

# Installation and Configuration Instructions

## SAS® Model Manager 2.1

This document is intended to guide an administrator through the pre-installation steps, the installation process, and post-installation configuration that are necessary to successfully deploy SAS Model Manager 2.1. Please follow each step carefully.

### Overview

SAS Model Manager must be installed via the Planning process. A `plan.xml` file is required. Sample plans are available within the SAS Planning Application.

The most typical configuration consists of two tiers: the SAS server tier and a client tier. It is recommended that the SAS server tier is one physical machine hosting SAS Foundation, the SAS IOM servers, the SAS Metadata Server, SAS Analytics Platform, and Xythos Web File Server. The supported SAS tier platforms are AIX, Solaris, and Windows. The client tier consists of one or more Windows machines that connect to the SAS Metadata Server.

The minimum required installed components are as follows:

Server Tier	Client Tier
SAS Model Manager Server	SAS Model Manager Client
SAS Foundation (Base, GRAPH, STAT)	SAS Management Console
SAS Model Manager API	SAS Enterprise Guide
SAS Analytics Platform	SAS Foundation Services
SAS Foundation Services	Java Runtime Environment
Xythos WebFile Server with PostgreSQL (see Note)	
SAS Management Console	
SAS Metadata Server	
SAS Stored Process Server	
SAS Workspace Server	
Java Development Kit 1.4.2_05	

**Note:** *These instructions assume you are installing PostgreSQL. However, you can use any of the supported Xythos databases. If you choose another database, your installation process will differ from the steps in this document.*

The SAS Model Manager Client tier components are installed silently via the planning process by the SAS Software Navigator and configured by the SAS Configuration Wizard. This is the preferred installation method because it will include any needed JREs and service packs, and it will automatically create and populate the underlying configuration files for your environment. However, if desired, the SAS Model Manager Client components can be installed separately from the **SAS Client-Side Components Volume 4** CD. Each component has an Installation Wizard that will prompt for the required configuration information. However, any other required Java components or service packs will also need to be separately installed.

## Pre-Installation Steps

Complete the following steps prior to launching the SAS Software Navigator to install SAS Model Manager.

1. As a minimum, you need to create the following operating system user accounts before you install and configure SAS Model Manager:
  - SAS Administrator (sasadm)
  - SAS Trusted User (sastrust)
  - SAS Demo User (sasdmo)
  - SAS Guest User (sasguest)
  - SAS General Server User (sassrv)
  - PostgreSQL User (postgres)

**Note:** On Windows, the *postgres* account should be a local account and must **not** be a member of the Administrators group.

For information on creating these users, see “Setting Up Required Users and Groups” in the *SAS Intelligence Platform: Installation Guide* available at

<http://support.sas.com/documentation/configuration/913admin.html>.

2. **For Windows installations only**, create a group named **SAS Server Users** and add the preceding “sas” user accounts to it. (It is not necessary to include postgres.)
3. **For Windows installations only**, give the **SAS Server Users** group the user right Log on as a Batch Job.
4. **For Windows installations only**, give the **postgres** user the user right Log on as a service.
5. Xythos WebFile Server requires a Java Development Kit. The SAS System currently supports JDK 1.4.2\_05. Your SAS Plan file may include a JDK during the installation process. However, we recommend installing this before beginning the SAS installation for a smoother install experience. You can download the appropriate version for your operating system from <http://support.sas.com/documentation/configuration/thirdpartysupport/v913sp4/thirdparty913sp4.html#jdk>.
6. Your SAS Plan file will include the currently supported Java Runtime Environment (JRE) during the installation process. **For AIX installations only**, you must also install JRE 1.4.1. While SAS Model Manager 2.1 requires JRE 1.4.2 on AIX, SAS Management Console still requires JRE 1.4.1. See the following SAS Note for more information as well as the download location: <http://support.sas.com/techsup/unotes/SN/012/012999.html>.

