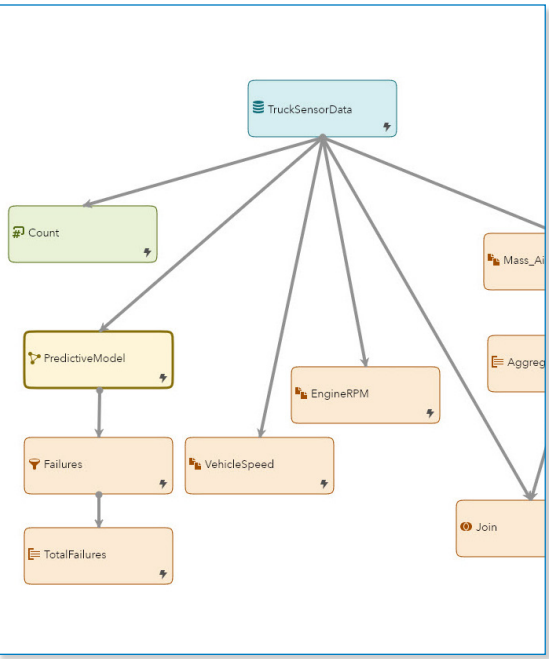
SAS® Analytics for IoT

Empower your business users to quickly derive value from IoT investments



What does SAS® Analytics for IoT do?

SAS Analytics for IoT offers a proven way for business users to organize and act on high volumes of diverse IoT data using a secure, flexible and scalable IoT analytics solution. It provides a single version of the data for a wide variety of users across the organization. So nontechnical users can quickly extract value from IoT investments – in days, not months.

Why is SAS® Analytics for IoT important?

Progress from predictive to prescriptive analytics has been slow as companies struggle with data complexities and with how artificial intelligence (AI) and machine learning (ML) can coexist with existing statistical models. SAS Analytics for IoT solves the data complexity issue across the entire analytics life cycle with a sensor-based data model, streamlined ETL and a unified, business-focused data selection interface. This can translate to millions saved, as it reduces unplanned downtime, improves operational efficiencies and creates opportunities for differentiated customer experiences.

For whom is SAS® Analytics for IoT designed?

It is designed for business users, engineers, data scientists and IT professionals across a range of industries, including manufacturing, consumer packaged goods, energy and retail. The software extends the power of analytics across your enterprise, enabling collaboration across the entire IoT analytics life cycle.

To accurately address compelling business and operational performance challenges, organizations need fast access to high-volume, diverse IoT data that they can transform into insights. Without it, they may not be able to respond quickly enough to market conditions, operational issues and customer requirements. Unfortunately, most organizations don't have a common, sensor-focused data model that could empower all types of users to conduct analysis and act on new insights.

It's a frustrating issue for business users and data scientists alike. Nontechnical users lack the skills required to manage high volumes of diverse IoT data – such as extensive coding, SQL or scripting knowledge. In most cases, IT has to provision data for business users. And business users wait in line for IT to create their data sources before they get data in the right form for analytics.

SAS Analytics for IoT empowers the enterprise – from line-of-business users to engineers and IT professionals – to analyze sensor data and make fast, confident decisions that drive business performance. The intuitive, visual interface of SAS Analytics for IoT is built on SAS® Viya®, making it easy for business users to quickly select, launch, transform and operationalize data without coding – and without help from IT or a data scientist. The software runs in a fast, in-memory distributed environment, giving users relevant results that can immediately drive better business insights.

Key Benefits

- **Accelerate time to value from IoT investments – in days, not months.** No specialized skills or coding are required to access, explore, visualize and transform data. Tasks are defined within a unified visual experience. Data selections can be called directly from other solutions (SAS, third party and open source) to provide the latest data and make the most of your existing IoT investments.
- **Broaden and deepen IoT analytics use and collaboration across your enterprise.** By streamlining ETL tasks and providing an extensible, sensor-based data model with an easy-to-use interface, all types of users (business, engineering, data science and IT) can access, explore, visualize and transform data into insights. As a result, there's more effective collaboration and timely decision making across the organization.
- **Optimize your entire ecosystem of IoT solutions.** Integration is hard if you don't have the right methodology, the appropriate underlying technology, and a scalable, flexible and secure solution as the foundation. With SAS Analytics for IoT, you can prepare, organize, select and launch IoT data from an integrated business-focused interface into other solutions (SAS, third party and open source).

