

Installation Instructions for SAS[®] Activity-Based Management 6.4



Copyright Notice

The correct bibliographic citation for this manual is as follows: SAS Institute Inc., *Installation Instructions for SAS® Activity-Based Management 6.4*, Cary, NC: SAS Institute Inc., 2007.

Installation Instructions for SAS® Activity-Based Management 6.4

Copyright © 2007, SAS Institute Inc., Cary, NC, USA.

All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, by any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute Inc. Limited permission is granted to store the copyrighted material in your system and display it on terminals, print only the number of copies required for use by those persons responsible for installing and supporting the SAS programming and licensed programs for which this material has been provided, and to modify the material to meet specific installation requirements. The SAS Institute copyright notice must appear on all printed versions of this material or extracts thereof and on the display medium when the material is displayed. Permission is not granted to reproduce or distribute the material except as stated above.

U.S. Government Restricted Rights Notice. Use, duplication, or disclosure of the software by the government is subject to restrictions as set forth in FAR 52.227-19 Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries.

® indicates USA registration.

Other brand and product names are trademarks of their respective companies.

Table of Contents

Chapter 1 – Deployment Options	1
Two Computer Deployment	2
Three Computer Deployment	2
Alternate Three Computer Deployment	2
Four Computer Deployment.....	3
Chapter 2 – Pre-Installation Checklist for All Servers	5
Windows-Based Servers	6
Verify the Operating System	6
Special Considerations for Windows 2003.....	6
Verify Windows Installer 3.1 v2 (or newer)	7
Verify the Web Service.....	7
Special Considerations for Windows 2003.....	7
Verify the Web Browser.....	8
Special Considerations for Windows 2003.....	8
UNIX-Based Servers	8
Chapter 3 – Pre-Installation Checklist for the Application Server	9
Verify Microsoft .NET 1.1	9
Verify Microsoft Message Queuing (MSMQ)	9
Verify Adobe Reader.....	9
Verify Java and Apache Tomcat	9
Verify IIS and Apache Tomcat have HTTP Configured on Different Ports	10
Verify the SAS System.....	10
Chapter 4 – Pre-installation Checklist for the Database Server.....	13
Verify the Database.....	13
Chapter 5 – Pre-installation Checklist for the OLAP Server	15
Verify the OLAP Server	15
Chapter 6 – Pre-installation Checklist for the Calculation Server	17
Chapter 7 – Pre-installation Checklist for the Metadata Server	19
Chapter 8 – Pre-installation Checklist for the Workspace Server	21
Chapter 9 – Beginning the Installation Process.....	23
Install SAS Activity-Based Management on the Application Server	23
Install SAS Activity-Based Management Client	24
Set up Roles and Users in SAS Activity-Based Management Administrator... ..	25
Chapter 10 – Upgrade from a Previous Version.....	27
Back Up Databases	27
Back Up the Published Reports Directory	27
Uninstall the Previous Version of SAS Activity-Based Management Server... ..	27
Install the Latest Version of SAS Activity-Based Management Server	28
Restore the Contents of the Published Reports Directory	29

Uninstall the Previous Version of SAS Activity-Based Management Client	29
Install SAS Activity-Based Management Client	30
Chapter 11 – After Installation or Upgrade	31
IIS Settings	31
Notify Users of the URL from Which to Install SAS Activity-Based Management	31
Appendix A – SSL Configuration Guide	33
Areas Covered	33
Creating a Certificate Request	33
Installing the Security Certificate	35
Enabling SSL for SAS Activity-Based Management	36
Connecting to SAS Activity-Based Management via HTTPS and Verifying Certificate	38
Importing the Server Security Certificate	40
Using Certificate Properties	40
Using the Microsoft Management Console	42
Appendix B – Working with SAS/SHARE	45
Setting Up a Simple SAS/SHARE Server	45
Setting Up a Simple SAS/SHARE Client	46
Validating the SAS/SHARE Server	46
Appendix C – Installing and Configuring Oracle	49
Install Oracle on the Database Server	49
Install Oracle Services for Microsoft Transaction Server	50
Verify Registry Keys	50
Verify the Character Length Semantics	50
Create the Net Configuration	51
Verify Permissions	52
Create the Activity-Based Management Schemas	52
Install Microsoft Analysis Services (MSAS)	53
Special Considerations for Remote Databases	53
Install the Oracle Client Tools	54
Net Configuration	55
Install Oracle Patch 10.2.0.3.0 (or newer)	56
Verify the Database Connections	56
Appendix D – Configuring SQL Server	57
Verify the Correct Microsoft SQL Server Version	57
Verify the Microsoft SQL Server Mixed Mode Authentication	58
Verify the Correct Version of Microsoft Analysis Services (MSAS)	58
Migrate the MSAS Repository	58
Create a New Database to Which to Migrate the Repository	59
Create a New SQL Server Login	59
Migrate the Repository	59

Appendix E – Configuring SAS OLAP Server.....	61
Verify the Licenses	61
Create Server Users.....	62
Assign Privileges	63
Option 1: Give Metadata Users “Log on as a batch job” Privilege	63
Option 2: Add Metadata Users to the SAS Server Users Local Group	64
Create Local Metadata Users (If Needed)	65
Create a Metadata Library	65
SAS OLAP Server Configuration	67
Using SAS OLAP Server with Activity-Based Management	69
Appendix F – Configuring the Calculation Server	71
Microsoft SQL Server Database	72
Calculation Server is Windows-Based	72
Oracle 10g Database	75
Calculation Server is Windows-Based	75
Calculation Server is on the Same Computer as the Application Server.....	75
Calculation Server is on a Different Computer than the Application Server	75
Appendix G – Configuring the Application Server.....	77
Configure SAS Activity-Based Management Metadata User	77
Configure SAS Activity-Based Management Application Server	78
Verify Server Settings	82

Chapter 1 – Deployment Options

SAS Activity-Based Management supports many different configurations. A deployment architecture is typically chosen based upon the expected workload. First, let's define a few terms to aid with understanding.

Application Server – This computer hosts the SAS Activity-Based Management server software. This includes the SAS Activity-Based Management website, web services, database access logic, and the business rules that provide the activity-based management functionality. This server is the “hub” of the SAS Activity-Based Management product. SAS Activity-Based Management clients access this server. This server accesses the Database Server and OLAP Server to provide model data to the clients. Additionally, it also performs calculation tasks on the Calculation Server and creates cubes using the OLAP Server.

Database Server - This computer hosts the database used by SAS Activity-Based Management to store its models. Microsoft SQL Server 2000 and Oracle 10g are the two databases that SAS Activity-Based Management 6.4 supports.

OLAP Server – This server analyzes OLAP cubes by responding to requests from an OLAP viewer such as the one built into SAS Activity-Based Management and SAS Enterprise Guide. SAS Activity-Based Management supports either the SAS OLAP Server or Microsoft SQL Server 2000 Analysis Services. This server reads “fact tables” from the Database Server to create OLAP cubes.

Calculation Server – This server hosts the SAS Activity-Based Management calculation engine. It reads models, performs the necessary calculations, and writes the results back to the model database on the Database Server.

Metadata Server – This server hosts the SAS Metadata Server. The Metadata Server is part of the SAS Business Intelligence architecture. SAS Activity-Based Management uses it to store information about SAS Activity-Based Management models that users want to share with other applications, such Web Report Studio. It is also used by SAS OLAP Server to store cube and security information about cubes. Additionally, it centralizes access to SAS Workspace Servers, so they can be shared among Business Intelligence applications. You will need a Metadata server if any of the following conditions apply to your deployment:

1. If you want to share SAS Activity-Based Management data with other SAS applications.
2. If you plan to use SAS OLAP Server for creating cubes.
3. If you want the Calculation Server to be on a different computer than the Application Server.
4. If you are using a Workspace Server, in general you will also need a Metadata Server.

Workspace Server – This server hosts the SAS Workspace Server. The Workspace Server is part of the SAS Business Intelligence architecture. SAS Activity-Based Management uses it to perform model calculation tasks on remote computers and to perform OLAP cube creation tasks on the SAS OLAP Server. If the Application Server will not have a heavy workload (i.e. many SAS Activity-Based Management users or lengthy calculation operations), the Calculation Server can reside on the same computer as the Application Server and, hence, the Workspace Server is not needed. If SAS OLAP Server is used to process cubes, a Workspace Server should be installed on the OLAP Server.

Now that we have an understanding of what possible “logical” servers exist, let's discuss how these “logical” servers may be installed onto “physical” computers. The SAS Activity-Based Management architecture does not specify which of the above “servers” may or may not reside on the same physical computer. However, the platforms supported by the above servers will limit the possible deployment options. For example, the Application Server must run on a version of Windows (see the System Requirements documentation). So, if you want to use an Oracle 10g database on UNIX, clearly these two Servers cannot be deployed on the same computer. Platform limitations aside, you can choose an architecture that best suits your needs.

These architectures are the most common, but do not enumerate all possibilities. Please verify with your SAS consultants the suitability of any of these architectures to your particular needs. In order of smallest expected workload to largest, they are:

Two Computer Deployment

This deployment is suitable for small installations where:

- The number of SAS Activity-Based Management Modeler users and Business Users is relatively small.
- The SAS Activity-Based Management models and their cubes are small.
- Integration with other applications such as SAS Web Report Studio is not needed. Hence, the Metadata Server is not needed.
- Microsoft SQL Server 2000 Analysis Services will be used for OLAP processing.
- All server computers will be operating with the Windows operating system

In this deployment, the two server computers host the Servers in the following manner:

- Server 1: Application Server and the Calculation Server
- Server 2: Database Server and OLAP Server

Three Computer Deployment

This deployment is suitable for mid-size installations. It suits needs similar to the Two Computer Deployment discussed above, except the models are now large enough or the number of users is large enough that sharing one computer between the Application Server and the Calculation Server is no longer practical. This deployment is feasible only if the Workspace Server is not heavily used by other applications. It also has the following limitations:

- Integration with other applications such as SAS Web Report Studio is not needed. Hence, the Metadata Server is not needed for this purpose.
- Microsoft SQL Server 2000 Analysis Services will be used for OLAP processing. So the Metadata Server is not needed for this purpose either.
- However, since the Calculation Server is on a different computer than the Application Server, we do need a Workspace Server and a Metadata Server.

In this deployment, the three server computers host the Servers in the following manner:

- Server 1: Application Server
- Server 2: Database Server and OLAP Server
- Server 3: Metadata Server, Workspace Server and the Calculation Server. See the System Requirements for additional details.

A Workspace Server should also be installed on the OLAP Server if SAS OLAP Server is used to process cubes. This allows the cube creation, cube storage, and cube delivery to be hosted on a single computer.

Alternate Three Computer Deployment

This deployment is identical to the Two Computer Deployment, except it adds a Metadata Server to share information with other applications. It is suitable for small installations that need to share data with other applications.

- Server 1: Application Server and the Calculation Server

- Server 2: Database Server and OLAP Server
- Server 3: Metadata Server. If your site already has a Metadata Server installed, SAS Activity-Based Management does not need its own. It can, and should, share your existing server.

A Workspace Server should also be installed on the OLAP Server if SAS OLAP Server is used to process cubes. This allows the cube creation, cube storage, and cube delivery to be hosted on a single computer.

Four Computer Deployment

This deployment is suited to high-usage installations. It moves both the database & OLAP processing as well as Calculation processing onto computers separate from the Application Server.

- Server 1: Application Server
- Server 2: Database Server and OLAP Server
- Server 3: Calculation Server and Workspace Server
- Server 4: Metadata Server. If your site already has a Metadata Server installed, SAS Activity-Based Management does not need its own. It can, and should, share your existing server.

A Workspace Server should also be installed on the OLAP Server if SAS OLAP Server is used to process cubes. This allows the cube creation, cube storage, and cube delivery to be hosted on a single computer.

Chapter 2 – Pre-Installation Checklist for All Servers

Before you start to install or upgrade any of the SAS Activity-Based Management components, please follow these steps:

1. Verify that the items enclosed in your product package match the packing list.
2. Ensure that your computer(s) meets all the specifications indicated in the System Requirements document contained in your product package.
3. The user who installs SAS Activity-Based Management Server must have local Administrator privileges on the host computer. Possessing Domain Administrator privileges is not sufficient.

This is necessary because the installation process creates the *SASABMUSER* Windows user account on the server and makes it a member of the *Power Users* and OLAP Administrators groups (if MSAS is installed on the same computer). The *SASABMUSER* identity will be used to run the COM+ objects that are part of the SAS Activity-Based Management server, to setup import and export processes (which are then handed off to another identity), and to run the OLAP cube creation in Microsoft Analysis Services or SAS OLAP. Membership in the OLAP Administrators group gives the *SASABMUSER* account, by default, Read, Read and Execute, Write, and Update permissions to Program Files\Microsoft Analysis Services\Bin and Program Files\Microsoft Analysis Services\Data folders. These are required for cube creation in Microsoft Analysis Services. The *SASABMUSER* must also have similar access to the Windows Temp path, and to the SAS Activity-Based Management and .NET Framework installation directories and their subdirectories.

The SAS Activity-Based Management installation also must create the *SASABMDBUSER* database user in the relevant instance of Microsoft SQL Server or Oracle. The credentials passed during the database setup portion of the SAS Activity-Based Management server installation must have adequate permissions to:

- create the *SASABMDBUSER* user
- create the OEModels and OEAdmin databases in SQL Server or the OEModels schema in Oracle
- grant *SASABMDBUSER* database owner permissions to the databases or schema
- create the stored procedures and other database objects that SAS Activity-Based Management requires

In addition to the components of the SAS Activity-Based Management server that run under the *SASABMUSER* account, processes launched by the .NET web services that are created as part of the SAS Activity-Based Management server installation will run under the Windows ASPNET user on Windows Server 2000 systems, or the NETWORK SERVICE account on Windows Server 2003 systems. This behavior is determined by Microsoft .NET, and Microsoft does not document exhaustively what access privileges these accounts must have. SAS has determined that, as a minimum, they must have access to the Windows Temp path and the Microsoft .NET Framework installation directory and subdirectories. The applicable .NET web services identity must also have access to import source or export target data files and directories for data sources that are affected by file system permissions. These would include Microsoft Access and Excel, and SAS data sets. For import operations, Read access to the source data files and their parent folders should be adequate, but for export operations, Read, Write, Update, and Modify are typically necessary.

When installing SAS Activity-Based Management Server on a Windows system whose default security settings and permissions are unaltered, the installation package will take care of all these operations automatically.

4. SAS recommends that you disable any antivirus software running on your server while doing the SAS Activity-Based Management server installation. On rare occasions, antivirus software prevents all necessary files and configurations from completing successfully. This problem is a known issue with Inoculan Antivirus. For more information, browse to:
<http://support.microsoft.com/default.aspx?kbid=309337>.
5. On Windows-based computer, SAS recommends that you do not install on a computer running Terminal Services in application server mode. Remote administration mode is acceptable. The following note is from Microsoft:

As for BackOffice Servers, it is not recommended that you install Terminal Services in application server mode on a server that is already dedicated to the task of running infrastructure services, such as DNS, WINS, or File and Print, or server applications such as IIS, Exchange or SQL Server. Client applications running under Terminal Services on these servers can severely impact the performance and scalability of these servers.

Windows-Based Servers

Verify the Operating System

1. On the desktop, display the properties for **My Computer**.
2. On the **General** tab, verify that the **System** section lists the operating system and service pack number noted in the System Requirements.
3. If either is not correct, install or upgrade now, then continue with the installation.

Special Considerations for Windows 2003

When installing SAS Activity-Based Management on a Windows 2003 Server operating system, several required components are not included in the default installation of the operating system. The components needed by SAS Activity-Based Management are:

- Application Server
 - Application Server Console
 - ASP.NET
 - Enable network COM+ access
 - Enable network DTC access
 - Internet Information Services (IIS)
 - Common Files
 - Internet Information Services Manager
 - World Wide Web Service
 - Active Server Pages
 - WebDAV Publishing
 - World Wide Web Service
 - Message Queuing
 - Common
 - Core Functionality
 - Local Storage
1. Open **Add or Remove Programs** in the **Control Panel**.
 2. Choose **Add/Remove Windows Components**.

3. Verify that the components listed above are installed.

Verify Windows Installer 3.1 v2 (or newer)

1. Open **Add or Remove Programs** in the **Control Panel**.
2. Verify that the installed version of Windows Installer is 3.1 v2 or newer.

For more information, browse to

<http://www.microsoft.com/downloads/details.aspx?FamilyID=889482FC-5F56-4A38-B838-DE776FD4138C&displaylang=en>.

Verify the Web Service

1. Open **Computer Management** in the **Control Panel**. On some versions of Windows, you will find **Computer Management** in **Administrative Tools** in the **Control Panel**.
2. In the **Tree** tab pane, expand **Services and Applications**.
3. If you do not see **Internet Information Services**, IIS is not installed. Install it now, and then continue with the installation.
4. Right-click **Internet Information Services** and select **Help**.
5. In **Microsoft Management Console Help**, in the right pane, click the product documentation URL in the first paragraph. A browser window with IIS documentation opens.
6. If you do not see a title that reflects the version noted in the System Requirements, it probably is not installed. Upgrade now, then continue with the installation.

Special Considerations for Windows 2003

When using Windows 2003 Server versions, you must explicitly allow Active Server Pages, ASP.NET 1.1.4322, and WebDAV to operate (the first two are prohibited by default).

1. Open **Administrative Tools** in the **Control Panel**.
2. Choose **Internet Information Services**.
3. In the **Tree** tab pane, expand **<MyComputerName> (local computer)** where **<MyComputerName>** is the name of your computer.
4. Choose **Web Service Extensions**. In the right-hand pane, verify that the above services are allowed.

Note: *The exact version number of ASP.NET may vary depending upon which Service Packs you have installed on your Windows 2003 operating system. However, it must not be version 2 or newer.*

Verify the Web Browser

1. Start **Internet Explorer**.
2. Select **Help**→**About Internet Explorer**.
3. Verify that the **Version** meets the specification in the System Requirements.

Special Considerations for Windows 2003

When Internet Explorer is installed on Windows 2003 Servers, you must disable the "Enhanced Security" setting (it is enabled by default).

1. Open **Add or Remove Programs** in the **Control Panel**.
2. Choose **Add/Remove Windows Components**.
3. Verify that the box labeled **Internet Explorer Enhanced Security Configuration** is not selected.

UNIX-Based Servers

The SAS Activity-Based Management application server components install and run on Windows systems only. However, other components of SAS Activity-Based Management, such as the SAS OLAP Server and Metadata Server are available on multiple UNIX operating systems. The specific prerequisites for these UNIX operating systems are available in the System Requirements document for each specific product.

Chapter 3 – Pre-Installation Checklist for the Application Server

Verify Microsoft .NET 1.1

Although newer versions of the .NET framework are available, they are not 100% compatible with version 1.1 when used as a server for ASP.NET web pages and web services.

1. Open **Add or Remove Programs** in the **Control Panel**.
2. Choose **Add/Remove Programs**.
3. Verify that **Microsoft .NET Framework 1.1** is in the list of installed programs. Verify that the **Version** meets the specification in the System Requirements.

After installing the SAS Activity-Based Management Application Server, you will verify that the SAS Activity-Based Management web pages are configured to have their requests handled by **Microsoft .NET Framework 1.1**.

Tip: *Microsoft .NET 1.1 must be installed after IIS. If it isn't, the .NET installation won't be able to properly configure the ASPX components needed by SAS Activity-Based Management. If IIS was installed after .NET 1.1 the only way to remedy this problem is to uninstall .NET 1.1, and then re-install it.*

Verify Microsoft Message Queuing (MSMQ)

SAS Activity-Based Management will function properly if MSMQ is configured as either an Independent Server or as an Active Directory Integrated Server.

1. Open **Computer Management** in the **Control Panel**.
2. Expand **Services and Applications**.
3. If you do not see Message Queuing, it is not installed. Install it now, then continue with the installation.

