DATASHEET

AVEVA™ PI Server

Proven system of record for critical operations data

AVEVA PI Server is the real-time data storage, normalization, analytics, and notification engine at the center of AVEVA™ PI System™.

Transforming data into information

By the time you take your first sip of coffee, this morning's data is already old news. Your business can't afford to miss out on the critical operations insights that come from accurate and reliable real-time data. Unfortunately, critical operations data is too often scattered, siloed, or difficult to access, making it hard for your engineers and analysts to benefit from the data.

That's where AVEVA PI Server comes in. AVEVA PI Server acts as a single source of truth for operations data, allowing you to easily share it across your enterprise. It delivers real-time, contextualized information so users can quickly gain insights and make those critical decisions that drive progress, fuel digital transformation, and benefit your bottom line.

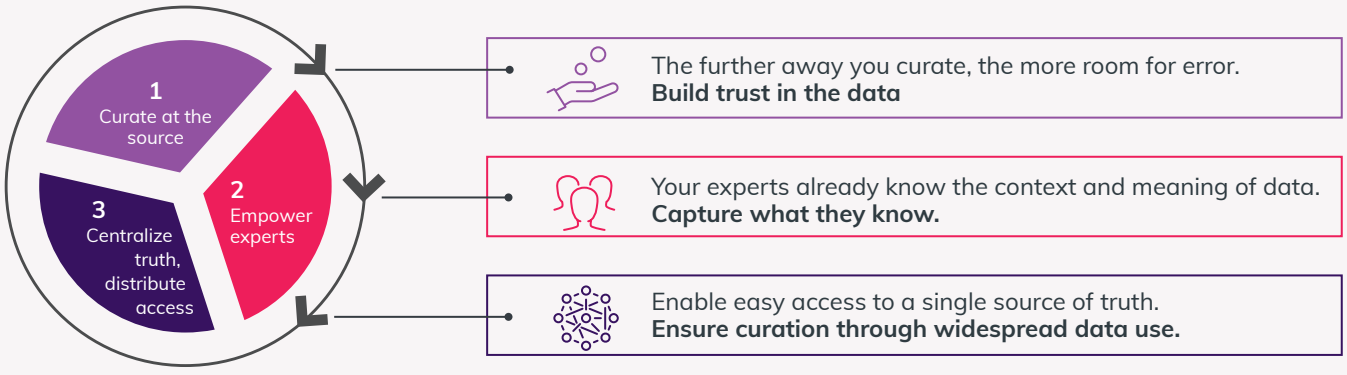
PI Server unifies disparate data sources to create a foundational system of record for your operations data. When your data is in one accessible place, it's easier to identify anomalies, monitor health and safety, track resource usage, and find ways to boost productivity. It transforms raw historical 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 – PI Server is far more than just a datastore.

At a glance:

- Securely archive decades worth of time-series and operations data. Make it available to the people who need it at every level of your organization.
- 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 in your organization.

Accelerate data-driven operations



Three data management design principles help you create a data-driven culture for operations. The keys are building trust through early curation, leveraging existing expertise, and removing barriers to access so that you engage your entire organization.

Anatomy of AVEVA PI Server

AVEVA PI Server: Store, structure, analyze, notify

AVEVA PI Server includes Data Archive, Asset Framework, Asset Analytics, Event Frames, and Notifications. These features work together to securely store, curate, and contextualize operations data.

Data Archive

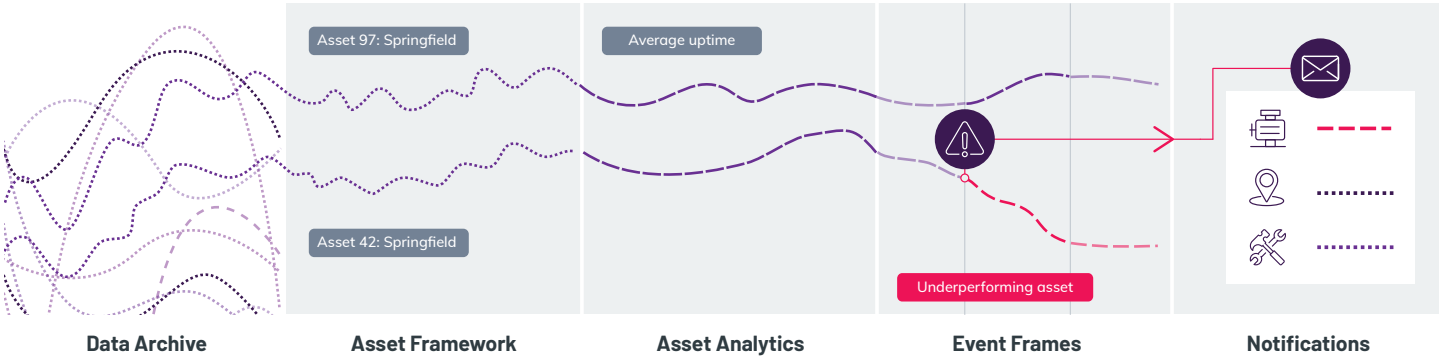
Data Archive is the data custodian and engine of AVEVA PI Server. It can store millions of tags and thousands of values per second over multiple decades. No matter what kind of sensor-based measurements or process data you collect, Data Archive lets you store and retrieve it rapidly. Thanks to its native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

