



## SAS® OLAP Server

*A multidimensional data store designed to provide quick access to presummarized data*

### What does SAS OLAP Server do?

SAS OLAP Server is a multidimensional data store designed from the outset to provide quick access to presummarized data, generated from vast amounts of detailed data.

### Why is SAS OLAP Server important?

Decision makers need fast access to accurate information. Instantaneous access to summarized data is expected so timely decisions can be based on knowledge instead of gut feelings.

### For whom is SAS OLAP Server designed?

SAS OLAP Server is designed for CIOs who want to deploy a fast enterprisewide source for reliable summaries of strategic information, IT managers with large numbers of end users requiring rapid self-service navigation through summarized data, and department heads whose teams require frequent access to summaries to support business analysis and decisions.

Accurate business intelligence is an essential commodity across the enterprise, and IT departments are challenged to keep pace with both growing demands for timely access to summarized data and increasing requests for business reports.

Additionally, business intelligence users want to analyze data in new ways and require a level of interaction with data that is beyond the scope of standard corporate reports. With operational data sources running near full capacity and limited staff resources, IT organizations are finding it difficult to satisfy users' specialized requests and ensure data consistency across the various enterprise applications.

With SAS OLAP Server, a powerful multidimensional database, IT departments can provide users with fast, easy access to summarized data generated from vast amounts of detailed data, while increasing confidence in the information delivered.

Presummarized data is organized by common business topics so empowered users can move from one level of detail to another. A multithreaded query engine allows multiple queries to run in parallel, making efficient use of existing hardware resources. To ensure the consistency of both data and resulting reports, SAS OLAP Server provides a simplified process for extracting, transforming and loading (ETL) data from back-end systems and file formats. A single shared layer of metadata ensures traceability from the operational source, through the ETL

process, to the destination OLAP cube. Users can quickly understand the data they are viewing and how it was derived, get the detailed information they need without IT involvement and feel confident that the data and their results are accurate.

### Key benefits

- **Delivers fast, stable performance for business intelligence applications.** Designed from the outset as dedicated storage for summarized data, SAS OLAP Server quickly delivers information to business intelligence applications, irrespective of the amount of underlying data. Summarizing data at multiple levels of detail before storing provides the summarized data that business intelligence applications require without the need for additional "on-the-fly" processing.
- **Frees IT from constantly creating ad hoc reports and data summaries.** Because summarized data is organized along business lines, users can get the reports they need without involving IT. This frees IT from the constant work of creating reports and data summaries to support users who need to follow a train of thought at various levels of detail.
- **Provides a transparent and integrated ETL process.** With a simplified ETL process, it is easy to build consistent OLAP cubes from disparate systems. Integrated metadata ensures that consistent information is delivered across the enterprise and enables IT to quickly justify data integrity.

## Product overview

SAS OLAP Server is a standards-compliant OLAP data source that uses multidimensional expressions (MDX) to query and navigate through multidimensional information. MDX is a structured query language that users familiar with SQL will understand with little or no training. SAS or third-party clients can communicate with the SAS OLAP Server using either a framework of Java classes or the de facto industry standard, Microsoft OLE DB for OLAP. This enables users to choose their favorite front-end application for accessing the summarized information.

## Multithreaded query engine

The central component of SAS OLAP Server is a multithreaded query engine that ensures optimal use of hardware resources. Any query sent to the server is handled by an individual query thread, enabling the server to handle large user communities accessing the server in parallel. OLAP data sources can be spread across multiple file systems, enabling the multithreaded query engine to execute multiple queries in parallel by reading data from multiple locations at once.

The MDX query engine accesses data stored in external relational tables (ROLAP), SAS' own multidimensional format (MOLAP) or a combination of data stores (HOLAP). OLAP source designers are free to choose the format that best supports their business requirements. The SAS OLAP Server includes routines that enable SAS procedures to query the OLAP Server using SQL Pass-Through with reach-through from multidimensional data to underlying detailed data.

