrated with operations control that gives you access to your process, alarm, and event history data.

Combining advanced data storage and compression techniques with an industry-standard query interface, AVEVA Historian brings high-performance simplicity to your team. It makes sure your team is fully aware of operational performance for faster troubleshooting and more informed decisions.

Real-time decisions from a secure and trustworthy set of industrial data

AVEVA Historian is a leading large-volume plant data historian that unites a high-speed data acquisition and storage system with a traditional relational database management system. It facilitates access to plant data using open database standards.

You can deploy Historian to monitor a single process or an entire facility, collecting and storing all vital process, alarm, and event data – up to 2 million tags. Capable of storing data locally and aggregating data at the corporate level, AVEVA Historian simplifies the most demanding data reporting and analysis requirements. It can even encrypt data collection and tiering for the highly secure transfer of data over networks.

Historian includes an option to amend or correct data, which helps resolve issues stemming from data feeds and communications subject to intermittent interruption or data sources experiencing outages.

Historian always protects the original collected data values to ensure that you can meet regulatory requirements, while fulfilling the need for amended values and internal reporting within the same system. With AVEVA Historian, you have it both ways.

You can easily access data from Historian through a comprehensive set of integrated reporting and data analysis tools. From your desktop, laptop, tablet or smartphone, you can reach Historian data 24/7 – helping you better manage and improve your process. AVEVA Historian also supports a wide range of integrations both on premises and in the cloud.

Built for the specific demands of industrial processes across industries, Historian is the perfect complement to AVEVA's world-leading operations control solutions for Human Machine Interface (HMI) and Supervisory Control and Data Acquisition (SCADA).

Business value

- A complete and accurate operational history provides a foundation for faster troubleshooting and facilitates discovery of high value process improvement opportunities.

- Flexible, scalable implementation options reduce IT costs and accelerate system ROI. High availability and disaster recovery options help ensure business continuity.

- Comprehensive reporting and data analysis options enable more team members to gain value from your process history and having access to data enhances collaboration

High performance industrial database built for data integrity

AVEVA Historian captures plant data hundreds of times faster than a standard database. It then saves that data, using our "history block" technology, in a fraction of the space that a standard database requires.

Because of the differences between time series information and conventional transactional data, conventional relational database technology is often not suited to an industrial environment. AVEVA has designed Historian to manage the continuum of high-speed values experienced in time-series data, along with alarm and event data. It provides a single data repository for your operational records.

Our storage engine uses only 2% of the disk space the same volume of data would require to be stored in a relational database. This means AVEVA Historian can capture very high-resolution data on many data tags ensuring you have the data you need to understand and solve the most difficult process and equipment problems.

Historian combines front-end, high-speed data collection with time series extensions to an embedded Microsoft® SQL Server® relational database. This combination optimizes both storage and retrieval performance. Historian does not store data directly in Microsoft SQL Server tables, but instead utilizes history block technology.
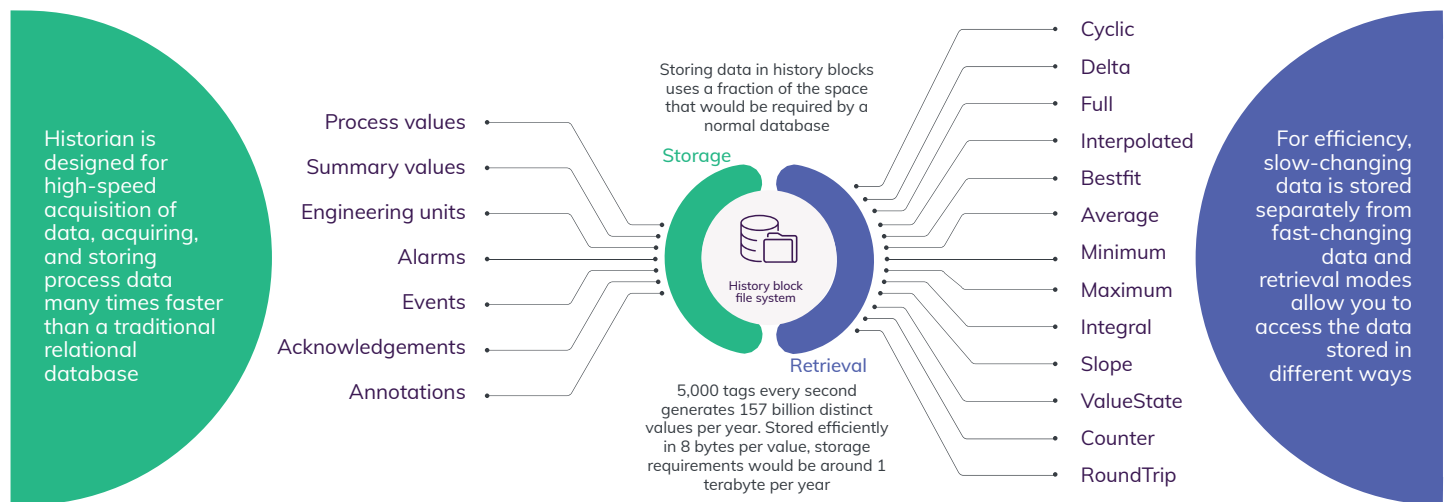
This means that you don't have to purge your database as the size of your database grows – ever. You can move or transfer history blocks. Our patented "swinging door" data storage algorithm greatly reduces data storage requirements while preserving important data features.

