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# **SAS<sup>®</sup> Solutions Services 5.2**

## **System Administration Guide**



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## Chapter 1

# Introduction

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## Overview of SAS Solutions Services

SAS Solutions Services is a set of services that provide common functionality and a framework for specific solutions. SAS Solutions Services builds on the SAS Intelligence Platform and includes the following areas of functionality:

- Document management allows users to create, organize, and secure documents of disparate types based on their own folder structures.

A My Favorites portlet is available in the SAS Information Delivery Portal (referred to in this book as “the portal”). It provides shortcuts to the folders or the documents themselves, and some documents can also be viewed within a portlet.

Document Manager, a Web application, supports management and viewing of the documents.

- Key performance indicator (KPI) management enables the user to create and manage KPIs for various levels within an organization. Based on security authorization, a user can create, manage, and modify KPI projects.

A Web application, KPI Viewer, enables the user to open KPI projects. The Performance Dashboard portlet enables the user to put KPIs on a dashboard.

- Dimension Management provides the ability to create, manage, and add values to dimensions and hierarchies. A Java client application, SAS Solutions Dimension Editor, allows the user to interactively create and modify the dimensions.
- Microsoft Office integration provides the ability to integrate documents from SAS Solutions Services within the Microsoft Office suite of applications.
- A role-based user interface provides a means of associating user capabilities with the roles a user has (for example, administrator or analyst).

The Web applications of SAS Solutions Services are available as tasks in a My Favorites portlet.

These SAS Performance Management solutions use SAS Solutions Services 5.2:

- SAS Financial Management 5.2
- SAS Strategy Management 5.2
- SAS Human Capital Management 5.2

In this book, they are collectively referred to as “the solutions.”

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## What's Changed in SAS Solutions Services

SAS Solutions Services 5.2 includes the following changes from SAS Solutions Services 1.4:

- Some features are now a part of the SAS Intelligence Platform or the Web Infrastructure Platform. As such, they are still available to users when they are using SAS Solutions Services and the solutions. They include:
  - the Solutions Web Administration application (with some changes in functionality)
  - the alerts service and the Alerts portlet
  - the directives service
  - the Configuration Manager plug-in of SAS Management Console
  - the Comment Manager application
- Users now log on via a common Logon Manager, which is part of the Web Infrastructure Platform.
- There are changes to the user identities, roles, and groups that are used in SAS Solutions Services as well as the solutions. For more information, see [Chapter 3, “Assigning Groups and Roles,”](#) on page 39.
- Document Manager has the following changes:
  - SAS Human Capital Management objects (such as a geographic analysis or an organization analysis) are not supported in Document Manager (or in a My Favorites portlet). For these objects, use the SAS Human Capital Management workspace.

The My Favorites portlet does support a link to the Home page of SAS Human Capital Management.
  - The **Search** tab is removed. Use the portal **Search** button instead.
  - To run a stored process, users now click the stored process name. The **Refresh** menu option is not supported, and stored process reports (STO objects) are not supported.
  - Deleting a document no longer moves it to the **Trashcan**. Instead, it is completely deleted.
- The Measure Manager application is not included with SAS Solutions Services 5.2.
- Quick Help must be enabled or disabled in SAS Management Console for a site or for one or more software components. It cannot be configured at the end-user level.

For information about a particular solution, see the documentation for that solution.

---

## Required Skills

To administer the solutions software, you must be familiar with the operating system on which it is installed. For example, you must know how to create folders, run scripts (.bat files or .sh files), and update environment variables. On Microsoft Windows, you must be an administrator of the machine.

---

## Documentation Conventions

This book uses the following documentation conventions to identify paths in the solutions configuration:

Path	Refers to	Example
<code>!sasroot</code>	Path to the SAS root directory	Windows: <code>C:\Program Files\SAS\SASFoundation\9.2</code> UNIX: <code>/usr/local/SAS/SAS_9.2</code>
<code>SAS-config-dir</code>	Path to the SAS configuration directory	Windows: <code>C:\SAS\Config</code> UNIX: <code>/usr/local/SAS/Config</code>
<code>MySQL-install-dir</code>	Path to the MySQL installation directory	Windows: <code>C:\mysql</code> UNIX: <code>/usr/local/mysql</code>
<code>WebSphere-install-dir</code>	Path to the installation directory for IBM WebSphere	Windows: <code>C:\Program Files\IBM\WebSphere\AppServer</code> UNIX: <code>/usr/IBM/WebSphere/AppServer</code>

*Note:*

- The name of the configuration directory and the level number might be different at your site.
- If your configuration is the result of a migration from the previous release of SAS Solutions Services, the `SASApp` directory might be called `SASMain` instead (for example, `C:\SAS\Config\Lev1\SASMain` rather than `C:\SAS\Config\Lev1\SASApp`). Please make the appropriate substitutions as you read this book.
- File system pathnames are typically shown with Windows separators (“\”); for UNIX, substitute a forward slash (“/”).
- Some code examples contain line breaks (indicated by an underscore “\_” at the end of the line) so that the code fits on the line. If you copy the code, remove the underscores and line breaks.

## Additional Documentation

For additional information, see the appropriate versions of the following books:

- *SAS Solutions Services: System Administration Guide*
- *SAS Solutions Services: Data Administration Guide*
- *SAS Solutions Services: Data Model Reference*
- *SAS Performance Management Solutions: Migration Guide*
- The user's guides for SAS Financial Management, SAS Human Capital Management, and SAS Strategy Management
- The administrator's guide for SAS Human Capital Management

These books are available at the following sites:

- **SAS Financial Management:** <http://support.sas.com/documentation/onlinedoc/fm>
- **SAS Strategy Management:** <http://support.sas.com/documentation/onlinedoc/stm>
- **SAS Human Capital Management:** <http://support.sas.com/documentation/onlinedoc/hcm>

*Note:* These sites are password-restricted. You can find the user name and password in the preinstallation checklist or by contacting SAS Technical Support at <http://support.sas.com/techsup/contact>.

For information about administering the SAS Intelligence Platform, see the following documents (and others) at <http://support.sas.com/92administration>:

- *SAS Intelligence Platform: System Administration Guide*
- *SAS Intelligence Platform: Web Application Administration Guide*
- *SAS Intelligence Platform: Installation and Configuration Guide*
- *What's New in SAS 9.2 Intelligence Platform*

For information about administering third-party software, such as the Web application servers, see <http://support.sas.com/resources/thirdpartysupport/v92>.



## Chapter 2

# Post-Configuration Steps

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## Overview

### About the Post-Configuration Tasks

This chapter describes the post-configuration tasks that need to be performed for SAS Solutions Services, SAS Financial Management, SAS Strategy Management, and SAS Human Capital Management. It also describes how to load sample data that can be used to verify the installation and demonstrate the software.

It contains the following information:

- tasks that need to be performed for all the solutions
- tasks (optional or required) that apply to a specific solution
- information about securing the installation
- information about verifying the installation
- tasks that apply to localization
- tasks that apply if you are installing one of the solutions as an add-on to an existing installation

*Note:* Many of the tasks for SAS Strategy Management also apply to the KPI Viewer, which is available as part of SAS Solutions Services.

For more information about the solutions, see the online Help and user's and administrator's guides, as well as the *SAS Solutions Services: Data Administration Guide*. (See “[Additional Documentation](#)” on page 4.)

We recommend that you check the SAS Notes for additional information and support fixes. Go to [support.sas.com/notes](http://support.sas.com/notes).

### Migration from SAS 9.1.3

The topics in this chapter apply to migrations from the *X.4* version of the solutions, as well as new installations. However, do not install the sample data on a migrated system. Doing so would overwrite your existing data.

### Upgrade in Place

If you are upgrading from SAS Financial Management 5.1, SAS Human Capital Management 5.1, or SAS Strategy Management 5.1 (in other words, if you are performing

an upgrade in place), please check the instructions in this chapter and perform any applicable steps that you have not already performed. Do not install the sample data; doing so would overwrite your existing data. (The 5.2 sample data folder is purposely not provided for an upgrade in place.)

In particular, please note the following topics:

- “Configure PC Files Server” on page 7
- “Add-On Configuration” on page 35

---

## General Modifications

### ***Increase the Permanent Generation Size for SASServer1***

In the JVM options for the SASServer1 managed server, modify the PermSize and MaxPermSize options as follows:

```
-XX:PermSize=768m -XX:MaxPermSize=768m
```

Then restart SASServer1 and the other managed servers.

These options apply to the IBM WebSphere Server (Solaris only) and to the Oracle WebLogic Server.

For information about setting JVM options, see *SAS 9.2 Web Applications: Tuning for Performance and Scalability*, available at <http://support.sas.com/resources/thirdpartysupport/index.html>. Select **Web Application Servers** and **HTTP Servers** and then select the application server that applies to your site.

### ***Configure PC Files Server***

#### ***Overview***

Installing SAS PC Files Server is mandatory for 64-bit Windows installations and optional for UNIX installations. It enables users to load data from 32-bit PC files into 64-bit SAS. With this configuration, data administrators can use Microsoft Excel or Microsoft Access files as input to jobs in SAS Data Integration Studio.

The following sections explain how and why to change the port number for SAS PC Files Server and how to use a Microsoft Office file as a data source in SAS Data Integration Studio. It assumes that you have already installed SAS PC Files Server as a service on a Windows machine.

#### ***Change the Port Number for SAS PC Files Server***

SAS PC Files Server uses port 8621 by default. This is also the default port for the SAS Stored Process Server. If you kept the default for SAS Stored Process Server, modify the port number for SAS PC Files Server, as follows:

1. Stop the Windows service that runs the SAS PC Files Server by typing the following command at a command prompt:
 

```
net stop service-name
```
2. From the Windows Start menu, select **SAS ⇒ PC Files Server**.
3. In the application window, click **Change Options**.

