



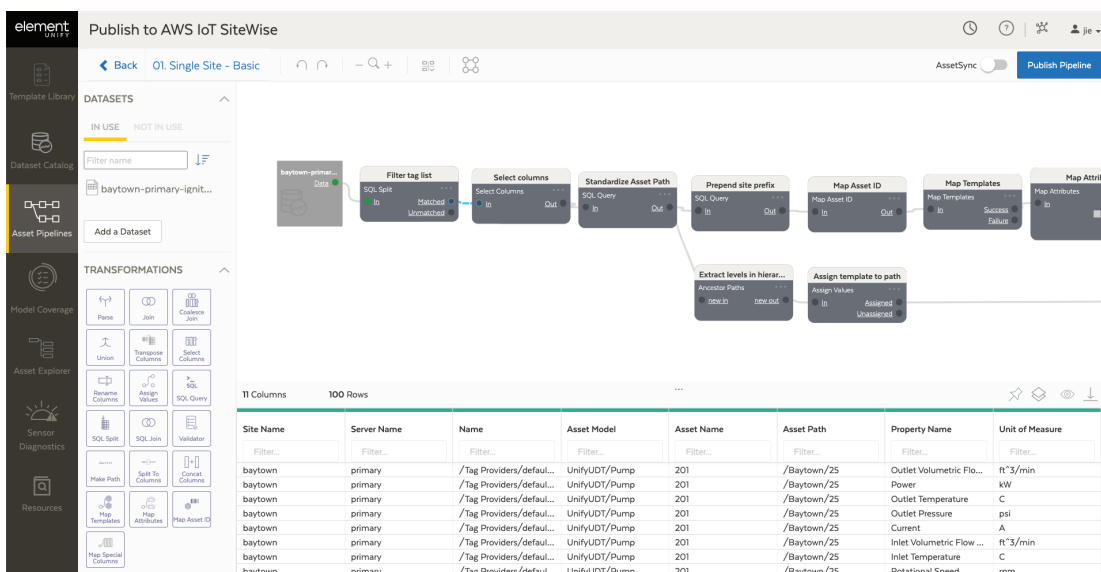
| Element Unify with AWS

Quickly Realize More Value from Your Operational Data

Element Unify is an IT/OT data management platform that provides context-rich plant data for real-time analytics. AWS customers can deploy the software from the AWS Marketplace as part of the Industrial Machine Connectivity (IMC) kit or configure it stand-alone with their preferred AWS services.

Access data captured in factory applications—like Ignition by Inductive Automation and PTC KepServerEX—and integrate it with metadata from EAM software, P&IDs, Asset Frameworks (AFs) and more. Create contextualized data models that sync with AWS IoT SiteWise and store standardized datasets for consumption by more AWS applications like Amazon SageMaker and Amazon QuickSight.

- Build contextualized data models for single-site, multi-site and multi-instance deployments.
- Reshape existing AWS IoT SiteWise data models in Element Unify or create new ones. Keep AWS IoT SiteWise models evergreen through automatic updates from Unify as the underlying data changes.
- Improve collaboration across the enterprise, sharing ready data with users across the organization who need it.



Site Name	Server Name	Name	Asset Model	Asset Name	Asset Path	Property Name	Unit of Measure
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Outlet Volumetric Flo...	ft ³ /min
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Power	KW
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Outlet Temperature	C
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Outlet Pressure	psi
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Current	A
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Inlet Volumetric Flow ...	ft ³ /min
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Inlet Temperature	C
baytown	primary	/tag Providers/default...	UnityUDT/Pump	201	/Baytown/25	Rotational Speed	rpm

Easily Integrate and Transform Data with No-code/Low-Code Pipelines

Add context, integrate structures and IO items from DCS and SCADA systems with IT/OT sources such as EAM software, time-series historians, P&IDs, AFs and spreadsheets.



Centralized IT/OT Data Management Using Element Unify and AWS Industrial Machine Connectivity