> AVEVA Historian compresses data as much as 40 times more than conventional relational database systems

Network efficiency is a key consideration for industries with assets or facilities connected via low bandwidth data communications systems. AVEVA Historian has increased network efficiency by up to 92%. It ensures all high-resolution data is captured accurately every time.

This data can sometimes be intermittent, late, or come in bursts, straining the ability of a standard database to keep up. The high performing AVEVA Historian data storage engine, however, can handle bursts of late data without adversely affecting system loading. Historian can even handle data coming in from systems with mismatched system clocks, preserving the correct data sequence automatically.

This powerful feature allows you to rely on data to make better decisions in less time, without having to dedicate effort to data cleansing.

Historian is designed for high-speed acquisition of data, acquiring, and storing process data many times faster than a traditional relational database

Process values
Summary values
Engineering units
Alarms
Events
Acknowledgements
Annotations

Storing data in history blocks uses a fraction of the space that would be required by a normal database

Storage

History block file system

Retrieval

5,000 tags every second generates 157 billion distinct values per year. Stored efficiently in 8 bytes per value, storage requirements would be around 1 terabyte per year

Cyclic
Delta
Full
Interpolated
Bestfit
Average
Minimum
Maximum
Integral
Slope
ValueState
Counter
RoundTrip

For efficiency, slow-changing data is stored separately from fast-changing data and retrieval modes allow you to access the data stored in different ways
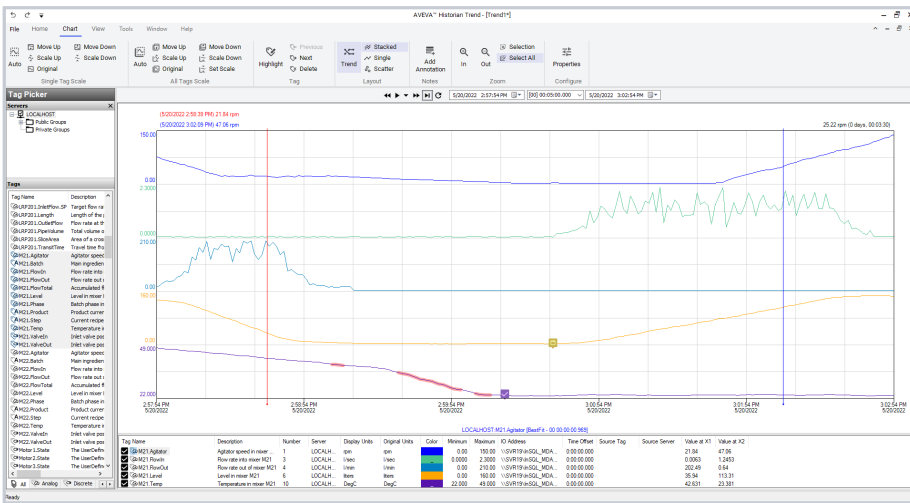
Data analysis and reporting with AVEVA™ Historian Client