Verify Adobe Reader

SAS Activity-Based Management provides several documents, including the System Requirements and a tutorial of the SAS Activity-Based Management product, in .PDF format. In order to read these files, the Adobe Reader must be installed.

1. Open **Add or Remove Programs** in the **Control Panel**.
2. Choose **Add/Remove Programs**.
3. Verify that **Adobe Reader** is in the list of installed programs. Verify that the **Version** meets the specification in the System Requirements.

Verify Java and Apache Tomcat

SAS Activity-Based Management requires Java 2 SDK. The standard Java 2 JRE is not sufficient.

1. Open **Add or Remove Programs** in the **Control Panel**.

2. Verify that **Apache Tomcat** is in the list of installed programs. Verify that the **Version** meets the specification in the System Requirements.
3. Verify that **Java 2 SDK** is in the list of installed programs. Verify that the **Version** meets the specification in the System Requirements.
4. Verify that **Apache Tomcat** is running.
 - i. Open **Administrative Tools** in the **Control Panel**.
 - ii. Choose **Services**.
 - iii. Verify **Apache Tomcat** is **Started** and the **Startup Type** is **Automatic**.

Tip: *Java and Apache Tomcat are used by the Contributions functionality in SAS Activity-Based Management 6.4. If you do not want to use this capability, you do not need to install Java or Apache Tomcat.*

Verify IIS and Apache Tomcat have HTTP Configured on Different Ports

Microsoft IIS and Apache Tomcat are both web servers that respond to HTTP requests on the port they are configured for. By standard default, all web servers respond to requests on Port 80 or Port 8080. When two or more web servers are installed on a single computer, care must be taken to ensure that conflicts do not exist. When two web servers are “listening” on the same port, there will be two responses to any request, which causes problems for the computer making the request.

To prevent this conflict, the configured port for Microsoft IIS and Apache Tomcat should not be identical. To change the configured port on Microsoft IIS, perform the following steps.

1. Open **Administrative Tools** in the **Control Panel**.
2. Open **Internet Information Services**.
3. In the **Tree** tab pane, expand **<MyComputerName> (local computer)** where **<MyComputerName>** is the name of your computer.
4. In the **Tree Tab**, expand **Web Sites**.
5. In the **Tree Tab**, select **Default Web Site** (or the website where you will install the SAS Activity-Based Management web services). Right-click the web site and select **Properties**. The **<web site name> Web Site Properties** window opens.
6. Choose the tab named **Web Site**. Change the **TCP Port** to a value that does not conflict with Apache Tomcat and also does not conflict with other applications or services that might be “listening” to TCP ports.

Tip: *It is common to use TCP ports 8080 and 80 for Apache Tomcat and Microsoft IIS respectively. These ports rarely have conflicts with other applications or services.*

Verify the SAS System

Follow the instructions enclosed in your Installation Kit to install the SAS 9.1.3 SP4 Foundation. SAS Setup will ask for your SAS Installation Data (SID), which is sent to your site’s SAS Installation Representative by e-mail. The Customer Key and Order number can be found in the SAS Installation Kit, under the SAS Order Information tab on the SAS Order Information page.

SAS Installation Data (SID) contains license information and installation scripts that customize the installation for your site. SAS Installation Data is sent to your SAS Installation Representative in an e-mail in

the form of a text file attachment. In addition to the license data for the SAS Foundation, the SID also contains license data for SAS Activity-Based Management. Without the SID, and its embedded license data, SAS Activity-Based Management will not operate.

Tip: *SAS Activity-Based Management 6.4 provides new product integration features that can only be accessed using SAS 9.1.3 SP4. These new features simplify sharing data throughout the SAS Business Intelligence platform.*

Chapter 4 – Pre-installation Checklist for the Database Server

Verify the Database

SAS Activity-Based Management can operate using Microsoft SQL Server 2000 or Oracle 10g as its database for storing models. These databases require proper installation and configuration to ensure proper operation of SAS Activity-Based Management.

1. If you are using Oracle 10g on Windows, perform the following:
 - a. On the computer hosting your database, open **Add or Remove Programs** in the **Control Panel**.
 - b. Verify **Oracle 10g** is in the list of installed programs. Verify that the version meets the specification in the System Requirements.
 - c. Verify **Oracle 10g** is running.
 - d. If Oracle 10g is not installed, follow the directions in Appendix C, beginning on page 49, for installing and configuring Oracle 10g.
 - e. If the computer hosting the database server that stores your SAS Activity-Based Management models is different from the SAS Activity-Based Management application server, you will also need to install the **Oracle Client Tools** on the SAS Activity-Based Management application server. These tools are available on the installation CD for Oracle 10g. See *Install the Oracle Client Tools* in Appendix C for more information.
2. If you are using Oracle 10g on UNIX, perform the following:
 - a. Verify that Oracle 10g is installed and running.
 - b. Verify the version meets the specification in the System Requirements.
 - c. If Oracle 10g is not installed, please install it. Although step-by-step instructions for installing Oracle 10g on UNIX operating systems are not provided, Appendix C contains instructions for installing Oracle 10g on Windows, which can be used as a guide.
 - d. Install the **Oracle Client Tools** on the SAS Activity-Based Management application server. These tools are available on the installation CD for Oracle 10g. See *Install the Oracle Client Tools* in Appendix C for more information.
3. If you are using Microsoft SQL Server 2000, perform the following:
 - a. On the computer hosting your database, open **Add or Remove Programs** in the **Control Panel**.
 - b. Verify **Microsoft SQL Server 2000** is in the list of installed programs. Verify the service pack level meets the specification in the System Requirements document.
 - c. Verify **Microsoft SQL Server 2000** is running.
 - d. If Microsoft SQL Server 2000 is not installed, follow the directions in Appendix D, beginning on page 57, for configuring Microsoft SQL Server 2000 on the computer you will use to host the database server that stores host your SAS Activity-Based Management models.
 - e. If the computer hosting your SAS Activity-Based Management models is different from the SAS Activity-Based Management application server, you will also need to install the **Microsoft SQL Server 2000 Client Tools** on the SAS Activity-Based Management application server. These tools are available on the installation CD for Microsoft SQL Server 2000.

Chapter 5 – Pre-installation Checklist for the OLAP Server

Verify the OLAP Server

SAS Activity-Based Management uses the OLAP server to create cubes for integrated OLAP analysis. If the integrated OLAP analysis in SAS Activity-Based Management is not needed, these requirements may be omitted.

Warning: SAS OLAP Server uses a SAS OLE DB data provider to respond to MDX query requests. A defect was found in versions of this provider prior to SAS 9.1.3 SP4. Please verify that the version of this provider installed on your Metadata Server is 9.1.35.3 or newer. A hot fix is available to resolve this problem if needed:
http://www.sas.com/apps/demosdownloads/downarea_error.jsp?productID=108298.

1. If you are using SAS OLAP Server on Windows, perform the following:
 - a. Open **Add or Remove Programs** in the **Control Panel**.
 - b. Verify that **SAS OLAP Server Monitor SAS MC Plug-in** is in the list of installed programs and is running. Verify that the version meets the specification in the System Requirements. Verify that the SAS OLAP Server is running by performing the following steps.
 - i. Open **Administrative Tools** in the **Control Panel**.
 - ii. Choose **Services**.
 - iii. Verify **SAS Lev1 OL** is **Started** and the **Startup Type** is **Automatic**.
 - c. Verify that SAS Workspace Server is installed and that a valid connection to it can be made from your SAS Metadata Server. Verify that the version meets the specification in the System Requirements. Verify that a valid connection to this Workspace Server can be made by performing the following steps.
 - i. Open the SAS Management Console on your Metadata Server (or any SAS Management Console that can access your Metadata Server).
 - ii. Under the **Server Manager**, verify that a valid connection exists to the Workspace Server on this computer.
 - Tip:** When installing the SAS Activity-Based Management Server, the final step is configuring the Metadata Server and Workspace Servers you want to use. When specifying the Workspace Server for the SAS OLAP Server, choose the one you verified here.*
 - d. There several configuration steps for using SAS OLAP Server in Appendix E, but they cannot be performed until installation of the SAS Activity-Based Management Server is complete. You will be referred to that appendix when completing the Application Server installation.
2. If you are using SAS OLAP Server on UNIX, perform the following:
 - a. Verify that SAS OLAP Server is installed and running. Verify that the version meets the specification in the System Requirements.
 - b. Verify that SAS Workspace Server is installed and running. Verify that the version meets the specification in the System Requirements.
 - c. There are several configuration steps for using SAS OLAP Server in Appendix E, but they cannot be performed until installation of the SAS Activity-Based Management Server is complete. You will be referred to that appendix when completing the Application Server installation.

3. If you are using **Microsoft SQL Server 2000 Analysis Services**, perform the following:
 - a. Open **Add or Remove Programs** in the **Control Panel**.
 - b. Verify that **Microsoft SQL Server 2000 Analysis Services** is in the list of installed programs and that the version meets the specification in the System Requirements. Verify that **Microsoft SQL Server 2000 Analysis Services** is running by performing the following steps.
 - i. Open **Administrative Tools** in the **Control Panel**.
 - ii. Choose **Services**.
 - iii. Verify **MSSQLServerOLAPService** is **Started** and the **Startup Type** is **Automatic**.
 - c. Additionally, if **Microsoft SQL Server 2000 Analysis Services** is hosted on a different computer than the database, and is also on a different computer than the SAS Activity-Based Management application server, you will also need to install the **Microsoft SQL Server 2000 Client Tools** on the OLAP server. These tools are available on the installation CD for Microsoft SQL Server 2000.

Tip: *When verifying or installing the service packs for the database, be aware that the service packs for Microsoft SQL Server 2000 and Microsoft SQL Server 2000 Analysis Services are installed separately. Simply installing a service pack for one does not automatically install the service pack for the other.*

Chapter 6 – Pre-installation Checklist for the Calculation Server

SAS Activity-Based Management uses the Calculation Server to calculate the costs in the SAS Activity-Based Management models.

Follow the instructions in Appendix F for configuring the Calculation Server on the computer you will use to perform your model calculations.

Warning: *The configuration steps in Appendix F create ODBC connections used by the Calculation Server to connect to the SAS Activity-Based Management database. If these configuration steps are not performed, the SAS Activity-Based Management models will not calculate costs.*

Note: *The SAS Activity-Based Management Calculation Server is a custom SAS MVA procedure named Proc Abc. Proc Abc is invoked by the Application Server using the Workspace Server installed on the Calculation Server. However, as noted previously, if the Calculation Server is on the same computer as the Application Server, the Workspace Server is not needed.*

1. If you are using the Calculation Server on the Application Server, there are no additional pre-installation steps.
2. If you are using the Calculation Server on Windows, but it is hosted on another computer:
 - a. Verify that SAS Workspace Server is installed and that a valid connection to it can be made from your SAS Metadata Server. Verify that the version meets the specification in the System Requirements. Verify that a valid connection to this Workspace Server can be made by performing the following steps.
 - i. Open the SAS Management Console on your Metadata Server (or any SAS Management Console that can access your Metadata Server).
 - ii. Under the **Server Manager**, verify that a valid connection exists to the Workspace Server on this computer.

Tip: *When installing the SAS Activity-Based Management Server, the final step is configuring the Metadata Server and Workspace Servers you want to use. When specifying the Workspace Server for the Calculate Server, choose this one.*

Chapter 7 – Pre-installation Checklist for the Metadata Server

SAS Activity-Based Management uses the Metadata Server to share information about SAS Activity-Based Management models with other applications, to store OLAP cube-related data, and to communicate with Workspace Servers.

Tip: *Chapter 1 details the deployment situations which require that a Metadata Server be installed. If your deployment does not need one or if you already have one installed, you may skip this chapter.*

1. Verify that the Workspace Server and Metadata Server are installed and running. This is most easily accomplished by launching the SAS Management Console and verifying that the server hosting the Metadata Server is active under the **Metadata Manager**.
2. If the Metadata Server is not installed, follow the instructions enclosed in your Installation Kit to install the SAS 9.1.3 Metadata Server. SAS Setup will ask for your SAS Installation Data (SID), which is sent to your site's SAS Installation Representative by e-mail. The Customer Key and Order number can be found in the SAS Installation Kit, under the SAS Order Information tab on the SAS Order Information page.

Chapter 8 – Pre-installation Checklist for the Workspace Server

SAS Activity-Based Management uses the Workspace Server to launch tasks on remote computers. In particular, SAS Activity-Based Management launches remote calculation and cube creation tasks.

Tip: *Chapter 1 details the deployment situations which require a Workspace Server be installed. You will need a Workspace Server on **each** computer that:*

- *You want to use a SAS OLAP Server (instead of Microsoft Analysis Services)*
 - *You want to use a Calculation Server that is hosted on different computer than the Application Server*
1. Verify that the Workspace Server is installed and running on each computer where it is required. Verify that the version meets the specification in the System Requirements. Verify that a valid connection to each of the Workspace Servers can be made by performing the following steps.
 - a. Open the SAS Management Console on your Metadata Server (or any SAS Management Console that can access your Metadata Server).
 - b. Under the **Server Manager**, verify that a valid connection exists to the Workspace Server on the relevant computer(s).
 2. If the Workspace Server is not installed, follow the instructions enclosed in your Installation Kit to install the SAS 9.1.3 Metadata Server. SAS Setup will ask for your SAS Installation Data (SID), which is sent to your site's SAS Installation Representative by e-mail. The Customer Key and Order number can be found in the SAS Installation Kit, under the SAS Order Information tab on the SAS Order Information page.

Warning: *If your deployment contains an Oracle database and your Calculation Server is on a different computer than your SAS Activity-Based Management Server, you will need to verify that the SAS Workspace Server on your Calculation Server is authorized to run shell commands. This is needed to run the Oracle Bulk Loader (SQLldr.exe). This is accomplished by editing the start-up command file for the SAS Workspace Server and enabling the "allowxcmd" command.*

Chapter 9 – Beginning the Installation Process

To start the installation process, complete the following steps:

1. Close all non-essential applications.
2. On the computer that will be the SAS Activity-Based Management Server, log in with an account that has local administrator privileges.

Install SAS Activity-Based Management on the Application Server

In order to build the databases during the installation, you will be asked for a user name and password for a user who has database administrator privileges. Depending on your organization's database policies, you may need to enter this information.

1. Insert the CD-ROM into the drive.

The installation media is AutoPlay-enabled. If your computer has the AutoPlay function enabled, the installation process begins automatically when you insert the CDROM into the drive. If your computer has the AutoPlay function disabled, browse the CD-ROM, and double-click the file `start.exe`, which is at the root of the CD-ROM.

2. Click **Install SAS Activity-Based Management**.
3. Follow the instructions on the screen.
4. If you are asked to select the Web site on which to install, do not select the administrator's Web site.
5. When you are asked if you would like to install the SAS Activity-Based Management Server databases, the necessary steps depend on the database you are using.
 - a. If you are using a Microsoft SQL Server database:
 - a) Choose **SQL Server** for the **Type**
 - b) Enter the computer name that Microsoft SQL Server is installed on.
 - c) Perform one of the following:
 - Enter an SQL Server administrator **Name** and **Password**.
 - Select **Use current login credentials**.
 - b. If you are using an Oracle 10g database:
 - a) Choose **Oracle** for the **Type**
 - b) Enter the **Alias** for the Oracle instance
 - c) Perform one of the following:
 - Enter an Oracle administrator **Name** and **Password**.
 - Select **Use current login credentials**.
 - d) Select **Use as Schema** if the same login credentials can be used for the Schema as well. If you do not choose **Use as Schema**, you will be prompted for your Schema login credentials.
6. When you are finished choosing your database options, click **Ok**.
7. If you are asked if you want to reboot now, click **No**.
8. You are now taken to the **Server Configuration** application. In the subsequent steps, you will choose your Metadata Server, Calculation Server, OLAP Server, and you will provide connection details to Apache/Tomcat on your Application Server for the Contributions Server functionality.

Complete the configuration steps in Appendix G.

9. If you are using SAS OLAP Server for creating cubes, please complete the steps in Appendix E.
10. SAS Activity-Based Management 6.4 will not ship with support for languages other than English. Non-English language support will be provided in SAS Activity-Based Management 6.4.1 early in 2008.

Warning: *You should exercise caution when applying the Language Pack to a server that has existing contents in its database. The Language Pack installer changes the names of the predefined folders in the Workspace Manager to their localized equivalents. This alters the pathname of all workspace items. While the SAS Activity-Based Management application will operate correctly, any stored configurations for Import, Export, creating Reports, etc. will now contain incorrect paths and will need to be manually edited to update the path information.*

11. Reboot your computer now.

Install SAS Activity-Based Management Client

The SAS Activity-Based Management Client is installed from a web page on the SAS Activity-Based Management Server that is created when the Server is installed.

Tip: *If you changed the HTTP port for IIS, you will need to specify the port here so IIS receives and process your requests properly. The format is: `http://<SAS Activity-Based Management Server name>:<port number>/SasSolutions/ABM/`*

1. For users who will be installing over a LAN, the URL is

`http://<SAS Activity-Based Management Server name>/SasSolutions/ABM/`

where <SAS Activity-Based Management Server name> is the name of the computer on which the SAS Activity-Based Management Server is installed.

Example: `http://polaris/SasSolutions/ABM/`

Users might need to enter a user name, password, and domain.

2. For users who will be installing over the Internet, the URL is

`http://<SAS Activity-Based Management Web site>/SasSolutions/ABM/`

where <SAS Activity-Based Management Web site> is a fully qualified domain name.

Example: `http://polaris.mycompany.com/SasSolutions/ABM/`

3. Choose the desired locale for verifying and installing any necessary prerequisites. This is accomplished by selecting a language from the **Language of choice** drop list at the top-right of the Client installation home page. The selected language will be used to determine what locale to use when installing the prerequisites. For example, if you are installing on a German version of Windows, a language choice of German ensures that a German version of Adobe Acrobat will be installed if needed.
4. SAS Activity-Based Management 6.4 will not ship with support for languages other than English. Non-English language support will be provided in SAS Activity-Based Management 6.4.1 early in 2008.

Set up Roles and Users in SAS Activity-Based Management Administrator

To start SAS Activity-Based Management Administrator, select **Start**→**Programs**→**SAS**→**SAS Activity-Based Management 6.4**→**SAS Activity-Based Management Administrator**.

If you cannot log in to SAS Activity-Based Management Administrator, you have not been set as a SAS Activity-Based Management administrator. The installation program automatically set the person who installed SAS Activity-Based Management as an administrator. Ask that person to make the changes or to set you as an administrator.

For instructions on how to set up roles and users, refer to the online help for SAS Activity-Based Management Administrator.

Chapter 10 – Upgrade from a Previous Version

The upgrade steps for SAS Activity-Based Management are explained in the sections that follow. Before upgrading, please read all the information in this section.

Note: *All SAS Activity-Based Management client computers must also be upgraded. Additionally, any remote installations of the SAS Activity-Based Management Administrator must also be updated.*

Back Up Databases

SAS recommends you back up the SAS Activity-Based Management databases whenever you upgrade. If you are using Microsoft SQL Server, you must back up the OEAdmin and OEModels databases. If you are using Oracle, you must back up the schema you created for Activity-Based Management during installation.

Warning: *Backups are version-specific. Do not restore the current SAS Activity-Based Management databases from a backup created from a previous version. For more information, contact SAS Technical Support.*

Before backing up the databases, verify that no one is using SAS Activity-Based Management on the server that you are upgrading.

Tip: *Because back-ups are version-specific, include the version number in the back-up name.*

Back Up the Published Reports Directory

Now that you have backed up the SAS Activity-Based Management databases, you should make a copy of the directory that contains the Published Reports that were created by SAS Activity-Based Management users. This folder is typically located at: C:\Program Files\SAS\Activity-Based Management Solution\Enterprise Server\SasSolutions\ABM\reports. The contents of this directory will be restored after the installation of the new version of SAS Activity-Based Management is complete.