4. Change the port number from **8621** to **9621** or another unused port number. Save your changes.
5. Click **Shutdown Server** to stop the desktop application.
6. Restart the service:

```
net start service-name
```

### **Install the Office 2007 ODBC Driver**

On the machine where you installed SAS PC Files Server, install the Microsoft Office 2007 ODBC driver, which works with both Office 2007 and Office 2003 files. To download the driver, see the following SAS Note: <http://support.sas.com/kb/37/521.html>.

### **(SAS Human Capital Management) Set HCMConfig.xml Property**

If your installation is on a 64-bit Windows operating system, you must also set the following property to `true` in the HCMConfig.xml file:

```
<Property Id="OSVersion" Name="Is 64 bit OS" Value="true" ReadOnly="false"/>
```

The HCMConfig.xml file is located on the middle tier, in the `SAS-config-dir` \Level\AppData\SASHumanCapitalManagement5.2 directory.

### **Validate the Configuration Changes**

To validate the changes you made, follow these instructions for importing a Microsoft Excel file:

*Note:* The file to be imported must reside on the machine where SAS PC Files Server is installed, and it must be accessible from the data tier.

Add a library for the imported files, as follows:

1. Log on to SAS Data Integration Studio as a data administrator.
2. On the **Inventory** tab, right-click the **Library** folder and select **New Library**.
3. Select **Resource Templates** ⇒ **Libraries** ⇒ **Generic Library**. Click **Next**.
4. Enter a name for the library.
5. Click the **Browse** button and select a location for the library. Click **Next**.
6. From the **Available Servers** select **SASApp**. Click **Next**.
7. On the Library properties page, enter the following values:
  - **Libref:** Enter a libref with a maximum of 8 characters.
  - **Engine Type:** Enter `pcfiles`.
  - **Other Options:** Enter the path to the file that you want to import and the port number for SAS PC Files Server. If the file is on a machine other than the data tier, enter the server name. For example:

```
path="C:\MyFiles\myfile.xlsx" port=9621 server=servername
```

For more information, see *SAS/ACCESS(R) 9.2 Interface to PC Files: Reference* at <http://support.sas.com/documentation>

8. Click **Next**.
9. Review your selections and click **Finish**.

Register the Excel file that you want to import:

*Note:* You cannot register tables as the unrestricted user.

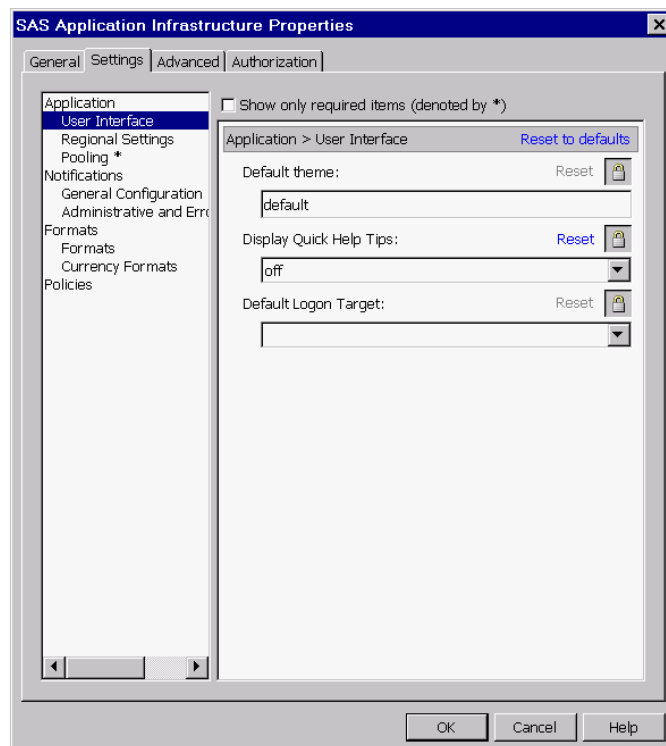
1. Right-click the new library and select **Register tables**.
2. Select the following options:
  - **Enable case-sensitive**
  - **Enable special characters**
3. Select the tables to register.
4. Click **Next**.
5. Review your selections and click **Finish**.

### **(Optional) Configure Quick Help Display**

In the solutions, Quick Help is a short Help topic that can be automatically displayed on a Web application page. By default, Quick Help display is disabled. As an administrator, you can enable or disable Quick Help display for all the solutions applications, or you can enable or disable it for individual applications.

To enable Quick Help display:

1. Log on to SAS Management Console as the SAS Administrator.
2. On the **Plug-ins** tab, navigate to **Application Management** ⇨ **Configuration Manager**.
3. Right-click **SAS Application Infrastructure** and open its properties.
4. Click the **Settings** tab:



5. Click the Lock button  for **Display Quick Help Tips**.

By default, this property is locked. Unlocking the property makes it possible to change its value in components that inherit it.

6. Click **OK**.
7. Right-click **Solutions Svc 5.2** and select **Properties**.
8. Click the **Settings** tab.
9. From the **Display Quick Help Tips** drop-down box, select **Yes** to enable Quick Help display.
10. Click **OK**.
11. Follow steps 7–10 for **Human Cap Mgmt 5.2**, **Financial Mgmt 5.2**, **Web Data Entry 5.2**, and **Strategy Mgmt 5.2** (depending on the products that you installed).
12. Restart the managed servers.

*Note:* Do not re-lock the quick help configuration property for SAS Application Infrastructure. Doing so erases the changes that you made to the solutions applications, and they would once again inherit their setting from SAS Application Infrastructure.

For details about the Configuration Manager, see “Administering the SAS Web Infrastructure Platform” in the *SAS Intelligence Platform: Web Application Administration Guide*.

---

## SAS Financial Management Modifications

### *(Optional) Change the CTA Behavior for Intercompany Transactions*

SAS Financial Management supports two methods of accounting for cumulative translation adjustments (CTAs) as they relate to intercompany transactions:

- **Elimination of CTA amounts related to intercompany transactions.** This is the default behavior. It assumes that revaluation of intercompany balances as a result of exchange rate fluctuations occurs within a customer’s source accounting system. In SAS Financial Management, any translation adjustments that arise as the result of intercompany transactions are eliminated in the originating organization’s functional currency via Intercompany Eliminations.
- **Persistence of CTA amounts related to intercompany transactions.** This functionality ignores CTA amounts related to intercompany transactions, allowing values to persist without being eliminated. This behavior might be necessary when revaluation of intercompany balances does not occur in a customer’s source accounting system and reporting currency differs from the functional currency of the lowest common parent.

Choose a method based on a customer’s practices for recording and managing intercompany transactions and balances. Selecting the appropriate method results in balanced, consolidated results.

The behavior is determined by a system property, `odcs.cta.elim.behavior`. The default value of this property, **TransactionCurrency**, corresponds to the elimination of CTA amounts related to intercompany transactions. To change this behavior so that it persists CTA amounts that are related to intercompany transactions, follow these steps:

1. Add the following argument to the JVM options for the ODCS managed servers:

```
-Dodcs.cta.elim.behavior=ReportingCurrency
```

- Restart the ODCS managed servers.

### **(Optional) Change the Default for Trader Security**

*Note:* This option applies only to financial cycles.

In a financial cycle, the Trader dimension type mirrors the Organization dimension type. In the record of a two-organization transaction, the trader member identifies the second organization.

Members of a Trader dimension inherit the security settings of the corresponding Organization dimension members. As a result, a user who was associated with a member of one organization could not view the facts for transactions with a second organization.

As of SAS Financial Management 5.2, member-level security by default is effectively ignored in Trader dimensions, so that users can view facts for transactions with other organizations. Note that this feature means that there is no security for Trader dimensions.

In previous releases, the Trader security settings (inherited from the Organization dimension) were honored. To revert to the previous behavior, follow these steps:

- Add the following argument to the JVM options for the ODCS managed servers:
 

```
-Dodcs.member.security.ignoreTrader=false
```
- Restart the ODCS managed servers.

*Note:* We recommend that you enable Trader security only if you do not set member-level security on organization members.

### **(Optional) Change the Threshold for Adjustment Rules and Automatic Allocations**

By default, the following adjustment rules and automatic allocations are subject to an absolute value threshold:

- adjustments that are generated by an allocation rule or a reclassification rule
- automatic allocations in a financial form that is part of a bottom-up workflow

The default threshold value is 0.001. To set a different threshold value, follow these steps:

- Add the following argument to the JVM options for SASServer3 (the managed server where SAS Financial Management is running):

```
-Dfms.threshold.allocation=new-value
```

where *new-value* is a value of 0.0 or greater. If *new-value* is 0.0, no threshold is applied.

*Note:* The number of decimal places in the threshold value has no effect on the precision of the output values.

- Restart SASServer3, the ODCS servers, and the Web Data Entry (WDE) server.

For more information, see the *SAS Financial Management: User's Guide*.

### **See Also**

If you installed SAS Financial Management as an add-on to an existing installation of the SAS Intelligence platform, see [“Add-On Configuration” on page 35](#).

---

## SAS Human Capital Management Modifications

### **Modify Permissions for Remote Services**

You must modify permissions for the remote services so that the event broker service works correctly. Follow these steps:

1. Log on to SAS Management Console as the SAS Administrator.
2. On the **Plug-ins** tab, navigate to **Environment Management** ⇒ **Foundation Services Manager**.
3. Right-click **Remote Services** and select **Properties**.
4. On the **Authorization** tab of the properties window, click **Add**.
5. Add HCM Solution Users to the **Selected Identities** list, and click **OK**.
6. Grant Read Metadata permission to the HCM Solution Users group. Deny Write Metadata and CheckInMetadata permissions to this group.
7. Click **OK**.