Product Overview

With the volume, velocity and variety of IoT data available today, users need to curate data to answer specific questions. This requires different views of the data, which often needs to be examined in different ways, multiple times a day. Even when IT has prepared and cleansed the data first, analysts still need to iteratively examine and prepare it further for their unique needs.

Edge-to-enterprise enabled, SAS Analytics for IoT uses an industry-leading streaming execution engine with AI to perform real-time analytics that drive timely and accurate decision making. This approach helps business users, engineers, data scientists and IT professionals who support critical processes and are working to achieve digital transformation. With streamlined ETL tasks and an extensible, sensor-based data model, users can perform ad hoc analysis and analytics system development in a self-service environment – without knowledge of the underlying data structure. By enabling diverse users to prepare, organize, select and launch IoT data from an integrated, business-focused interface into other solutions (SAS, third party and open source), the software optimizes IoT investments and skills – extending the power of IoT analytics and collaboration across the enterprise.

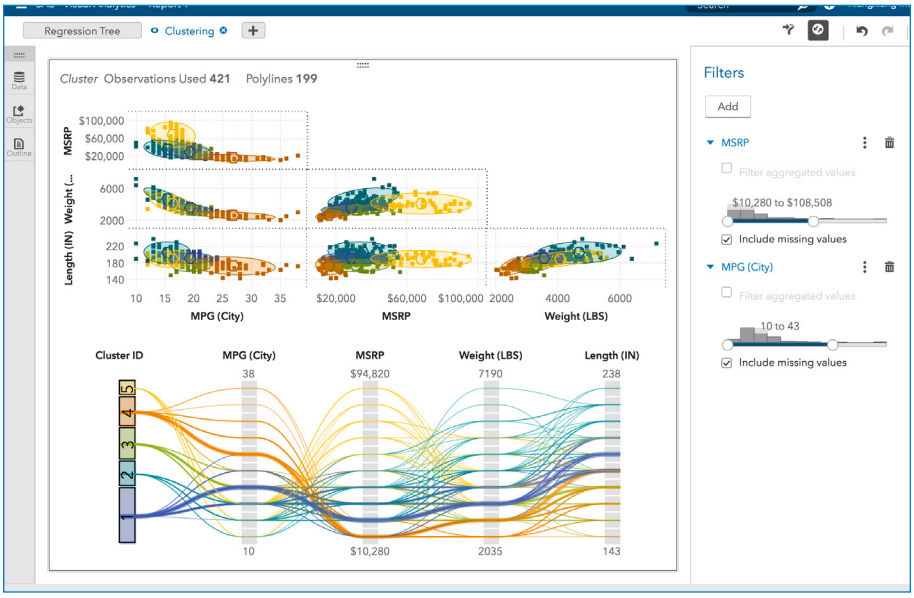


Figure 1. Create basic dashboards and reports, or apply advanced analytics and artificial intelligence, in a drag-and-drop environment.