Warning: *Failure to back up the contents of the published reports directory risks the loss of all the published reports created by SAS Activity-Based Management users when the previous version of the product is uninstalled in the next step of the upgrade process.*

Uninstall the Previous Version of SAS Activity-Based Management Server

1. Make sure you are logged in to the SAS Activity-Based Management server using the same credentials that were used when the SAS Activity-Based Management server was installed. Failure to do so will cause portions of the uninstallation process to fail, which will leave old directories and files on your server.
2. On the Server, use **Add/Remove Programs** in the **Control Panel** to remove **SAS Activity-Based Management Administrator**. Use the same method to remove the SAS Activity-Based Management Client if it is installed there.
3. On the server, use **Add/Remove Programs** in the **Control Panel** to remove **SAS Activity-Based Management Server**.
4. When you are asked if you want to delete the SAS Activity-Based Management databases:
 - If you are retaining existing models and other workspace items, click **Don't Delete**. This saves the databases so that they can be upgraded later.
 - If your users want setup the latest version of SAS Activity-Based Management with new, empty databases, click **OK**.
5. Reboot your computer.

6. Verify that the SAS Activity-Based Management folders have been deleted by the uninstallation process. These folders are typically located at: C:\Program Files\SAS\Activity-Based Management Solution and at C:\Program Files\Common Files\SAS\Activity-Based Management. If they are present, delete them and their contents, *except* the folders under C:\Program Files\SAS\Activity-Based Management Solution\Enterprise Server\SasSolutions\ABM\reports. This folder contains the reports that users have published on the SAS Activity-Based Management server.

Warning: *It is imperative that you reboot your computer prior to installing SAS Activity-Based Management. Failure to reboot may cause errors during the installation of SAS Activity-Based Management or may cause some components to install improperly.*

Install the Latest Version of SAS Activity-Based Management Server

During the installation, to build or upgrade the databases you will be asked for the user name and password for a user who has database administrator privileges. Depending on your organization's database policies, you may need to enter it.

After completing the installation, you might be asked to reboot the server.

1. Insert the CD-ROM into the drive.

The installation media is AutoPlay-enabled. If your computer has the AutoPlay function enabled, the installation process begins automatically when you insert the CD-ROM into the drive. If your computer has the AutoPlay function disabled, browse the CD-ROM, and double-click the file `start.exe`, which is at the root of the CD-ROM.

2. Click **Install SAS Activity-Based Management**.
3. Follow the instructions on the screen.
4. When you are asked to select the Web site on which to install, do not select the administrator's Web site.
5. When you are asked if you would like to install the SAS Activity-Based Management Server databases, the necessary steps depend on the database you are using.

The Configuration will provide default values for the database user name. If you have changed the user name or password, you need to override the default value and replace it with the correct name and password.

- a. If you are using a Microsoft SQL Server database:
 - a) Choose **SQL Server** for the **Type**
 - b) Enter the computer name that Microsoft SQL Server is installed on.
 - c) Perform one of the following:
 - Enter an SQL Server administrator **Name** and **Password**.
 - Select **Use current login credentials**.
- b. If you are using an Oracle 10g database:
 - a) Choose **Oracle** for the **Type**
 - b) Enter the **Alias** for the Oracle instance
 - c) Perform one of the following:
 - Enter an Oracle administrator **Name** and **Password**.
 - Select **Use current login credentials**.
 - d) Select **Use as Schema** if the same login credentials can be used for the Schema as well. If you do not choose **Use as Schema**, you will be prompted for your Schema login credentials.

6. When you are finished choosing your database options, click **Ok**.
7. If you are *upgrading* models from a previous version of SAS Activity-Based Management, click **Upgrade**.
8. If you want to remove the current databases and use the latest version of SAS Activity-Based Management with *new* databases, click **Reinstall**. New databases are created and previously created data will no longer be available.

Warning: *If you choose **Reinstall**, all data in your existing SAS Activity-Based Management databases will be deleted.*

9. If asked if you want to reboot now, click **No**.
10. You are now taken to the **Server Configuration** application. In the subsequent steps, you will choose your Metadata Server, Calculation Server, OLAP Server, and you will provide connection details to Apache/Tomcat on your Application Server for the Contributions Server functionality. Complete the configuration steps in Appendix G.

SAS Activity-Based Management 6.4 will not ship with official support for languages other than English. Non-English language support will be officially provided in SAS Activity-Based Management 6.4.1 early in 2008.

Warning: *You should exercise caution when applying the Language Pack to a server that has existing contents in its database. The Language Pack installer changes the names of the predefined folders in the Workspace Manager to their localized equivalents. This alters the pathname of all workspace items. While the SAS Activity-Based Management application will operate correctly, any stored configurations for Import, Export, creating Reports, etc. will now contain incorrect paths and will need to be manually edited to update the path information.*

11. Reboot your computer now.

Restore the Contents of the Published Reports Directory

Restore the contents of the published reports directory from the saved location to the newly created published reports directory. This directory is typically located at: C:\Program Files\SAS\Activity-Based Management Solution\Enterprise Server\SasSolutions\ABM\reports.

Uninstall the Previous Version of SAS Activity-Based Management Client

Before you can run your new SAS Activity-Based Management 6.4 software, you must also uninstall any previous versions of the client software from users' computers.

1. On the Client, use **Add/Remove Programs** in the **Control Panel** to remove **SAS Activity-Based Management**.
2. On the Client, use **Add/Remove Programs** in the **Control Panel** to remove **SAS Activity-Based Management Administrator** if it is present.
3. On the Client, use **Add/Remove Programs** in the **Control Panel** to remove **SAS Activity-Based Management Visualization Components**, if present. This is very important since a new version of these components is provided with SAS Activity-Based Management 6.4.

Tip: *SAS Activity-Based Management 6.2.2 and earlier installed the Visualization Components as a separate component. SAS Activity-Based Management 6.3 and newer includes the Visualization Components as part of the Activity-Based Management client installation process. These new components will not appear in **Add/Remove Programs**.*

4. Reboot your computer.

Warning: *It is imperative that you reboot your computer prior to installing SAS Activity-Based Management. Failure to reboot may cause errors during the installation of SAS Activity-Based Management or may cause some components to install improperly.*

Install SAS Activity-Based Management Client

Install the SAS Activity-Based Management Client as outlined in the section entitled “Install SAS Activity-Based Management Client” in Chapter 7.

Chapter 11 – After Installation or Upgrade

IIS Settings

Do not change IIS settings for the SasSolutions virtual folder. If you change these settings, SAS Activity-Based Management will not operate properly.

Notify Users of the URL from Which to Install SAS Activity-Based Management

Ensure that you notify users that previously-installed versions of SAS Activity-Based Management must be upgraded.

Tip: *If you changed the HTTP port for IIS, you will need to specify the port here so IIS receives and process your requests properly. The format is: `http://<SAS Activity-Based Management Server name>:<port number>/SasSolutions/ABM/`*

1. For users who will be installing over a LAN, the URL is

`http://<SAS Activity-Based Management Server name>/SasSolutions/ABM/`

where <SAS Activity-Based Management Server name> is the name of the computer on which the SAS Activity-Based Management Server is installed.

Example: `http://polaris/SasSolutions/ABM/`

Users might need to enter a user name, password, and domain.

2. For users who will be installing over the Internet, the URL is

`http://<SAS Activity-Based Management Web site>/SasSolutions/ABM/`

where <SAS Activity-Based Management Web site> is a fully qualified domain name.

Example: `http://polaris.mycompany.com/SasSolutions/ABM/`

Appendix A – SSL Configuration Guide

The purpose of this appendix is to provide examples of the steps involved in setting up SSL on the SAS Activity-Based Management Server. It is not a comprehensive document covering all possible ways to configure SSL and should not be used as an exhaustive implementation guide. For more information, refer to the proper Microsoft documentation and be sure to consult with your local IT Administrator.

Areas Covered

- Creating a certificate request
- Installing the security certificate
- Enabling SSL for ABM
- Connecting to SAS ABM via HTTPS and Verifying Certificate
- Importing Server Security Certificate through the Certificate Properties
- Importing Server Security Certificate through the Microsoft Management Console

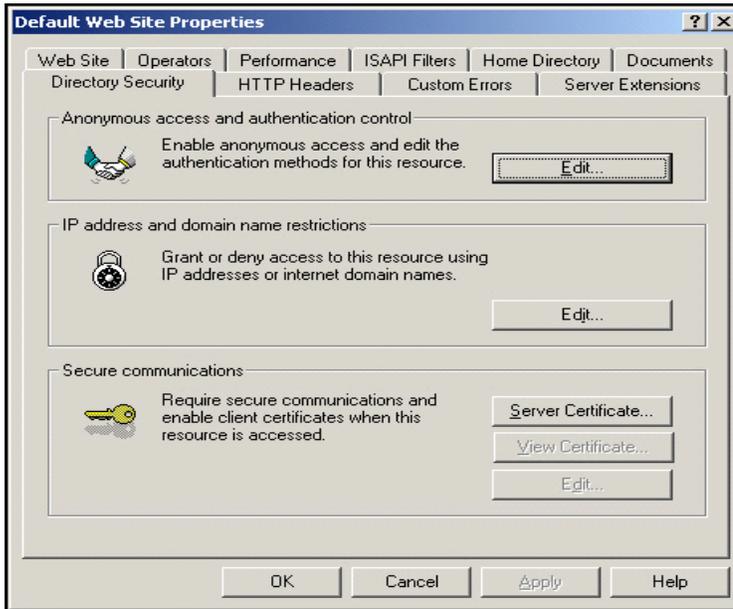
Creating a Certificate Request

1. Open **Internet Information Services (IIS)** in **Administrative Tools** in the **Control Panel**.
2. In the window that opens, expand the targeted Web Server and then the Web site where SAS Activity-Based Management Server is installed. In most cases, this will be Default Web Site.

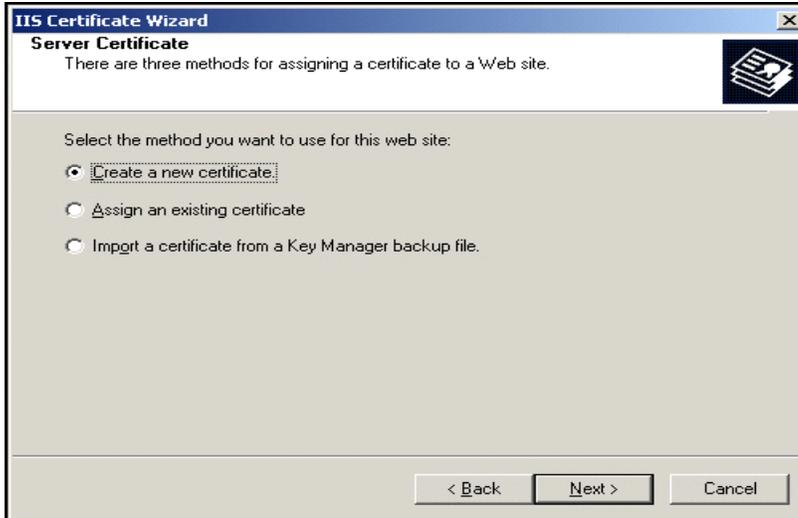


3. Right-click the Web site where SAS Activity-Based Management is installed and select **Properties**. The **Web Site Properties** window opens.

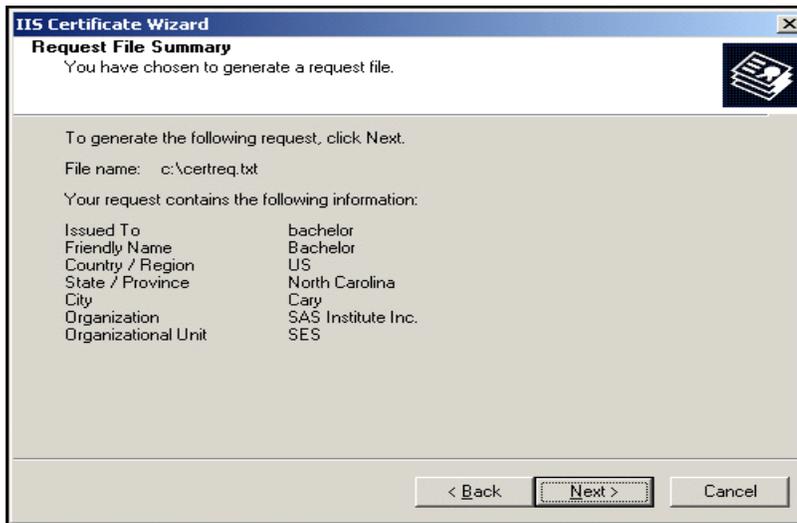
4. Select the **Directory Security** tab and then click the **Server Certificate** button in the **Secure communications** area.



5. The IIS Certificate Wizard is invoked and displays a welcome screen. Click **Next** to continue.
6. Step two of the wizard provides the options shown below. Select **Create a new certificate** and click **Next**.



7. In the next window, select **Prepare the request now, but send it later**, and click **Next**.
8. In the next window, fill in the name for the new certificate and select the bit length of the encryption key, then click **Next**.
9. In the next window, fill in organizational information, then click **Next**.
10. In the next window, fill in the common name of your Web site, then click **Next**.
11. In the next window, fill in geographical information, then click **Next**.
12. In the next window, create a file name for the certificate request, then click **Next**.
13. In the next window, confirm the information, and click **Next** to create the certificate request.



14. At this point the certificate request should be sent to a Certification Authority (CA) such as Verisign. They will provide you with a valid security certificate.

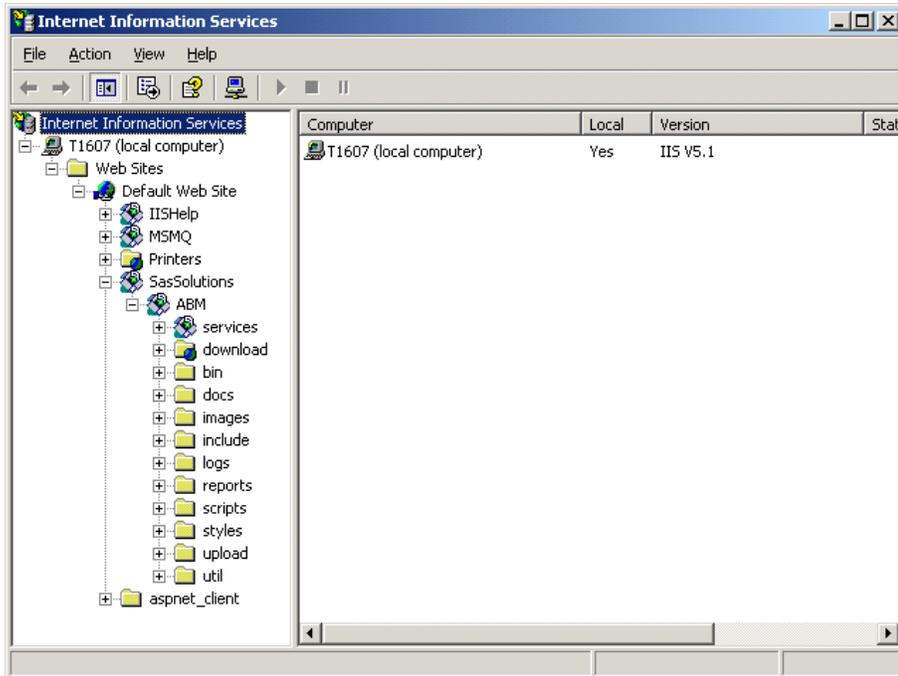
Installing the Security Certificate

1. Open IIS by going to **Start**→**Programs**→**Administrative Tools**→**Internet Information Services**.
2. Expand the targeted Web Server and then the Web site where SAS Activity-Based Management Server is installed. In most cases, this will be the Default Web Site.
3. Right-click the Web site where SAS Activity-Based Management is installed and select **Properties**. The **Web Site Properties** window opens.
4. Select the **Directory Security** tab and then click the **Server Certificate** button in the **Secure communications** area.
5. The IIS Certificate Wizard is invoked and displays a welcome screen. Click **Next** to continue.
6. In the next window, select **Process the pending request and install the certificate**, then click **Next**.
7. In the next window, either fill in the path and file name or browse to the file which contains the certificate authority's response. When the path name is correct, click **Next**.

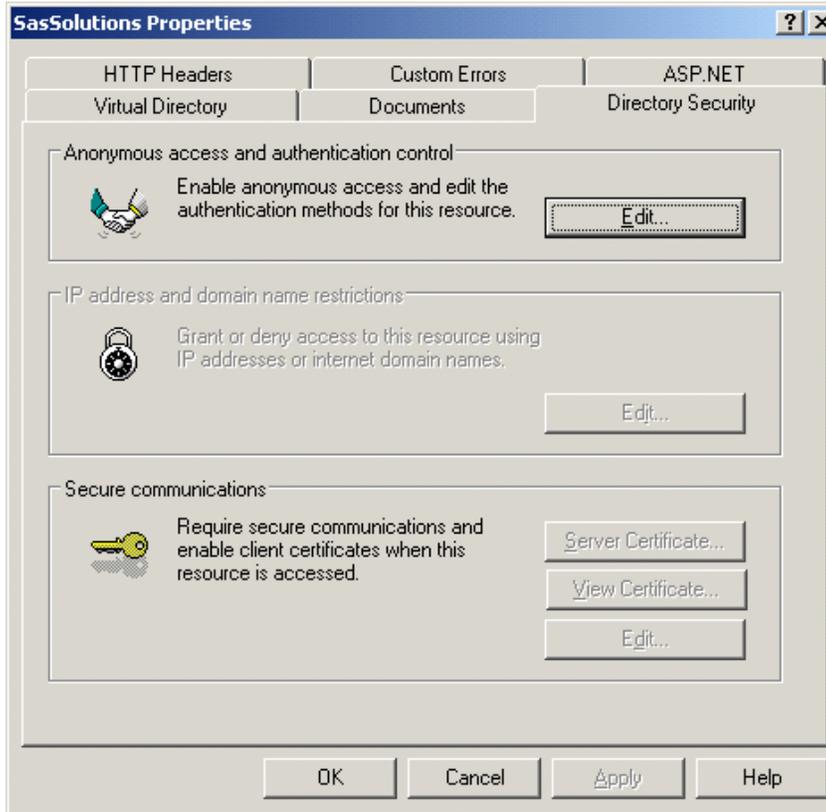
8. Review the information and click **Next** to install the certificate.
9. Click **Finish** to complete the Web Server Certificate Wizard.

Enabling SSL for SAS Activity-Based Management

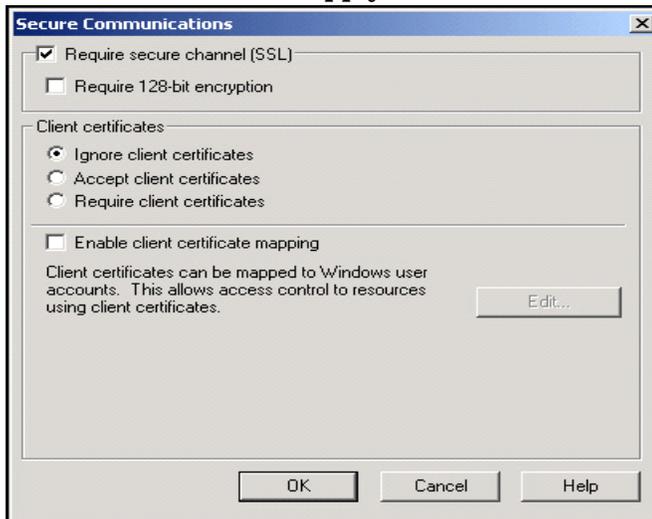
1. Open IIS.
2. Expand the targeted Web Server and then the Web site where SAS Activity-Based Management Server is installed. In most cases, this will be the Default Web Site.
3. Right click on the SasSolutions virtual directory and select **Properties**.



4. The **SasSolutions Properties** window opens. Select the **Directory Security** tab, and click the **Edit** button located in the **Secure communications** area.



