

SAS Viya (with SAS Visual Statistics included) provides cutting-edge machine learning techniques for analysing structured and unstructured data. SAS Viya integrates all tasks in the analytical lifecycle, from data preparation/exploration to model development and deployment. It supports multiple personas working in the same, integrated environment.

SAS® Viya on G-Cloud

Governments around the world are facing significant challenges. They need to improve benefits and services for their citizens while lowering costs. Combating fraud and improper payments is an escalating problem. Improving public safety and national security remains a high priority. Health care demands are skyrocketing and so are health care costs.

Public Sector organisations produce, collect, and store an unprecedented amount of increasingly diverse data that could be used to help solve these problems. Traditional approaches to gathering insights from data are no longer adequate given the volume, velocity, and variety of data that today's governments must manage. It is becoming increasingly critical for the Public Sector to find new ways to transform data into useful information to drive actions.

Artificial Intelligence techniques can automate complex tasks and unlock previously hidden insights across the spectrum of government data. SAS Viya Advanced on G-Cloud puts advanced analytics and artificial intelligence (AI) in the hands of the Public Sector and will help organisations realise their objectives through the delivery of AI driven solutions. For example:

- **Automatically detect fraud and improper payments:** machine learning capabilities, including deep learning, can teach systems to detect outliers in data or match data against known patterns with unprecedented precision and recall. This enables you to stop fraud and improper payments before money goes out the door, ensuring that funds and services go to those who really need them.
- **Help ensure child well-being:** child welfare agencies can use AI capabilities, such as text analytics and natural language processing, to identify at-risk children and recommend interventions to prevent abuse before it occurs.
- **Improve program efficiency and effectiveness:** using AI to automate repetitive tasks – no matter how complex – can revolutionise government efficiency, saving hundreds or even thousands of work hours and freeing up limited resources to focus on other critical issues.
- **Support national defence:** military and intelligence agencies can use predictive maintenance to ensure mission readiness, as well as safety and response agility.
- **Make smart cities smarter:** big data analytics; sensor technologies and the internet of things (IoT); machine learning and cognitive computing can enable local governments to better understand citizen needs and provide local solutions that address them.

SAS Viya is a solution that combines the most advanced analytics, including artificial intelligence, data preparation, visualisation, model assessment and model deployment in a single environment. It also supports programming from popular open-source languages. This consistent, collaborative environment produces repeatable results, helping improve organisational processes and uncover new opportunities for growth.

Why is SAS Viya important?

SAS Viya is the first solution that combines advanced analytics, data preparation, visualisation, model assessment and model deployment in a single environment. It also supports programming from popular open-source languages. SAS Viya's consistent, collaborative environment produces repeatable results, help improve organisational processes, automate decisions, and uncover new opportunities for growth.

What does SAS Viya do?

SAS Viya provides a comprehensive, visual interface for accomplishing all steps related to the analytical life cycle. In addition to innovative machine learning and deep learning techniques for analysing structured and unstructured data, SAS Viya integrates all other tasks in your analytical processes. From data preparation and exploration to model development and deployment, multiple personas work in the same, integrated environment. Scalable and elastic processing provides flexibility and speed for faster answers to complex questions.

For whom is SAS Viya designed?

SAS Viya is designed for anyone who needs to analyse large, complex data and build predictive models. This includes data scientists, statisticians, data miners, business analysts, citizen data scientists, data engineers and researchers.

Benefits

- Boost the productivity of your analytical teams. With support for the entire machine learning pipeline, this solution enables a variety of users to build and expand upon sophisticated models to get highly accurate results – all in a single, highly collaborative environment.
- Reduce latency between data and deployment. Interactive visual and programming interfaces dramatically shorten the time it takes to prepare data, build models, and deploy them into production. High-speed processing delivers rapid results.
- Explore multiple approaches to find optimal solutions – with confidence. Superior performance from distributed processing and the feature-rich building blocks for machine learning pipelines let numerous users quickly explore and compare multiple approaches. Automated tuning tests different scenarios to find the best-performing model. Reproducibility in every stage of the analytical life cycle delivers answers and insights everyone can trust.
- Solve complex analytical problems faster. This solution delivers predictive modelling and machine learning capabilities at break-through speeds. In-memory data persistence eliminates the need to load data multiple times during iterative analyses. Analytical model processing time is measured in seconds or minutes, rather than hours, so you can find solutions to difficult problems faster than ever.
- Quickly deploy your predictive models with automatically generated SAS score code. Shorten the time to value even more with easy-to-implement score code that is automatically generated in multiple programming languages for all machine learning models.
- Empower users with language options. Using APIs, Python, R, Java, Lua, and Scala programmers can experience the power of this solution without having to learn how to program in SAS. Give them access to trusted and tested SAS machine learning algorithms they can use from other languages.
- Ensure Compliance - Built-in governance and monitoring capabilities help organisations meet regulatory requirements, maintain transparency, and manage model risk effectively

Overview

SAS Viya offers an exciting, end-to-end visual environment that covers all aspects of machine learning and deep learning – from data access and data wrangling to sophisticated model building and deployment.