Being able to use data is just as important as storing it. AVEVA Historian Client empowers workers with real-time operational data. It enables users to quickly troubleshoot issues, identify cost-saving opportunities, and improve production efficiency. The perfect complement to AVEVA Historian, AVEVA Historian Client provides data trending and reporting capabilities, including integration with Microsoft Excel®. AVEVA Historian Client's data analysis and reporting places real-time and historical process data into the hands of the people most responsible for industrial process performance: operators, engineers, and operations managers.
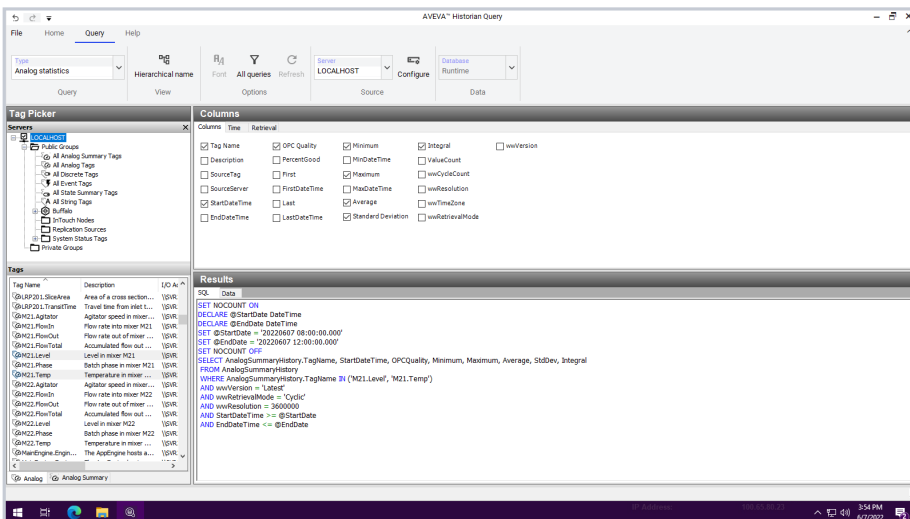
Trend

The data graphing tool provides a range of charting and formatting capabilities for creating data analysis charts for real-time and historical data trend analysis, faster troubleshooting, and process improvement. It offers multiple types of analysis displays and reports, such as Trend charts, X-Y Scatter plots, and Batch trend charts. View live data or replay stored values with alarms and annotations visualized directly on the trends.
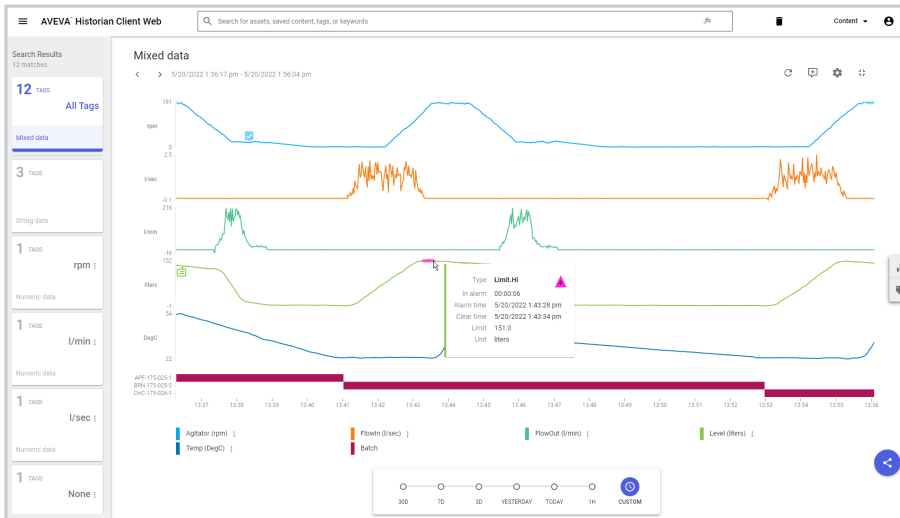