5. The **Secure Communications** window opens. Check the box titled **Require Secure Channel (SSL)** and click **OK**. Click **Apply** in the **SasSolutions Properties** window and then click **OK**



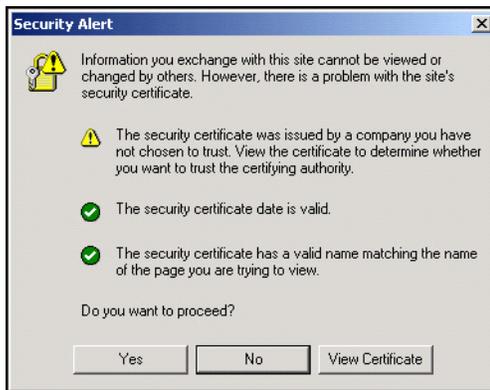
Connecting to SAS Activity-Based Management via HTTPS and Verifying Certificate

1. Attempt to log in to the SAS Activity-Based Management Administrator or SAS Activity-Based Management Client via HTTPS. If the login fails and the following error is presented then a problem with the server security certificate most likely exists on the local web browser.

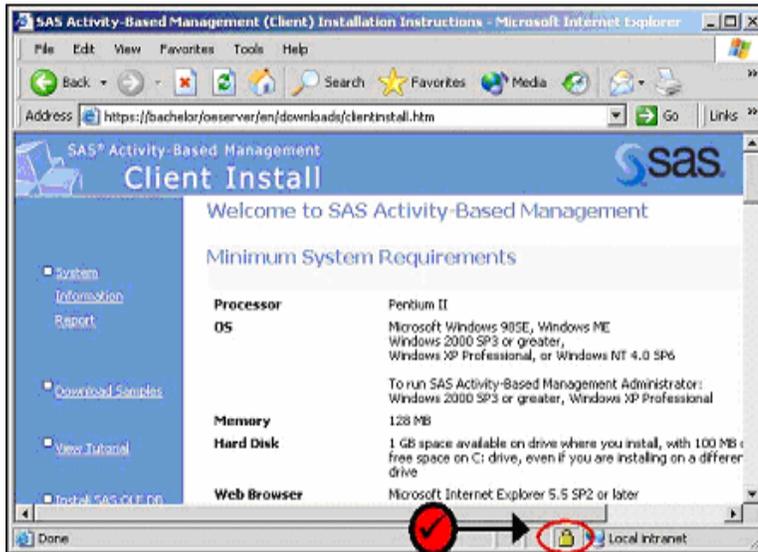


2. To verify the certificate is installed and working properly open Internet Explorer and browse the SAS Activity-Based Management Server location (for example: <https://Bachelor/SasSolutions>).

A **Security Alert** will most likely be presented. Click **View Certificate** to bring up the Certificate properties.



If you failed to get the alert or selected **Yes** then you can view the Certificate properties by double-clicking on the yellow lock embedded in the lower right hand corner of the Web browser.



3. Your certificate properties should be displayed. Look for a red X as seen below and an accompanying message regarding verification of the certification authority. Select the **Certification Path** tab.



4. This should display the Certification Path, which includes the root certificate. Odds are that if the certificate cannot be verified then the root certificate cannot be verified either. The security certificate and root certificate will need to be imported if this problem exists. See “Importing the Server Security Certificate” section below for details on how to import the certificate.

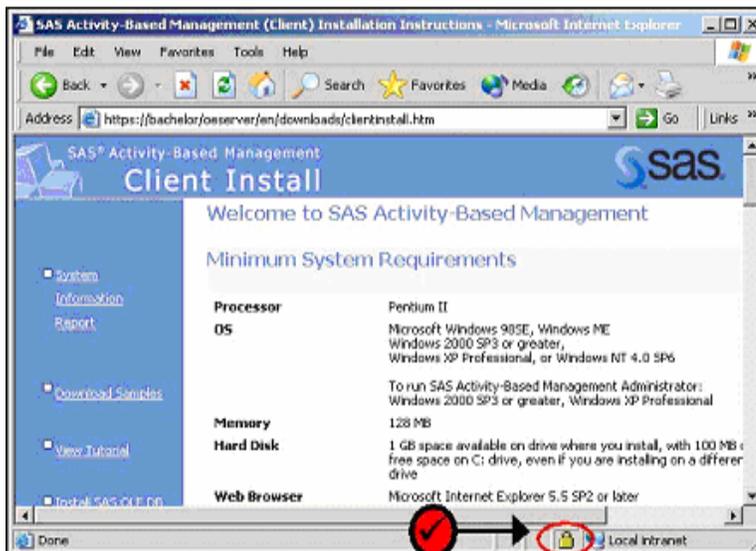


Importing the Server Security Certificate

Importing the Server Security Certificate or Root Certificate can be done two ways. The first way is through the Certificate Properties dialog but has proven to not always succeed. The second way is through the Microsoft Management Console (MMC).

Using Certificate Properties

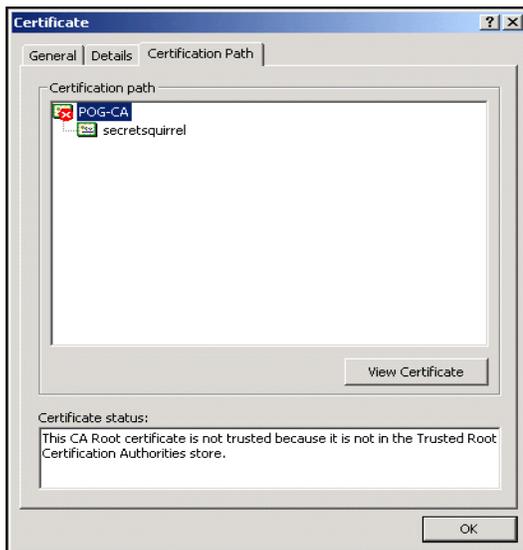
1. To open the **Certificate** window, launch the Client Install page and double-click on the yellow lock embedded in the lower right-hand corner of the Web browser.



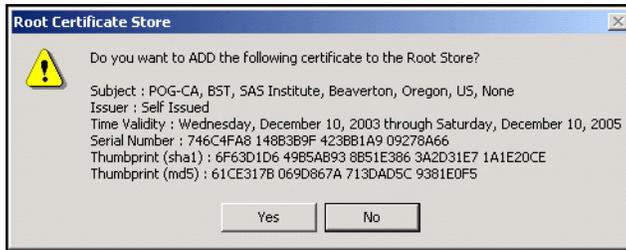
2. Once the **Certificate** window opens, click the **Install Certificate...** button to launch the **Certificate Import Wizard**.



3. Click **Next** on the first screen of the Certificate Import Wizard.
4. At the next window, make no changes and click **Next**.
5. Review the information in the next window and click **Finish** to complete the **Certification Import Wizard**.
6. Click **OK** at the confirmation message to complete the certificate import.
7. Select the **Certification Path** tab to display the Root Certificate and then double-click the Root Certificate (the top level certificate).



8. The Root Certificate properties will be displayed. Click **Install Certificate** and repeat steps 4-7. Toward the end you should be presented with a screen like the one below, if so select Yes and complete the import. If not the import most likely failed and the certificate will need to be installed via MMC.



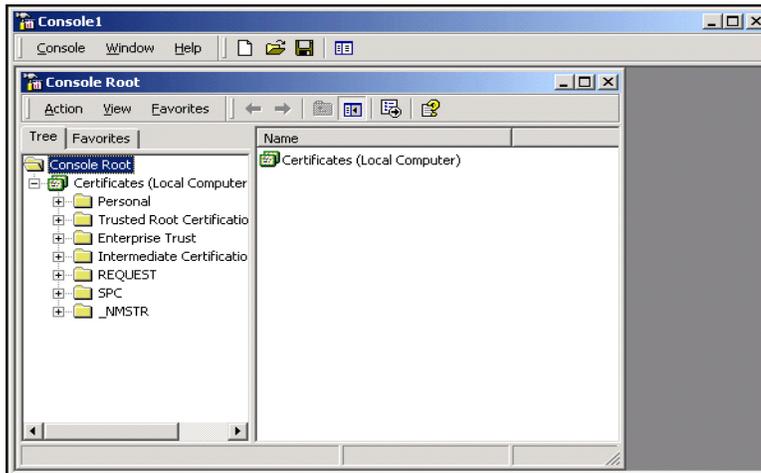
Using the Microsoft Management Console

If problems still occur after importing the certificate through the Certificate Properties, you may need to import the certificate through the Microsoft Management Console (MMC). To add the Certificates Snap-In to MMC, see Microsoft's documentation at

<http://www.microsoft.com/technet/prodtechnol/windows2000serv/howto/mmcsteps.msp>.

To complete this process, you must have access to the server security certificate and the root certificate.

1. Open the MMC, which includes the Certificates Snap-In. Right-click **Trusted Root Certification**, select **All Tasks** and then select **Import** to initiate the Certificate Import Wizard.

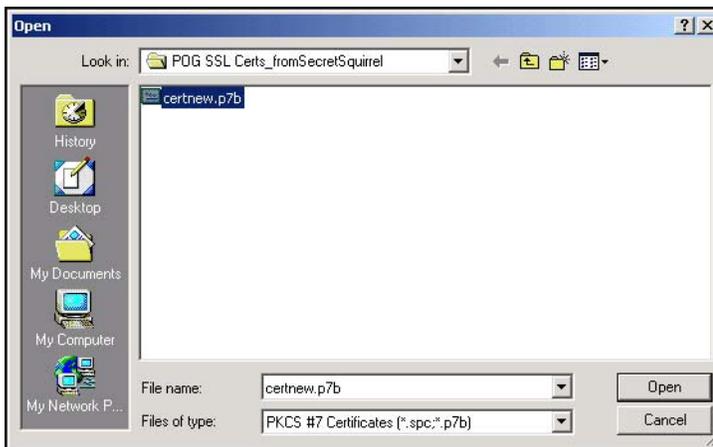


2. Click **Next** at the Welcome screen.
3. At the next window, browse to the location of the server security certificate, which will most likely be a .cer file. Once you have entered the location of the server security certificate, click **Next**.

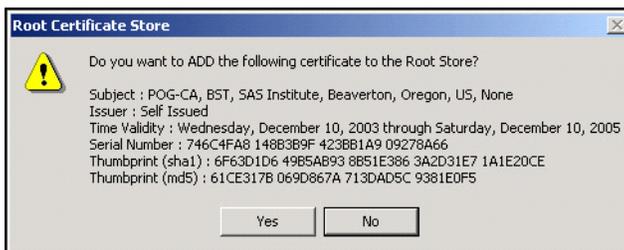
- At the next window, select the default location and click **Next**.



- At the next window, click **Finish** to complete the Certificate Import Wizard. When the confirmation window opens, click **OK**.
- Repeat steps 1 through 6, except this time at step 3, select the root certificate (which will most likely be a .p7b file).



- Toward the end of the certification import a screen like the one below should appear. Click **Yes** and finish importing the certificate.



8. Once this is complete, you should be able to view the certificate or root certificate properties without any red Xs. The Activity-Based Management Administrator or SAS Activity-Based Management Client should now be able to successfully log in to the SAS Activity-Based Management Server via HTTPS from this computer.

Appendix B – Working with SAS/SHARE

Setting Up a Simple SAS/SHARE Server

You can set SAS/SHARE to run as a Windows service or as a running EXE server. We will keep it simple by running the SAS script as an EXE server.

1. Open the server console (in this example, the server is `cornell.na.sas.com`).
2. Create an empty folder in `c:\` and call it `sas_lab`. We will want to have `c:\sas_lab` as the default Library for this example.
3. Copy the following basic SAS/SHARE script to a blank Notepad and save it as `c:\sas_lab\share.sas`.

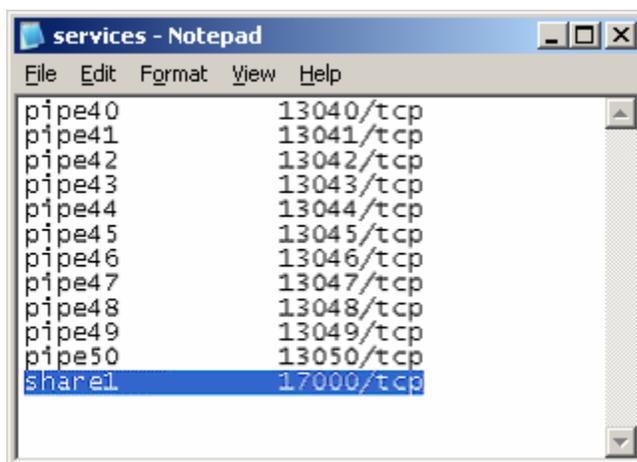
```
/* share.sas */
options comamid=tcp;
libname sas_lab 'c:\sas_lab';
proc server id=share1 authenticate=optional;
run;
```

Note: The value of `libname`, in this case `sas_lab`, should not exceed 8 characters.

4. Create the `share.sas` shortcut (i.e., `C:\Program Files\SAS Institute\SAS\V8\sas.exe C:\sas_lab\share.sas`) and drop it to the primary user's Startup folder. This will autoload the script each time this user logs in to the console.

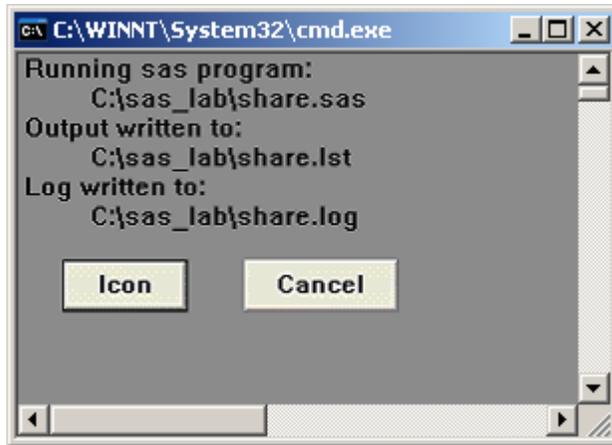


5. Go to the SAS/SHARE server's services file (typically in the `c:\winnt\system32\drivers\etc\` folder) and reserve a *unique* port for our `share1`:



Important: If you put the line at the very end of the services file, make sure you **put a carriage return at the end of the line.**

6. Double-click on the *shortcut* file. If you've followed these steps correctly, you should see a Window screen that looks like the following:



Setting Up a Simple SAS/SHARE Client

It is important to understand that when we refer to the “client”, we’re not just referring to the end-user desktops. In the context of SAS Activity-Based Management, the SAS Activity-Based Management Server *is* a “SAS/SHARE client,” and as such the server must have the correct SAS/SHARE client configuration.

It is not difficult to set your client (or your “server” client) to talk to the SAS/SHARE server. It involves primarily two steps:

1. Each SAS/SHARE Client services file (typically in `c:\winnt\system32\drivers\etc\` folder) must contain the SAS/SHARE ID and the reserved tcp port (see “Setting Up a Simple SAS/SHARE Server” above).
2. Each SAS/SHARE Client must install **SAS/SHARE 9.1 (or higher) OLE DB Provider, `sasoledb.exe`**. This file can be installed from the List of Prerequisites web page on the SAS Activity-Based Management Server that is created when the Server is installed. It is also bundled as part of the SAS 9.1 CDs.

Note: *SAS Activity-Based Management 6.4 requires SAS/SHARE Data Provider 9.1 to do a direct Import/Export in SAS Datasets. **The SAS Server itself does not have to be 9.1—it can be SAS 8 or higher.** For example, you can use the SAS System, Release 8.2 with SAS/SHARE Data Provider 9.1 (see the section, “Validating the SAS/SHARE Server,” below).*

Validating the SAS/SHARE Server

This is really the testing phase. We want to make sure that our simple SAS/SHARE server is able to process requests remote SAS clients. This includes other SAS servers and SAS desktop tools such as SAS Enterprise Guide.

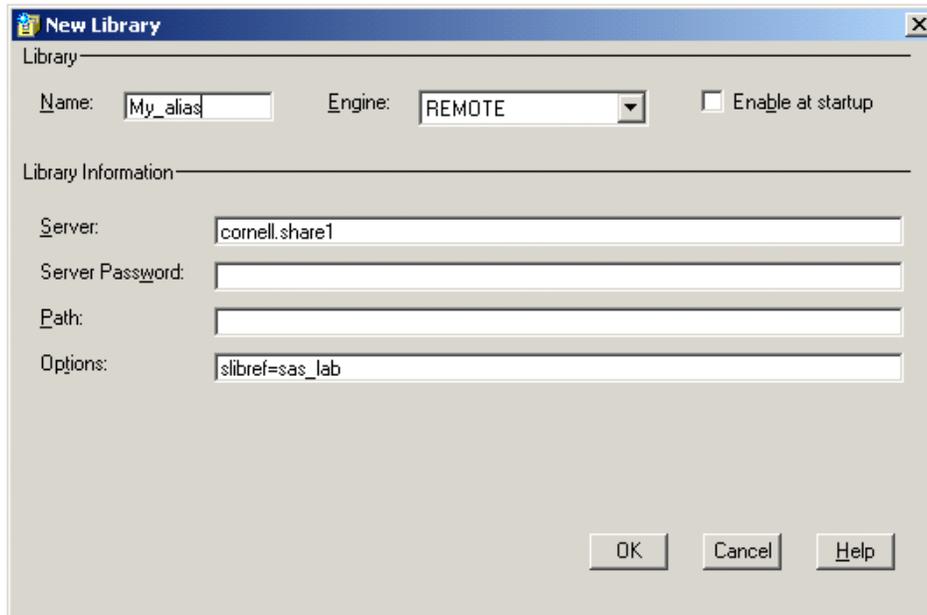
You can skip this section if you don’t anticipate the need for two or more separate SAS servers talking to one another in your ETL process.

From a separate SAS computer, let's validate Share1.

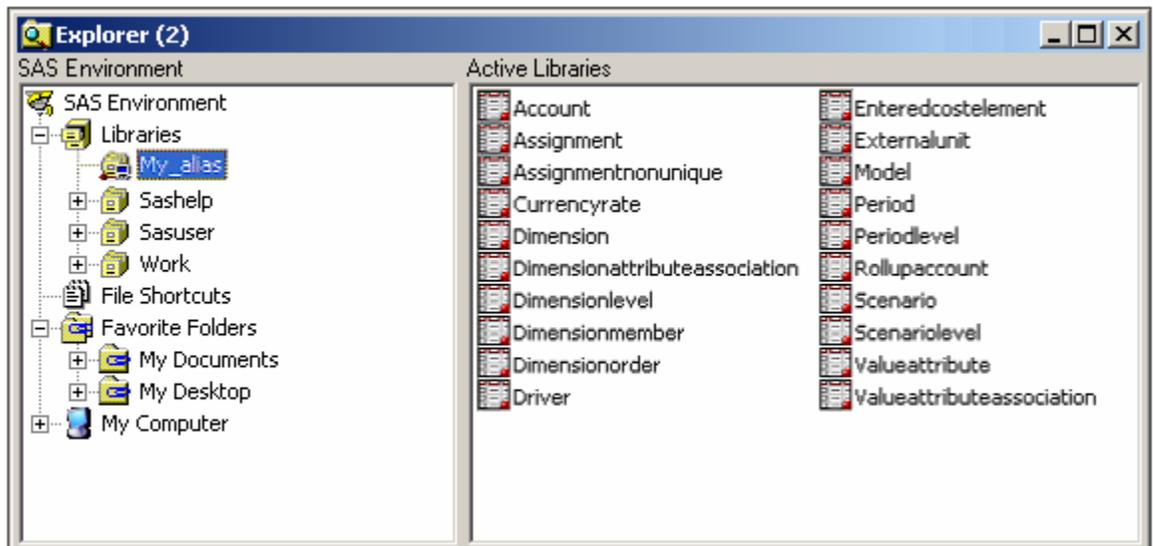
1. Launch SAS.
2. You can use the Editor to run:

```
libname my_alias remote server=cornell.share1 slibref=sas_lab;
```

Alternatively, you can run it through the “New Library” GUI:



If you've set Share1 server correctly, you should be able to see the remote library “My_Alias” through SAS Explorer. This is basically Cornell server's c:\sas_lab folder.