### **Add Permissions for the OLAP Schema**

If members of the HCM Solution Users group do not have permissions for the OLAP schema, add those permissions as follows:

1. Log on to SAS Management Console as the SAS Administrator.
2. On the **Folders** tab, navigate to **Shared Data** ⇒ **SASApp - OLAP Schema**.
3. In the right pane, right-click the OLAP schema name and select **Properties**.
4. On the **Authorization** tab, grant ReadMetadata permission to the HCM Solution Users group. (If necessary, add this group to the list of identities.)  
  
Grant ReadMetadata and WriteMetadata permission to users who will administer data for SAS Human Capital Management.
5. Click **OK**.

For more information about the metadata permissions that are required for using cubes, see the “Authorization Model” chapter of the *SAS Intelligence Platform: Security Administration Guide*. For information about operating system permissions for cubes, see “(Windows) Configure Security Settings for Folders and Files” on page 17 and “(UNIX) Configure Security Settings for Folders and Files” on page 19.

### **Modify the Diagnostics Configuration**

#### **Add the JUnit JAR File**

Before running the diagnostics, you must copy the junit-4.5.jar file to the `SAS-config-dir\Lev1\Applications\SASHumanCapitalManagement5.2\Diagnostics\lib` directory on the middle tier.



You should have downloaded this JAR file during the installation process. For details, see the *Installation Instructions for Release 5.2 of the SAS Performance Management Solutions*.

*Note:* The junit-4.5.jar file should not be stored in the `SAS-config-dir\Lev1\Web\SASDomain\lib` directory. If necessary, remove the junit-4.5.jar file from that directory.

### **(If Necessary) Modify Diagnostics Configuration Files**

Before using the HCM Diagnostics utility, you might need to modify the configuration files used by the utility. If your installation is a migration from a previous version or an upgrade in place, you must modify the configuration files.

The diagnostics configuration files are located in the `SAS-config-dir\Lev1\Applications\SASHumanCapitalManagement5.2\Diagnostics` directory on the middle tier.

Follow these steps:

*Note:* Line breaks (“\_”) are added to some example code for readability.

1. Open the HCMDiagnosticsConfig.xml file for editing.
2. If the site changed the names of components such as logical servers, the EAR filename, WAR filename, or table names, modify those names in the configuration file.

For example, a migrated system uses `SASMain` rather than `SASApp`.

3. Find the `<Configuration>` ⇒ `<Connection` ⇒ `Properties` ⇒ `<FileSystem>` ⇒ `<DataTier>` section of the XML file.
4. Within that section, modify the paths to any folders or files on the data tier.

*Note:* Use local paths rather than UNC paths.

5. By default, there are no files listed for the data tier. When you run the diagnostics, a warning message is displayed, noting the absence of files and advising you to check the configuration file.

If the `<Files>` section is indeed empty, you can safely ignore this warning message. To prevent the warning message from being displayed, add a file to be checked, as follows:

- a. Find the `<Configuration>` ⇒ `<Connection` ⇒ `Properties` ⇒ `<FileSystem>` ⇒ `<DataTier>` ⇒ `<Files>` section of the XML file.
- b. Add a `<File>` node that specifies a file on the data tier. Here is an example:

```
<Files>
  <File absolutepath="C:\SAS\Config\Lev1\AppData\
    SASHumanCapitalManagement5.2\StoredProcesses\absmean.sas"
    name="HCM Stored Process"/>
</Files>
```

*Note:* Alternatively, on the initial screen for the diagnostics, you can disable the FileSystem diagnostics for the data tier.

6. Save the file.
7. Open the PlatformDiagnosticsConfig.xml file for editing.
8. If necessary, modify the component names in this file.
9. Find the following section:

```
<SoftwareComponent keyProperties="[bid.WrsSoftwareComponentName] _
[bid.LogFile]" name="BI Dashboard 4.3" propertiesToPrint="[Name] [bid.LogFile]" _
verifyKeyProperties="true"/>
```

- Remove the two references to the **[bid.LogFile]** property. The result should look like this:

```
<SoftwareComponent keyProperties="[bid.WrsSoftwareComponentName]" _
name="BI Dashboard 4.3" propertiesToPrint="[Name]" _
verifyKeyProperties="true"/>
```

- Save the file.

*Note:* The diagnostics utility currently supports single-tier and two-tier configurations. A two-tier configuration is assumed to be composed of a data tier and a middle tier, with the diagnostics being deployed on the middle tier.

When you run the diagnostics utility, you might see a message saying that the sastrust user has no SAS Human Capital Management role or employee mapping. You can ignore this message. This identity does not log on to SAS Human Capital Management and so does not need a role or employee mapping.

For more information about running the diagnostics utility and interpreting the results, see the *SAS Human Capital Management Administrator's Guide*.

### (UNIX) Change Default Permissions for Cubes

By default, in a UNIX installation of the solutions, users do not have write permission for files that they did not create. However, frequently you want one administrator to be able to rebuild a cube that was originally created by another administrator. (If your site has a single administrator, you can skip these instructions.)

The following steps set the default permissions to be applied when a user creates a file via code that is running on the workspace server.

- In the operating system, create a group that includes all SAS Human Capital Management administrators who will be building cubes. Make it the primary group for these users.
- On the data tier, open the `WorkspaceServer_usermods.sh` file for editing. This file is located in the `SAS-config-dir/Lev1/SASApp/WorkspaceServer` directory.
- Just before the `USERMODS_OPTIONS=` line, add code similar to the following:

```
CURR_GID=`/usr/bin/id -g`
GID=hcm-group-id
if [ $CURR_GID -eq $GID ]; then
    umask 002
fi
```

Replace `hcm-group-id` with the ID for the group that you created in Step 1. Use back ticks (not single quotes) around `/usr/bin/id -g`.

- Save the file.

The `umask` settings apply only to this group and give the group read and write permission for new files.

*Note:* Use a version of the `id` command that supports the `-g` option. For example, under Solaris, you need to use `/usr/xpg4/bin/id` instead.

Make a similar change to the `PooledWorkspaceServer_usermods.sh` file. This file is located in the `SAS-config-dir/Lev1/SASApp/PooledWorkspaceServer` directory.

If the code shown above does not work in your installation, try replacing it with the following code, which grants write permission for new files to all users, rather than to a specified group:

```
umask 002
```

### **(Optional) Modify SAS Web Report Studio Properties**

SAS Human Capital Management includes a set of reports for viewing in SAS Web Report Studio. These reports are automatically loaded during the installation. If a report query fails with an error saying that the data set is too large, you might need to increase the `MAX_TUPLE_COUNT` value. This value limits the amount of data that can be retrieved from a query.

To set the `MAX_TUPLE_COUNT` property, follow these steps:

1. Open SAS Management Console as the SAS Administrator.
2. On the **Plug-ins** tab, navigate to **Application Management** ⇨ **Configuration Manager**.
3. Right-click **Web Report Studio 4.3** and select **Properties**.

4. Click the **Advanced** tab.

5. Click **Add** to add a new property.

6. In the **Property Name** field, enter this value:

```
.vmwide.com.sas.iquery.dataservices.ProcSummaryROLAPBuilder.MAX_TUPLE_COUNT
```

7. In the **Property Value** field, enter a value. The default is 2500.

8. Click **OK** to save the new definition, and then click **OK** again to close the properties window.

9. Restart the managed servers.

For more information about modifying properties for SAS Web Report Studio, see the “Configuring SAS Web Report Studio” chapter of the *SAS Intelligence Platform: Web Application Administration Guide*.

### **See Also**

- For localization information, see “[SAS Human Capital Management Localization](#)” on [page 32](#).
- If you installed SAS Human Capital Management as an add-on to an existing installation of the SAS Intelligence Platform, see “[Add-On Configuration](#)” on [page 35](#).

---

## SAS Strategy Management or KPI Viewer Modifications

### ***(SAS Strategy Management or KPI Viewer) Modify the login.config File to Support Export to Information Map***

In order to use the **Export to Information Map** feature of SAS Strategy Management or the KPI Viewer, you must modify the login.config file for the remote services, as follows:

1. Open the login.config file for editing.

This file is located on the middle tier, in the `SAS-config-dir\Lev1\Web\Common` directory.

2. Modify the **PFS** block that contains `com.sas.services.security.login.OMILoginModule`.

Change `"aliasdomain"="DefaultAuth"` to `"aliasdomain"="MidtierInternal"`.

Do not modify the **SCS** block.

3. Save the file.
4. Restart the remote services and the managed servers.

*Note:* After a migration or an upgrade in place, re-export any existing, non-working information maps from scorecard or KPI projects. Follow the instructions in the online Help for saving a scorecard as an information map.

### ***(SAS Strategy Management Only; Optional) Disable Diagram Analysis***

To disable diagram analysis in SAS Strategy Management, you must set the Diagram.AllowAnalysis property, as follows:

1. On the Plug-ins tab of SAS Management Console, navigate to **Application Management** ⇨ **Configuration Management**.
2. Right-click **Strategy Mgmt 5.2** and select **Properties**.
3. In the properties window, click the **Advanced** tab.
4. Click **Add**.
5. In the **Property Name** field, type `Diagram.AllowAnalysis`.
6. In the **Property Value** field, type `false`.
7. Save your changes.

To apply this new property, reload the sas.strategymanagement5.2.ear application in the Web application server.

**See Also**

- For localization information, see “[SAS Strategy Management or KPI Viewer Localization](#)” on page 34.
- If you installed SAS Strategy Management as an add-on to an existing installation of the SAS Intelligence Platform, see “[Add-On Configuration](#)” on page 35.

