AVEVA™ PI Server

Proven, on-premises industrial data storage, enrichment and analysis

AVEVA PI Server is industry's leading enterprise-class solution for aggregating and contextualizing real-time, time series and event-based data on-premises. AVEVA PI Server is natively integrated with CONNECT, the cloud-based industrial intelligence platform, to make operations data available to trusted stakeholders in any location, on any device. Now you can give decision-makers within operations and beyond a single, trusted source of high-fidelity data to discover valuable insights and make data-driven decisions.

AVEVA

Transforming data into information

By the time you take your first sip of coffee, volumes of new data have been generated by daily operations. Your business can't afford to miss out on the insights reflected in real-time, time series data. Unfortunately, critical operations data is too often scattered, siloed or difficult to understand, making it hard for your engineers and analysts to benefit from the data.

That's where AVEVA PI Server comes in. It acts as a single source of truth for operations data, allowing you to collaborate more easily across your enterprise. AVEVA PI Server delivers real-time, contextualized information so users can quickly gain insights and make the critical decisions that drive progress, fuel digital transformation and benefit your bottom line.
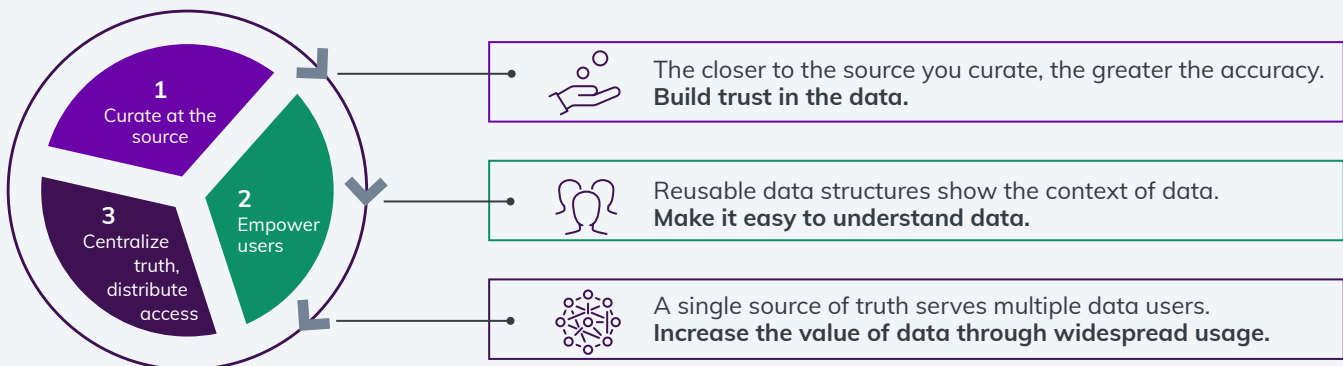
AVEVA PI Server unifies disparate data sources to create a foundational system of record for youroperations data. When your data is in one accessible place, it's easier to identify anomalies, monitor health and safety, track resource usage, and find waysto boost productivity. It transforms raw historical data streams and context into valuable, predictive information and operations insight.

Trusted by thousands of companies – and more than two-thirds of the industrial Fortune 500 – AVEVA PI Server is far more than just a datastore.

At a glance:

- Securely archive decades worth of time-series operations data.
- Gather data from disparate sources and formats into a single location.
- Contextualize, refine and analyze data to uncover operations and business insights.
- Capture and compare data from events you define.
- Set up notifications to receive automatic alerts about changes in your operations.
- Enable secure audit trails to ensure you remain compliant with government and industry regulations.
- Protect your valuable data through robust end-to-end security.
- Make operations data available to decision-makers at every level of your organization.

Accelerate data-driven operations

1 Curate at the source

2 Empower users

3 Centralize truth, distribute access

The closer to the source you curate, the greater the accuracy. **Build trust in the data.**

Reusable data structures show the context of data. **Make it easy to understand data.**

A single source of truth serves multiple data users. **Increase the value of data through widespread usage.**

Three data management design principles create a data-driven culture for industrial operations. Capture and curate data at the source to build trust, use expert-defined data visualizations to make data easy to understand and share data more widely to increase its value and engage your entire organization.