7. During the installation process, when the SAS Configuration Wizard runs, you will be prompted to edit some properties in the **Advanced Properties Editor** window. We recommend that you determine the following information now so that it will be readily available during the installation:
  - Your Mail Server Host (for example, mailhost.smtp.com): \_\_\_\_\_
  - Your Mail Server Port (Default is 25): \_\_\_\_\_
  - Your Mail Server Protocol (Default is SMTP): \_\_\_\_\_
  - Xythos WFS Directory: \_\_\_\_\_  
(This is the directory in which Xythos WebFile Server is or will be installed. For example, C:\\Program Files\\SAS\\xythos\\2.2\\wfs-4.2.35.)
  - Channel Store: \_\_\_\_\_  
(This is a directory to which you will publish information. It must be accessible by the SAS Server. All SAS Model Manager users who will publish models must have access permissions to this location. For example, C:\\SAS\\Channels.)
8. Locate your SAS Installation Data file (SID). You should have received it via a Software Order E-mail (SOE).
9. Generate a Plan file that contains the required components for SAS Model Manager. There are several sample plans available to help you. Contact your SAS representative for assistance in creating an appropriate Plan file.

Plan Name	Plan Description	Contents
<b>ModelMgrMin</b>	Model Manager on one machine	Model Manager and minimum required components for single machine
<b>ModelEMinerMin</b>	Enterprise Model Management on one machine	Model Manager and Enterprise Miner and required components for single machine
<b>ModelMgr2Machines</b>	Model Manager on two machines	Model Manager and minimum required components to be installed on two tiers: server and client
<b>ModelEMiner2Machines</b>	Enterprise Model Management on two machines	Model Manager and Enterprise Miner and required components to be installed on two tiers: server and client

10. SAS Model Manager requires SAS Analytics Platform. Refer to the Administration documentation available at <http://support.sas.com/documentation/onlinedoc/apcore/index.html> for configuration instructions specific to SAS Analytics Platform.

Also, if your installation includes SAS Enterprise Miner, and IF you performed a planned install using the **Enterprise Model Management on one machine** plan, SAS Enterprise Miner will be installed along with SAS Model Manager. For more information on further customizing your SAS Enterprise Miner environment, refer to the chapter “Preparing Enterprise Miner for Use” in the *SAS Intelligence Platform: Administration Guide* at <http://support.sas.com/documentation/configuration/bicag.pdf>. You can go directly to this information in the SAS OnlineDoc version of this document here [http://support.sas.com/onlinedoc/913/docMainpage.jsp?\\_topic=bicag.hlp/a002760408.htm](http://support.sas.com/onlinedoc/913/docMainpage.jsp?_topic=bicag.hlp/a002760408.htm).

# Installation Steps

You are now ready to begin installing SAS Model Manager and its required components.

1. Launch the SAS Software Navigator (SSN) from a SAS Software Depot.
2. Choose the **Advanced** option as the type of deployment you want to perform.
3. Enter the location of your SID and Plan files when prompted.

**Note:** In the **Plan Deployment** window you may select **Enterprise Model Management on one machine** or **Enterprise Model Management on two machines** from the list of sample plans, or point to the location of a **customized plan** created by your SAS representative.

4. On the **Select your installation options** screen that lists the products to be installed, you may deselect **Java Development Kit** if you installed the appropriate JDK during the preceding Pre-Installation steps.
5. Continue to follow the prompts from the SAS Software Navigator, including the System Requirements Wizard and the InstallShield Wizard. Read each screen carefully and provide the necessary information.
6. The SAS Software Navigator will progress through the list of products to be installed. Several of the products have silent installs, meaning they do not require any user input. Others product installations may prompt for user input, to which you may accept the default values.
7. The last step will be to run the SAS Configuration Wizard. Again, follow each step carefully.
8. When the **Advanced Properties Editor** screen displays, you must click **Edit Properties**. You should manually change the values for the parameters which follow, using the information you gathered during the preceding Pre-Installation steps.

```
mmapi.mailserver.host=<INSERT_YOUR_MAILSERVER_HOST_HERE>
mmapi.mailserver.port=25
mmapi.mailserver.protocol=smtp
mmapi.channelstore=<INSERT_YOUR_CHANNEL_DIRECTORY_HERE>
XYTHOSWFSDIR=<INSERT_YOUR_XYTHOS_WFS_DIRECTORY_HERE>
```

**Note:** Verify the postgres **userid** and **password** from the **Edit Properties** screen. By default the password is set to Admin123. The saswfs installer screen, for Xythos configuration, masks the password. If you verify the password in the **Properties** window you do not need to reenter the password for verification in Step 10.