---

## Secure Your Installation

**Overview**

This section contains information about setting operating system protection for files and folders, for both Windows and UNIX. It also contains instructions for securing access to MySQL Server.

Additional information:

- For an overview and detailed information about security in the SAS Intelligence Platform, see the *SAS Intelligence Platform: Security Administration Guide*.
- If you installed SAS Web Report Studio, see “Configuring SAS Web Report Studio” in the *SAS Intelligence Platform: Web Application Administration Guide*. This chapter includes information about securing the folders that are used by SAS Web Report Studio, including folders that hold temporary files.

These books are available at [support.sas.com/92administration](http://support.sas.com/92administration).

**(Windows) Configure Security Settings for Folders and Files**

To configure security for configuration directories, follow these steps:

1. Apply the operating system protections that are recommended for configuration directories on the SAS Intelligence Platform. For instructions, see “What to Do Next: Administration Tasks” in the *SAS Intelligence Platform: System Administration Guide*, which is available at [support.sas.com/92administration](http://support.sas.com/92administration).
2. Apply the additional protections that are recommended in [Table 2.1 on page 17](#). All of these directories are located in *SAS-configuration-directory\Lev1* on the data tier.
3. Provide the operating system protections in [Table 2.2 on page 18](#) to the MySQL directories.

**Table 2.1** Windows: Protections That Apply to Solutions Directories

Directories	Permissions
Appdata \SASHumanCapitalManagement5.2\Cubes	Grant Modify permission to the SAS Server Users group.

Directories	Permissions
Under <b>SASApp\SASEnvironment\</b> [ <b>SolutionsServices,</b> <b>FinancialManagement,</b> <b>HumanCapitalManagement,</b> <b>StrategyManagement</b> ]::  <b>SASCode\Jobs</b>  <b>SASFormats</b>  <b>SASMacro</b>	Grant Modify permission to the SAS Server Users group.
<b>SASApp\Data</b> and its subdirectories	Grant Full Control to SAS General Server User (sassrv) . Grant Read/Write/Modify permission to users who run SAS Data Integration Studio jobs to update data in the data warehouse. These users should include the Solutions Host User (sassln).

**Table 2.2** Windows: Recommended Operating System Protections for the MySQL Directories

Directories	Permissions
<b>MySQL-install-dir</b>	Grant Full Control to SYSTEM and Administrators only.
<b>MySQL-install-dir\bin</b>	Grant Read and Execute permissions to the Everyone group. (During installation and configuration, you were asked to give this group Read, Execute, and Modify permissions. After installation and configuration, restrict these permissions.)

### **(Windows; Optional) Secure Access to MySQL**

On Windows, MySQL is installed as a system service by default. Consequently, the service has access to all directories. MySQL can be used only with its own user IDs.

*Note:* During the configuration process, several MySQL users are created, and the root user for MySQL is deleted after it is no longer needed.

To restrict the IP address that MySQL uses, perform these steps after the configuration has been validated:

1. On the machine where MySQL resides, create a file (grant.sql) with these contents (line breaks are inserted for readability):

```
revoke all privileges, grant option from 'sqladmin'@'%';
GRANT ALL PRIVILEGES ON *.* TO sqladmin@'datatier'
    IDENTIFIED BY 'mysqlpassword'
    WITH GRANT OPTION;
GRANT ALL PRIVILEGES ON *.* TO sqladmin@'midtier'
    IDENTIFIED BY 'mysqlpassword'
    WITH GRANT OPTION;
GRANT ALL PRIVILEGES ON *.* TO sqladmin@'localhost'
    IDENTIFIED BY 'mysqlpassword'
```

```
WITH GRANT OPTION;
flush privileges;
```

In this file, make the following changes:

- a. Replace *mysqlpassword* with the password for sqladmin.
- b. Replace *datatier* and *midtier* with the fully qualified host names of the data tier and middle tier, respectively.

Save the file.

2. At a command prompt, execute this command (replacing *mysqlpassword* with the password for sqladmin):

```
mysql -usqladmin -pmysqlpassword < grant.sql
```

Follow the same procedure for additional MySQL users (depending on the products that you installed): *sassdmbadm*, *hcmbadm*, and *spmbadm*.

### (UNIX) Configure Security Settings for Folders and Files

To configure security for configuration directories on UNIX, follow these steps:

1. Apply the operating system protections that are recommended for configuration directories on the SAS Intelligence Platform. For instructions, see “What to Do Next: Administration Tasks” in the *SAS Intelligence Platform: System Administration Guide*, which is available at [support.sas.com/92administration](http://support.sas.com/92administration).
2. Apply the additional protections that are recommended in the following table. All of these directories are located in *SAS-configuration-directory/Level1* on the data tier.

**Table 2.3** UNIX: Protections That Apply to Solutions Directories

Directories	Permissions
<b>Appdata/SASHumanCapitalManagement5.2/Cubes</b>	Permit full access for the sas user ID and the sas user group.
Under <b>SASApp/SASEnvironment/</b> [ <b>SolutionsServices,</b> <b>FinancialManagement,</b> <b>HumanCapitalManagement,</b> <b>StrategyManagement</b> ] :: <b>SASCode/Jobs</b> <b>SASFormats</b> <b>SASMacro</b>	Permit full access for the sas user ID and the sas user group
<b>SASApp/Data</b> and its subdirectories	Permit full access for the sas user ID and the sas user group.

---

## (SAS Financial Management; Optional) Verify Using Sample Data

### Overview

Sample data is provided to help you verify the correct operation of the software and to demonstrate functionality of the solutions. After verification, you can run batch programs to load the DDS, stageDDS, and SASSDM databases again. These batch programs reset the databases to their default state (the state that they were in right after a new installation and configuration).

#### **CAUTION:**

If this installation is the result of a migration or an upgrade in place, or if you have already stored data that you want to keep, do not load the sample data or reset the databases.

Here is an overview of the verification procedure:

1. Load the sample data.
2. Restart the managed servers.
3. Verify the installation.
4. Reset the databases to their default state.
5. Restart the managed servers.

### Load Sample Data

#### **Load Sample Data for the Cross Industry Detail Data Store**

Running the LoadDDSSampleData script replaces all the tables in the Cross Industry Detail Data Store (DDS) as well as the staging tables (stageDDS).

1. Log on to the data-tier server.
2. At a command prompt, change directory to **SAS-config-dir**  
`\Lev1\Applications\SASSolutionsServices5.2\SampleData`.

*Note:* Logs for these commands are written to a subdirectory of the current working directory.

3. Run one of the following scripts to load the DDS and stageDDS sample data:
  - Windows: LoadDDSSampleData.bat
  - UNIX: LoadDDSSampleData.sh
4. When prompted, enter the following connection information:

Prompt	Description
<b>SAS Metadata User ID</b>	User ID of the unrestricted user (for example, sasadm@saspw)



Prompt	Description
SAS Metadata User Password	User password

### Load Sample Data for Solutions Data Mart

Running the LoadSASSDMSampleData script populates tables in the Solutions Data Mart (SASSDM).

- At a command prompt, change directory to *SAS-config-dir* \Lev1\Applications\SASSolutionsServices5.2\SampleData.
- Run one of the following scripts to load the SAS Solution Services sample data:
  - Windows: LoadSASSDMSampleData.bat
  - UNIX: LoadSASSDMSampleData.sh
- When prompted, enter the following connection information:

Prompt	Description
MySQL Host Name	Name of the host machine where MySQL is running
MySQL DB Name	sassdm
MySQL Port (default:3306)	MySQL port number. 3306 is the default port number.
MySQL DB User ID	User ID for accessing the SASSDM database.
MySQL DB User Password	Password for accessing the SASSDM database.

If you installed MySQL Server on a different machine, the batch file prompts you to run the scripts manually. Follow these steps:

- Copy the following files to the machine where MySQL is running:
  - sassdm.sql
  - fmsdata.sql

These scripts are located in the *SAS-install-dir* \SASSolutionsServicesDataTier\5.2\SampleData\sassdm directory on the data tier.

- On the MySQL machine, run the commands as you were instructed in the batch file output.

*Note:* Replace the source directory name in the commands with the new source directory on the MySQL machine.

### Load Sample Data for Operational Planning

Running the LoadOPPLANSampleData script creates tables in the Solutions Data Mart (SASSDM). These tables are used for operational planning in SAS Financial Management.

- At a command prompt, change directory to *SAS-config-dir* \Lev1\Applications\SASSolutionsServices5.2\SampleData.

2. Run one of the following scripts to load the sample data for operational planning to the SASSDM database:
  - Windows: LoadOPPLANSampleData.bat
  - UNIX: LoadOPPLANSampleData.sh
3. When prompted, enter the appropriate connection information for the SASSDM database.

Prompt	Description
MySQL Host Name	Name of the host machine where MySQL is running
MySQL DB Name	sassdm
MySQL Port (default:3306)	MySQL port number. 3306 is the default port number
MySQL DB User ID	User ID for accessing the SASSDM database
MySQL DB User Password	Password for accessing the SASSDM database

If you installed MySQL Server on a different machine, the batch file prompts you to run the scripts manually. Follow these steps:

1. Copy the opdata.sql file to the machine where MySQL is running:

This script is located in the *SAS-install-dir*

\SASSolutionsServicesDataTier\5.2\SampleData\sassdm directory on the data tier.

2. On the MySQL machine, run the command as you were instructed in the batch file output.

*Note:* Replace the source directory name in the command with the new source directory on the MySQL machine.

## Verify the Installation

### About SAS Financial Management Verification

To verify the Web application components of SAS Financial Management, follow the steps in the Instructions.html file on the middle tier. The remaining sections in this topic include verification instructions for SAS Financial Management Studio and the SAS Financial Management Add-In for Microsoft Excel.