Individual summaries inside OLAP data sources can be stored in a compressed format if they are not going to be frequently accessed. Data compression significantly reduces the space required to store information.

## Graphical user interface for designing OLAP data sources

Bundled with SAS OLAP Server, SAS OLAP Cube Studio provides cube designers with an easy-to-use graphical user interface for creating OLAP data sources. SAS OLAP Cube Studio also plugs in to SAS ETL Studio to create the same look and feel for ETL process designers.

In addition, data designers can define OLAP data sources with a programmatic approach using a new SAS procedure. A new Java-based wizard facilitates designing, creating, updating and tuning cubes. The wizard is available through SAS OLAP Cube Studio, as well as within SAS ETL Studio.

## Special features facilitate real-world use

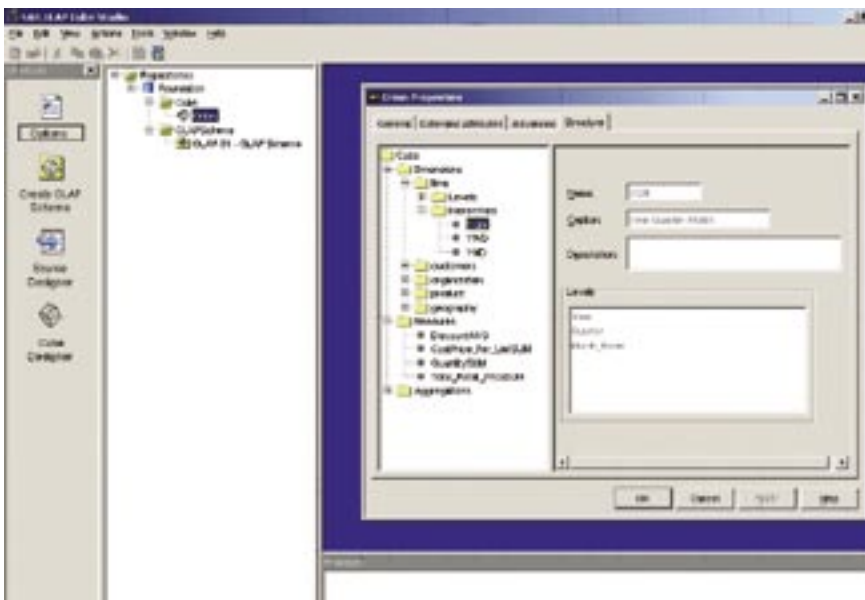
SAS OLAP Server includes special features to facilitate use in real-world business scenarios, including time dimensions for easily calculating time-based measures such as year-to-date values or opening-period values for financial analysis, ragged and unbalanced hierarchies for easily modeling and reporting on real-world hierarchies, and parallel drill hierarchies for analyzing along different drill paths within a single dimension.

## Centralized metadata

All definitions of OLAP data sources are stored in a centralized repository on the SAS Metadata Server. The SAS Metadata Server can significantly reduce the costs of running a SAS environment because it provides a single point where administrators can maintain the entire platform and a central point where applications can search for information about available data sources. The SAS Metadata Server also maintains central security information required to prevent unauthorized access to information. Access rights can be set for entire OLAP data sources or for individual dimensions using user- or group-specific conditions.

## Cube management

The SAS OLAP Server owns a cache that stores frequently accessed cubes in memory. Once a query accesses a cube, the cube's regions affected by the query remain in memory, enabling subsequent queries to access these



With an easy-to-use graphical interface, SAS OLAP Cube Studio lets you quickly design cubes, dimensions and hierarchies.

cached regions in fast memory without having to access the slower disk-based storage.

System administrators can use performance reports generated by SAS OLAP Server's Application Response Measurement (ARM) system to fine-tune cache sizes and cube structures according to the usage patterns of an OLAP data source. SAS OLAP Server can be monitored through ARM classes. ARM result sets can be transferred to SAS or third-party clients, such as HP's Workload Manager, for monitoring activity and performance.