Anatomy of AVEVA PI Server

AVEVA PI Server: Store, structure, analyze, notify

The key elements of AVEVA PI Server include the data archive, asset framework, asset analytics, event frames and notifications. These powerful features work together to turn raw data into meaningful operations insight.

Data archive

Data archive is the industrial-focused data storage and access engine of AVEVA PI Server. It can store millions of tags and thousands of values per second over multiple decades. No matter what kind of sensor-based measurements or process data you collect, data archive lets you store and retrieve it rapidly. Thanks to its native support for data with future time stamps, you can even store forecasts, predictions, and projections—meaning you can foresee challenges and make adjustments in real time.

Asset framework

Asset framework (AF) is a flexible, no-code tool for building custom data structures that add meaningful context and actionable insight to your operations data. With AF, you can:
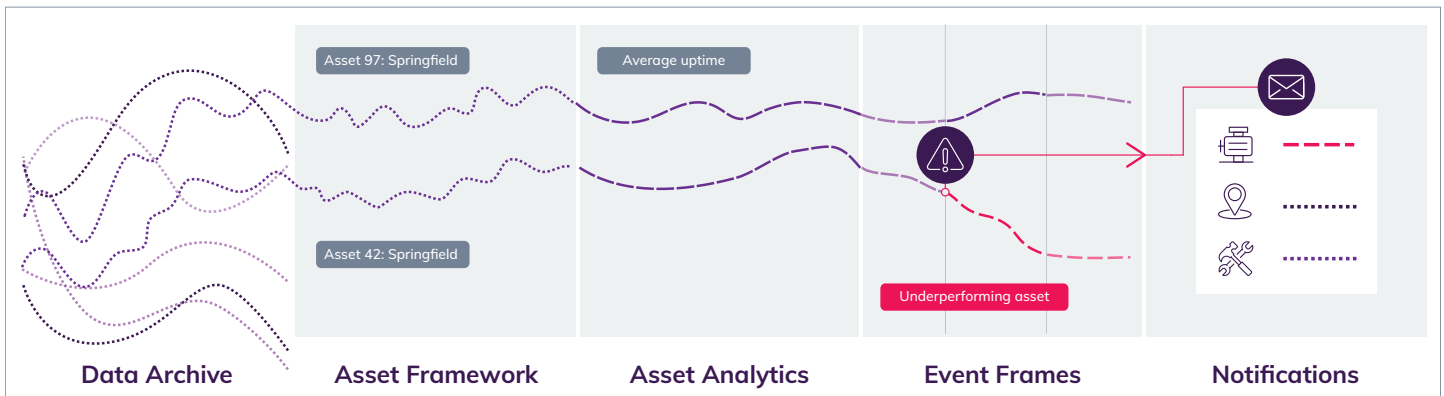
- **Attach descriptive, human-friendly labels.** For example, you can mark an individual data tag or data stream as a "flow rate," "temperature" or "vibration." Forget about cryptic codes; with AF, data makes sense to people across your enterprise – not just SCADA expert.

- **Organize data intuitively into logical asset hierarchies and reusable data structures.** You can group data related to a specific piece of equipment or asset, combine data from multiple assets at a given site, roll results up to KPIs and compare sites across the company. Rapidly compare asset performance and health by plant, geography, process line or any other representation that makes sense to your organization.

- **Incorporate data from outside AVEVA™ PI System™.** AF can organize and display data from other sources, such as relational data from an external maintenance database or an ERP system. No matter how many operations or enterprise databases you have, AF ensures you'll have a single access point. System administrators can enjoy peace of mind knowing that AF maintains permissions securely and centrally.

Asset analytics

Asset analytics allow you to transform raw data into actionable KPIs using customizable calculations. Create simple or complex calculations with an easy-to-use interface and a rich set of built-in functions. Perform everything from simple averages and unit conversions to more complex calculations such as total energy used or days of raw material remaining. Say goodbye to manual spreadsheets and delays caused by miscalculations. With asset analytics, every calculation is consistent, centralized and visible to everyone in the organization.

AVEVA PI Server turns data into decision-ready information

Asset 97: Springfield
Average uptime
Asset 42: Springfield
Underperforming asset

| Data Archive | Asset Framework | Asset Analytics | Event Frames | Notifications |

Take the guesswork out of deciphering data. Translate high-fidelity data from machine-speak into human language with intuitive descriptors, standardized KPIs, and configurable event summaries and alerts.