In-memory, distributed processing handles large data and complex modelling, providing faster answers and efficient use of resources.

SAS Viya provides an open, cloud-ready, in-memory platform that delivers everything users need for fast, accurate analytical results – all the time. With its fluid, scalable and fault-tolerant processing environment, this resilient platform addresses the complex analytical challenges of today with the ability to effortlessly scale into the future.

Interactive programming in a web-based development environment

- Visual interface for the entire analytical life cycle process.
- Drag-and-drop interactive interface requires no coding, though coding is an option.
- Supports automated code creation at each node in the pipeline.
- Best practice templates (basic, intermediate or advanced) help users get started quickly with machine learning tasks.
- Interpretability reports.
- Explore data from within Model Studio and launch directly into SAS Visual Analytics.
- View data within each node in Model Studio.
- Provides a collaborative environment for easy sharing of data, code snippets and best practices between different personas.

Products included in SAS Viya

1. SAS® Visual Analytics

Visualise and discover relevant relationships in your data. Create and share interactive reports and dashboards, and use self-service analytics to quickly assess probable outcomes for smarter, more data-driven decisions.

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2. SAS® Visual Statistics

Explore data and build or adjust predictive analytical models with this solution running on the SAS Viya platform. Data scientists, statisticians, and analysts can collaborate and iteratively refine models for each segment or group to make decisions based on accurate insights.

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3. SAS® Viya®: Machine Learning

Solve complex analytical problems with a comprehensive visual interface that handles all tasks in the analytics life cycle. Machine learning, included in the SAS Viya offering, combines data wrangling, exploration, feature engineering, and modern statistical, data mining, and machine learning techniques in a single, scalable in-memory processing environment.

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4. SAS® Studio Analyst and SAS® Studio Engineer

Access data files, libraries and existing programs – or write new ones – with this developmental web application accessible through your browser. With SAS Studio, you can use predefined tasks to generate SAS code. When you run a program or task, the technology processes the SAS code on a SAS server, which can be a server in a cloud environment, in your local environment, or SAS installed on your local machine. After the code is processed, the results are returned to SAS Studio in your browser.

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5. SAS® Information Governance

Capture and enrich metadata for files, tables and other information assets. SAS Information Catalog can be used as the repository of metadata, including information on entities, attributes, relationships and domains. It enables you to discover and document how data fits together, plus it provides a common vocabulary around data.

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6. SAS® for Microsoft 365

Use the power of SAS analytics and access data directly from Microsoft Excel, Microsoft Word, Microsoft PowerPoint and Microsoft Outlook with this component object model add-in. While the functionality varies among Microsoft applications, it's generally the same among Excel, PowerPoint and Word and enables you to run analyses, generate reports and share SAS content with other users at your site.

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7. SAS/ACCESS®

Providing data access to more of your data sources so you can make better decisions faster. These interfaces are out-of-the-box solutions that provide enterprise data access and integration between SAS and third-party databases. SAS/ACCESS interfaces enable your SAS solutions to read, write, and update data no matter what native databases or platforms you use.

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8. SAS® Data Preparation

This offering adds enhancements to the SAS Viya platform, including advanced data profiling features, data quality transformations for SAS® Data Studio and programming interfaces for data quality operations.

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9. SAS/QC®

Improve products, optimise processes and increase levels of customer satisfaction with statistical process control software. SAS/QC enables you to go beyond basic process control to incorporate more advanced statistical analyses for additional insights into processes and product improvements.

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10. SAS/CONNECT®

This client/server toolset establishes connections between networked computers with different operating systems and offers scalability through parallel SAS processing. By providing the ability to manage, access and process data in a distributed and parallel environment, SAS/CONNECT enables users and developers to combine computing resources across varying architectures and SAS releases.

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11. SAS® Model Manager

Register, modify, track, score, publish and report on analytical models with this web-based application. SAS Model Manager enables you to store models within folders or projects, develop and validate candidate models, and assess candidate models for champion model selection – then publish and monitor champion models.