Asset Framework

Asset Framework (AF) allows you to add meaningful structure and actionable context to your operations data. 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 experts.
- Organize data intuitively into logical asset hierarchies and reusable data structures. Group data related to a specific piece of equipment or asset. You can even collect multiple assets for a given site, roll up those 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 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 those permissions securely and centrally.

AVEVA PI Server turns data into decision-ready information



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.

Asset Analytics

Asset Analytics allows you to transform raw data into actionable KPIs using streaming 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 hundreds of spreadsheets and arguments over miscalculations. With Asset Analytics, every calculation is consistent, centralized, and visible to everyone in the organization.

Event Frames

Event Frames allow you to pinpoint key events in your operations. Process deviations, batch phases, equipment start-ups, and more are significant operations events that 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 percent.”

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, eliminating tedious monitoring and giving teams the information they need to make quick decisions.

Proven for critical operations

AVEVA PI Server has been an integral component of operations management in essential industries for decades. That's why 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.

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

To protect data integrity, PI Server also provides auditing tools to record the who, what, and when for all changes that affect your data.

These auditing 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, PI Server can even be implemented in compliance with NERC CIP, NIST 800-53, and NIST 800-82 requirements.

We understand the importance of keeping your critical software current without disruption. That's why we provide deployment tests to ensure that your system remains fully functional after an update or upgrade – so you can get back to the work that matters. With PI System deployment samples, we're also making it easier for you to quickly deploy and test the latest versions prior to full deployment, whether on-premises or on a private cloud within AWS, Microsoft Azure, or Google Cloud Platform.

PI System goes wherever your business goes

AVEVA PI Server sits at the heart of PI System, managing high volumes of critical real-time data at operations sites and plants. However, the value of our approach to data management is not confined to the four walls of the plant.

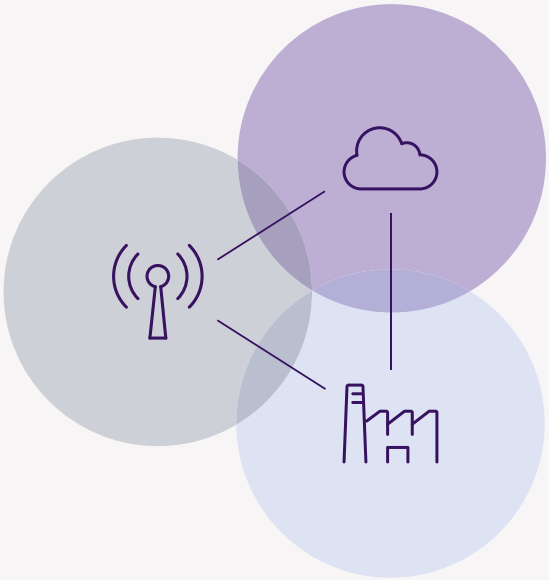
Expand your world of operations insights – from the plant to the industrial edge and up to the cloud – with the integrated PI System. AVEVA Data Hub, our cloud-native data platform for aggregating, contextualizing, and sharing real-time and historical operations data, allows you to take advantage of the scalability and cost efficiencies of the cloud. Make your data easily and securely available to your remote workers, data analysts, business partners, and even your end clients.

Edge Data Store is our rugged IIoT storage solution to connect the edge and the cloud. Valuable data is often left stranded outside of the process control network.

Our edge technologies enable you to capture, access, and act on data from remote and hard-to-reach locations with sensor-enabled IIoT devices.

Together, AVEVA PI System on-premises, edge, and cloud products form a secure, end-to-end platform to combine data from remote assets, plants, and other operating sites across your enterprise and throughout your extended ecosystem.

Seamless edge-to-cloud data management with the integrated PI System



At the edge
Pervasive, real-time data collection from sensors, IIoT devices and remote assets

In the cloud
Scalable cloud service providing data access to trusted internal and external users

On-premises
Enriched industrial data available 24/7 for critical operations

PI System helps you collect, store, interpret, and share real-time operations data seamlessly from the industrial edge to the plant, and up to the cloud.