



### What does SAS Integration Technologies do?

SAS Integration Technologies expands the choices available for exploiting and integrating SAS Intelligence in existing enterprise architectures.

### Why is SAS Integration Technologies important?

SAS Integration Technologies saves time and reduces costs by giving IT more flexibility and simplicity to exploit and integrate SAS Intelligence within existing architectures.

### For whom is SAS Integration Technologies designed?

SAS Integration Technologies is designed for IT managers who must quickly deliver strategic Intelligence applications to business users and keep costs down by reusing existing infrastructure and resources.

## SAS® Integration Technologies

*Expanding your choices for integrating SAS Intelligence*

IT managers live in a world of heterogeneous software systems with a great variety of platforms and operating systems that often cannot communicate and cooperate easily with each other. Each time a new software system is needed, IT managers must integrate it with the other diverse systems to solve critical business problems.

As a result, intelligence applications are often delivered late and over budget because new interfaces have to be created and maintained, additional hardware and software must often be bought and developers sometimes have to be trained in new programming languages. Integration issues tie up a great deal of resources making it impossible to predict timelines and the costs to develop intelligence applications.

SAS Integration Technologies solves these challenges by expanding the choices available for exploiting and integrating SAS Intelligence in existing enterprise architectures. It delivers a comprehensive set of additional capabilities that ensure IT has the options they require, irrespective of technology or delivery mechanism.

SAS Integration Technologies allows IT managers to quickly implement intelligence applications using standards-based communication mechanisms and application programming interfaces (APIs).

At the same time, it enables IT to deliver information on time to the people who need it. A complete and robust publishing framework guarantees that information is distributed to users as soon as it is available.

### Key benefits

- **Intelligence applications delivered on time and on budget.** Only SAS is able to deliver an intelligence platform with such a comprehensive set of supported industry standards and software systems, allowing customers to save time and costs to implement solutions based on existing architectures.
- **Timely delivery of information to the people who need it.** The Publishing Framework of SAS Integration Technologies provides a complete and robust publishing environment for enterprisewide information delivery. Distributing information to the people who need it improves the decision making process and increases performance of the enterprise.
- **Flexibility and simplicity to exploit SAS Intelligence.** The SAS Stored Process Server provides enterprises with a simple way to deliver SAS Intelligence to end users—no matter their location, preferred user interface or output format. This flexibility saves IT valuable time and increases the productivity of business analysts and end users who can work self-sufficiently.

## Product overview

SAS Integration Technologies provides a large collection of APIs that enable access to SAS Intelligence from industry standard platforms such as Java 2 Platform Enterprise Edition (J2EE) and the Microsoft world of Component Object Model (COM), Distributed Component Object Model (DCOM), .NET and the Web services frameworks that all these platforms support.

In addition, the software provides API support for the leading Message-oriented Middleware (MOM) software, the Lightweight directory Access Protocol (LDAP) and Web Distributed Authoring and Versioning (WebDAV). SAS Integration Technologies delivers a framework for building SAS Intelligence applications, a complete and robust publishing framework to distribute information in the enterprise to the people who need it, and a server for executing SAS applications from a variety of environments, including the Web.

## SAS Foundation Services

An extensive set of infrastructure and extension services provides support for the development of integrated, scalable and secure Java-based applications.

