CHAPTER

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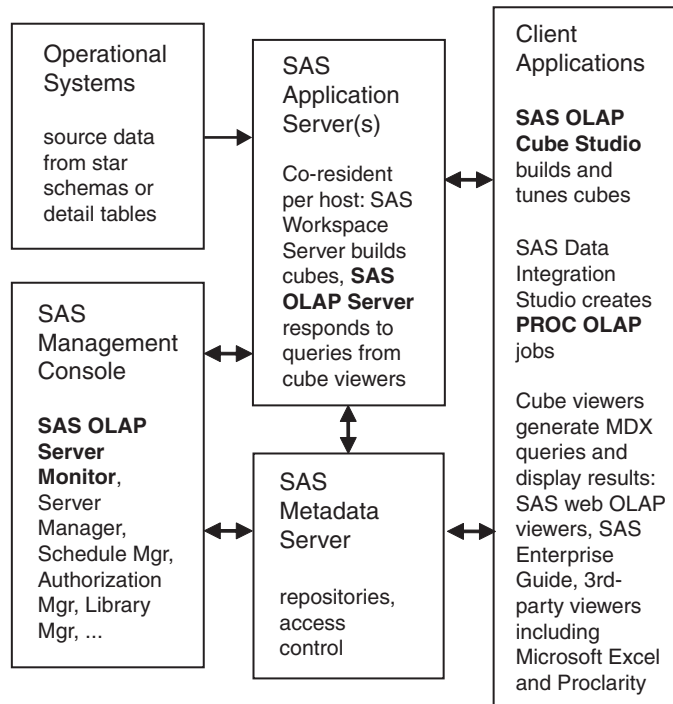# SAS OLAP Server Administrative Overview

Overview of the SAS OLAP Server Software

The SAS OLAP Server software provides client and server applications that enable you to build, query, tune, and manage OLAP cubes. The client and server software is part of the SAS Intelligence Platform.

This chapter introduces the components of the SAS OLAP Server software and describes how those components fit into the SAS Intelligence Platform. A final section describes the administrative tasks that are associated with the SAS OLAP Server software.

The following diagram shows how SAS OLAP Server fits into the SAS Intelligence Platform. The components of the SAS OLAP Server software appear in bold text.

Figure 1.1   SAS OLAP Server and the SAS Intelligence Platform

Operational Systems source data from star schemas or detail tables	SAS Application Server(s) Co-resident per host: SAS Workspace Server builds cubes, **SAS OLAP Server** responds to queries from cube viewers	Client Applications **SAS OLAP Cube Studio** builds and tunes cubes SAS Data Integration Studio creates **PROC OLAP** jobs Cube viewers generate MDX queries and display results: SAS web OLAP viewers, SAS Enterprise Guide, 3rd-party viewers including Microsoft Excel and Proclarity
SAS Management Console **SAS OLAP Server Monitor**, Server Manager, Schedule Mgr, Authorization Mgr, Library Mgr, ...	SAS Metadata Server repositories, access control	

The SAS OLAP Server software consists of SAS OLAP Cube Studio, the OLAP procedure for Base SAS, and the SAS OLAP Server Monitor.

Overview of SAS OLAP Cube Studio

SAS OLAP Cube Studio is a client application that is used to build, tune, and deploy OLAP cubes.

Additional information on SAS OLAP Cube Studio is available in the *SAS OLAP Server User's Guide*.

Building Cubes

Cube builds take place in a wizard program, which prompts users to specify information regarding source data and cube structure. The structure of the cube is defined by associating source data with cube dimensions, hierarchies, levels, and measures.

SAS OLAP Cube Studio uses the specified structural information and source data to build a SAS program that contains a PROC OLAP statement. When the wizard program completes the SAS program, the cube is ready to be built. If the cube is to be built at completion of the wizard program, the SAS program that contains the PROC OLAP statement is sent to a specified SAS Workspace Server. The SAS Workspace Server creates and stores the cube on its host computer.

If the cube is not to be built at the completion of the wizard program, metadata for the new cube is registered on the SAS Metadata Server. The cube can then be built later.

Tuning Cubes

Cube tuning takes place in the Advanced Aggregation Tuning plug-in for SAS OLAP Cube Studio and SAS Data Integration Studio. The Aggregation Tuning plug-in analyzes a log file and suggests aggregations that can be built into the cube to improve query response times. Users select the new aggregations that they want. The plug-in creates them and adds them to the cube. The plug-in can also be used to create crossings that could be used for initial aggregations.

Deploying Cubes

The Cube Export and Cube Import wizards in SAS OLAP Cube Studio and SAS Data Integration Studio enable you to copy or move cube data and all relevant metadata objects between metadata repositories on the SAS Metadata Server, or to a different SAS Metadata Server.