For the SAS Financial Management verification instructions, you need only the SAS Demo User, who by default belongs to the Solutions Users group and has the Financial Management: Process Administrator role.

### SAS Financial Management Studio

*Note:* For installation instructions, see the *Installation Instructions for Release 5.2 of the SAS Performance Management Solutions*.

Follow these steps:

1. Restart SAS Server3, the ODCS servers, and the Web Data Entry (WDE) server. Otherwise, your tests will fail.
2. Log on to SAS Financial Management Studio as the SAS Demo User (sasdmo).
3. Examine the dimensions in the Dimensions workspace.
4. Expand the Account dimension and view these sample hierarchies:
  - ACCOUNT\_MR
  - ACCOUNT\_Sal
  - ACCOUNT\_TH
5. Examine the default model in the Models workspace.
6. Create an Operational Planning Cycle, as follows:
  - a. Select **File** ⇒ **New Cycle**.
  - b. Type in a **Name** and **Description**.
  - c. From the **Type** radio buttons, select **Operational planning cycle**. Click **Next**.
  - d. On the Required Dimensions page, accept the defaults and click **Next**.
  - e. On the Other Dimensions page, select the PRODUCT dimension in the **Available** list and click the arrow to move it to the **Selected** list. Click **Next**.
  - f. On the Time Hierarchy page, accept the default values and click **Next**.
  - g. On the Time Span page, select JAN2002 as the **Start member**, and DEC2002 as the **End member**. Click **Next**.
  - h. On the Summary page, click **Finish**.
7. Select **File** ⇒ **Open Cycle** and select your newly created operational planning cycle.

You might see a message stating that the cycle has no models. You can ignore this message. (A cycle must exist before you can create a model for that cycle.)

### **SAS Financial Management Add-In for Microsoft Excel**

*Note:* For installation instructions, see the *Installation Instructions for Release 5.2 of the SAS Performance Management Solutions*.

To verify the operation of the SAS Financial Management Add-In for Microsoft Excel, follow these steps:

1. Open a workbook in Microsoft Excel.
2. From the SAS Solutions menu, select **Log On** and log on to the middle tier as the SAS Demo User (sasdmo).
3. Insert a read-only table:
  - a. Select **SAS Solutions** ⇒ **Insert** ⇒ **Read-only table**.
  - b. Select the **Default\_Model**.
  - c. Use the arrows to make the following selections:
    - **Rows:** Account
    - **Columns:** Time
    - **Slicers:** Analysis, Organization, Frequency, and Product
  - d. Make additional selections in the rest of the wizard or click **Finish** to accept the defaults.

## Reset the Databases

On the data tier, follow these steps to reset the DDS, stageDDS, and SASSDM databases to their default state:

1. At a command prompt, change directory to **SAS-config-dir**  
**\Lev1\Applications\SASSolutionsServices5.2\SampleData**.
2. You must update some variables in the restore script before executing it. The scripts are as follows:
  - Windows: restore\_original\_install\_data\_fm.bat
  - UNIX: restore\_original\_install\_data\_fm.sh

Make a backup copy and then edit the appropriate script, modifying the following variables as necessary for your site configuration.

*Note:* When you modify the script, replace *SAS-config-dir* and **!sasroot** with the appropriate file system path. Replace **SASApp** and **Lev1** as necessary for your site. In the SET statements, do not use spaces around the equal sign.

Variable	Description
SAS_EXE	Full path (including filename) to the sas executable, located in the <b>!sasroot</b> directory.  On Windows, a typical path is <b>C:\Program Files\SAS\SAS Foundation\9.2</b> .  On a UNIX system, a typical value is <b>/usr/local/SAS/SAS_9.2</b> .
SAS_DIR (UNIX)	Path to the <b>!sasroot</b> directory. In UNIX scripts, this variable is used in the definition of SAS_EXE.
SAS_CONFIG (Windows) or SOL_CFG (UNIX)	Full path (including filename) to the SASV9.cfg file that is located in the <b>SAS-config-dir\Lev1\SASApp</b> directory.  On Windows, a typical location is <b>C:\SAS\Config\Lev1\SASApp\sasv9.cfg</b> .  On UNIX, a typical location is <b>/usr/local/SAS/Config/sasv9.cfg</b>
REG_STAGEDDS_DDS	Full path (including filename) to the register_stagedds_and_dds.sas file, which is located in the <b>SAS-config-dir\Lev1\Applications\SASSolutionsServices5.2\SASCode</b> directory.
REG_COMMON	Full path (including filename) to the register_common.sas file, which is located in the <b>SAS-config-dir\Lev1\Applications\SASSolutionsServices5.2\SASCode</b> directory.

Variable	Description
REG_ODCS	Full path (including filename) to the register_odcs.sas file, which is located in the <i>SAS-config-dir</i> \Lev1\Applications \SASSolutionsServices5.2\SASCode directory.
REG_FM	Full path (including filename) to the register_fm.sas file, which is located in the <i>SAS-config-dir</i> \Lev1\Applications \SASFinancialManagement5.2\SASCode directory.
REG_OP	Full path (including filename) to the register_opplan.sas file, which is located in the <i>SAS-config-dir</i> \Lev1\Applications \SASFinancialManagement5.2\SASCode directory.

## 3. Run the script:

- Windows: restore\_original\_install\_data\_fm.bat
- UNIX: restore\_original\_install\_data\_fm.sh

When prompted, enter the following connection information:

*Note:* The UNIX script omits “MySQL” in the prompts.

Prompt	Description
MySQL Host Name	Name of the host machine where MySQL is running
MySQL DB PORT	Port number for MySQL (default: 3306)
MySQL DB NAME	Database name (default SASSDM)
MySQL DB User ID	User ID for accessing the SASSDM database
MySQL DB Password	Password for accessing the SASSDM database
META USER ID	User ID of the unrestricted user (for example, sasadm@saspw)
META USER PASSWORD	Metadata user password

The batch program runs several SAS registration programs. The logs from these programs are in the *SAS-config-dir*\Lev1\Logs\Configure directory.

If you installed MySQL Server on a different machine, you are prompted to run the scripts manually. Follow these steps:

1. On the machine where MySQL Server is installed, run the command to drop and then create the SASSDM database, as you were prompted by the batch file output.

2. On the data-tier machine, run the following .sas commands as you were prompted by the batch file output.
  - register\_stagedds\_and\_dds.sas
  - register\_common.sas
  - register\_odcs.sas
  - register\_fm.sas
  - register\_opplan.sas

After you run the scripts, restart SASServer3, the ODCS servers, and the Web Data Entry (WDE) server.

---

## (SAS Human Capital Management; Optional) Verify Using Sample Data

### Overview

Sample data is provided to help you verify the correct operation of the software and to demonstrate functionality of the solutions. After verification, you can run batch programs to load the DDS, stageDDS, and HCM databases again. These batch programs reset the databases to their default state (the state that they were in right after installation and configuration).

#### **CAUTION:**

If this installation is the result of a migration or an upgrade in place, or if you have already stored data that you want to keep, do not load the sample data or run the batch programs.

The installer or data administrator should load the sample data. Here is an overview of the procedure.

1. On the data-tier server, load the sample data for the Cross Industry Detail Data Store (DDS) and the staging tables (stageDDS).
2. Load the sample data for the HCM Data Mart.
3. Restart the managed servers.
4. Rebuild cubes and information maps.
5. Verify the installation.
6. Reset the databases to their default state.
7. Restart the managed servers.

### Load the Sample Data

#### **Load Sample Data for the Cross Industry Detail Data Store**

Running the LoadDDSSampleData script replaces all the tables in the Cross Industry Detail Data Store (DDS) as well as the staging tables (stageDDS).

- At a command prompt, change directory to `SAS-config-dir`  
`\Lev1\Applications\SASSolutionsServices5.2\SampleData`.  
*Note:* Logs for these commands are written to a subdirectory of the current working directory.
- Run one of the following scripts to load the DDS and stageDDS sample data:
  - Windows: LoadDDSSampleData.bat
  - UNIX: LoadDDSSampleData.sh
- When prompted, enter the following connection information:

Prompt	Description
SAS Metadata User ID	User ID of the unrestricted user (for example, sasadm@saspw)
SAS Metadata User Password	User password

### Load the HCM Sample Data

If you have installed SAS Human Capital Management, you can also run the LoadHCMSampleData command, which populates tables in the HCM database with fictitious employee data.

- At a command prompt, change directory to `SAS-config-dir`  
`\Lev1\Applications\SASHumanCapitalManagement5.2\SampleData`.
- Run one of the following scripts to load the sample data:
  - Windows: LoadHCMSampleData.bat
  - UNIX: LoadHCMSampleData.sh
- When prompted, enter the following connection information:

Prompt	Description
MySQL Host Name	Name of the host machine where MySQL is running
MySQL DB Name	<b>hcm</b>
MySQL Port (default:3306)	MySQL port number (default: 3306)
MySQL DB User ID	User ID for accessing the HCM database
MySQL DB User Password	Password for accessing the HCM database
SAS Metadata User ID	User ID of the unrestricted user (for example, sasadm@saspw)
SAS Metadata User Password	User password

If you installed MySQL Server on a different machine, the batch file prompts you to run the scripts manually. Follow these steps:

1. Copy the `hcndata.sql` file to the machine where MySQL is running.

This script is located in the `SAS-install-dir`  
`\SASHumanCapitalManagementDataTier\5.2\SampleData` directory on  
the data tier.

2. On the MySQL machine, run the command as you were instructed in the batch file output.

*Note:* Replace the source directory name in the command with the new source directory on the MySQL machine.