## Publishing Framework

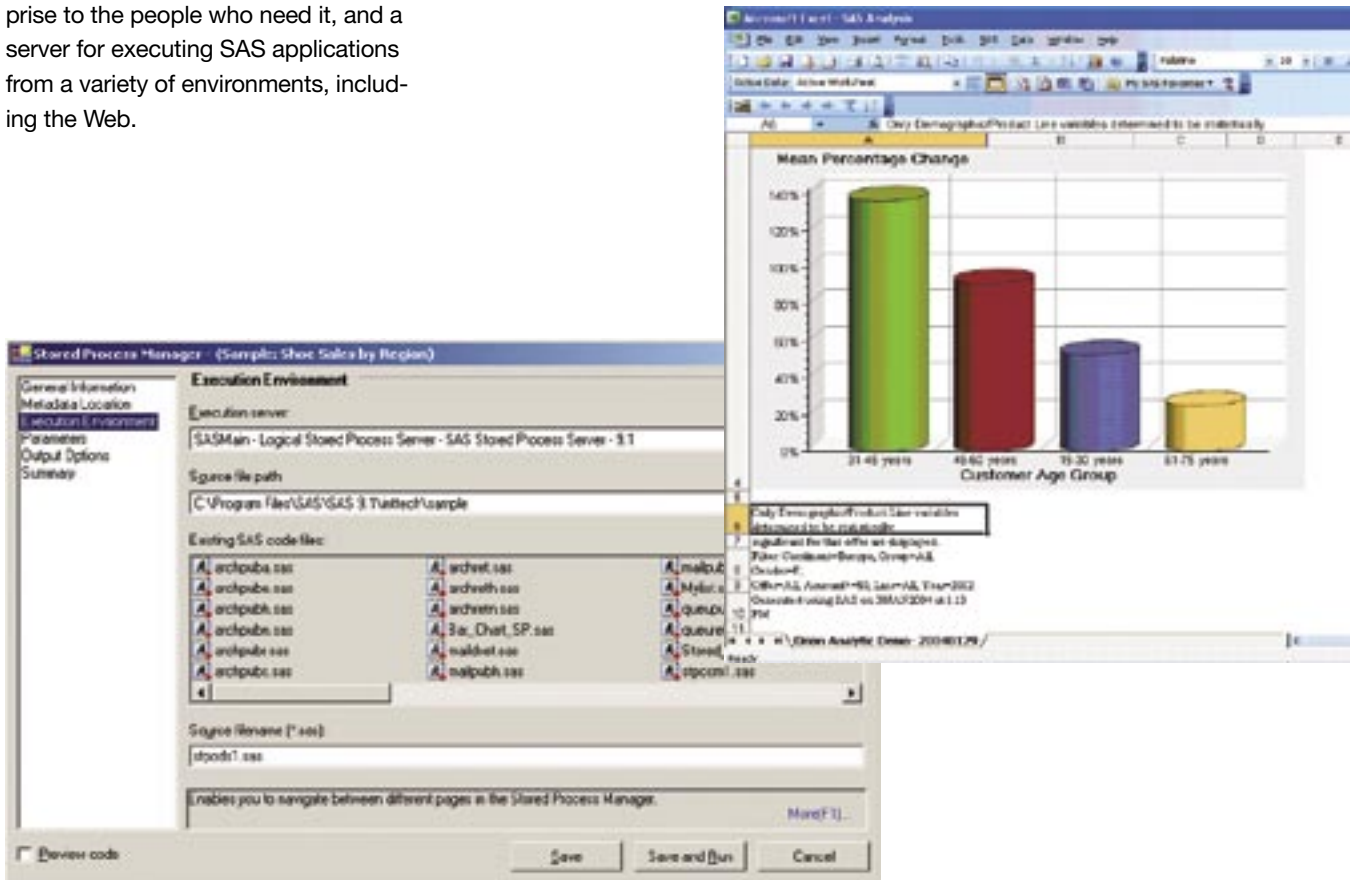
The Publishing Framework of SAS Integration Technologies provides a complete and robust publishing environment for enterprisewide information delivery. Distributing information to the people who need it improves decision-making processes and improves enterprise performance. Information of any form can be published automatically to different targets, and people can subscribe to the information channels that interest them.

## Application Messaging Interface

The interface supports IBM WebSphere MQ, Microsoft Message Queuing Services (MSMQ) and Tibco TIB/Rendezvous messaging queuing software, which enables organizations to leverage SAS capabilities from other systems via asynchronous message queuing.

## Stored Process Server

The Stored Process Server executes stored processes, which are SAS programs that are stored centrally on a server. A client application can then execute the program and receive and process the results. Stored processes enable organizations to centrally maintain and manage code, have better control over changes, enhance security and application integrity, and ensure



SAS Enterprise Guide provides an easy-to-use interface to the powers of SAS Integration Technologies and SAS Stored Processes, enabling you to quickly create and publish SAS Stored Processes and exploit the results in Microsoft Excel as well as other environments.

that every client executes the latest version of code that is available.

### **SAS BI Web Services**

These services enable client applications to execute SAS Stored Processes via a Web services interface. There are two implementations available: a Java implementation, which requires a servlet container and an implementation that uses the .NET framework. The Simple Object Access Protocol (SOAP) is used as the communication protocol and Web Services Description Language (WSDL) is used to describe the services.

### **SAS Directory Services**

SAS Directory Services support enterprise directories that support the Lightweight Directory Access Protocol (LDAP). Through these interfaces, distributed SAS applications can share a common enterprise directory with components that might be executing in other run-time environments across the enterprise.

### **SAS Web Infrastructure Kit**

This framework contains an application programming interface (API) for creating SAS Web applications. It provides support for single sign-on, role-based views, the SAS security model and more.

### **Integrated Object Model (IOM)**

The Integrated Object Model provides developers with access to the entire SAS platform via any client across your platform. It utilizes open communication protocols for Windows clients (C++, C#, Visual Basic, VisualBasic.Net, Delphi) and Java clients.