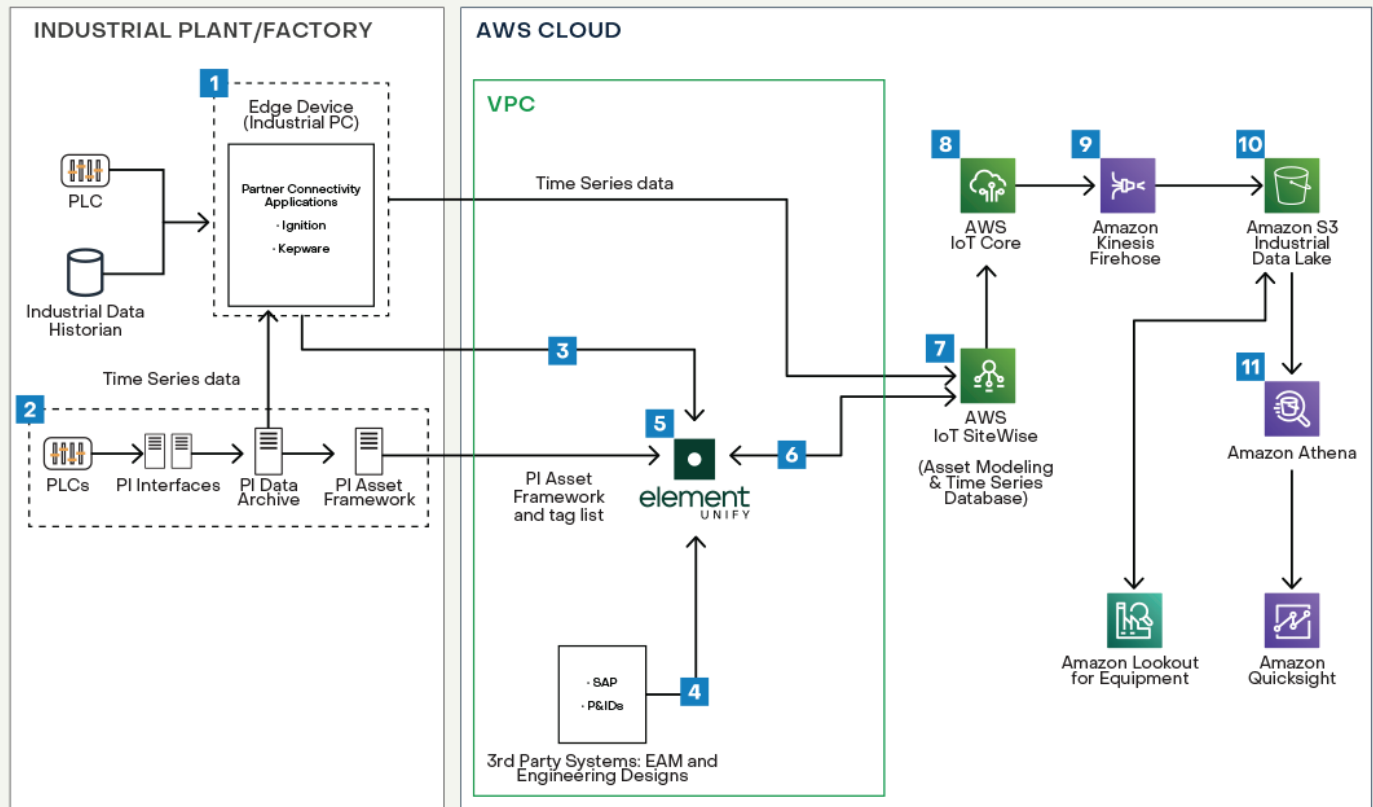


Image produced in collaboration with AWS.

- 1** Partner connectivity applications **Ignition** and **KepServerEX** running on **AWS Certified industrial PC** ingests real-time sensor data and asset model data sent from PLC and industrial historians.
- 2** PI Interfaces/Connectors collect data sent from sensors, PLCs, SCADA, etc. into PI Server running at plants or regional data centers. **Element Unify AF Management Tool** retrieves, deploys and manages **PI Asset Framework** asset models.
- 3** **Element Unify** ingests asset models and tag lists exported from edge applications (i.e. Ignition, Kepware, etc.)
- 4** **Element Unify P&ID Productivity Tool** automates harvesting of asset information from graphical engineering designs. EAM and ERP systems (residing either on-premises or in an Amazon VPC), including SAP FLOC and work orders, connect to Element Unify through iPaaS layer.
- 5** **Element Unify** is the centralized IT/OT data management platform that integrates, contextualizes, and governs asset data models from OSIsoft PI Asset Framework (bi-directional), Ignition, Kepware running at the edge, and IT data sources like SAP and Maximo, and performs bidirectional model sync with AWS IoT SiteWise.
- 6** **Element Unify** reads existing asset model data from **AWS IoT SiteWise** and then provisions the new, enriched asset model data back into **AWS IoT SiteWise**.
- 7** Time series data flows into **AWS IoT SiteWise** from partner connectivity applications running at the edge. **AWS IoT SiteWise** stores the asset model data and ingests, filters, transforms and processes all incoming data before storing both raw and processed data in a managed time-series data store. **AWS IoT SiteWise** publishes an MQTT message to **AWS IoT Core** each time the asset property value updates.
- 8** An **AWS IoT Core** rule publishes the asset property update messages it receives from **AWS IoT SiteWise** in near real-time into **Amazon Kinesis Data Firehose**.
- 9** **Amazon Kinesis Data Firehose** captures data from **AWS IoT Core**, transforms it, and delivers the data in near real-time to **Amazon S3** industrial data lake.
- 10** Once real-time and historical data is available in **Amazon S3** industrial data lake, **Amazon Lookout for Equipment** can use the data to detect abnormal equipment behavior, so that machine failures can be detected before failure occurs and avoid unplanned downtime. Computed metrics can be written back into **Amazon S3** for storage and consumption.
- 11** **Amazon QuickSight** can be used with **Amazon Athena** to create and publish interactive BI dashboards.

About Element

Element is a leading software provider in IT/OT data management, digitally enabling operations for industrial organizations. Element Unify transforms siloed IT/OT data into context data by enabling contextualize once, compute anywhere, consume everywhere data that is used to achieve cleaner, safer, healthier, more profitable operations. Element's customers represent over \$750 billion in revenue, \$500 billion in fixed assets and 450,000 employees. To learn more about Element, please visit elementanalytics.com and follow the company on Facebook, Twitter, and LinkedIn.