Appendix C – Installing and Configuring Oracle

This appendix outlines the proper Oracle installation settings for SAS Activity-Based Management.

Install Oracle on the Database Server

Step	Wizard Page	Comments
1	Select Installation Method	Select Advanced. That provides access to more installation options. Click Next .
2	Select Installation Type	Choose Enterprise Edition and click Next .
3	Specify Home Details	Choose a home name and path for the installation. The default home name is OraDb10g_home1. The default path is C:\Oracle\product\10.2.0\db_1. Click Next .
4	Product-Specific Prerequisite Checks	The Oracle installer performs a few prerequisite tests. Make sure all test are passed. If any tests fail, refer to the Oracle installation guide for help. When all prerequisite tests are passed, click Next .
5	Select Configuration Option	Select Create a Database option. Click Next .
6	Select Database Configuration	Select the Transaction Processing option. Click Next .
7	Specify Database Configuration Options	Complete the database naming and database character set section with appropriate values, The default Oracle values are acceptable, however it is suggested that the values be changed to reflect this server's use for SAS Activity-Based Management. For example, a Global Database name of " sasabm.domain " (where <i>domain</i> is the name of the domain the server belongs to) and a SID of " sasabm " would be appropriate. Click Next .
8	Select Database Management Option	Select the appropriate option for your installation. Click Next .
9	Specify Database Storage Option	Select any option that is appropriate for your installation. The File System option is the most common choice. For the File System option the default location is C:\oracle\product\10.2.0\oradata. Click Next .
10	Specify Backup and Recovery Option	Select the appropriate option for your installation. Click Next .
11	Specify Database Schema Passwords	Change the passwords to match the password criteria for your installation. Click Next .
12	Summary	Click Install .
13	Install	Click Next when the installation is complete.
14	Configuration Assistants	Click Next .
15	Database Configuration Assistant	
16	End of Installation	Make sure the database install is successful. Click Exit .

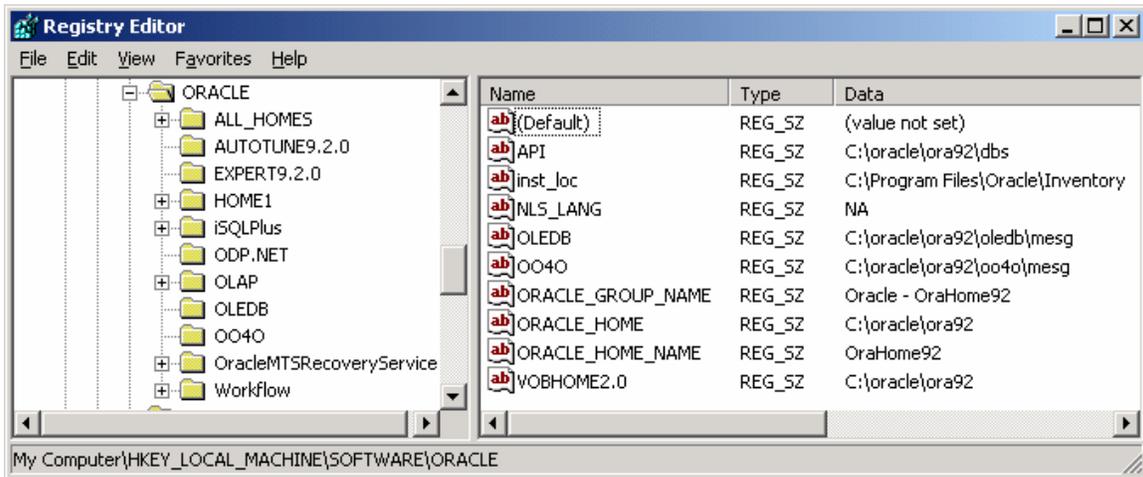
Install Oracle Services for Microsoft Transaction Server

By default, Oracle Services for Microsoft Transaction Server is not installed when performing an Oracle installation. To install it, launch the Oracle installer a second time.

Step	Wizard Page	Comments
1	Installation Method	Select Advanced . Click Next .
2	Installation Type	Choose Custom and click Next .
3	Home Details	Choose a home name and path for the installation. Verify that this is the home and path for the Oracle instance you installed above. Click Next .
4	Prerequisite Checks	The Oracle installer recognizes that the Oracle database is already installed. It presents a list of available components. Verify that Oracle Services for Microsoft Transaction Server is checked. Click Next .

Verify Registry Keys

After completing both the Oracle server 10.2.0.1.0 and Oracle patch 10.2.0.3.0 installations, verify that HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\ORACLE_HOME or HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\VOBHOME2.0 is pointing to the correct location. For example:



Note: Oracle un-installation may not delete all the Oracle related registry folders and entries. When upgrading from one version to another of Oracle, it is advisable to delete any remaining Oracle-related registry folders and entries.

Verify the Character Length Semantics

If you intend to use Unicode (double-byte) characters in SAS Activity-Based Management, you must verify the setting of the NLS character length semantics. The NLS_LENGTH_SEMANTICS must be set to CHAR (not BYTE). This setting instructs the Oracle database to treat a double-byte character as one character, not two, when considering the length of a string that is persisted in the database. Verify this setting by performing the following steps:

1. On your SAS Activity-Based Management server, login to the **Oracle Enterprise Manager Console**. Choose the **Standalone** option and click **OK**.
2. In the left-hand pane of the **Oracle Enterprise Manager Console**, expand the **Databases** node in the tree that SAS Activity-Based Management is using. Expand the **Instance** node in the tree. Finally, select the **Configuration** node in the tree.
3. In the right-hand pane, select the **All Initialization Parameters...** button at the bottom of the **General** tab.
4. In the **Parameter Name** column of the **Edit Database : Configuration** dialog box, select the **nls_length_semantics** parameter. Change the **Value** cell from **BYTE** to **CHAR** and click **Apply**.
5. Reset the Oracle database server.

Create the Net Configuration

The Net Connections are used to access the SAS Activity-Based Management data in Oracle. Create the Net Configuration by performing the following steps:

Note: *A later step in the installation and configuration process involves configuring the Calculation Server. The Calculation Server will need an Alias to access the Oracle database as well. It requires an **Alias** named ABMDSN. If this Alias is named ABMDSN, a second one will not need to be created. See Appendix F: Configuring the Calculation Server for more information.*

1. On your SAS Activity-Based Management server, launch the **Oracle Net Manager**.
2. In the left-hand pane of the **Oracle Net Manager**, expand the **Local** node. Expand the **Service Naming** node in the tree.
3. Create a new configuration by selecting **Create...** from the **Tools** menu. Enter the name you want to use to access the Oracle database. This name is the **Alias** for the Oracle database. Click **Next**.
4. Choose the connection protocol. The default value of **TCP/IP (Internet Protocol)** is acceptable. Click **Next**.
5. Enter a **Host Name** and **Port Number**. The **Host Name** is the computer name that the Oracle server is installed on. You may need to include a domain prefix. Enter the **Port Number** you used when Oracle was installed. Click **Next**.
6. When you are asked to identify the database, the necessary steps depend on the operating system of the computer hosting Oracle:
 - If Oracle is on an IBM AIX operating system:
Choose the radio button labeled **SID**, and enter the SID name. Click **Next**.
 - If Oracle is on any other operating system (Windows, Solaris, etc.):
Choose the radio button labeled **Service Name**, and enter the SID name. Click **Next**.
7. Click **Test...** If the test is not successful, click **Change Login...** and verify the credentials that are being used to attach to the Oracle server.
8. Click **Finish**.
9. Save the configuration by selecting **Save Network Configuration** on the **File** menu.

Verify Permissions

The SAS Activity-Based Management application uses the OraOLEDb.Oracle driver to connect and exchange data with the Oracle database. This driver is installed in the %ORACLE_HOME% or %VOBHOME2.0% folder. Correct permissions are set on this folder when the Oracle database is installed. However, due to new security settings in Microsoft's Windows operating systems, these permissions may need to be re-enabled. If these permissions are not set properly, the SAS Activity-Based Management application may return errors such as: "Oracle provider is not registered" or "Unable to access Oracle provider".

To verify that the required permissions are set properly, follow these steps:

1. Open **Windows Explorer** and find the %ORACLE_HOME% or %VOBHOME2.0% folder as appropriate for your installation. The location of this folder is identified in the registry (as outlined above) and by default is at C:\Oracle\Product\10.2.0\db_1.
2. Select the folder, right-click and select **Properties**.
3. Select the **Security** tab.
4. Select **Authenticated Users**. Verify that the **Allow** checkbox is selected for "Read & Execute", "List Folder Contents", and "Read" privileges.

For more information, browse to [http://forums.asp.net/p/87242/331004.aspx - 331004](http://forums.asp.net/p/87242/331004.aspx-331004).

Create the Activity-Based Management Schemas

The next step for preparing the Oracle database server is to create the required Oracle schemas for the SAS Activity-Based Management databases.

1. On your Oracle database server, login to the **Oracle Enterprise Manager Console**. Choose the **Standalone** option and click **OK**.
2. Login to the **Oracle Enterprise Manager Console** using the credentials you established when it was installed.
3. On the left-hand side of the **Oracle Enterprise Manager Console**, select the **Database** node in the tree, right-click, and select **Add Database to Tree...**. Select the option **Add a database manually**, and fill in the fields in dialog box as indicated below. When finished, click **OK**.

Hostname:	<i>the name of the computer hosting Oracle</i>
Port Number:	<i>use the port you supplied in "Verify the Net Configuration"</i>
SID:	<i>use the SID you supplied in "Verify the Net Configuration"</i>
Net Service Name:	<i>sasabm_computername</i>

4. Login to the new database by selecting it in the tree list, right-click, and select **Connect...**. The **Database Connect Information** dialog box displays. Login to the database using the values indicated below. When finished, click **OK**.

UserName:	<i>sys</i>
Password:	<i>the password you supplied when Oracle was installed</i>
Connect as:	<i>SYSDBA</i>

5. Expand the **Security** folder by right-clicking on the "+" sign next to the folder icon. Select the **Users** folder, right-click, and choose **Create...**. The **Create User** dialog box displays.
6. In the **Create User** dialog box, select the **General** tab. Specify a user name and password.

This user name and password will be used later while installing SAS Activity-Based Management.

7. Select the **Role** tab. Verify the following privileges have been added to the **Granted** field from the **Available** field:

CONNECT (or ALTER SESSION and CREATE SESSION)

8. Select the **System** tab. Verify the following privileges have been added to the **Granted** field from the **Available** field:

ALTER ANY PROCEDURE
 ALTER ANY SEQUENCE
 ALTER ANY TABLE
 ALTER ANY TRIGGER
 CREATE ANY INDEX
 CREATE PROCEDURE
 CREATE SEQUENCE
 CREATE TABLE
 CREATE TRIGGER
 CREATE VIEW
 DROP ANY PROCEDURE
 DROP ANY SEQUENCE
 DROP ANY TABLE
 DROP ANY TRIGGER
 DROP ANY VIEW
 QUERY REWRITE
 UNLIMITED TABLESPACE

9. Click **Create** to finish creating the user for Activity-Based Management schema.

Install Microsoft Analysis Services (MSAS)

SAS Activity-Based Management 6.4 does not support multidimensional analysis (or more commonly, cubes) using Oracle Express. If multidimensional analysis is desired within the SAS Activity-Based Management application, then SAS OLAP Server or MSAS must be used.

If SAS OLAP Server will be used, refer to the instructions included with the SAS OLAP Server for installing the server. If MSAS will be used, perform the following steps:

1. Verify that the correct version of MSAS is installed. Refer to “Verify the Correct Version of Microsoft Analysis Services (MSAS)” on page 58.
2. After installing MSAS, it is recommended that you migrate the MSAS repository. Refer to “Migrate the MSAS Repository” on page 58.

Special Considerations for Remote Databases

SAS Activity-Based Management can operate with the Oracle database located on the Application Server or located on a remote (different) Database Server. When the Oracle database is hosted on a remote Database Server, it is necessary to verify that the proper prerequisites are installed and the two servers are configured in order to facilitate proper communication.

On the Application Server (the server hosting SAS Activity-Based Management), it is necessary to install **Oracle Client Tools**. These tools are available on the installation CD for **Oracle 10g**.

If the Database Server (the server hosting the SAS Activity-Based Management SQL Server database) is running Windows 2003 Server, it is necessary to enable network transactions on the Database Server. By default, Windows 2003 disables network transactions.

1. Open **Administrative Tools** in the **Control Panel**.
2. Open **Component Services**.
3. Select Component Services\Computers\My Computer, right-click, and choose **Properties**.
4. On the **MSDTC** tab choose the button labeled **Security Configuration**.
5. Verify that the box labeled **Network DTC Access** is selected.
6. Additionally, it is necessary that the Application Server can resolve the Database Server's name, and vice-versa. This is necessary for the distributed transactions between the two computers to be handled properly and for the Oracle Client Tools to communicate properly with the Oracle instance running on the Database Server. The most common difficulty arises when the Database Server and the Application Server are in different domains. Either the two servers need to be able to authenticate each other or authentication needs to be turned off. Select the option under **Transaction Manager Communication** that is appropriate for your installation.

For more information, browse to <http://support.microsoft.com/kb/329332/en-us>, <http://support.microsoft.com/kb/839279/en-us>, and <http://support.microsoft.com/kb/827805/en-us>.

Install the Oracle Client Tools

If separate application and database servers are being used, then the Oracle client tools must be installed on the server hosting the Activity-Based Management application server. There are many optional components in the Oracle installation that complicates the instructions for getting the necessary components installed. To simplify the instructions, it is easier to run the installer twice. For the first run of the installer:

Step	Wizard Name	Comment
1	Welcome	Click Next .
2	Select Installation Type	Select the Administrator option. This option installed the most commonly used Oracle utilities. Click Next .
3	Specify Home Details	Pick home name and path for current installation. Default Home name is OraClient10g_home1. Default path is C:\Oracle\product\10.2.0\client_1. Click Next .
4	Product-Specific Prerequisite Checks	Oracle installer performs a few prerequisite tests. Make sure all tests passed. If case of any failure, refer to Oracle installation guide for help. When all prerequisite checks are passed, click Next .
5	Summary	Click Install .
6	Install	Click Next .
7	Configuration Assistants	Configure according to your requirements. You can check "Perform typical configuration" checkbox to let the Oracle Installer perform the default configuration. After installation, you can perform specific configurations using the tools provided, such as, Oracle Net configuration assistant or Net Manager .
8	End of installation	Make sure the Client Tools install is successful. Click Exit .

Run the Oracle installer a second time, but select the following options instead:

Step	Wizard Name	Comment
1	Welcome	Click Next .
2	Select Installation Type	Select the Custom option. This option allows access to additional useful utilities. Click Next .
3	Specify Home Details	Pick home name and path for current installation. Default Home name is OraClient10g_home1. Default path is C:\Oracle\product\10.2.0\client_1. Click Next .
4	Available Product Components	Make sure the following components are selected: Oracle Database Utilities, Oracle Windows Interfaces (sub-components: Oracle Services for Microsoft Transaction Server, Oracle ODBC Driver, and Oracle Provider for OLE DB), Oracle Call Interface, and Enterprise Manager 10g Java Console. Choose any additional options based on your requirements.
5	Product-Specific Prerequisite Checks	Oracle installer performs few prerequisite tests. Make sure all tests passed. If case of any failure, refer to Oracle installation guide for help. When all prerequisite checks are passed Click Next .
6	Summary	Click Install .
7	Install	Click Next .
8	End of installation	Make sure install is successful. Click Exit .

Net Configuration

Create Aliases to allow the Oracle client to connect to the Oracle database.

Step	Wizard Page	Comments
1	Welcome	Click Next .
2	Naming Methods Configuration, Select Naming Methods	Accept the default values. Click Next .
3	Net Service Name Configuration, Service Name	Enter the Global database name of the Oracle database you would like to connect to. Click Next .
4	Net Service Name Configuration, Select Protocols	Accept the default values. Click Next .
5	Net Service Name Configuration, TCP/IP Protocol	Enter the name of the computer where the Oracle database is installed. Click Next .
6	Net Service Name Configuration, Test	You can choose to test the alias you are about to create. Click Next .
7	Net Service Name Configuration, Net Service Name	Choose a name for the alias. Click Next .
8	Net Service Name Configuration, Done	Click Finish .

Warning: *If the Oracle 10g database and Oracle 10g client are installed on the same computer, make sure LISTENER is configured properly so that the client net configurations will work properly.*

Install Oracle Patch 10.2.0.3.0 (or newer)

The Oracle patch 10.2.0.3.0 is preferred on both the Oracle database server and also the SAS Activity-Based Management application server (for the Oracle Client Tools, if separate computers are used). This patch resolves known problems with the default Oracle 10g 10.2.0.1.0 installation. In particular, it resolves the Daylight Saving Time change that occurred in 2007.

Tip: *When verifying or installing Oracle service packs, be aware that the service packs for Oracle 10g, Oracle Client Tools, and Oracle Services for Microsoft Transaction Server are installed separately. Simply installing a service pack for one does not automatically install the service pack for the other.*

Verify the Database Connections

After completing the Oracle Client installation, verify that the Application server can properly connect to the remote Database Server using the Oracle Enterprise Manager Console. Verify the connection by performing the following steps:

1. On your SAS Activity-Based Management server, launch the **Oracle Enterprise Manager Console**. Choose the **Standalone** option and click **OK**.
2. Login to the **Oracle Enterprise Manager Console** using the credentials you established when it was installed.
3. On the left-hand side of the **Oracle Enterprise Manager Console**, select the **Database** node in the tree, right-click, and select **Add Database to Tree...** Select the option **Add a database manually**, and fill in the fields in the dialog box as indicated below. When finished, click **Ok**.

Hostname:	<i>the name of the computer hosting Oracle</i>
Port Number:	<i>use the port you supplied in "Verify the Net Configuration"</i>
SID:	<i>use the SID you supplied in "Verify the Net Configuration"</i>
Net Service Name:	<i>sasabm_computername</i>

4. If the new database was successfully added, you have verified that the proper database connection exists. If not, recheck the settings in the section entitled "Verify the Net Configuration" earlier in this document.

Appendix D – Configuring SQL Server

Verify the Correct Microsoft SQL Server Version

1. Start **Computer Management** in the **Control Panel**.
2. Expand **Services and Applications**.
3. If you do not see **Microsoft SQL Servers**, it is not installed. Install it now, then continue with the installation.
4. Expand **Microsoft SQL Servers**.
5. Right-click the server name and select **Properties**. The **SQL Server Properties** dialog box opens.
6. On the **General** tab, verify that the **Product** and **Product version** meet the specifications in the System Requirements. The service pack number is listed in parentheses after the product version number.
7. If either is not correct, install or upgrade now, then continue with the installation.

Warning: *SAS Activity-Based Management requires that SQL Server have a case insensitive collation sequence.*

Special Considerations for Remote Databases

SAS Activity-Based Management can operate with its SQL Server database located on the Application Server or located on a remote (different) Database Server. When the SQL Server database is hosted on a remote Database Server, it is necessary to verify that the proper prerequisites are installed and that the two servers are configured to facilitate proper communication.

On the Application Server (the server hosting SAS Activity-Based Management), it is necessary to install **SQL Server Client Tools**. These tools are available on the installation CD for Microsoft SQL Server.

If the Database Server (the server hosting the SAS Activity-Based Management SQL Server database) is running Windows 2003 Server, it is necessary to enable network transactions on the Database Server. By default, Windows 2003 disables network transactions.