### **Multiplatform support for enterprise scalability**

SAS OLAP Server is available on any major hardware platform in the market, ranging from Microsoft Server 2003, HP-UX, AIX and Solaris, up to z/OS on mainframes, and it is engineered to take advantage of multithreaded processing and parallel I/O channels. Using SAS/ACCESS interfaces, SAS OLAP Server can create cubes based on any data stored in any kind of database on any operating system. With full compliance for Microsoft's OLE DB for OLAP, SAS OLAP Server delivers enterprise-level scalability and outstanding query performance to a wide variety of clients.

## **Key Features**

### **Powerful, industrial-strength, multidimensional database**

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- Designed to handle large volumes of business intelligence data.
- Supports multidimensional (MOLAP) and hybrid (HOLAP) data stores.
- Routines enable SAS procedures to query the OLAP Server using SQL Pass-Through with reach-through from multidimensional data to the underlying detailed data.
- Native support for open industry standards:
  - OLE DB for OLAP (the de facto industry standard for multidimensional data sources).
  - Fully compliant implementation of MDX query language for communicating with third-party clients.

### **Fast, efficient processing of queries**

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- Multithreaded query engine.
- Parallel storage allows data to be spread across multiple-disk systems, providing parallel-read access for query threads.

### **Tunable optimizations conserve system resources**

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- Seldom accessed data can be stored in compressed format.
- Frequently queried data can be cached in memory for faster access.

### **Easy-to-use GUIs for building and maintaining OLAP cubes**

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- SAS OLAP Cube Studio, a stand-alone cube-building tool, is used to easily define data measures, dimensions and aggregations.
- SAS OLAP Cube Studio is integrated with SAS ETL Studio, a powerful extract-transform-load process designer so you can build cubes from cleansed data sources and load them for later use and updating.
- New Java-based wizard facilitates designing, creating, updating and tuning cubes, and is accessible from either SAS OLAP Cube Studio or SAS ETL Studio.

### **Capabilities for supporting real-world OLAP problems**

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- Special dimensions facilitate use of SAS OLAP Server in everyday business:
  - Time dimensions calculate time-based measures, such as year-to-date values or opening-period values.
  - Ragged and unbalanced hierarchies provide modeling of dimensions equivalent to real-world structures.
  - Parallel drill hierarchies for analyzing along different drill paths within a single dimension.

### **Integrated metadata**

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- All metadata (data that describes multidimensional data sources, their dimensions, levels and measures) is stored in a single, open location – the SAS Metadata Server. SAS OLAP Server is fully integrated into the open security model maintained in SAS Metadata Server and used throughout the entire SAS platform.

### **Powerful interfaces for server maintenance and monitoring**

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- All maintenance operations are executed using the new OLAP procedure, which is used by the Java-based wizard, and is available to standard SAS programs.
- Define OLAP data servers and their configuration parameters, including performance logging options.
- Application Response Measurement (ARM) classes used to monitor all server activities. Result sets can be transferred to SAS or third-party clients, such as HP's Workload Manager, in order to monitor activity and performance.

## SAS® OLAP Server Technical Requirements

### *Supported platforms*

- AIX (64-bit), Release 5.1+
- 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
- OS/390, Version 3, Release 10
- Solaris (64-bit) 8, 9, 10 on SPARC
- 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

### *Required software*

- Base SAS



World Headquarters  
and SAS Americas  
SAS Campus Drive  
Cary, NC 27513 USA  
Tel: (1) 919 677 8000  
Fax: (1) 919 677 4444  
U.S. & Canada sales:  
(1) 800 727 0025

SAS International  
PO Box 10 53 40  
Neuenheimer Landsr. 28-30  
D-69043 Heidelberg, Germany  
Tel: (49) 6221 4160  
Fax: (49) 6221 474850  
**[www.sas.com](http://www.sas.com)**