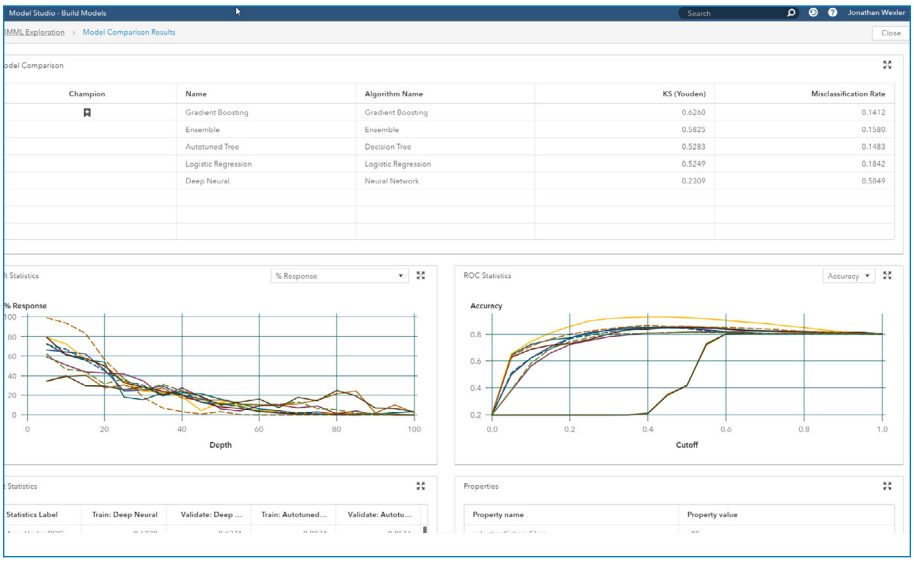


Figure 2 .Compare results from multiple algorithms to automatically identify champion models.

Easy-to-use IoT analytics capabilities

With SAS Analytics for IoT, it's easy to access, organize, select and transform your IoT data – without relying on IT or data scientist skills. Variables, attributes and hierarchies are automatically loaded into the data selection interface and presented in business terms. Smart filters, predefined time windows and other capabilities allow business users to reduce errors and get the exact data they need.

Flexibility, speed and scale

IoT data can fuel business performance – but only if you can act on the data in a timely and accurate way. SAS Analytics for IoT has a proven streaming execution engine with AI capabilities that provides real-time analytics across the analytics life cycle, supporting rapid, confident decision making. Our secure, flexible and scalable IoT analytics solution can accelerate results from all your IoT initiatives.

Interoperability that supports growth

IoT is all about the ecosystem. To extract the full value from your IoT ecosystem investments, your analytics platform must support a complex, diverse environment. With SAS, users can embed open source code within an analysis and call algorithms seamlessly. Whether it's Python, R, Java, Lua or Scala, modelers and data scientists can access SAS capabilities from their preferred coding environment. And with available application programming interfaces (APIs), data selections and launchers can be surfaced in other SAS or third-party applications.

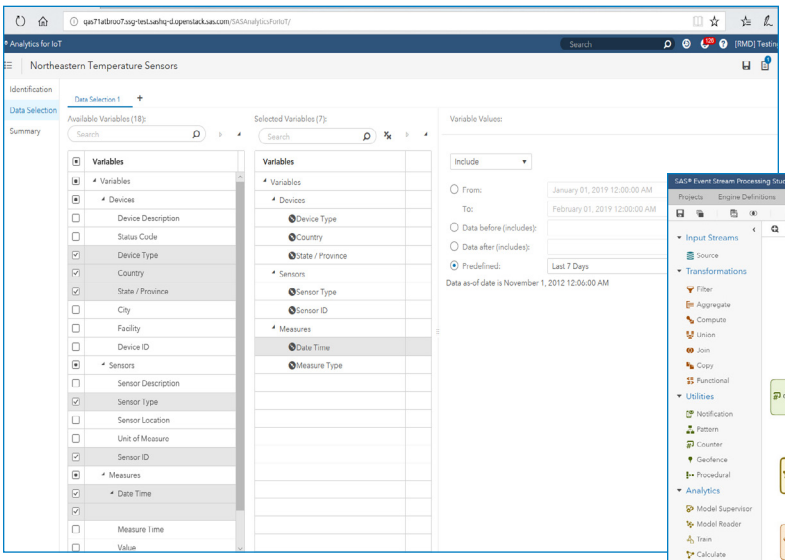


Figure 3. Use hierarchies, smart filters and predefined windows to select data in business terms.