1. Open **Administrative Tools** in the **Control Panel**.
2. Open **Component Services**.
3. Select **Component Services\Computers\My Computer**, right-click, and choose **Properties**.
4. On the **MSDTC** tab choose the button labeled **Security Configuration**.
5. Verify that the box labeled **Network DTC Access** is selected.
6. Additionally, it is necessary that the Application Server can resolve the Database Server's name, and vice-versa. This is necessary for the distributed transactions between the two computers to be handled properly and for the SQL Server Client Tools to communicate properly with the SQL Server instance running on the Database Server. The most common difficulty arises when the Database Server and the Application Server are in different domains. Either the two servers need to be able to authenticate each other or

authentication needs to be turned off. Select the option under **Transaction Manager Communication** that is appropriate for your installation.

For more information, browse to <http://support.microsoft.com/kb/329332/en-us>, <http://support.microsoft.com/kb/839279/en-us>, and <http://support.microsoft.com/kb/827805/en-us>.

Verify the Microsoft SQL Server Mixed Mode Authentication

1. Complete the previous procedure to display the **SQL Server Properties** dialog box for SAS Activity-Based Management Server.
2. Click the **Security** tab.
3. In the **Security** section, for **Authentication**, select **SQL Server and Windows**.
4. In the **Startup service account** section, select **System account** (if it can start the SQL Server services) or **This account**.
5. If you select **This account**:, enter a login that has system administrator privileges and its password into the appropriate text boxes.

Verify the Correct Version of Microsoft Analysis Services (MSAS)

1. Select **Start**→**Programs**→**Microsoft SQL Server**→**Analysis Services**→**Analysis Manager**.
2. If you do not see **Analysis Services**, MSAS is not installed. Install it now, then continue with the installation.
3. In the **Analysis Manager**, right-click **Analysis Servers** and select **About Analysis Services**.
4. Verify that the **Version** meets the specifications in the System Requirements.
5. If the service pack is not installed, install it now, then continue with the installation.
6. Please note that if you plan on installing SAS Activity-Based Management with a remote database, MSAS must be installed on the Application Server, not on the Database Server.

Migrate the MSAS Repository

Use the Microsoft Migrate Repository Wizard to migrate the repository to an SQL Server database on the same or another server. Later, you can use the wizard to migrate the repository to another SQL Server database.

Note: *Provide a SQL Server user account as described below rather than Windows user credentials when migrating the repository. Use of Windows credentials will cause connection to the repository to fail and prevent SAS Activity-Based Management OLAP functionality from operating.*

Warning: *If MSAS is installed on a different computer than SQL Server, MSAS and hence SAS Activity-Based Management OLAP functionality may not operate properly if the repository is not migrated.*

Warning: *After you migrate the repository to an SQL Server database, you cannot migrate the repository back to a Microsoft Access database.*

Warning: *Failure to migrate the MSAS repository will greatly reduce the scalability of the MSAS installation. This will degrade server performance.*

Create a New Database to Which to Migrate the Repository

1. Start the SQL Server Enterprise Manager.
2. In the left pane, expand **Microsoft SQL Server**, then **SQL Server Group**, then the name of the SQL Server.
3. Right-click **Databases** and select **New Database**. The **Database Properties** dialog box opens.
4. Type the **Name**.
5. Leave the defaults as they are.

Create a New SQL Server Login

1. In the left pane, under the name of the SQL server, expand **Security**.
2. Right-click **Logins** and select **New Login**. The **SQL Server Login Properties - New Login** dialog box opens.
3. On the **General** tab, type a **Name**.
4. In the **Authentication** section, select **SQL Server Authentication**.
5. Type a **Password**.
6. In the **Defaults** section, select the **Database** you created in the “Create a New Database to Which to Migrate the Repository” section above.
7. On the **Server Roles** tab, in the **Server Role** list, select **System Administrators** and **Bulk Insert Administrators**.
8. On the **Database Access** tab, in the **Permit** column, select the database you created in the “Create a New Database to Which to Migrate the Repository” section above. A checkmark appears to the left of the entry.
9. In the **Permit in Database Role** list, select **public** and **db_owner**.

Migrate the Repository

1. Start the Analysis Manager.
2. In the left pane, expand **Analysis Servers**.
3. Select the server whose repository you want to migrate. This causes Analysis Manager to connect to the server.
4. Right-click the server and select **Migrate Repository**. The Migrate Repository Wizard opens.
5. Follow the steps in the wizard, supplying the following information:

For this information...	Do this...
Destination format	Select Analysis server native format .
SQL Server computer to use for the repository	Type the name of the SQL server. (The drop-down list does not include the server.)

How to connect to the SQL Server computer	Select SQL Server Authentication .
Login ID and Password	Type those you created in the “Create a New Database to Which to Migrate the Repository” section above.

Appendix E – Configuring SAS OLAP Server

This Appendix will help you verify that the SAS OLAP Server is properly installed and configured. These instructions apply to the SAS OLAP Server when installed on a Windows operating system. The configuration requirements are the same for UNIX, though the exact steps will differ. Please refer to the documentation for the SAS OLAP Server and SAS Metadata Server for more information.

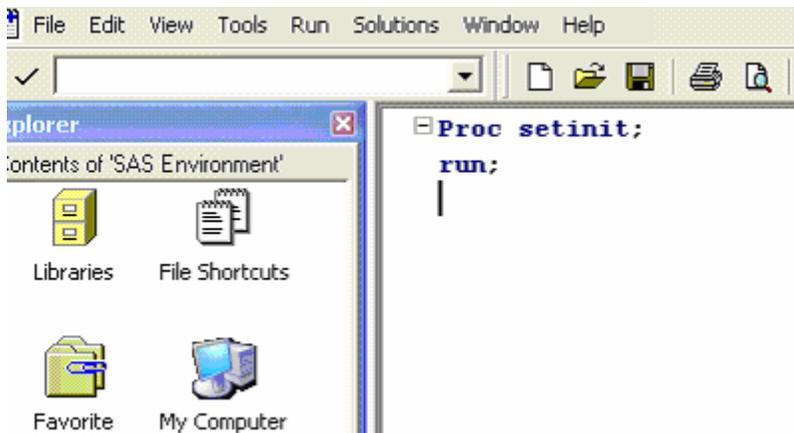
These steps are necessary because SAS Activity-Based Management grants and denies access to cubes in the SAS Metadata Server based upon users' login identity in the SAS Activity-Based Management administrator tool. This allows for consistent access privileges to the cubes irrespective of a users' access mechanism – whether it be SAS Activity-Based Management, SAS Enterprise Guide, or any other SAS or 3rd party tool that enforces SAS Metadata Server security.

Verify the Licenses

Make certain that valid licenses are installed on the Metadata Server for:

1. SAS OLAP Server
2. SAS/Access interface to OLEDB Provider or SAS/Access interface to ODBC Provider

The licenses can be verified by executing `Proc setinit` in Base SAS.



The output from this Proc is a list of licensed SAS products. This screen capture shows that SAS OLAP Server is licensed:

```
Site number: 47162208.
Expiration: 31DEC2007.
Grace Period: 45 days (ending 14FEB2008).
Warning Period: 45 days (ending 30MAR2008).
System birthday: 31JAN2001.
Operating System: WIN_NTE .
Product expiration dates:
---Base Product 31DEC2007
---SAS/STAT 31DEC2007
---SAS/GRAPH 31DEC2007
---SAS/SHARE 31DEC2007
---SAS OLAP Server 31DEC2007
```

This screen capture shows that SAS/Access for OLEDB and ODBC are licensed:

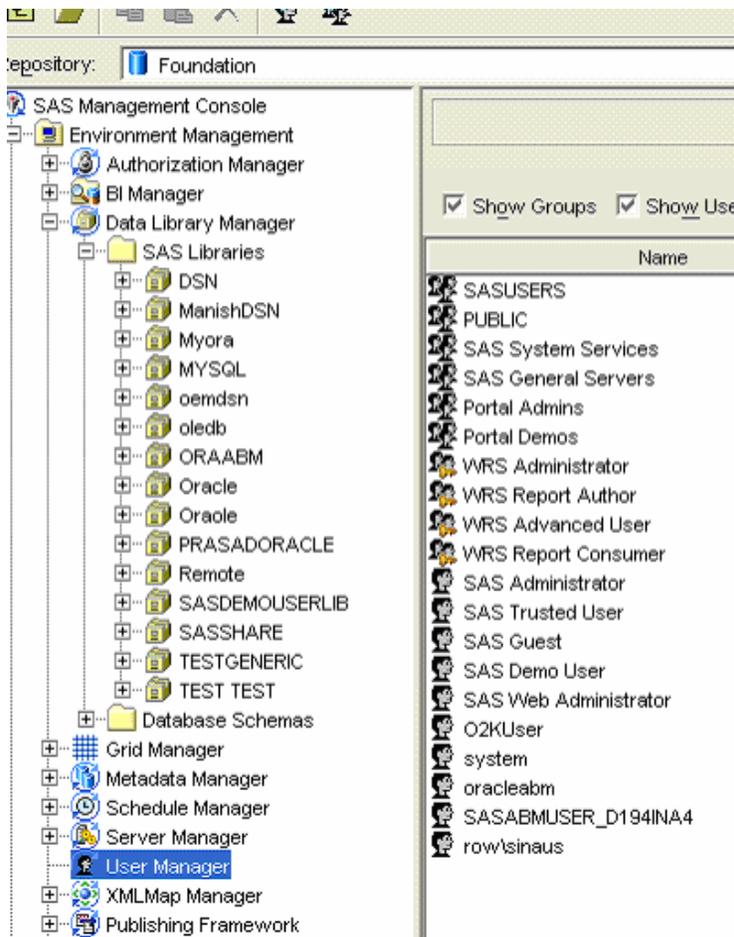
```
---SAS/ACCESS Interface to PC Files 31DEC2007
---SAS/ACCESS Interface to ODBC 31DEC2007
---SAS/ACCESS Interface to OLE DB 31DEC2007
---SAS/ACCESS Interface to R/3 31DEC2007
---SAS/ACCESS Interface to R/3 31DEC2007
```

Create Server Users

All users of SAS Activity-Based Management must be added to both SAS Activity-Based Management (using the SAS Activity-Based Management Administrator console) and to the SAS Metadata Server (using the SAS Management Console). **Users must be added to the Metadata Server because SAS OLAP Server uses the Metadata Server to store cube data and cube access permissions for each user regarding each cube.** This allows additional flexibility in restricting cube access. Additionally, you can manually over-ride the default permissions SAS Activity-Based Management gives each cube using the SAS Management Console. When SAS Activity-Based Management re-creates a SAS OLAP cube, it will extract the permissions on the existing cube before re-creating it, and then restore those permissions, thus preserving any security modifications you have made.

First, use the SAS Management Console to add all the users who will be using SAS Activity-Based Management to the Metadata Server. For more information on the SAS Management Console, browse to <http://support.sas.com/documentation/configuration/bisecag.pdf>. For an overview of the SAS Metadata Server, refer to *SAS® 9.1.3 Metadata Server: Setup and Administration Guide, Fourth Edition*.

To begin adding users, open the SAS Management console and choose the User Manager.

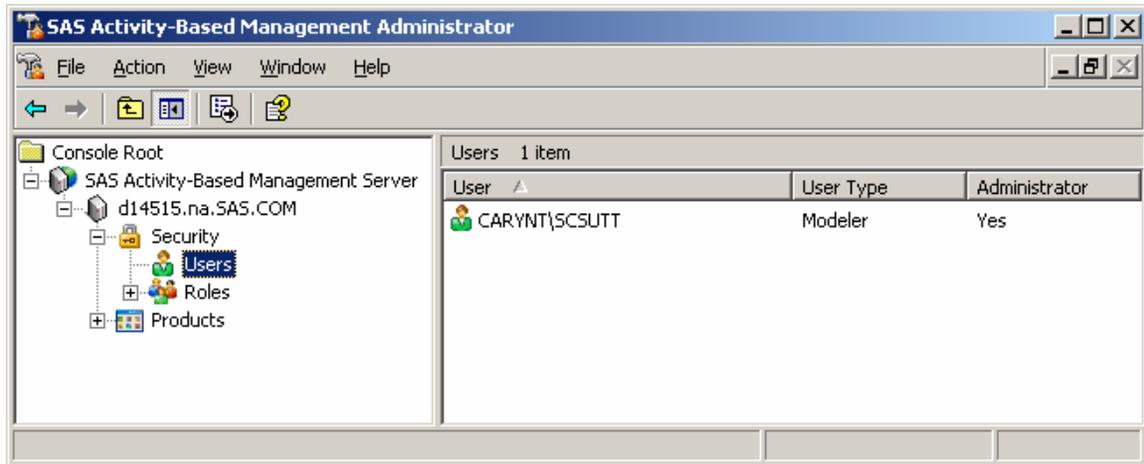


For each user who will use SAS Activity-Based Management, create a Metadata Server user.

- Specify the User ID with the domain prefix. For example: row\joe, not just joe
- In the Logins tab, add a user login with the same credentials (i.e. row\joe). Also specify the Authentication Domain. For example: row

- *Do not specify a password.* The SAS Metadata Server allows the host operating system to authenticate the user when no password is specified.

After you complete your installation of the SAS Activity-Based Management server, add all the users that you added to the SAS Metadata Server to SAS Activity-Based Management using the Administrator tool.



Assign Privileges

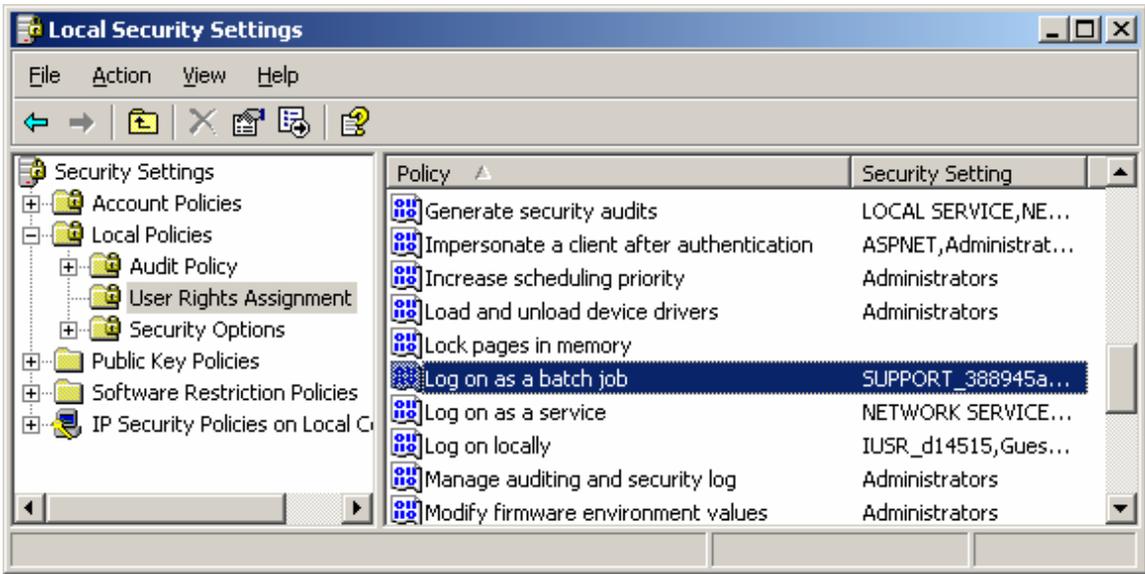
The Metadata Server users need enough privileges so that they can at least **Log on as a batch job**. This can be accomplished in either of two ways.

- Explicitly give each user the **Log on as a batch job** privilege
- Explicitly add each user to the **SAS Server Users** local group on the Metadata Server

SAS recommends the first option, giving each user **Log on as a batch job** privilege.

Option 1: Give Metadata Users “Log on as a batch job” Privilege

1. Open **Administrative Tools** in the **Windows Control Panel**.
2. Open **Local Security Policy**.
3. In the **Tree** pane, expand **Local Policies**.
4. Select **User Assignment Rights**.



5. Select **Log on as a batch job**. Right-click **Log on as a batch job** and select **Properties**. The **Log on as a batch job Properties** window opens.



6. Select **Add User or Group**. The **Select Users or Groups** window opens. Add each Metadata Server user you have created to the **Log on as a batch job** privilege.

Option 2: Add Metadata Users to the SAS Server Users Local Group

Alternatively, you can grant users a broader set of privileges by adding them to the SAS Server Users local group.

1. Open **Computer Management** in the **Control Panel**.
2. In the **Tree** pane, expand **System Tools**.

3. Expand **Local Users and Groups**.
4. Select **Groups**.
5. In the right-hand pane, select **SAS Server Users**. The **SAS Server Users Properties** window opens.
6. Select the **Add** button to add each Metadata Server user you have created to the **SAS Server Users** group.

Create Local Metadata Users (If Needed)

If the SAS Activity-Based Management users are local users on the SAS Activity-Based Management server and that same computer hosts the Metadata Server, then domain authentication of the SAS Activity-Based Management users on the Metadata server cannot properly occur (since there is no domain for authentication). Instead, the local SAS Activity-Based Management users need to be added to the Metadata server as local users as well, instead of being added as domain users as was done above.

For each user you added to the SAS Activity-Based Management Administrator, create a Metadata Server user.

- Specify the User ID with the computer name as a prefix. For example:
`<MyComputer>\joe`, not just `joe` where `<MyComputer>` is the computer name.
- In the Logins tab add a user login with same credential (i.e. `<MyComputer>\joe`). Also specify the computer name as the Authentication Domain.
- *Do not specify a password* for the local user account. The SAS Metadata Server allows the host operating system to authenticate the user when no password is specified.

Create a Metadata Library

The final step in installing the SAS Activity-Based Management server is the Server Configuration Wizard. This wizard specifies information regarding the SAS Activity-Based Management databases, user names & passwords and the metadata server used to share data.

Our final configuration step creates a library in the Metadata server that refers to the SAS Activity-Based Management database, in SQL Server terminology, or schema, in Oracle terminology. To create this library, the Model Data database name and the database user Name & Password are needed.

The screenshot shows a configuration window with two main sections:

- ABM User:**
 - A checkbox labeled "Use same credentials as used in connecting to database server" is unchecked.
 - The "Name:" field contains the text "SASABMDBUSER".
 - The "Password:" field contains a series of asterisks "*****".
- ABM Database Names:**
 - The "Admin Data:" field contains the text "OEAdmin".
 - The "Model Data:" field contains the text "OEModels".

Tip: To create the library on the Metadata server, SAS Activity-Based Management database must be installed, the database computer must be running, and the database (either SQL Server or Oracle) must be running and ready to receive queries.

Tip: If using an ODBC Driver for the Library definition, a System DSN must be created on the Workspace Server.

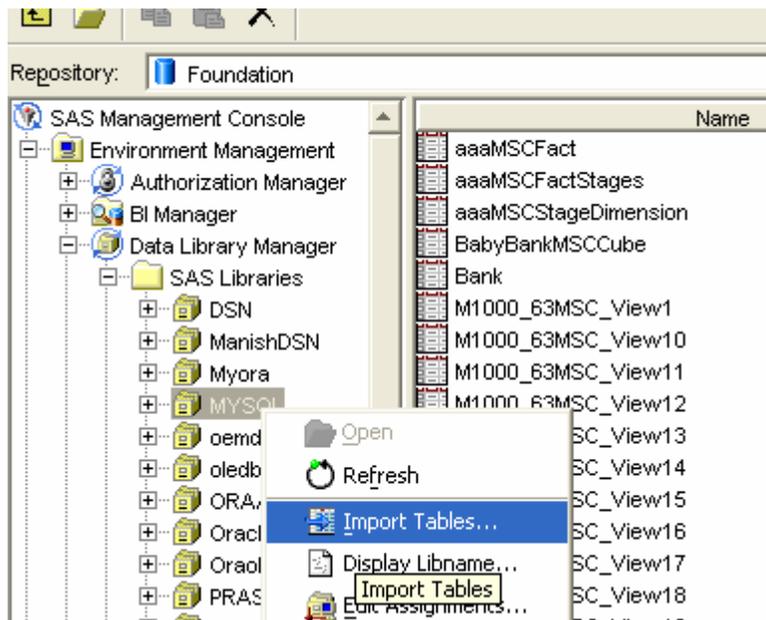
Tip: During Library creation there is a prerequisite step to create a Database User Login in the SAS Metadata Server. This user's login must be created in ABM Metadata User **Login** tab. This login is called as Outbound login in SAS terminology.