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Service Model

SAS is provided as Managed Cloud Software and includes software, hardware, and hosting services for a contracted period. This is an advantageous way to help Public Sector organisations get started with analytics and alleviate implementation problems. You load your data onto the SAS cloud environment or through the option of a SAS/ACCESS engine.

SAS/ACCESS engines provide an automated way to seamlessly read, write and update access to data before building your analytics.

Deployment options

This is primarily delivered as a SAS Managed Cloud service. In addition to the commercial bundles listed, non-standard offers are an option to meet specific customer requirements and to align to customer Cloud deployment strategies not met through SAS Managed Cloud. All non-standard options will be priced on application based on an equivalent pricing methodology. Further delivery options include:

- **On-site deployments** – Including distributed servers to meet growing data, increasing workloads and scalability requirements.
- **Alternative Cloud deployments** - Enterprise hosting; private or public cloud (e.g., BYOL in Amazon, Azure, or Google Cloud) or Platform as a Service such as Red Hat OpenShift.

In addition, our REST API provides customers an option to build or integrate external applications around SAS Viya.

SAS runs a secure, cloud-based service on your behalf, giving you the benefits of our most advanced software and scalable platform architecture – managed and supported by our own experts.

- Each dedicated cloud software instance running SAS uses a predefined storage allowance to manage your data requirements and keep them secure and backed up. This solution is supported with ongoing management and administration. All these elements are backed by a 99 percent uptime warranty.
- SAS services are regularly reviewed and audited to ensure your data is secure and maintained according to national and international privacy legislation.
- Our teams know how to get the most from the SAS Platform. With experience acquired across public, financial, health care and commercial sectors, they are familiar with common regulatory compliance requirements.

Service Deliverables

The managed offerings include the following service deliverables:

- Commissioning and provisioning of the predefined hosted infrastructure, including compute, network, and storage.
- Preconfigured security and connectivity for users and data (based on the limits per tier).
- Pre-installed software.
- Ongoing support of any up-front service customisation that is implemented by SAS.
- Ongoing support with software administration and management.
- 99 percent uptime SLA.
- 30-minute incident response time for software availability issues.
- Data protection warranties and a documented data classification and handling process.
- Regularly scheduled backups.
- Patching and updates applied as part of the agreed SAS software release cadence.

Open to other programming languages

While SAS Viya is designed primarily for business users who prefer a visual interface, it does include a programming interface for those who want to write their own SAS code.

And if your programmers prefer to work in other languages, like Python, R, Lua, or Java, that is OK too. They can call SAS Viya capabilities from their preferred programming environment. In addition, public REST APIs enable developers to easily add content created with SAS Viya to other applications.

SAS Workload Management

SAS Workload Management Provides a web-based tool for monitoring and managing resources, users, and jobs and serves as an interface for configuring and managing high-availability services and defining alerts when thresholds are exceeded.

SAS Job Flow Scheduler

The Job Flow Scheduling Service enables you to monitor and schedule jobs from a variety of sources in SAS Viya and to create and schedule job flows, which can contain multiple jobs and conditions.

SAS Cloud Data Exchange

SAS Cloud Data Exchange allows SAS Viya users to connect a database which could be either co-located at SAS Viya platform, other cloud environment or located at an on-premises data centre. SAS Cloud Data Exchange enables user to securely exchange on-premises data from behind a firewall to the SAS Viya platform in the cloud. All data transfer/exchange occurs on secured standard-based communications along with sophisticated authentication and authorisation.

Pricing

SAS Viya is priced on a user basis and as an annual hosted license fee payable in advance. Fees include a one-time implementation and on-boarding charge. Each environment includes 4TB of cloud storage. The pricing provided within the pricing section of the listing is for representational purposes and is based on users that are comprised of Analytics Viewers (for e.g., report consumers) and Analytics Developers. The Cloud infrastructure is sized based on the volume of data loaded into the system, the number of concurrent users accessing the system and the type of analytical workload that is running. During initial discussion, SAS system sizing will be made available for review and validation against requirements. Should requirements sit outside of these parameters, SAS and the customer will participate in a discovery exercise to identify and undertake the appropriate activity to re-size and recalculate costs based on the output of the exercise.

Additional analytics service such as model development, analysis, data engineering or reporting services are available via the SAS Cloud Support Service which is also available on G-Cloud.

Learn More

To learn more about SAS Viya please visit [SAS Viya | SAS Support](#).