3. On the data-tier machine, run the `register_hcm_sample_data.sas` command as you were prompted by the batch file output.

### **Copy the %CODENODE Macro**

After you load the sample data for SAS Human Capital Management, copy the `%CODENODE` macro so that it can be used by the ETL job that loads the `MODELScores` table. Follow these steps:

1. On the data tier, find the `codenode.sas` file in the `SAS-install-dir`  
`\SASHumanCapitalManagementDataTier\5.2\SampleData` directory.
2. Copy the file to the `SAS-config-dir\Lev1\SASApp\SASEnvironment`  
`\HumanCapitalManagement\SASMacro` directory.

For details about the related ETL job, see the *SAS Solutions Services: Data Administration Guide*.

## **Verify the Installation**

### **Prepare for Verification**

After you load the sample data:

1. Restart `SASServer3`, the ODCS servers, and the Web Data Entry (WDE) server (if there is one).
2. Rebuild the cubes and information maps. The Administration application of SAS Human Capital Management has utilities to rebuild these objects. There are also jobs for building cubes and information maps in SAS Data Integration Studio (see the *SAS Solutions Services: Data Administration Guide*).
3. In SAS Management Console, make sure that the SAS Demo User belongs to the HCM Solution Users group and has the HCM Administrator role.

### **Run the Diagnostic Utility**

Before running any of the SAS Human Capital Management applications, we recommend running the Diagnostic utility:

1. Make sure that you have installed the `JUnit.jar` file. (See [“Add the JUnit JAR File” on page 12.](#))
2. If necessary, modify the diagnostics configuration file. (See [“Modify the Diagnostics Configuration” on page 12.](#))
3. On the middle tier, run the diagnostics.



From the Windows Start menu, use the shortcut at **All Programs** ⇒ **SAS** ⇒ **SAS Configuration** ⇒ **Config - Lev1**.

On UNIX, use this command: `SAS-config-dir/Lev1/Applications/SASHumanCapitalManagement5.2/Diagnostics/launchDiagnostics_UI.sh`.

For details about running the diagnostics, see “Configuring SAS Human Capital Management” in the *SAS Human Capital Management: Administrator's Guide*.

### **Log on to SAS Human Capital Management**

To verify the Web applications that are part of SAS Human Capital Management, follow these steps:

1. Log on to SAS Human Capital Management using the URL in the Instructions.html file.
2. On the Home page, enter a string such as **smith** and click **Search**.
3. On the search results page, click the SAS logo to return to the Home page.
4. From the **Tasks** list, try one or more of the following links:
  - **My Employee Profile**
  - **New Organization Analysis**
  - **New Geographic Analysis**
  - **My Portal**
5. From the **Manage** list, try the following links:
  - **Workspace**
  - **Administration**
6. Log off.

### **Reset the DDS, stageDDS, and HCM Databases**

On the data tier, follow these steps to reset the DDS, stageDDS, and HCM databases to their default state:

1. At a command prompt, change directory to `SAS-config-dir\Lev1\Applications\SASHumanCapitalManagement5.2\SampleData`.
2. You must update some variables the restore script before executing it. The scripts are as follows:
  - Windows: `restore_original_install_data_fm.bat`
  - UNIX: `restore_original_install_data_fm.sh`

Make a backup copy and then edit the appropriate script, modifying the following variables as necessary for your site configuration.

*Note:* When you modify the script, replace `SAS-config-dir` and `!sasroot` with the appropriate file system path. Replace `SASApp` and `Lev1` as necessary for your site. In the SET statements, do not use spaces around the equal sign.

Variable	Description
SAS_EXE	Full path (including filename) to the sas executable, located in the <b>!sasroot</b> directory.  On Windows, a typical path is <b>C:\Program Files\SAS\SASFoundation\9.2</b> .  On a UNIX system, a typical value is <b>/usr/local/SAS/SAS_9.2</b> .
SAS_DIR (UNIX)	Path to the <b>!sasroot</b> directory. In UNIX scripts, this variable is used in the definition of SAS_EXE.
SAS_CONFIG (Windows) or SOL_CFG (UNIX)	Full path (including filename) to the SASV9.cfg file that is located in the <b>SAS-config-dir\Lev1\SASApp</b> directory.  On Windows, a typical location is <b>C:\SAS\Config\Lev1\SASApp\sasv9.cfg</b> .  On UNIX, a typical location is <b>/usr/local/SAS/Config/sasv9.cfg</b>
REG_STAGEDDS_DDS	Full path (including filename) to the register_stagedds_and_dds.sas file, which is located in the <b>SAS-config-dir\Lev1\Applications\SASSolutionsServices5.2\SASCode</b> directory.
REG_HCM	Full path (including filename) to the register_hcm.sas file, which is located in the <b>SAS-config-dir\Lev1\Applications\SASHumanCapitalManagement5.2\SASCode</b> directory.

## 3. Run one of the following scripts:

- Windows: restore\_original\_install\_data\_hcm.bat
- UNIX: restore\_original\_install\_data\_hcm.sh

When prompted, enter the following connection information:

Prompt	Description
DB Host Name	Name of the host machine where MySQL is running
DB PORT	Port number for MySQL (default: 3306)
DB NAME	Name of the MySQL database to be restored (HCM)
DB User ID	User ID for accessing the HCM database
DB Password	Password for accessing the HCM database
META USER ID	User ID of the unrestricted user (for example, sasadm@saspw)

Prompt	Description
<b>META USER PASSWORD</b>	Metadata user password

The batch program runs several SAS registration programs. The logs from these programs are in the *SAS-config-dir\Lev1\Logs\Configure* directory.

If you installed MySQL Server on a different machine, the batch file prompts you to run the scripts manually. Follow these steps:

1. On the machine where MySQL Server is installed, run the command to drop and then create the HCM database, as you were prompted by the batch file output.
2. On the data-tier machine, run the following .sas commands as you were prompted by the batch file output.
  - register\_stagedds\_and\_dds.sas
  - register\_hcm.sas

After you run the scripts, restart SASServer3, the ODCS servers, and the Web Data Entry (WDE) server.

---

## (SAS Strategy Management; Optional) Verify Using a Sample Project

A sample project, KPI, is included with SAS Solutions Services. You can use this project to verify the installation of SAS Strategy Management.

*Note:* These instructions are also available in the Instructions.html file for the middle tier.

1. Log on to the SAS Information Delivery Portal.
  - See the Instructions.html file for the correct URL and logon credentials.
2. Add a Performance Dashboard portlet, as follows:
  - a. Select **Customize** ⇒ **Edit Page** ⇒ **Edit Page Content**.
  - b. On the Edit Page Content page, click **Add Portlets**.
  - c. From the **Portlet type** drop-down list, select **Performance Dashboard**. Click **Add** to add the portlet and then click **Done**.
3. Make selections for the portlet:
  - a. Within the portlet that you created, click **Edit portlet**.
  - b. In the **Items to display in portlet** section, click **Add**. Add **% Renewal Sales Growth**.
  - c. For the date, choose June 1, 2004.
  - d. Select **Save** to return to the portlet. You should see a value of 6.0.
4. Add a Performance Table portlet, as follows:
  - a. Select **Customize** ⇒ **Edit Page** ⇒ **Edit Page Content**.
  - b. On the Edit Page Content page, click **Add Portlets**.

- c. From the **Portlet type** drop-down list, select **Performance Table**. Click **Add** to add the portlet and then click **Done**.
5. Make selections for the portlet:
  - a. Within the portlet that you created, click **Edit portlet**.
  - b. From the **Template** drop-down list, select **KPI Template**.
  - c. In the **Scorecard** field, expand **KPI** and select the KPI sample scorecard.
  - d. In the **Date** section, select **Always show this date** and set the date to June 1, 2004.
  - e. Click **Save**.
  - f. In the portal, you should see the KPI project, scorecard, and the sample KPIs beginning with **Customer Satisfaction Index** and ending with **Cost of Sales %**.
6. Log off from the portal and close the browser.

---

## Create the Site's Users and Groups

Register users at the site and assign them to groups and roles. For instructions, see [Chapter 3, “Assigning Groups and Roles,”](#) on page 39.

*Note:* On Windows, in order for users to access a standard workspace server using credential-based host authentication, they need the local **Log on as a batch job** right on that machine. For more information, see “Windows Privileges” in the *SAS Intelligence Platform: Security Administration Guide*.

---

## Load Production Data

For instructions about loading production data, see the *SAS Solutions Services: Data Administration Guide*.

If you installed SAS Human Capital Management: After loading production data, rebuild the cubes and information maps, either in the Administration application of SAS Human Capital Management or via SAS Data Integration Studio jobs.

---

## Localization

### *SAS Human Capital Management Localization*

#### **Set the Correct Date Format**

If you installed the HCM MySQL database using a stored date format other than the default (**yyyy-MM-dd**), you must modify the HCM configuration file, so that conversions from stored date formats to displayed date formats are correct. Follow these steps:

1. Open the HCMConfig.xml file for editing.

This file is located in the *SAS-config-dir\Lev1\AppData\SASHumanCapitalManagement5.2* directory.

- Find this property:

```
<Property Id="date_format_database" Name="Date format of database"
  Value="yyyy-MM-dd" ReadOnly="false"/>
```

- Replace the value with the correct date format.
- Save the file.

### **Set the Default Font for PDF Files**

If your site supports DBCS languages, set the font that is used when a user saves data to a PDF file from the Employee Browser, a geographic analysis, an organization analysis, or the general search results.

You can set this value on the **Configuration** tab of the Administration application in SAS Human Capital Management. For details, see the *SAS Human Capital Management: Administrator's Guide* or the online Help for the **Configuration** tab.