Warning: The Library name must not contain any spaces nor can it be longer than 8 characters. If this restriction is not followed, the Library cannot be successfully used by SAS OLAP Server.

Using this information, follow the steps outlined in <http://support.sas.com/techsup/technote/ts783.pdf> and <http://support.sas.com/techsup/technote/ts714.pdf> to create an OLEDB or ODBC connection as appropriate for your installation. The ODBC connection can be created on either a Windows or UNIX operating system, but the OLEDB connection can only be created on a Windows operating system.

Confirm that the Library is visible in the SAS Management Console.

1. Open the SAS Management Console
2. In the **Tree** pane, expand **Environment Management**.
3. Expand **Data Library Manager**.
4. Expand **SAS Libraries**.
5. Verify that the library you created is present in the list. In this example, we created a library named **MYSQL**.



6. Verify that the library has a valid connection to the SAS Activity-Based Management database. Select the database you created in the list, right-click and choose Import Tables. The **Connect to SAS** window opens.

We will not actually import any tables or data. We will simply use the Import Wizard to test the connection to the SAS Activity-Based Management database.

7. Verify the **Server** name is the Metadata server you are working on. Click **Next**.
8. Verify the **SAS Library**, **Libref** and **Engine** values are correct. Click **Next**.

9. Tables from your SAS Activity-Based Management database should display in the **Select Tables** list. This verifies that the Library has a valid connection to the SAS Activity-Based Management database and is ready for use. Click **Cancel**.

SAS OLAP Server Configuration

The final step in configuring the SAS OLAP Server is verifying the configuration data in the Server Configuration wizard for SAS Activity-Based Management. This wizard configures the SAS Metadata Server you want to use to store information regarding, among other things, SAS OLAP cubes.

Perform the following steps:

1. Select **Start**→**Programs**→**SAS**→**SAS Activity-Based Management 6.4**→**Tools**→**Server Configuration**
2. The databases should already be properly installed and configured after installing the SAS Activity-Based Management Server. Select **Cancel**. Select **Yes**. The **Configure Servers – Metadata Server** window opens.
3. Select the **Use a Metadata server to define server components** option. Verify the metadata configuration options are correct. The **User ID** and **Password** are the same metadata user that you create in Appendix G.

Configure Servers - Metadata Server

Tell us which Metadata server you would like ABM to use and how to connect to it. Make sure that the user specified to connect to Metadata server has admin privileges.

Use a Metadata server to define server components

Machine:

User ID:

Password:

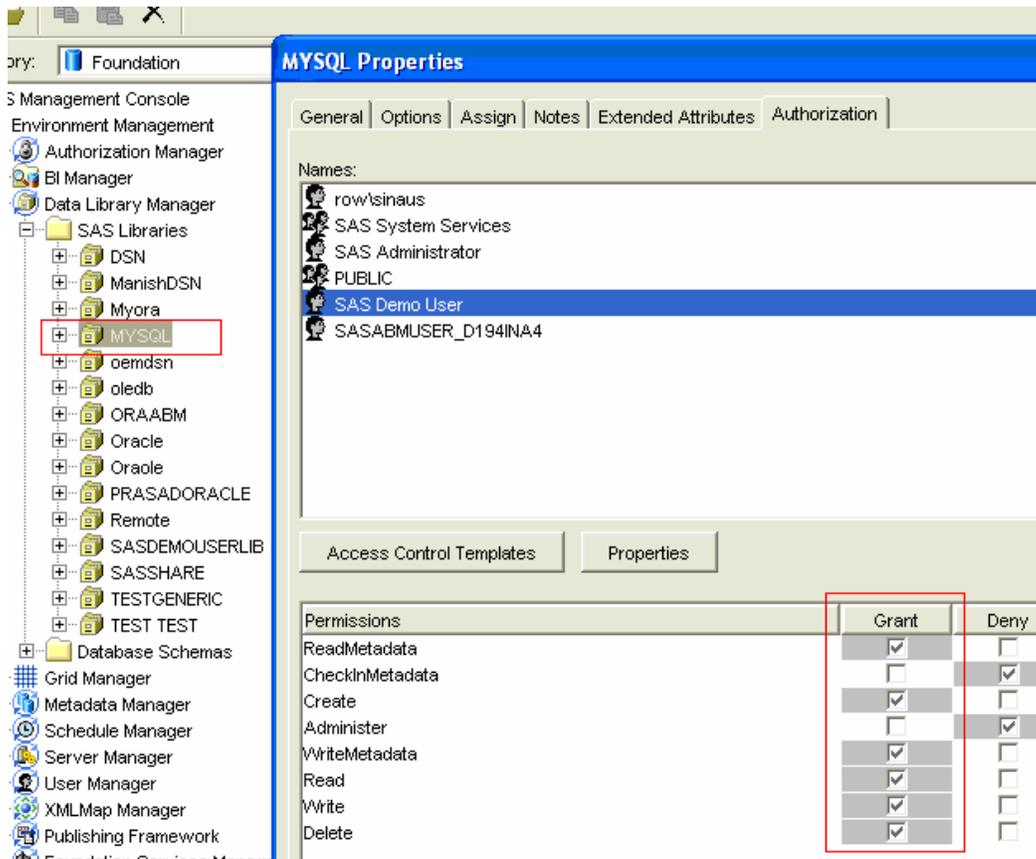
Port:

Do not use Metadata server
* you will not be able to use SAS OLAP server or run calculate on a remote machine if you select this option.

User should be network user if Metadata Server and Workspace Server are on different machines. If they are on same machine Metadata user like sasdemo's credentials can be used.

< Back Next > Finish Cancel

- The User ID specified does not need **CheckInMetadata** or **Administer** privileges.. Select **Next**.



5. The **Configure Servers – Calculate Server** window opens. The configuration data here does not apply to the SAS OLAP Server. Do not make any changes. Select **Next**.
6. The **Configure Servers – OLAP Server** window opens. Select the **SAS OLAP** option. Verify the **SAS OLAP** configuration options are correct. Select **Next**.

7. The **Configure Servers – Contribution Server** window opens. The configuration data here does not apply to the SAS OLAP Server. Do not make any changes. Select **Finish**.

Warning: If the configuration is switched from SAS OLAP Server to Microsoft Analysis Services (or visa-versa), the cubes in the original OLAP server and their OLAP Views will not work properly and will no longer be accessible. Before making this switch, delete the existing OLAP Views and their cubes. Then reconfigure the OLAP server to point to the new one. Finally, re-create the OLAP Views and their cubes on the new OLAP server.

Warning: SAS OLAP Server and Microsoft Analysis Services have different restrictions for cube names, dimension names, dimension member names, etc. Cubes that create successfully on one OLAP Server may not create successfully on the other. Changes to the underlying model may be needed to resolve these differences.

Using SAS OLAP Server with Activity-Based Management

SAS OLAP Server provides very flexible control for cube security. When integrated with the SAS Activity-Based Management solution, the work flow is normally:

1. Using the SAS Activity-Based Management Administrator, add users who will view a model's cube to the SAS Activity-Based Management application. A **Business User** has fewer SAS Activity-Based Management privileges, but is sufficient to view cubes.

2. Make certain that the users in Step 1 have at least **Read** access to the model from which the cube(s) will be deleted. This is accomplished by adding the necessary users to a Group and assigning that group read access to the required models.
3. When cubes are created in SAS Activity-Based Management, the necessary metadata settings will be added to the cube to permit the user to view the cube from SAS Activity-Based Management, SAS Enterprise Guide, SAS Web Report Studio, etc.
4. After cube generation, if any users are added *or* removed to SAS Activity-Based Management, **it will not have any effect on cube permissions**. This happens because during next time a cube is re-created, the existing cube security is read, and then the new cube is created, those permissions are re-assigned. If this behavior is undesirable, there are two courses of action:
 - a. Use the **Manage Cube** dialog in SAS Activity-Based Management to delete the cube before it is re-created. This deletes the existing cube and its security-related metadata. When the cube is built again, all users who have read access to the model will be read access to the cube.
 - b. Use the SAS Metadata Console to manually add the new users to the list of authorized viewers for that cube.

Alternatively, in some situations it may not be desirable to add all necessary cube viewers as SAS Activity-Based Management users. In such instances, follow this alternative process:

1. Build the cube as outlined above, but don't add any unnecessary SAS Activity-Based Management users.
2. Use the SAS Metadata Console to manually add the required users to the list of authorized viewers for that cube.

Appendix F – Configuring the Calculation Server

The Calculation server is a combination of the Base SAS infrastructure and an additionally installed sub-component of Base SAS called **SAS Activity-Based Costing** (or more commonly referred to as **Proc Abc**).



The model calculation process proceeds through several steps:

- Proc ABC opens a connection to the SAS Activity-Based Management database
- It reads the model information from the database
- It performs a series of calculations to update the costs in the model
- It writes the updated costs back to the database
- It closes the connection to the database

This process can be initiated by three different mechanisms:

- The SAS Activity-Based Management client can start a calculation process at the users' request via the user interface.
- A calculation process can be started via a "batch" process or script using the SAS Activity-Based Management API.
- A calculation process can be started via SAS DATA Step code.

Regardless of which mechanism is used to launch the calculation process, the result is that a call to Proc ABC is made to perform the update of the costs in the model. For this to happen, the computer where Proc ABC is located, called the Calculation Server, must be configured to access the data on the computer where the models are stored, called the Database Server. This configuration is achieved by defining DSNs which are persistent ODBC connections. Additionally, when using Oracle as the database, a Net Configuration is also required.

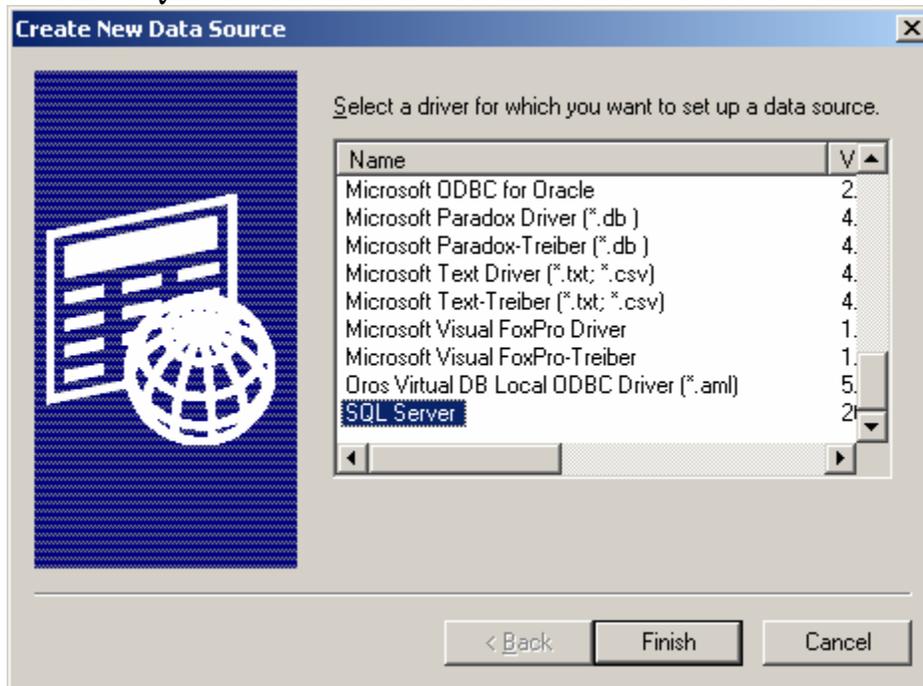
The steps for defining the DSN are dependent upon the type of the database to be accessed and the operating system of the Calculation Server.

Warning: *In the sections that follow, System DSNs will be created to allow Proc ABC to connect to the SAS Activity-Based Management database. It is imperative that a System DSN be created, not a User DSN. User DSNs can only be used by the specific user who created the DSN. However, when SAS Activity-Based Management performs its model calculations, it must be able to launch Proc ABC as well.*

Microsoft SQL Server Database

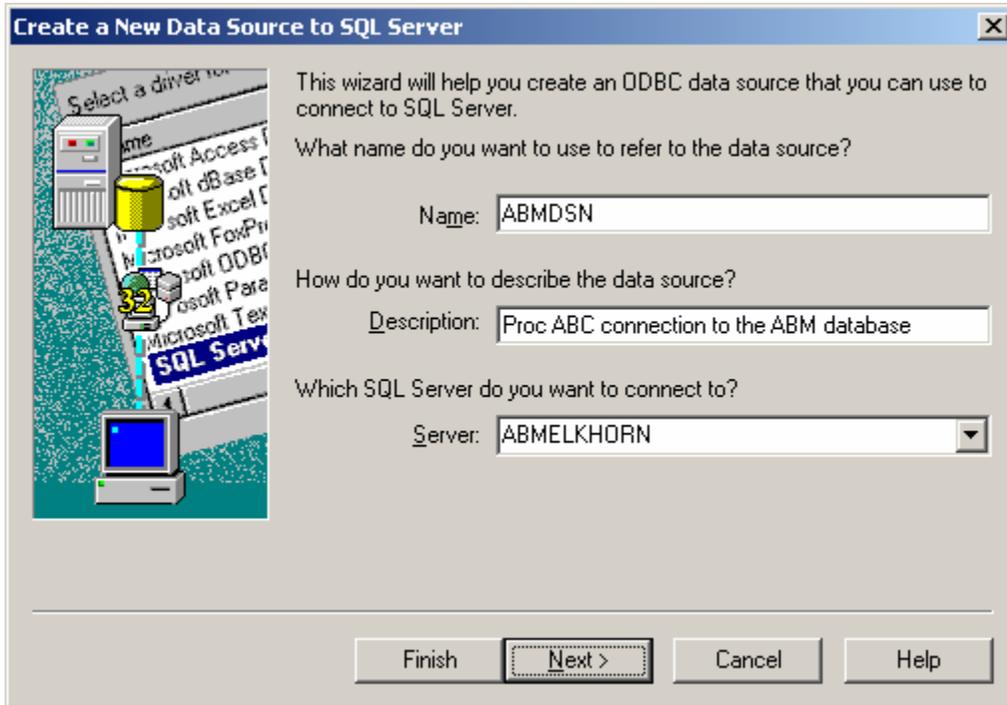
Calculation Server is Windows-Based

1. Open **Administrative Tools** in the **Control Panel**.
2. Open **Data Sources (ODBC)**. The **ODBC Data Sources Administrator** window opens.
3. Select the **System DSN** tab.
4. Select **Add...** The **Create New Data Source** window opens.
5. Select **SQL Server** from the list of available data sources. Select **Finish**.

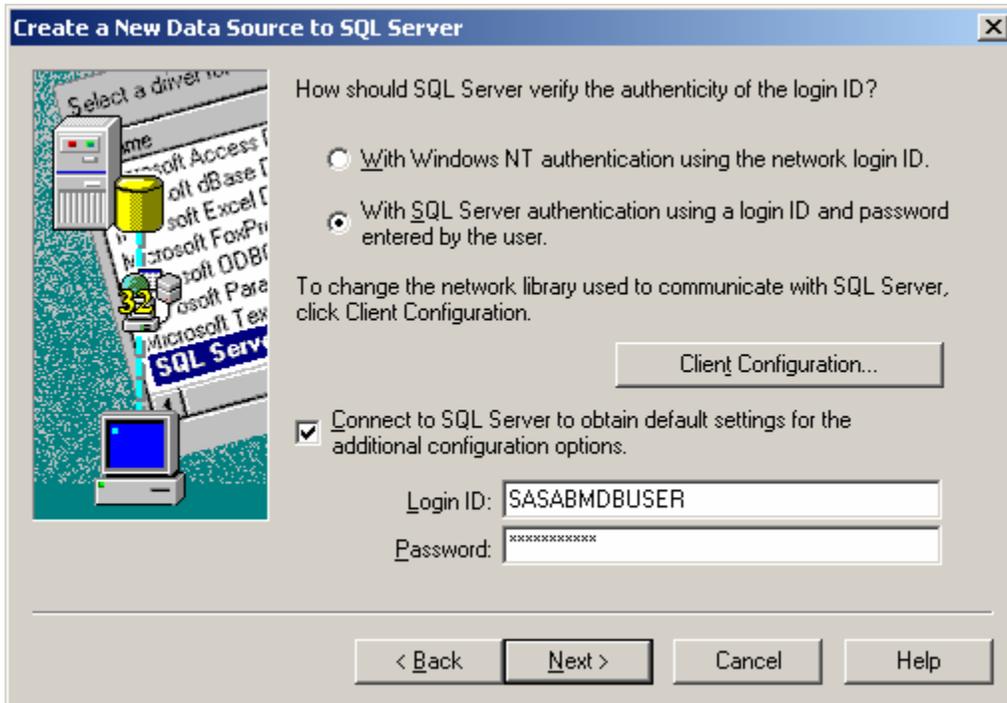


Tip: *If **SQL Server** is not in the list of available ODBC drivers, you may need to install it. It is not available as a separately installable driver, but it is available as part of the SQL Server Client Tools and MDAC. Please refer to the SAS Activity-Based Management System Requirements for proper versions.*

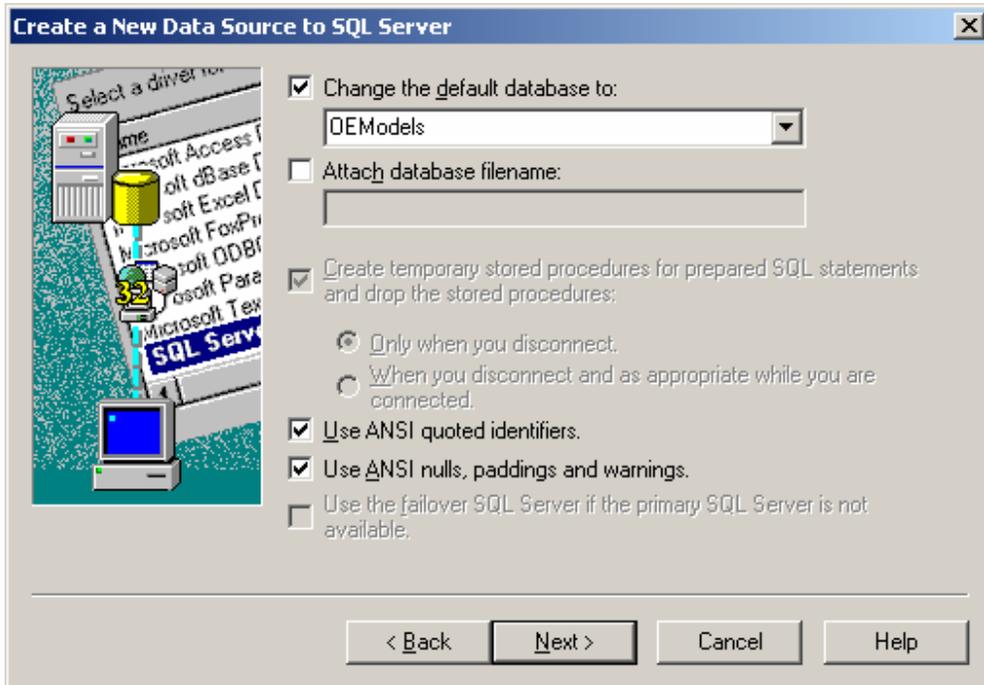
6. The **Create a New Data Source to SQL Server** wizard window opens.