Query

Eliminate the need for SQL expertise with this easy-to-use tool for creating database queries. Craft your query visually and toggle between the query code and live results. Our query tool can be used in tandem with Trend and the Microsoft Excel add-in.
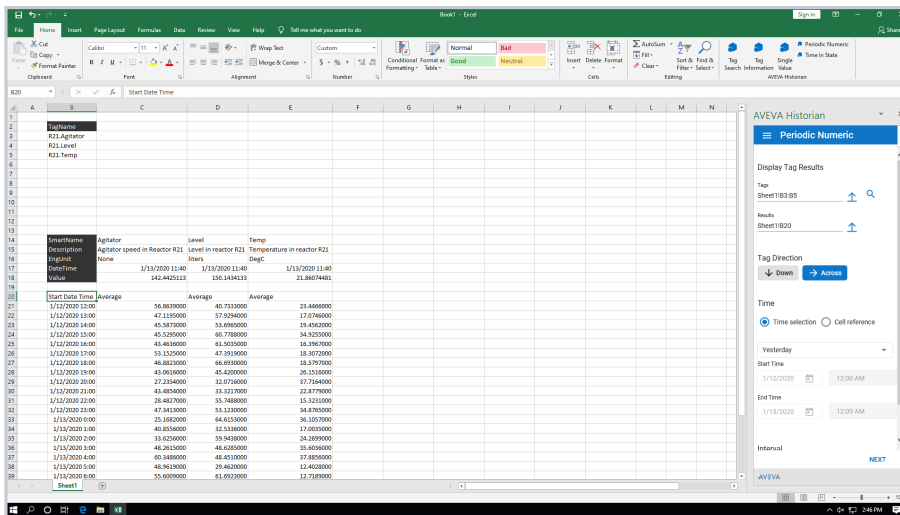
Web

This interactive web browser application enables easy searching, analyzing, and sharing of historical information. Comprehensive search indexes all existing tags, user generated keywords, and content names. Create, save, and share personal content, conduct ad hoc analyses, as well as build, save, and share dashboards based on user-defined keywords.
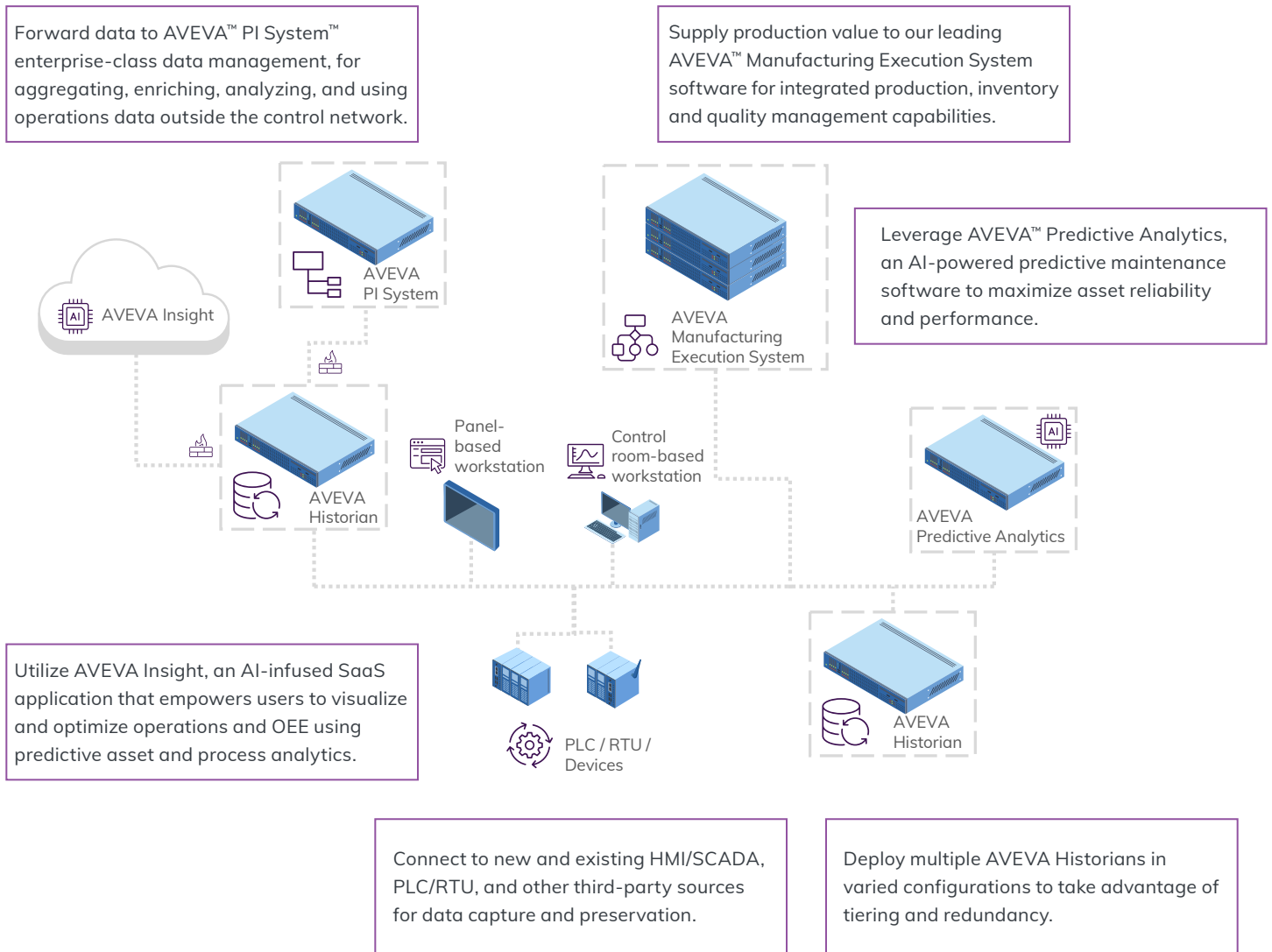