## **Key Features**

### **Integration of asynchronous business processes**

- APIs to use the market-leading message queuing products: Microsoft's MSMQ, IBM's WebSphere MQ and Tibco's Rendezvous.
- Integrate asynchronous processes with the SAS platform via SAS call routines.
- Publish information to message queues using the SAS Publishing Framework.

### **Interoperability with Enterprise Directory Servers**

- Support for industry standard Lightweight Directory Access Protocol (LDAP)-compliant directories such as Microsoft Active Directory, Sun ONE, IBM SecureWay and Netscape Directory Server.
- SAS call routines to read as well as write metadata in/from an Enterprise Directory server.
- The SAS Information Service, a Java API, allows easy access to metadata stored in LDAP repositories from a Java program.

### **Publishing Framework for targeted information delivery**

- Supports publishing information of any form, including data sets, OLAP data, HTML reports, any mime-type (PDF, XLS, Word documents, etc.).
- SAS call routine for publishing that information.
- The SAS Publishing Service is a Java API to support publishing of information from Java programs.
- Publishing to different targets (e-mail, storage, message queue, WebDAV repositories). Interested people can subscribe to information channels. Published information is delivered automatically to subscribers.

### **Service-oriented architecture via Web services**

- SAS Stored Processes can be called via Web services.
- Any client can make use of SAS capabilities via SAS BI Web services, a middleware broker component available for J2EE and .Net frameworks.

### **SAS Foundation Services: a comprehensive set of infrastructure services**

- SAS Connection Service is a Java API to access SAS servers.
- SAS Information Service is a Java API to access the SAS Metadata Server and read/write metadata such as modifying the role of a user.
- SAS Publishing Service is a Java API to publish information to e-mail, channels, the Web via WebDAV, etc.
- SAS Stored Process Service is a Java API to run SAS code and return results.
- Alert and Event Service allows dynamic, event-driven runstreams and alerting.
- Services to manage users, security, sessions and logging.
- Developers can use the services API to easily extend and add additional services.

### **SAS Stored Process Server**

- Centrally manage stored processes in the SAS Metadata Repository using SAS Management Console.
- Define input and output parameters:
  - Name/value pairs.
  - Data streams (XML streams, data sets, HTML, PDF, etc.).
  - Result Packages containing multiple entries including text, images, data sets, etc.
- Exploit stored processes from any client (Web clients, Java applications or Windows applications) via the Stored Process Service API.
- Surfaced via any of the SAS BI tools such as SAS Information Map Studio or SAS Add-In for Microsoft.

## SAS® Integration Technologies Technical Requirements

### Supported platforms

- AIX (64-bit), Release 5.1+
- HP/UX (64-bit), Release 11i+
- HP/UX Itanium (64-bit), Release 11i+
- Linux for Intel (32-bit): Red Hat Linux 8.0, RHAS 2.1, RHEL 3.0, SuSE SLES 8, SLES 9
- Linux for Itanium (64-bit): Red Hat RHEL 3.0
- OpenVMS Alpha (64-bit), Release 7.2+ (excluding 7.3)
- OS/390, Version 3, Release 10
- Solaris (64-bit) 8, 9, 10 on SPARC
- Tru64 UNIX (64-bit), Version 5.1A or 5.1B
- Windows (x86-32): Windows 2000 Professional, Windows XP Professional, Windows NT 4 Server, Windows Server 2003
- Windows (64-bit on Itanium): Windows Server 2003
- z/OS, Version 1

### Web tier (optional)

- BEA WebLogic (AIX, HP/UX Itanium, Solaris, Windows 2000 Server, Windows Server 2003)
- IBM WebSphere (AIX, Windows 2000 Server, Windows Server 2003)
- Apache Jakarta Tomcat (AIX, HP/UX Itanium, Solaris, Windows 2000 Server, Windows Server 2003)

### Required software

- Base SAS

## Key Features (continued)

### Powerful scalability options

- Load balancing: allows distributing workload across multiple processes, processors and machines.
- Pooling: allows clients to share “pooled” connections instead of restarting SAS servers with every single request.
- Fault tolerance: during server downtimes the workload can be redirected to another one in the chain.

### SAS Web Infrastructure Kit

- A framework to build SAS Java Web applications that support single sign-on and role-based business views.
- Leverages the SAS security model and metadata.
- Ability to execute and display content such as stored processes, reports, links and Web applications.

### Choice of programming languages

- Deliver the entire capability of the SAS platform to virtually any client across an enterprise.
- Utilizes open communication protocols for both Windows clients and Java clients to give developers the ability to use SAS analytical power whether they’re programming in Java, C++, C#, VisualBasic.Net, Delphi or other languages.
- SAS jobs and runstreams can easily be called and executed remotely without developers having to know the SAS programming language.



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