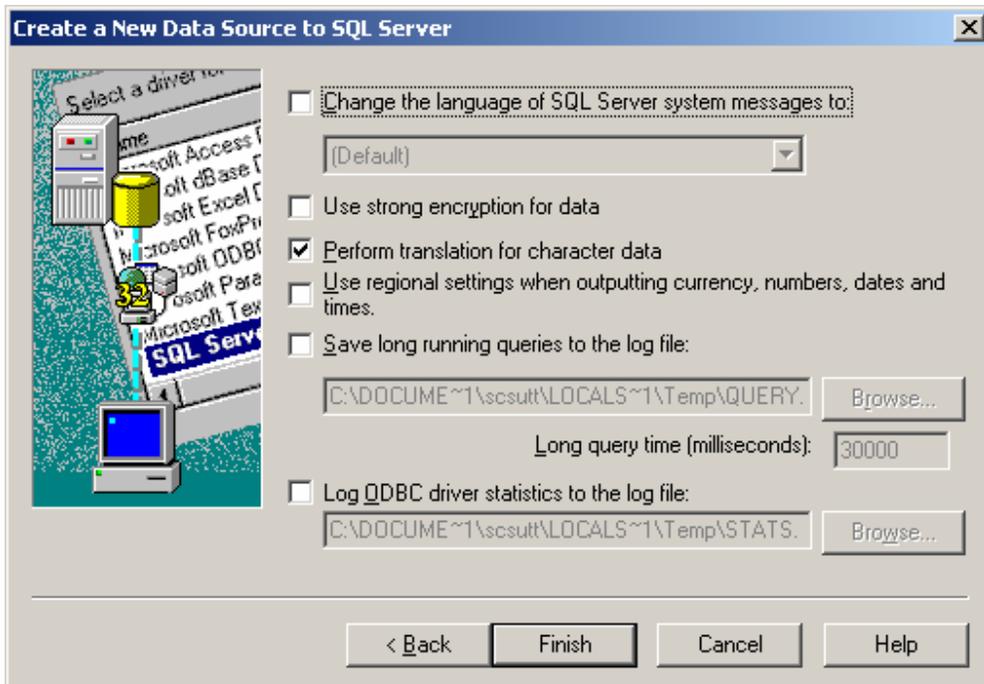
7. Use **ABMDSN** as the name of the data source. Enter a description of the DSN. Choose the server name where the SAS Activity-Based Management database is installed. Select **Next**. The second step of the **Create a New Data Source to SQL Server** wizard window opens.



8. Choose which authentication method is best for your installation. SQL Server authentication is preferred since the database user name and password that was created for the SAS Activity-Based Management database can be used. Select **Next**. The third step of the **Create a New Data Source to SQL Server** wizard window opens.



9. Make certain you select the option **Change the default database to:** and choose the SAS Activity-Based Management models database. During the installation of the SAS Activity-Based Management server, the name of this database defaults to OEModels. If you have changed the default name, choose the name you entered here. Accept the remaining default values for this step. Select **Next**. The fourth step of the **Create a New Data Source to SQL Server** wizard window opens.



10. Change any options necessary for your installation. Select **Finish**.

Note: *Even though this wizard requests a password as part of the DSN creation process, that password is not stored. Any time this DSN is used, the password will need to be provided.*

Note: *Proc ABC can be called directly from SAS Data Step. The correct calling conventions are documented in the SAS Activity-Based Management online help.*

Oracle 10g Database

Calculation Server is Windows-Based

1. Verify that the **Oracle Client Tools** are installed.
2. Verify that the **Oracle Bulk Loader** (SQLldr.exe) is installed and available in the Windows **PATH** variable as well.
3. Follow the steps for creating a System DSN for Microsoft SQL Server earlier in this Appendix, but choose the **Oracle** driver instead of **SQL Server**.

Additionally, Oracle requires that an **Alias** be created on the computer hosting the Oracle database. When the Oracle database was installed and configured for SAS Activity-Based Management, an **Alias** was created at that time (See Appendix C: Create the Net Configuration). If the **Alias** created as part of the Oracle database installation and configuration was named ABMDSN, then another alias is not needed. If it was given another name, then either edit the existing Alias or create a new one with ABMDSN as its name.

Warning: *If your deployment contains an Oracle database and your Calculation Server is on a different computer than your SAS Activity-Based Management Server, you will need to verify that the SAS Workspace Server on your Calculation Server is authorized to run shell commands. This is needed to run the Oracle Bulk Loader (SQLldr.exe). This is accomplished by editing the start-up command file for the SAS Workspace Server and enabling the "allowxcmd" command. For more information, browse to: <http://support.sas.com/kb/23/546.html> and http://support.sas.com/rnd/itech/doc9/admin_oma/sasserver/startserv/cmd_com.html.*

Calculation Server is on the Same Computer as the Application Server

1. The Oracle calculation process runs the Oracle Bulk Loader (SQLldr.exe). In order for this executable file to run properly, the Calculation Server must be authorized to run shell commands. This is accomplished by editing the Windows Registry. Choose **Run...** from the **Start** menu.
2. Type **regedit** in the text entry box and press the **Enter** key. The Registry editor appears.
3. Find the value: **HKEY_CLASSES_ROOT\CLSID\{440196D4-90F0-11D0-9F41-00A024BB830C}\LocalServer32**. Edit its contents and remove the **-noxcmd** from the command argument.
4. Choose **Exit** on the **File** menu to close the Registry.

Calculation Server is on a Different Computer than the Application Server

1. On the Workspace Server, stop and remove the **SAS Spawner** service.
2. Modify the batch file that starts the Spawner service and add **-allowxcmd** in the command argument.
3. Re-install the **SAS Spawner** service and start it.

Appendix G – Configuring the Application Server

SAS Activity-Based Management 6.4 includes several new features to enhance flexibility and integration with other SAS Institute products. This appendix provides details for configuring the SAS Activity-Based Management application Server as part of the final steps of installation.

After the SAS Activity-Based Management installation is complete, you can change any of these configuration options by selecting Server Configuration located at **Start→Programs→SAS→SAS Activity-Based Management 6.4→Tools.**

Warning: Care must be exercised when using the Server Configuration utility to change the database configuration after this configuration is complete. For example, if you change the computer that hosts the database used by SAS Activity-Based Management, the models in that original database and any cubes, OLAP views, column layouts, etc. will no longer be accessible.

Configure SAS Activity-Based Management Metadata User

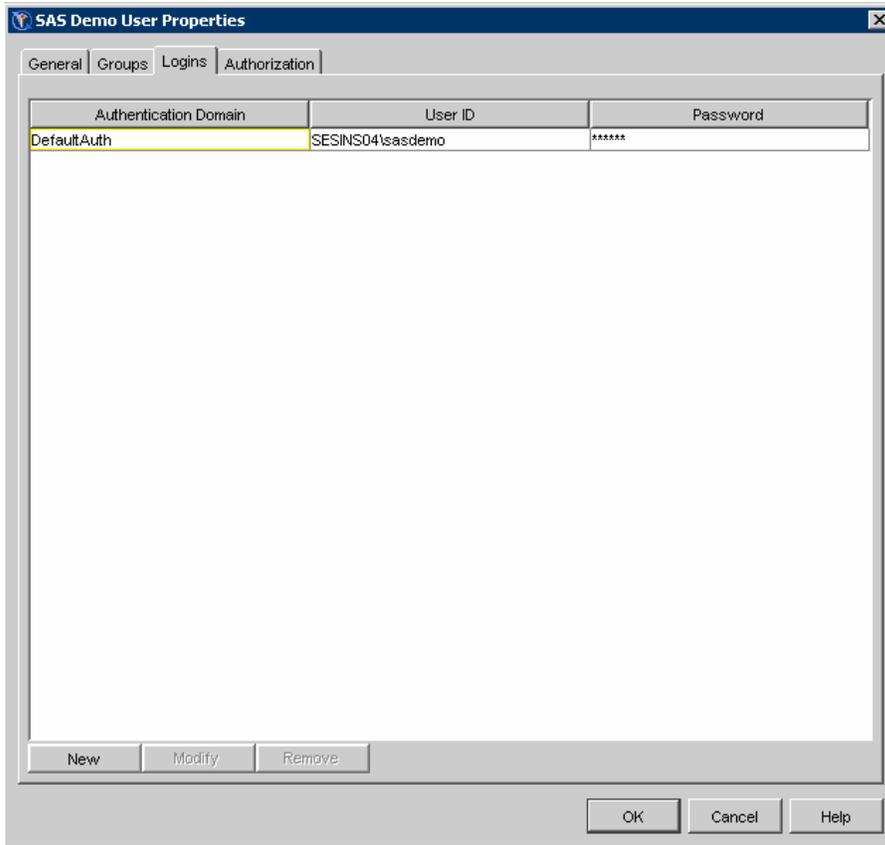
SAS Activity-Based Management needs a metadata user to perform tasks on the SAS Metadata Server. This user may be given any name that is appropriate to your installation.

The screenshot shows a 'New User Properties' dialog box with the following details:

- General Tab:**
 - Name:** ABM Metadata User
 - Job Title:** (empty)
 - Description:** Used by ABM to connect, view, and manipulate the Metadata Server.
- Contact Information Table:**

	Type	Address
Email		
Phone		
Address		
- Buttons:** New, Edit, Delete, OK, Cancel, Help

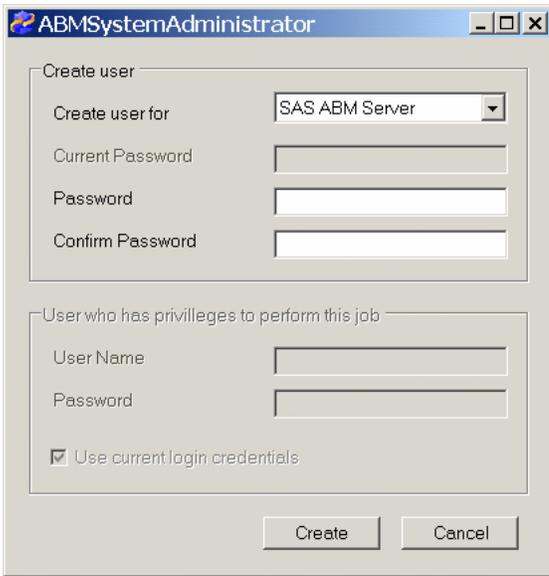
This user's login name will be used later in the process of configuring the Application Server.



Configure SAS Activity-Based Management Application Server

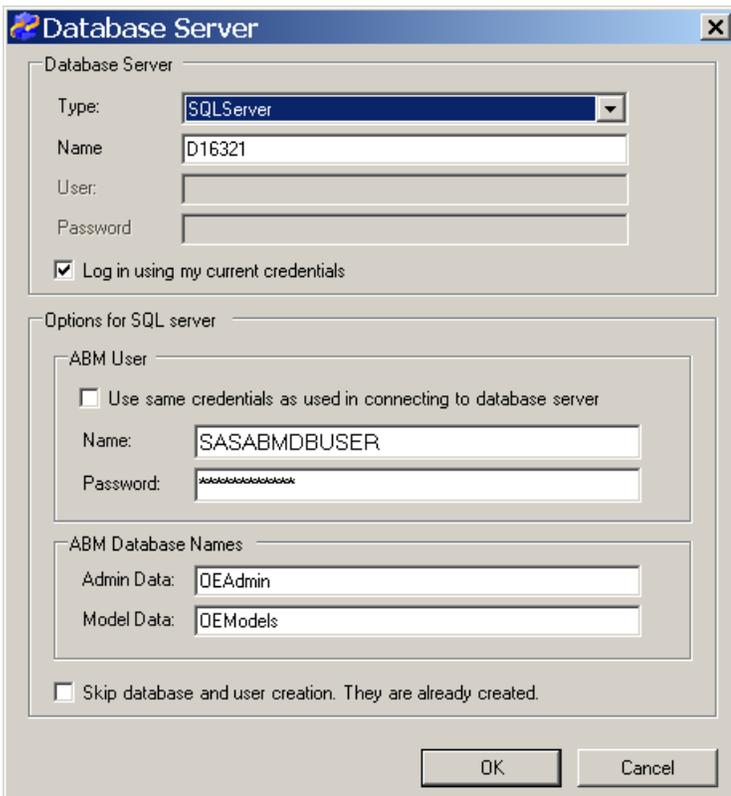
The final installation step of the SAS Activity-Based Management server is the **Configure Servers** wizard. This wizard specifies information regarding the SAS Activity-Based Management databases, user names & passwords and several deployment options that ensure proper communication between the SAS Activity-Based Management components.

1. The first step is to create the SAS Activity-Based Management application user on the server. This user is named SASABMUSER and it is used to run COM+ packages on the server, to attach to Microsoft Analysis Services (if being used), etc. Refer to your system administrator for any requirements relating to the length and content of system passwords. You can change the password later by running the **System Administrator** located at **Start**→**Programs**→**SAS**→**SAS Activity-Based Management 6.4**→**Tools**



2. Now create the databases (if you are using Microsoft SQL Server) or Schema (if you are using Oracle) needed by SAS Activity-Based Management. Choose the database type compatible with your database and select the location of the computer on your network that is hosting it. Type in the name of the computer that hosts your database. By default, the installation will create a database user name SASABMDBUSER with enough privileges to perform the operations needed by the SAS Activity-Based Management server. Enter a password for SASABMDBUSER that meets your security requirements.

If preferred, these databases/schemas may be created manually. This may be necessary due to security requirements at your installation. After creating the databases/schemas manually, simply enter their names here and they will be used.



3. The next step in the **Configure Servers** wizard is configuring deployment options for SAS Activity-Based Management. This wizard configures the SAS Metadata Server you want to use to store information regarding SAS OLAP cubes, Workspace Servers, etc.

Specify the computer that hosts the SAS Metadata Server. Enter the metadata **User ID** and **Password** you created earlier in the Appendix. Also specify the port that the metadata server is listening to. The default port for SAS Metadata Server is 8561.

Configure Servers - Metadata Server

Tell us which Metadata server you would like ABM to use and how to connect to it. Make sure that the user specified to connect to Metadata server has admin privileges.

Use a Metadata server to define server components

Machine: ses1855h

User ID: sesins04\sasdemo

Password: *****

Port: 8561

Do not use Metadata server

* you will not be able to use SAS OLAP server or run calculate on a remote machine if you select this option.

< Back Next > Finish Cancel

- The next step in the **Configure Servers** wizard is specifying which computer will host the SAS Activity-based Management Calculation Server. See Appendix F for more details on configuring this server. This logical Workspace server is registered on the Metadata Server previously configured.

Configure Servers - Calculate Server

Tell us where you would like to calculate ABM models.

On the ABM server
 On a logical Workspace server

Repository:

Server:

< Back Next > Finish Cancel

- The next step in the **Configure Servers** wizard is to specify whether you are using Microsoft Analysis Services or SAS OLAP Server for creating OLAP cubes. If you are using SAS OLAP Server, you need to register the database in SAS Management Console.

Configure Servers - OLAP Server

Tell us which OLAP server you would like ABM to use to create and manage cubes.

Microsoft Analysis Services
 SAS OLAP

Machine:

Use SAS ABM Server user (* applies only when the machine name is localhost or ABMCURLY)

User ID:

Password:

* If Analysis Services is not on ABM server machine, please make sure to specify network user credentials. Also, add the user to OLAP Administrator group on the machine where Analysis Services is running.

Repository:

OLAP Schema:

Server:

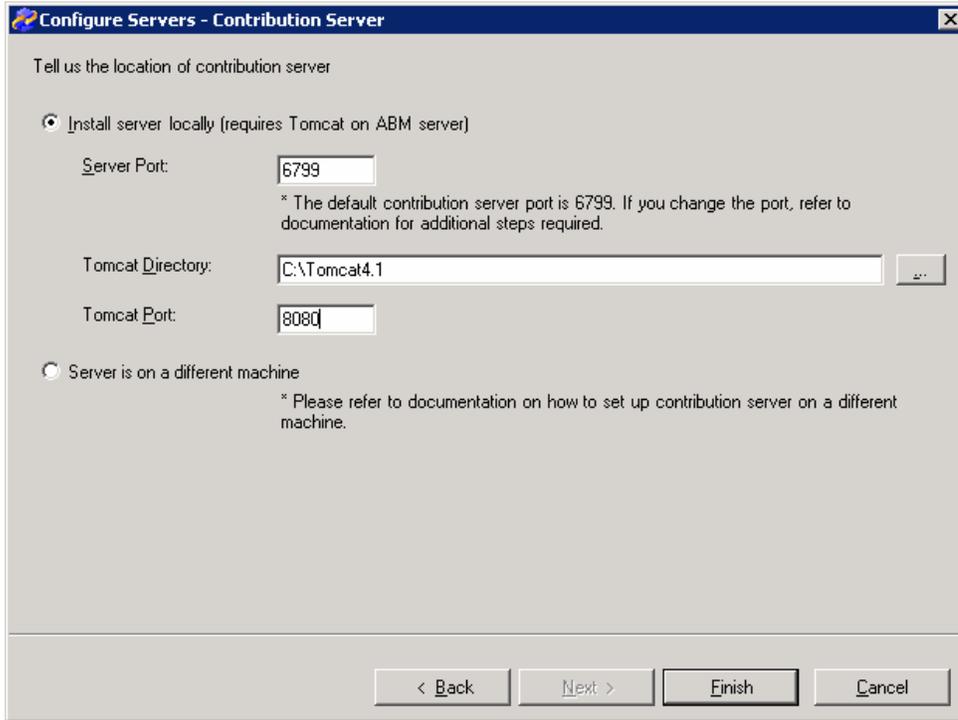
ABM Library:

Cube Path:

* must be relative to Workspace server machine and metadata user must have full access to it.

< Back Next > Finish Cancel

6. The final configuration step sets up the Contributions Server. This server provides data to the **Contributions** functionality of SAS Activity-Based Management. By default, Apache Tomcat is installed on Port 8080. If you changed that port during Apache Tomcat installation, enter that port number here.



7. Click **Finish** to complete the **Configure Servers** wizard.
8. You will return to the installation wizard. Click **Finish** to complete the installation.

Verify Server Settings

Verify that a few commonly overlooked server settings are properly configured.

1. Verify that the SAS Activity-Based Management Application Server can access the Database Server. The SAS Activity-Based Management Application Server and the Database Server may be in different domains. This is most common when the Database Server is hosted on a UNIX computer. If the two servers are on different domains, the Distributed Transaction Coordinator either needs to be able to authenticate these two computers across domains or it needs to be set to **No Authentication Required** by performing the following steps:
 - a. Open **Administrative Tools** in the **Control Panel**.
 - b. Open **Component Services**.
 - c. Select Component Services\Computers\My Computer, right-click, and choose **Properties**.
 - d. On the **MSDTC** tab choose the button labeled **Security Configuration**.
 - e. Make sure **Network DTC Access** is selected. Choose **No Authentication Required**.
2. Computers that host the SAS Activity-Based Management Application Server often have many versions of the .NET Framework installed. For general usage, these versions of the

.NET Framework are backward compatible with the .NET Framework 1.1; however, they are not 100% compatible when used to process ASP.NET web pages and web services. Please verify that SAS Activity-Based Management web site requests will be processed by the **Microsoft .NET Framework 1.1** by performing the following steps.

- a. Open **Administrative Tools** in the **Control Panel**.
- b. Open **Internet Information Services**.
- c. In the **Tree** pane, expand **<MyComputerName> (local computer)** where **<MyComputerName>** is the name of your computer.
- d. In the **Tree** pane, expand **Web Sites**.
- e. In the **Tree** pane, expand **Default Web Site**.
- f. Select the web site named **SasSolutions**. Right-click **SasSolutions** and select **Properties**. The **SasSolutions Properties** window opens.
- g. Choose the tab named **ASP.NET**. Verify that the **ASP.NET version** is 1.1.x. If it is not, change the selection to the highest version of .NET 1.1.x available in the list of choices.



support.sas.com

SAS is the world leader in providing software and services that enable customers to transform data from all areas of their business into intelligence. SAS solutions help organizations make better, more informed decisions and maximize customer, supplier, and organizational relationships. For more than 30 years, SAS has been giving customers around the world The Power to Know®. Visit us at **www.sas.com**.