Excel add-in

This Microsoft Excel add-in simplifies the creation of rich data reports using AVEVA Historian data. Filter and select the exact tags you want to import to Excel. Employ the tag analysis feature to generate graphs and trends, create statistics, and return configuration and limit information.
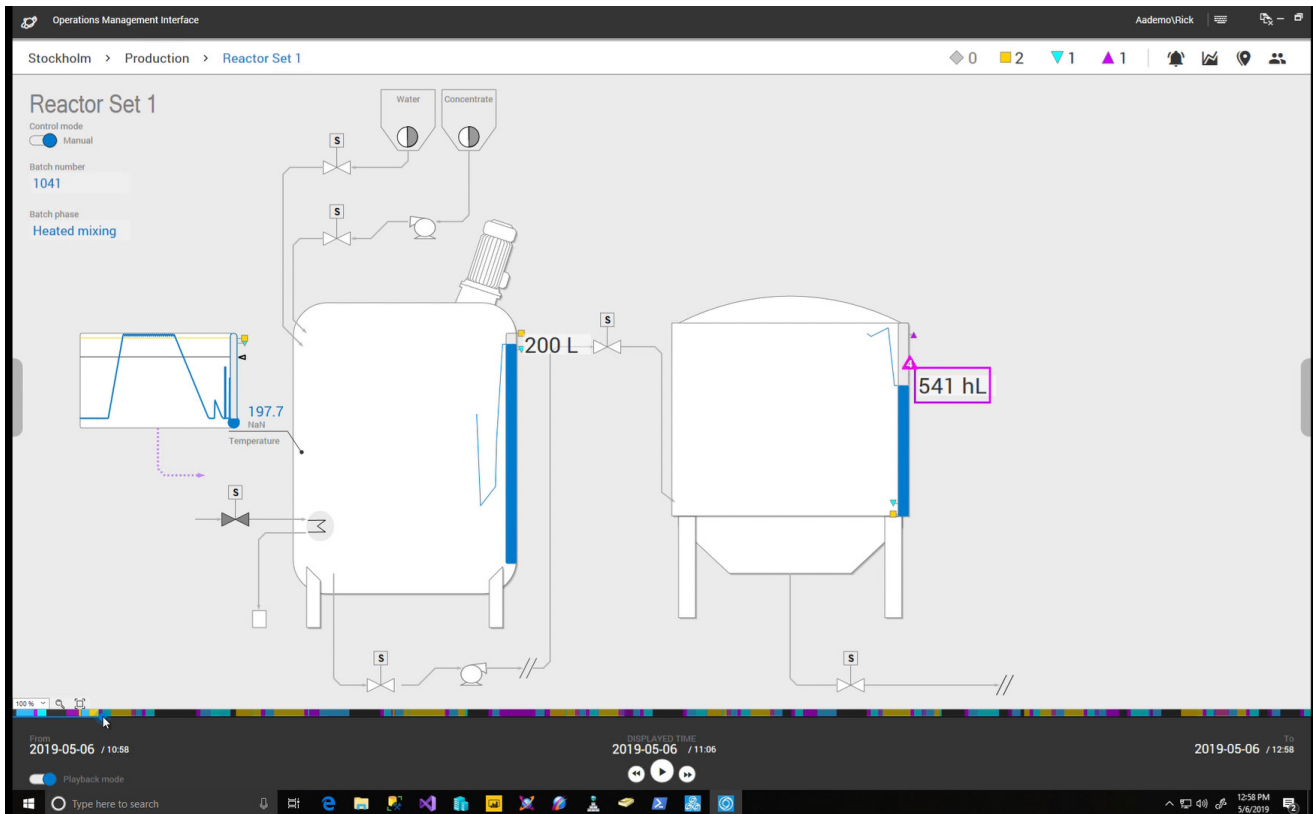
Continuity of data with a common digital thread