Save your changes and close the editConfiguration.properties file.

9. During the SAS Configuration Wizard installation, the **saswfs installer** for Xythos configuration will display. The Database option **PostgreSQL** should be selected by default.
10. Verify the Postgres **userid** and **password** you created during the Pre-Installation steps if necessary (see the note in Step 8). Verify the **JDBC driver classpath** is correct for your installation (for example, C:\Program Files\SAS\pgsql\postgresql-8.0.3\jdbc\postgresql-8.0-311.jdbc3.jar). Click **Next**.
11. On the next screen, provide the PostgreSQL database host information and then select **Create databases?**. Click **Next**.
12. On the **Custom User Model Options** screen, verify your metadata repository information. In a typical install, the options are as follows:

Host	<server>.<domain>.com
Port	8561
Repository	Foundation

<b>Unrestricted userid</b>	<domain>\sasadm
<b>Unrestricted password</b>	<sasadm password>
<b>Metadata domain</b>	DefaultAuth
<b>WebDAV domain</b>	DefaultAuth
<b>User area</b>	/sasdav/Users

Click **Next**.

13. Select the appropriate Application server on the next screen. We recommend Tomcat for use with SAS Model Manager.

**Note:** An embedded version of Tomcat is included with Xythos by default. No additional installation or configuration is required.

Verify or provide the required information. For example:

<b>Application Server</b>	Tomcat
<b>JDK (not JRE) location</b>	C:\jdk1.4.2_05
<b>Admin user</b>	admin
<b>Admin password</b>	<Enter a password for admin>  <i>Note: The value you enter will BECOME the password for the admin user that is used later when logging onto the Xythos admin tool. Be certain to make a note of this password.</i>
<b>Port</b>	8300
<b>Service Name</b>	Xythos

Then click **Install** to configure Xythos.

14. Continue through the SAS Configuration Wizard and SAS Software Navigator steps.
15. After the installation and configuration steps complete within SAS Software Navigator, the manual configuration steps will begin.
16. You will first log in to SAS Management Console as **sasadm** and create a Foundation repository. You may accept the default values. On the **Definition of Data Source** screen, be sure to select the option **This repository will be under change management**.

**Important Note:** When creating this repository, you must enter the same name that you previously provided to the Xythos WebFile Server installer in Step 12.

17. At this point, continue with the configuration steps described in the **instructions.html** file generated by the SAS Configuration Wizard. Read and complete each step carefully.
18. Configure the SAS Analytics Platform server.

On Windows platforms you can configure the server by selecting

**Start → Programs → SAS → SAS Analytics Platform → AP Server Advanced Configuration**

On UNIX platforms you should run the **apserver** script as follows:

**./apserver config**

Refer to the *SAS Analytics Platform Administrator's Guide*

(<http://support.sas.com/documentation/onlinedoc/apcore>) for details on starting, stopping and configuring the SAS Analytics Platform.

19. **For Installation with SAS Enterprise Miner only**— for more information on further customizing your SAS Enterprise Miner environment, refer to the chapter “Preparing Enterprise Miner for Use” in the *SAS Intelligence Platform: Administration Guide* at <http://support.sas.com/documentation/configuration/bicag.pdf>. You can go directly to this information in the SAS OnlineDoc version of this document here [http://support.sas.com/onlinedoc/913/docMainpage.jsp?\\_topic=bicag.hlp/a002760408.htm](http://support.sas.com/onlinedoc/913/docMainpage.jsp?_topic=bicag.hlp/a002760408.htm).

