DATASHEET

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 share operations data between trusted collaborators from 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.

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.

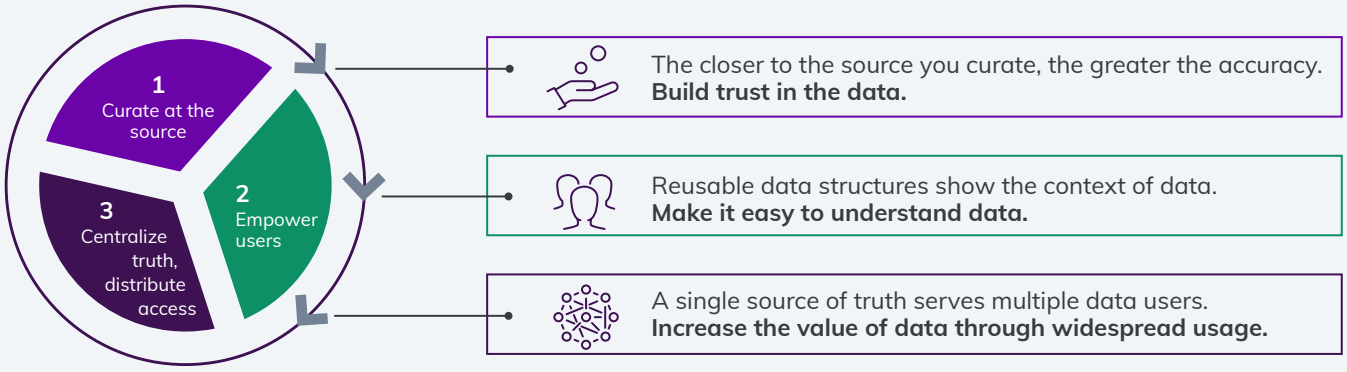
AVEVA PI Server unifies disparate data sources to create a foundational system of record for your operations data. When your data is in one accessible infrastructure, it's easier to identify anomalies, monitor health and safety, track resource usage, and find ways to boost productivity. It transforms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

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.

Accelerate data-driven operations



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 and your collaborators.

Anatomy of 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

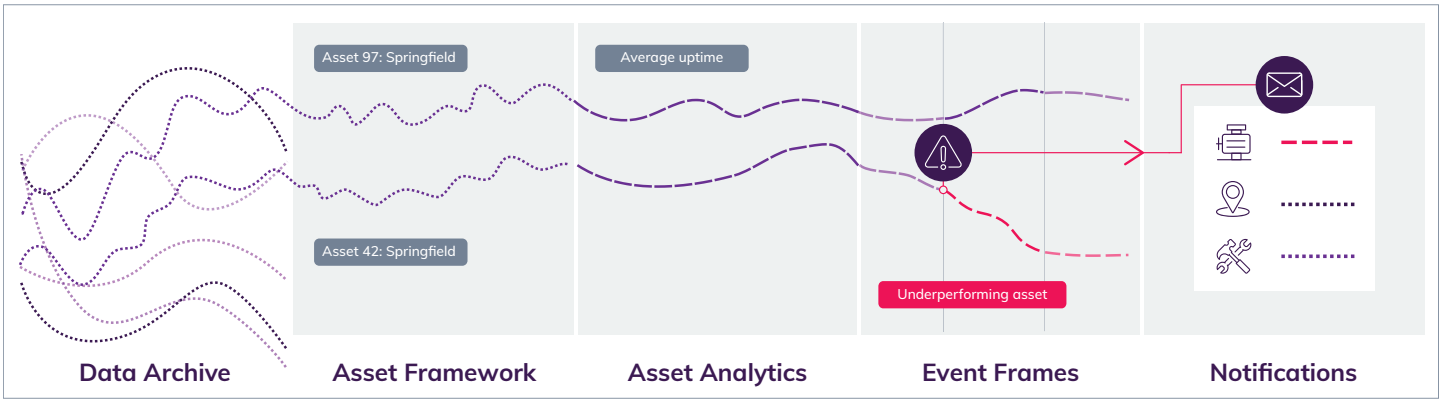
Asset framework is a flexible, no-code tool for building custom data structures that add meaningful context and actionable insight to your operations data. With asset framework, you can:

- **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 asset framework, data makes sense to people across your enterprise—not just SCADA experts.
- **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.
- **Incorporate data from outside AVEVA™ PI System™.** Asset framework 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, asset framework ensures you’ll have a single access point. System administrators can enjoy peace of mind knowing that asset framework 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.

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.

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 can use 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.

AVEVA has complementary AVEVA PI Server deployment options that each serve as important building blocks for an industrial data infrastructure. For those areas in your organization that have a low tolerance for software changes, the AVEVA PI Server core option works best. It includes all the features noted above and ensures that you can maintain reliable and secure data management in sensitive areas subject to regulations, validation, and stringent electronic reporting.

Hybrid-ready data management

The AVEVA PI Server hybrid option enables hybrid data management in areas tolerant of frequent innovation and in new use cases in expanding, distributed enterprises. It also includes all the features noted above as well as enterprise-wide data management capabilities tightly integrated with other AVEVA products and services.

For example, AVEVA PI Server hybrid includes support for OpenID Connect (OIDC) and Transport Layer Security (TLS), enabling you to use claims-based authentication. OIDC support gives you the option to leverage the industrial intelligence platform CONNECT or other OIDC-compliant identity solutions as an identity provider. It also enables single sign-on within your enterprise. TLS encryption enhancement strengthens the data privacy and integrity features built directly into AVEVA PI Server. You can reduce administrative burdens with other hybrid capabilities, like the ability to automatically rotate TLS certificates or to offload asset framework SQL administrative tasks to the cloud-managed SQL solution Azure SQL Database.

Both reliable and secure AVEVA PI Server deployment options continue to advance over time, receiving upgrades and fixes that support their requirements. 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: at the industrial edge, within and across multiple plants and operating sites, in the cloud and within a community of trusted business partners.

AVEVA PI Data Infrastructure 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. It includes both AVEVA PI Server deployment options and is sold as a subscription paid for using AVEVA Flex credits.

Combining AVEVA PI Server with complementary products such as AVEVA PI Vision, AVEVA PI DataLink and AVEVA PI Integrator for Business Analytics, 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.

- Deliver data to staff monitoring operations in remote locations.
- Assist non-expert staff in visualizing operations data in meaningful ways, such as by asset, processing step or location.
- Combine real-time and historical data and data with future time stamps to spot anomalies and inform decisions.
- Scale your industrial data infrastructure as your business and collaborations grow 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