### **Support User Locale Preferences**

Follow these guidelines to support user locale preferences:

- When users are logged on to SAS Human Capital Management, they can select a locale by clicking **Preferences**. For the best user experience, advise your users to select a locale to match the locale that you selected when you installed the SAS software. Otherwise, some messages might not be displayed in the localized text. Users should specifically select a locale, rather than selecting **Browser Default**.

*Note:* In terms of data display, the user locale preference affects only stored process reports.

- In the MySQL HCM database, check the SAS\_DEFAULT\_PROPERTIES table to make sure that the value of PropFilePath is correct. This value should point to the *!sasroot\hrds\sasmisc* directory on the data tier. It tells the %SETLOCS macro where to find the hcmtitles.properties and hcmlabels.properties files. These properties files are used for localization (for example, for titles in stored process output and for some of the labels in an OLAP cube).

In deciding which properties file to use, the %SETLOCS macro first looks for an exact match to the user preference, including both the language-code and the country-code (for example, hcmtitles\_ja\_jp.properties). If an exact match cannot be found, the %SETLOCS macro looks for a match with the same language-code (for example, hcmtitles\_ja.properties). If no match exists, the properties files for the installed HCM locale are used. For more information about these properties files, see “Managing the Data Sources” in the *SAS Human Capital Management: Administrator's Guide*.

### **Localize the Diagnostics Utility**

*Note:* The user interface of the diagnostics utility currently supports only the English language. However, you can localize the test names by editing the diagnostics configuration files.

If you installed SAS Human Capital Management in a language other than English, you must modify the following server names in the diagnostics configuration files. Follow these steps:

- Log on to SAS Management Console as the SAS Administrator.
- On the **Plug-ins** tab, navigate to **Environment Management** ⇒ **Server Manager**.

3. Right-click **SAS Content Server** and select **Properties**.
4. On the **General** tab of the Properties dialog box, copy the name of the SAS Content Server and save it for later use.
5. Navigate to **Environment Management** ⇒ **Server Manager** ⇒ **SASApp**.
6. Copy and temporarily store the names of the following servers:
  - SASApp - Logical OLAP Server
  - SASApp - Logical Workspace Server
  - SASApp - Logical Stored Process Server
7. Open the HCMDiagnosticsConfig file for editing.

This file is located in the *SAS-config-dir*\Lev1\Applications\SASHumanCapitalManagement5.2\Diagnostics directory on the middle tier.

8. Find the following line:
 

```
<ContentServer name="SAS Content Server"/>
```
9. In that line, substitute the name of your site's SAS Content Server for **SAS Content Server**.
10. Find the following section:

```
<LogicalServers>
  <WorkspaceServers>
    <Server name="SASApp - Logical Workspace Server"/>
  </WorkspaceServers>
  <StoredProcessServers>
    <Server name="SASApp - Logical Stored Process Server"/>
  </StoredProcessServers>
  <OLAPServers>
    <Server name="SASApp - Logical OLAP Server"/>
  </OLAPServers>
</LogicalServers>
```

11. Substitute the names of the corresponding servers that you copied from SAS Management Console.
12. Save the file.
13. Open the PlatformDiagnosticsConfig.xml file for editing.
14. Repeat steps 8 through 11.
15. Save the file.

## **SAS Strategy Management or KPI Viewer Localization**

### **Modify the %SPMEXPSC Macro**

If your installation is in a language other than English, you must modify the SAS autocall macro %SPMEXPSC as follows:

1. Log on to SAS Management Console as the SAS Administrator.
2. On the **Plug-ins** tab, navigate to **Environment Management** ⇒ **Server Manager**.
3. Right-click **SAS Content Server** and select **Properties**.

4. On the **General** tab of the Properties dialog box, copy the name of the SAS Content Server and store it for later use.
5. Open the spmexpssc.sas file for editing.

This file is located on the data tier, in the !sasroot\scorecard\sasmacro directory (Windows) or the !sasroot/sasautos directory (UNIX).

*Note:* We recommend that you first make a backup copy of this file.

6. Find the following line:

```
ss = "omsobj:TCPIPConnection?TCPIPConnection[Source/ServerComponent
    [Name='SAS Content Server' and
    @ClassIdentifier='DAC0D7F0-10DA-11D6-8816-AA0004006D06']]";
```

7. In that line, substitute the name of your site's SAS Content Server for **SAS Content Server**.

8. Make the same change to the following line:

```
ss = "omsobj:Directory?Directory[DeployedComponents/ServerComponent
    [Name='SAS Content Server' and @ClassIdentifier=
    'DAC0D7F0-10DA-11D6-8816-AA0004006D06']]";
```

9. Save the file.

## Add-On Configuration

### Introduction

An add-on configuration occurs when you install the SAS Intelligence Platform (and possibly one or more solutions), and then install a solution at a later time. For example, you might install the SAS Intelligence Platform and SAS Strategy Management and later install SAS Financial Management as an add-on. Or you might install the SAS Intelligence Platform and later install SAS Human Capital Management.

When you install the add-on, you must perform some manual configuration steps, as described in this section.

### Import Data Source Definition Files for SAS BI Dashboard

As of SAS BI Dashboard 4.3, data source definition files (.DSX files) and contributor files (.CDX files) must be stored in the WebDAV repository. If you install SAS BI Dashboard and at a later time install a solution, that solution might have .DSX and .CDX files that are not stored in WebDAV. You might also create additional .DSX and .CDX files at a site.

If necessary, follow these steps to import the files. The files are typically located in subdirectories of *SAS-config-dir*\Lev1\AppData\SASBIDashboard4.3 on the middle-tier machine where SAS BI Dashboard is installed.

1. On the **Folders** tab in SAS Management Console, navigate to **SAS Folders** ⇒ **System** ⇒ **Applications** ⇒ **SAS BI Dashboard** ⇒ **SAS BI Dashboard 4.3** ⇒ **DataSourceDefinitions**.
2. Right-click and select **Add Content From External File(s) or Directories**.
3. Select and import the .DSX file.

The .DSX files are typically located in the `SAS-config-dir\Lev1\AppData\SASBIDashboard4.3\DataSourceDefinitions` on the middle-tier machine where SAS BI Dashboard is installed.

4. In SAS Management Console, navigate to **SAS Folders** ⇒ **System** ⇒ **Applications** ⇒ **SAS BI Dashboard** ⇒ **SAS BI Dashboard 4.3** ⇒ **ContributorDefinitions**.
5. Right-click and select **Add Content From External File(s) or Directories**.
6. Select and import the .CDX file.

The .CDX files are typically located in the `SAS-config-dir\Lev1\AppData\SASBIDashboard4.3\ContributorDefinitions` directory on the middle-tier machine.

For more information, see “Working with Data Source XML (DSX) Files” in the *SAS Intelligence Platform: Web Application Administration Guide*.

## **(SAS Financial Management) Manual Data Source Configuration**

### **Overview**

If the following circumstances are both true, you must manually configure the SAS Operational Planning data source:

- You installed SAS Financial Management as an add-on to the Solutions 5.2 configuration.
- You intend to use operational planning.

Follow the appropriate instructions below, depending on your Web application server.

### **Oracle WebLogic Server**

For the Oracle WebLogic application server, follow these steps:

1. On the middle tier, open the WebLogic Administration console.
2. Under **Domain Structure**, select **SASDomain** ⇒ **Services** ⇒ **JDBC** ⇒ **Data Sources**.

*Note:* Replace **SASDomain** with the name of your domain if it differs.

3. In the **Name** column, click **SASOP Data Source**.
4. In the **Change Center**, click **Lock & Edit** (if editing is not already enabled).
5. Click the **Targets** tab.
6. In the Servers list, select the following servers:
  - SASServer3 (the server on which SAS Financial Management is deployed)
  - SASServer4 (the ODCS server)
  - any secondary ODCS servers
7. Click **Save**.
8. Click **Activate Changes**.
9. Restart SASServer3, the ODCS servers, and the Web Data Entry (WDE) server.

### **IBM WebSphere Server**

For IBM WebSphere, follow these steps:



1. Create the data source:
  - a. In the administration console, navigate to **Resources** ⇒ **JDBC** ⇒ **Data Sources**.
  - b. In the **Scope** drop-down list, select the scope for SASServer4.
  - c. Click **New**.
  - d. Create a data source with the following attributes:
    - **Data source name:** SASOP Data Source
    - **JNDI name:** SASOP
    - **Component-managed authentication alias:** SASDmgr01Cell/sassdmbadminJaasAlias
  - e. Click **Next**.
  - f. Select **Select an existing JDBC Provider**. From the drop-down list, select **MySQL-SASOP**.
  - g. De-select **Use this data source in container managed persistence (CMP)**.
  - h. Click **Next**.
  - i. On the summary page, click **Finish** and save changes to the master configuration.
2. Create additional properties for the data source.
  - a. Navigate again to **Resources** ⇒ **JDBC** ⇒ **Data Sources**.
  - b. In the **Scope** drop-down list, select the scope for SASServer4.
  - c. Select **SASOP Data Source**.
  - d. In the **Additional Properties** section on the right, click **Custom Properties**.
  - e. Click **New** to create each of the following properties:

Name	Value
databaseName	sasop
user	sassdmbadm
password	[password for sassdmbadm to log on to MySQL Server]
serverName	[machine on which MySQL Server is located]
portNumber	[port number for MySQL (typically, 3306)]
autoReconnect	true
relaxAutoCommit	true
connectionCollation	utf8_bin
useServerPrepStmts	false
pinGlobalTxToPhysicalConnection	true

Name	Value
disableBackendIdChecking	true

- f. Save changes to the master configuration.
3. Restart SASServer3, the ODCS servers, and the Web Data Entry (WDE) server.