## Post-Installation Steps

To finish your SAS Model Manager installation, complete the following steps.

1. SAS Model Manager's Access Macros offer a means to perform basic operations on the SAS Model Manager repository from a SAS program. The SMM Access Macros are a combination of SAS Macros and Java libraries. All the SAS Model Manager files are delivered as part of the SAS Model Manager product.

The macro interface for the SAS Model Manager is installed with the SAS System as **mmserver**. To enable usage of the Access macros, modifications need to be made in the SAS configuration file to make the SMM jar files accessible in the SAS JVM.

- a. Locate your SAS System's primary configuration file. It is typically named **SASV9.CFG**.

In a default **Windows** installation, this file resides in C:\Program Files\SAS\SAS 9.1\nls\<locale>\SASV9.CFG, where <locale> is the subdirectory for the language you are running. For English installations, <locale> = en.

On **UNIX** systems, the configuration file typically resides in !SASROOT/SAS\_9.1/sasv9.cfg.

- b. Create a backup copy of the configuration file before you modify it.
- c. Open the **SASV9.CFG** file for editing.
- d. Locate the **-JREOPTIONS** parameter.
- e. Add the path for the SAS Model Manager jar files to **-Dsas.app.class.dirs**.

On **Windows**, the SAS Model Manager jar files are stored in !SASROOT\mmserver\sasmisc. Therefore, your **-JREOPTIONS** statement may look like:

```
-JREOPTIONS=(-Dsas.jre.home= C:\PROGRA~1\SAS\SHARED~1\JRE\1499C1~1.2_0
-Djava.security.policy=!SASROOT\core\sasmisc\sas.policy
-Dsas.app.class.dirs=!SASROOT\mmserver\sasmisc;
!SASROOT\core\sasmisc; ...)
```

On **UNIX** systems, the SAS Model Manager jar files are stored in !SASROOT/misc/mmserver. Therefore, your **-jreoptions** statement may look like:

```
-jreoptions=( -Dsas.app.class.dirs=(!SASROOT/misc/mmserver:
!SASROOT/misc/base:...)
```

- f. We also recommend you turn off a warning message from the SAS Data Step Java Object component by adding the following option to –JREOPTIONS:

```
-Dsas.javaobj.experimental=no
```

- g. Save and close the SASV9.CFG file.

2. Add additional users for SAS Model Manager. To do so, complete the following steps:

- Start SAS Management Console and log in as sasadm.
- Select the User Manager and use the right mouse button to select **New → User**.
- Register user accounts for the users that will access SAS Model Manager. For each user, be sure to provide email properties as well as add him/her to the appropriate user group (SMM Users, SMM Advanced Users, SMM Administrators).

Group	Access Level
SMM Users	Only Read access to SAS Model Manager folders, projects, models, reports, and tasks.
SMM Advanced Users	Full access to most functionality except for freezing and unfreezing versions
SMM Administrators	Full access to all functionality

3. Add users to the local system group **SAS Server Users**. To do so, complete the following steps:

- In the Computer Management window (for Windows), expand **System Tools → Local Users and Groups → Groups**.
- Open the properties of **SAS Server Users** group and add the appropriate user accounts to this group. All SAS Model Manager users should be in this group.

4. To register data sources for SAS Model Manager, you can complete the following steps:

- In SAS Management Console, expand **Data Library Manager** and select **SAS Libraries**.
- Use the right mouse button to select **New Library**.
- Follow the instructions in the **New Library Wizard** to create a library appropriate for your data source. For example, to load the sample data for SAS Model Manager:
  - Create a SAS Base Engine Library called Model Manager Samples.
  - Enter a libref (no more than 8 characters and no spaces) such as smmlib.
  - Specify the path for the sample data. On **Windows**, the default location for the SAS Model Manager sample data is  
C:\Program Files\SAS\SAS 9.1\mmserver\sample.

On **UNIX** systems, the default location for the sample data is  
!SASROOT/samples/mmserver.