Event frames

Event frames allow you to pinpoint key events in your operations. Process deviations, batch phases, equipment start-ups and other significant operations events are easiest for you to understand through comparison with similar occurrences. Event frames trigger data summaries based on user-defined process thresholds or KPIs, allowing you to bookmark distinct moments for analysis. Compare production runs, conduct downtime analysis or replicate best practices.

Event frames are easy to configure and do not require programming skills or database expertise. The syntax can be as simple as "pump efficiency < 75%."

Notifications

Built on event frames, notifications keep you informed of performance anomalies or deviations by alerting you in real time when a data stream moves beyond specified parameters. Notifications make it simple for teams to isolate issues and perform root cause analysis. They can include summary statistics and links to troubleshooting displays, to eliminate tedious monitoring and give teams the information they need to make quick decisions.

Proven for critical operations

AVEVA PI Server has been an integral component of operations in essential industries for decades – so you can be sure it's hardened for the highest levels of reliability, security and mission-critical scenarios.

Software maintenance is unavoidable, hardware failure can happen and network interruptions do occur. But AVEVA PI Server can be configured for high availability to keep your critical operations accessible no matter what.

AVEVA PI Server runs on Microsoft Windows and Windows Core OS to deliver the best possible performance. You can also deploy it on cloud infrastructure to take advantage of the cost savings. AVEVA PI Server uses Windows authentication to ensure full and tight security across all domains.

To protect data integrity, AVEVA PI Server also provides auditing tools to record the who, what and when for all changes that affect your data. These tools support stringent industry electronic reporting requirements such as US FDA 21 CFR part 11 or rules imposed by the Environmental Protection Agency (EPA) and other quality-oversight agencies. For highly sensitive and regulated environments, AVEVA PI Server can even be implemented in compliance with NERC CIP, NIST 800-53 and NIST 800-82 requirements.

For customers who operate in an environment where stability is prioritized over new functionality and who cannot easily validate new software releases in their production environments, we continue to support a feature-stable version of AVEVA PI Server, which includes all the features noted above and receives only critical updates and fixes.

Hybrid-ready feature release

The latest version of AVEVA PI Server (2023) is available as part of an integrated, hybrid data infrastructure solution, sold as a subscription paid for using AVEVA Flex credits. This hybrid solution has all the components you need to expand and scale your on-premises data infrastructure as operations expand to encompass data sources outside the primary control network and connect with users, tools and applications in the cloud.

AVEVA PI Server (2023) includes support for OpenID Connect (OIDC) and Transport Layer Security (TLS). OIDC support gives you the option to leverage AVEVA Connect or other OIDC-compliant identity solutions and enable single sign-on within your enterprise. TLS encryption enhancements strengthen the data privacy and integrity features built directly into AVEVA PI Server.

We understand the importance of keeping your critical software updated without disruption, which is why with each release of AVEVA PI Server, we offer deployment tests you can use to validate the new software in your environment.

An integrated portfolio

AVEVA PI Server is the heart of AVEVA PI Data Infrastructure, a fully integrated hybrid data solution that helps you collect, enrich, visualize and share operations data throughout your organization: at the industrial edge, within and across multiple plants and operating sites, in the cloud and within a community of trusted business partners.

Combining AVEVA PI Server with complementary products such as AVEVA PI Vision, AVEVA PI DataLink and AVEVA PI Integrator, lets you develop deeper insight into your operations and make data-driven decisions that maximize efficiency, reach sustainability goals and increase profitability. Let AVEVA PI Server help you provide high-fidelity, real- time, time series data to more decision-makers in your organization.

- Deliver data to staff monitoring operations in remote locations.
- Assist non-expert staff to visualize operations data in meaningful ways, such as by asset, processing step or location.
- Combine real-time and historical data as the basis for spotting anomalies and making predictions.
- Scale your industrial data infrastructure as your business grows through native integration with CONNECT.
- Aggregate data from hundreds or thousands of sensors or IIoT devices to visualize your entire operating environment.

Reach out now to meet with an AVEVA solution expert and discuss your specific use cases. They can show you a demo of how AVEVA PI Server can deliver value to your organization.

For more information, please visit:
aveva.com/en/products/aveva-pi-server

aveva.com