A digital thread represents an ideal of a connected data flow and integrated view of an asset's data throughout its lifecycle across traditionally-siloed functional perspectives. AVEVA Historian supports this concept through hybrid SaaS (Software-as-a-Service) integration and extension capabilities that are simple to configure and ensure continuity of data throughout your entire operational system.

Whether you are looking to make your industrial data cloud accessible with SaaS tools, such as AVEVA™ Insight and AVEVA™ Data Hub, or to complement existing on-premises operations management investments, AVEVA Historian provides secure and trustworthy data to supporting applications.

Forward data to AVEVA™ PI System™ enterprise-class data management, for aggregating, enriching, analyzing, and using operations data outside the control network.

Supply production value to our leading AVEVA™ Manufacturing Execution System software for integrated production, inventory and quality management capabilities.

Leverage AVEVA™ Predictive Analytics, an AI-powered predictive maintenance software to maximize asset reliability and performance.

AVEVA Insight

AVEVA PI System

AVEVA Manufacturing Execution System

Panel-based workstation

Control room-based workstation

AVEVA Historian

AVEVA Predictive Analytics

Utilize AVEVA Insight, an AI-infused SaaS application that empowers users to visualize and optimize operations and OEE using predictive asset and process analytics.

PLC / RTU / Devices

AVEVA Historian

Connect to new and existing HMI/SCADA, PLC/RTU, and other third-party sources for data capture and preservation.

Deploy multiple AVEVA Historians in varied configurations to take advantage of tiering and redundancy.

Replay historical data from AVEVA Historian through AVEVA Operations Management Interface to play back what occurred – excellent tool for training new hires, troubleshooting and improving UI/UX.

Process database for operations control

AVEVA Historian is purpose-built for process and operations control applications with native integration to AVEVA's world-leading HMI/SCADA solutions. With AVEVA Historian, you can use features like embedded trends and historical playback in concert with AVEVA's HMI/SCADA to bring a new level of situational awareness and performance insight to your operations.

Historian equips you to store data at the resolution of your process. It also allows you to retrieve data at the resolution of the problem you are trying to solve. Whether coupled with additional AVEVA software or as an independent solution added to existing tools, AVEVA Historian offers a process database that is simple to configure, manage, and use. It enables operational diagnostics and troubleshooting at the source, providing operators, engineers, and process managers with both operational value and a cost-effective industrial solution.

For more information on Historian,
please visit: aveva.com/en/products/historian

AV=VA

aveva.com

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What's new
- Historian 2023
  - Historian Client 2023

New in AVEVA Historian and Historian Client 2023

Create more meaningful metrics using ad hoc expressions

- Rich function library
- Interactive editor in Historian Client
- Use directly in SQL, REST, and SDK interfaces

Improved data sharing with other systems

- Replication to AVEVA™ PI System™ and AVEVA™ Data Hub
- Simpler, faster backfill

Modernized user interfaces

- Ribbon in Historian Client
- New modern look in Historian Client web
- New icons in Operations Control Management Console

Improved Excel Task Pane add-in

- Access detailed data (full, delta)
- Streamlined workflows

Security Hardening

- Simple HTTPS option for Historian Client web
- Insecure communications disabled by default
- Remote data collection hardening (remote IDAS)

AVEVA Communication Drivers

- MQTT Sparkplug Publisher
- MQTT Pub import/export
- OPC UA reverse connect

Learn more about AVEVA Historian: aveva.com/en/products/historian