- d. After the library is created, select the library and use the right mouse button to choose **Import Tables**. Follow the steps on the screens to import the tables you are interested in. (Use the sasadm account to log in if prompted.)
- e. Repeat the preceding steps to create additional libraries.

**Note:** The **Import Tables** feature is not available on UNIX. (See SAS Note SN-V9-013850 at <http://support.sas.com/techsup/unotes/SN/013/013850.html>. You will have to install SAS Management Console on Windows to complete this task.

5. During the steps you completed in `instructions.html`, you added an initial channel to the publishing framework (see step 17 of the Installation Steps). This is used for publishing models. To add additional channels or add subscribers to channels, complete the following steps:
  - a. In SAS Management Console, expand **Publishing Framework** → **omi://...**
  - b. To add new subscribers, expand **Subscribers**. Select the appropriate subscriber type and then right-click **New**. Follow the steps in the wizard to create the subscribers.
  - c. To add a new channel, right-click **Channels** and select **New Channel**. Provide a channel name and select **available subscribers**. Choose **Archive** as the type of persistent store. Provide a path and complete the steps in the wizard.
6. During the steps you completed in `instructions.html`, you created an initial metadata repository (see step 16 of the Installation Steps). The installation also created a SAS Metadata Repository definition called `EMModelRepository`, which points to an existing SAS Enterprise Miner model repository, and one called `PublishRepository`, to which SAS Model Manager will export models. By default, both of these two repository definitions point to the same SAS Metadata Repository that is used by the SAS Analytics Platform.

If you wish to import or export models from another SAS Metadata Repository, you can modify both repository definitions using the following steps:

- a. In SAS Management Console, expand **Foundation Services Manager** → **Analytics Platform** → **Core Services**.
- b. Select **Information Service** and right-click **Properties**.
- c. Select the **Service Configuration** tab and click **Edit Configuration**.
- d. Click the **Repositories** tab and then select either **EMModelRepository** or **PublishRepository**.
- e. Click **Edit** to modify the repository definitions.

If you wish to add new repository definitions for either importing or exporting models, complete the following steps:

- a. In SAS Management Console, expand **Foundation Services Manager** → **Analytics Platform** → **Core Services**.
- b. Select **Information Service** and then right-click **Properties**.
- c. Select the **Service Configuration** tab and then click **Edit Configuration**.
- d. Click the **Repositories** tab and then click **New** to add a new repository.
  - i. Protocol = `omi`
  - ii. Provide a **Name** and **Description**
  - iii. Enter your SAS Metadata Server **Host** and **Port**
  - iv. **Domain** = `DefaultAuth`



- v. In the **Base** field, enter your repository name (for example, Foundation)
  - e. On the **Groups** tab, add the new repository to the **EMinerRepoGroup** for importing models and/or the **PublishRepoGroup** for exporting models, as appropriate.
7. If Xythos is configured using a port *other than* the default port of 8300, do the following:
  - a. In SAS Management Console, expand **Foundation Services Manager** → **Analytics Platform** → **Core Services**.
  - b. Right click **Information Service** and choose **Properties**.
  - c. Select the **Service Configuration** tab.
  - d. Click the **Edit Configuration** button.
  - e. Select the **Repositories** tab.
  - f. Select the Information Repository named **ModelManagerDefaultRepo** and then click the **Edit** button.  
Correct the **Port** field by entering the Xythos port number.
  - g. Click **OK** to return to the main SAS Management Console screen.