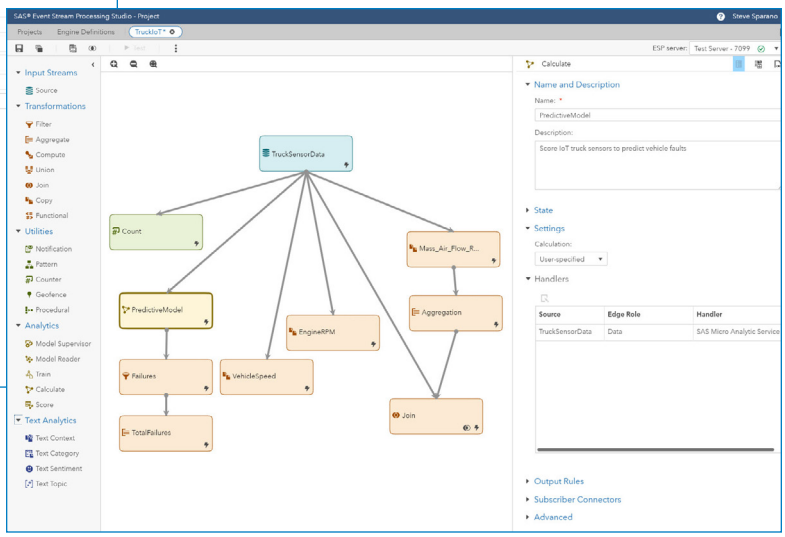


Figure 4. Access advanced analytics and stream processing windows to analyze data in motion..

Key Features

Streamlined ETL

Streamlined ETL automatically transforms and loads key data fields into the sensor-based data model. You can:

- Rapidly load IoT data, whether you have three fields (sensor ID, value and date time) or hundreds.
- Include sensor attributes, device attributes, hierarchies, measures and events.
- Integrate additional field and production quality data with your sensor data, using comprehensive ETL capabilities.

Flexible data model for sensor data and related domains

The standardized and extensible, sensor-based data model provides:

- An out-of-the-box way to store complex IoT data, hierarchies and other relationships.
- A proven way to organize large volumes of diverse IoT data for efficient analysis.
- A single version of the data for a diverse array of users across the organization.

Integrated, business-focused data selection user interface

Nontechnical users can quickly select data for analysis without knowledge of the underlying technology and data structure. They can:

- Access available variables and attributes in their own business terminology.
- Use smart filters, predefined date windows and other shortcuts to increase efficiency and reduce errors.
- Select data for any combination of devices, sensors, measures and events to support their individual needs.
- Save, copy, reuse and share data selections across the organization.

Launchers

Users can easily prepare and transform data for analysis in SAS or third-party tools. Launchers allow you to:

- Transpose data from an efficient storage format to an analytics-ready format.
- Interpolate missing values in the data.
- Apply a fixed periodicity to reduce data size or commonize across sensors.
- Open the data in SAS Visual Analytics, SAS Visual Data Mining and Machine Learning, and SAS Studio, as well as third-party and open source applications.

Key Features (continued)

Advanced analytics and machine learning

Data exploration, feature engineering and modern statistical, data mining and machine learning techniques are combined in a single, scalable in-memory processing environment. Users can:

- Analyze data without writing code, using a drag-and-drop interactive interface.
- Rely on best practice templates (basic, intermediate or advanced) to get started quickly with machine learning tasks.
- Apply diverse machine learning algorithms – including decision trees, random forests, gradient boosting, neural networks, support vector machines and factorization machines.
- Compare results of multiple machine learning algorithms with standardized tests to automatically identify champion models.

Streaming model execution

Streaming data (data in motion) can be analyzed and filtered in real time, so you can understand events while they're happening – not just after the fact.

- Create, deploy and manage advanced analytics models running on streaming data.
- Score data in real time and apply learning models that combine scoring and training.
- Cleanse, standardize and filter livestream data before it's stored, reducing downstream processing.

Public APIs

Public APIs allow external systems to access data in a way that optimizes IoT investments across the enterprise. Use public APIs to:

- Integrate SAS or third-party solutions into your IoT ecosystem.
- Automatically populate external dashboards and reports with the latest data or lists of data selections.

TO LEARN MORE »

To learn more about SAS Analytics for IoT, please visit: https://www.sas.com/analytics-iot.

To contact your local SAS office, please visit: sas.com/offices

THE POWER TO KNOW®