For further information about the Cube Import and Cube Export wizards, see the *SAS OLAP Server User's Guide* and the help for SAS OLAP Cube Studio or SAS Data Integration Studio.

Overview of PROC OLAP

PROC OLAP is a SAS procedure that is used to build and update (rebuild) cubes. Statements in the procedure specify the cube structure and source data. SAS OLAP Cube Studio automatically creates and submits PROC OLAP programs. PROC OLAP programs can also be added to multi-step jobs that are created and submitted from SAS Data Integration Studio or the SAS Scheduler.

For information on the syntax and usage of the OLAP procedure, refer to the *SAS OLAP Server User's Guide*.

Overview of SAS OLAP Server

SAS OLAP Server is a program that runs in the background on specially configured host computers; these servers respond to cube queries from cube viewer client applications. The servers process the queries and return the results to the clients. The queries are submitted in the MDX (multidimensional expressions) language, through the OLE DB for OLAP application programming interface (API). Because OLE DB for OLAP and MDX are open industry standards, third-party cube viewers can be used to query cubes on SAS OLAP Servers.

Overview of SAS OLAP Server Monitor

The SAS OLAP Server Monitor is a plug-in for SAS Management Console that enables administrators to start, stop, restart, and view the active processes on SAS OLAP Servers. You can also refresh the server list, the server connections list, and the cube caches of specified cubes, as described in "About the SAS OLAP Server Monitor" on page 36.

SAS OLAP Server and the SAS Intelligence Platform

The SAS OLAP Server software works together with the following parts of the SAS Intelligence Platform:

SAS Workspace Servers
> are used to build cubes—they run the PROC OLAP jobs that are submitted by SAS OLAP Cube Studio, SAS Data Integration Studio, or the SAS Scheduler. The SAS Workspace Server is installed on the same server as the SAS OLAP Server so that cubes can be built and queried from the same host, without moving the cube between hosts. Additional information about the SAS Workspace Server is available in the *SAS Intelligence Platform: Planning and Administration Guide*.

SAS Metadata Server
> maintains information on the cubes, data, jobs, and users in the SAS Intelligence Platform. All access control lists are maintained on this server. For further information, see the *SAS Metadata Server: Setup and Administration Guide*.

SAS Management Console
> is the administrative client of the SAS Intelligence Platform; it accepts Java plug-ins such as the SAS OLAP Server Monitor. User definitions and access control lists are managed from SAS Management Console, as are all servers. Another important capability is scheduling, which can be used to execute jobs on specified servers at specified times. Additional information about SAS Management Console is available in the *SAS Management Console: User's Guide*.

SAS Data Integration Studio
> is used to extract, transform, and load operational data into a data warehouse, data mart, or star schema. Metadata is registered for source data. Those sources are then used in jobs that can include one or more supplied or user-defined transformations and stored processes. These jobs can include cube builds based on the execution of PROC OLAP code.
>
> SAS Data Integration Studio has impact analysis features that enable you to see how cube source data is affected by other jobs and tables that are defined in the SAS Metadata Server.
>
> Additional information about SAS Data Integration Studio is available in the *SAS Data Integration Studio User's Guide*.

Cube Viewers
> are client applications that are used to display the results of cube queries. These applications send queries to SAS OLAP Servers and display the results that are returned by those servers. SAS offers the following OLAP client applications:
>
> □ SAS Web Report Studio
>
> □ SAS Web OLAP Viewer for Java
>
> □ SAS Web OLAP Viewer for .Net
>
> □ SAS Enterprise Guide
>
> Additional information about cube viewers is available in the *SAS OLAP Server User's Guide*. Additional information about the MDX query language is provided in the *SAS OLAP Server: MDX Guide*.

OLE DB for OLAP
> is an industry-standard API that provides access to SAS OLAP Servers. OLE DB for OLAP enables cube viewers from SAS and from other vendors to query cubes using the MDX query language.

SAS Scheduler
> is a plug-in application for SAS Management Console that runs jobs at specified times, on specified servers. The jobs are created in SAS Data Integration Studio. Additional information about the SAS Scheduler is available in the *SAS Management Console User's Guide*.

Overview of SAS OLAP Server Administrative Tasks

Administrators support SAS OLAP Server by configuring hosts, installing client and server software, configuring SAS OLAP Servers and SAS Workspace Servers, starting, stopping, and restarting servers, monitoring servers, and backing up and restoring servers. These tasks are accomplished using the SAS Software Navigator, the SAS Configuration Manager, SAS Management Console, the SAS OLAP Server Monitor, and the operating environments of the clients and servers.

User tasks for SAS OLAP Server include building cubes, viewing cubes, and tuning cubes. User tasks are documented in the *SAS OLAP Server User's Guide*.