**Note:** *If the SAS Analytics Platform Server has been started, it must be stopped and restarted for this change to take effect.*
8. **For Installation with SAS Enterprise Miner Only**—If you are installing SAS Model Manager to be used in conjunction with Enterprise Miner, you need to access Xythos WebDav and create a public directory for Enterprise Miner. To do so, complete the following steps:
  - a. Login to the Xythos WebFile Server Administrative Page at <http://localhost:8300/xythosadmin> and log in using the admin account you defined during the Xythos installation process. (You defined the admin account earlier in Step 13 in the Installation steps.)
  - b. Click **FILE SYSTEM** → **Directory & File Admin** on the left side. Then click **List All Top-Level Directories** on the right side.
  - c. Click **Add New Top-Level Directory** to create a new folder.
  - d. Name the folder **models**. Select **Unlimited** as the **Quota** and then click **Create Top-Level Directory** at the bottom.
  - e. Go to the new directory **models** by clicking **List All Top-Level Directories** again.
  - f. Click the **Permissions** icon of the preceding directory **/models** to set permissions.
  - g. Change all the permissions to **Yes** for the **Public** group and click **Save Changes**.
  - h. You may close the Xythos WFS Admin.
9. **For Installation with SAS Enterprise Miner Only**—If you are installing SAS Model Manager to be used in conjunction with SAS Enterprise Miner, you now need to configure the SAS Enterprise Miner SAS Metadata Repository with the public directory you created previously. To do so, complete the following steps:
  - a. In SAS Management Console, expand **Application Management** at the bottom. **Enterprise Miner** should be listed with subfolders. If it does not have subfolders, do the following. Otherwise, proceed to the next step.
    - i. Start the SAS Analytics Platform Server via **Start** → **Programs** → **SAS** → **SAS Analytics Platform** → **Start AP Server**. (For UNIX systems, run the command “./apserver start” under the directory !SASROOT/SASAPCore/bin.)
    - ii. Start your SAS Enterprise Miner Client and create a new project.
    - iii. Log out of SAS Management Console and log in again as **sasadm**
    - iv. The **Projects** and **Models** folders should now be listed under SAS Enterprise Miner

- b. Right-click on **Models** and select **New group**. Provide a group name and click **OK**. (Groups are used when a user registers a model package from Enterprise Miner to a metadata repository.)
- c. Right-click on **Models** and select **Properties**.
- d. In the **WebDAV URL** field, enter <http://localhost:8300/models> and click **OK**.

***Note:** The WebDAV is used to register a model SPK file.*

10. Apply the SAS Model Manager hotfixes from the SAS Technical Support Hotfix site to your system. The hotfixes can be downloaded from the following link:

<http://ftp.sas.com/techsup/download/hotfix/modelmgr21.html>

***Note:** All currently active SAS sessions, daemons, spawners and servers must be terminated before applying hotfixes.*

11. You are now ready to begin using SAS Model Manager.

## Running SAS Model Manager

To begin using your SAS Model Manager installation, you must first start the SAS Analytics Platform Server and then access the SAS Model Manager Client. There are two ways to start the SAS Model Manager Client: via your desktop or via Java Webstart.

1. To start the server, select **Start → Programs → SAS → SAS Analytics Platform → Start AP Server**. For UNIX systems, run the command `./apserver start` under the directory `!SASROOT/SASAPCore/bin`.
2. If you installed the SAS Model Manager Client, you can select **Start → Programs → SAS → SAS Model Manager Client 2.1**. Note that the sample plans for SAS Model Manager do include the Client installation.  
Enter your **userid** (in the form `domain\userid`) and **password**. Then select or enter your **Server** name and **port** in the form `hostname.domain.com:port`. Click **Log On**.
3. If you have *not* installed the SAS Model Manager Client locally, you can start the client via Java Webstart. To do so, follow these steps:
  - a. Install JDK 1.4.2\_05 on the client machine if it is not already installed. (For installation, go to <http://support.sas.com/documentation/configuration/thirdparty-support/v913sp4/thirdparty913sp4.html#jdk>.)
  - b. Launch Internet Explorer and go to <http://localhost:6098>. If the SAS Analytics Platform is installed on a different machine from where you are running the client, then go to <http://<AP Server hostname>:6098>.
  - c. Select the **Configuration** tab.
  - d. Click the **Launch** link for **ModelManagement**.
  - e. Click **Start** on the Security Warning that displays.
  - f. Provide your answer when prompted to integrate SAS Model Manager 2.1 into your desktop environment.
  - g. When the **Login** screen displays, enter your **userid** (in the form `domain\userid`) and **password**. Click **Log On**.

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