## Chapter 3

# Assigning Groups and Roles

---

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## Overview of Users, Groups, and Roles

### *Introduction*

A metadata identity is created when you define an individual user or group in the User Manager plug-in to the SAS Management Console, or when you import user and group definitions from an enterprise source by using SAS bulk-load macros. The authorization facility uses identity metadata to define who is granted or denied permission to access a resource.

The users of a solution are typically the business users in a particular domain, such as finance or human resources. A site's administrator must load all of the appropriate

information for each user who requires access to the solution. This chapter describes the default metadata identities (representing users, groups, and roles) that are required by SAS Solutions Services and the solutions, as well as the identities that need to be created on site.

Additional information:

- For detailed information about authentication and authorization, see the *SAS Intelligence Platform: Security Administration Guide*.
- The SAS Intelligence Platform configures a default set of users, groups, and roles during the deployment process. For information about those identities, see “Understanding the State of Your System” in the *SAS Intelligence Platform: System Administration Guide*.

These books are available at <http://support.sas.com/92administration>.

## Role Membership in SAS Solutions Services

### About Groups and Roles

It is important to understand the difference between groups and roles, as well as the privileges that each conveys. In SAS Solutions Services, group membership determines the content a user has access to, whereas role membership determines the actions a user can perform with this content. Role assignments can control the menus and links that are displayed in an application, and they can determine a user's ability to perform a task such as deleting a file in Document Manager or approving a form in a workflow.

Roles do not provide data security. Use role assignments to enable the actions that a user can perform and the menu items that are available to a user. Use data security, such as metadata permissions, to restrict the data that a user can access.

*Note:* Unlike groups, roles are not hierarchical; they do not inherit properties from other roles.

### How Role Permissions Are Enforced

Permissions that are based on roles are enforced in two different ways:

- **Document manager.** For each content type, such as WebDocument or ExcelReport, there is a defined set of actions, such as Move, AddtoPortlet, and Comment. In Document Manager, roles are granted permission to perform various actions based on content type. These pre-defined permissions should not be changed at a site.

Each user of Document Manager must belong to one of these roles: Solutions Services: Information Consumer, Solutions Services: Analyst, or Solutions Services: System Administrator.

*Note:* If a user belongs to none of these roles, then role permissions are not enforced in Document Manager. If a user belongs to more than one of these roles, results are undetermined.

- **The solutions.** In the solutions, roles are enforced by the application. Each application determines the functionality that is permitted to various roles.

## SAS Solutions Services Users, Groups, and Roles

### SAS Solutions Services User Identities

SAS Solutions Services has two default user identities: Solutions Host User and SAS Solutions Administrator.

User	Description
Solutions Host User	This identity has JDBC access to the MySQL databases, depending on group membership and operating system permissions. It is an external identity.
SAS Solutions Administrator	<p>The SAS Solutions Administrator is an internal identity that is used for cases in which a user must perform a query as a part of a larger process, but the query requires a role that the user does not generally need. Rather than requiring the user to be assigned to that role, the application recognizes the SAS Solutions Administrator as a user with the proper role to successfully complete the process.</p> <p>This identity performs special tasks within SAS Financial Management and should have ReadMetadata, Read, WriteMetadata, Write, and Create permissions for SAS Financial Management content. Do not use this identity as a login identity.</p> <p>In a system that was migrated from SAS 9.1.3, this user is called Solutions Role Administrator.</p>

### SAS Solutions Services Groups

To log on to Document Manager, users must belong to the Solutions Users group or the Administrators group.

**Table 3.1** SAS Solutions Services Groups

Group	Description
Solutions Users	<p>Members of the Solutions Users group are able to access the Document Manager, are configured to run SAS Solutions Services stored processes, and have default portal customization capabilities, such as adding a portlet or modifying its content.</p> <p>Any users who run metric jobs or access the metric tables must be a member of the Solutions Users group, which has access to the SDMMET library.</p>

Group	Description
Administrators	Membership in this group grants certain default privileges in Document Manager. It also grants superuser status in SAS Financial Management Studio. (See “About SAS Financial Management Groups and Roles” on page 45.) Membership in this group should be granted sparingly.
SASSDM MySQL Users	This group grants access to users who run stored processes and ETL processes that reference MySQL tables in the SASSDM database. The group has a login to the SASSDM database.  <i>Note:</i> The Solutions Users group is a member of SASSDM MySQL Users.

Additional groups that are associated with roles are listed in [Table 3.2 on page 42](#).

You can add users directly to a group, or you can make the assignment indirectly, via one or more custom groups. For more information about metadata groups, see the *SAS Intelligence Platform: Security Administration Guide*.

*Note:* In SAS Solutions Services 1.4, the Administrators group was a subgroup of Solutions Users. In a system that was migrated from SAS 9.1.3, that is still the case. If you want to emulate that behavior on a new system, add the Administrators group to the Solutions Users group. Otherwise, assign members of the Administrators group to the Solutions Users group.

### SAS Solutions Services Roles

Each user who logs on to Document Manager must have one of these roles:

- Solutions Services: Information Consumer
- Solutions Services: Analyst
- Solutions Services: System Administrator

Assign additional roles as necessary. See the table below.

*Note:* Rather than assigning users directly to a role, assign users to the corresponding group, if one exists.

**Table 3.2** SAS Solutions Services Roles and Corresponding Groups

Group Name (if one exists)	Role Name	Display Name	Description
Analyst Group	Analyst	Solutions Services: Analyst	In Document Manager, users with this role can view, edit, move, and delete authorized content. Users with this role cannot delete folders.  In SAS Strategy Management and in SAS Financial Management, this role confers an additional set of privileges. The role is the same, but its functionality depends on the application that is being used. See later sections of this chapter for details.

Group Name (if one exists)	Role Name	Display Name	Description
not applicable	Dimension Modeler	Solutions Services: Dimension Administrator	This role gives users access to the SAS Solutions Dimension Editor, a Java client application for creating and modifying dimensions and hierarchies.  The role has additional functionality within SAS Financial Management Studio. See <a href="#">“SAS Financial Management Roles”</a> on page 46.
Data Administrators	Data Administrator	Solutions Services: Data Administrator	Users who run jobs in SAS Data Integration Studio should have this role.
Information Consumer Group	Information Consumer	Solutions Services: Information Consumer	In Document Manager, users with this role can view content. These users cannot create, move, or delete content.
Solutions Administrators Group	System Administrator	Solutions Services: System Administrator	Users with this role have access to all functionality within Document Manager.

---

## SAS Strategy Management Groups and Roles

### SAS Strategy Management Groups

The following groups are part of SAS Strategy Management and the KPI Viewer:

**Table 3.3** SAS Strategy Management: Groups

Group Name	Description
SPM MySQL Users	This group has a login to the SPM database in MySQL.
SPM Users	All SAS Strategy Management users should belong to this group. A user must be a member of the SPM Users group in order to be an owner of a SAS Strategy Management object.

The next section lists additional groups that are associated with SAS Strategy Management roles.

### SAS Strategy Management Roles

This table lists the roles that are required for SAS Strategy Management and the KPI Viewer, as well as the groups that correspond to each of these roles.

*Note:* Rather than assigning users directly to a role, assign users to the corresponding group.

**Table 3.4** SAS Strategy Management: Roles and Corresponding Groups

Group Name	Role Name	Role Display Name	Description
Analyst Group	Analyst	Solutions Services: Analyst	In SAS Strategy Management, users with the Solutions Services: Analyst role can view tables, aggregate tables, diagrams, associations, and ranges. They can edit column selections and set personal thresholds and formats, as well as access and customize historical trend charts. In addition, these users can manage and use data-entry forms. They can also access the StrategyManagement portlet and the Data Entry portlet.  Unlike Scorecard Modelers, Analysts cannot create or modify scorecard projects.
Information Consumer Group	Information Consumer	Solutions Services: Information Consumer	Users with this role have privileges similar to the Scorecard Data Entry role. However, they cannot access the Data Entry portlet.
Scorecard Data Entry Group	Scorecard Data Entry	Strategy Mgmt: Scorecard Data Entry	Users with this role can view tables in projects and scorecards, subject to authorization. They use these tables to manage and use data-entry forms.  These users can access the Data Entry portlet.
Scorecard Modeler Group	Scorecard Modeler	Strategy Mgmt: Scorecard Modeler	Users with this role can create scorecard projects and can fully manage the content of templates, projects, and scorecards that they are authorized to view, edit, and delete. They have administrative privileges only for projects and scorecards that they create.  Users with this role can also access the Strategy Management portlet and the Data Entry portlet.

**Example: SAS Strategy Management Users****Table 3.5** SAS Strategy Management: Typical Users

Typical Users	Tasks	Groups and Roles (Optional*)
Data entry personnel	These users enter data into forms for scorecards.	Groups: <ul style="list-style-type: none"> <li>• SPM Users</li> <li>• Scorecard Data Entry Group</li> <li>• Solutions Users</li> <li>• Information Consumer Group</li> </ul>



Typical Users	Tasks	Groups and Roles (Optional*)
Analysts	These users analyze and create reports, view scorecard information, and perform other similar tasks. They can customize a scorecard but cannot create or manage scorecards.	Groups: <ul style="list-style-type: none"> <li>• SPM Users</li> <li>• Analyst Group</li> <li>• Solutions Users</li> </ul>
Scorecard modelers	These users create and manage scorecard projects and templates. They can export projects or parts of a project (such as scorecards or measures), depending on their permissions.  Optional: <ul style="list-style-type: none"> <li>• With the Solutions Services: Dimension Administrator role, these users can edit dimensions and hierarchies with the SAS Solutions Dimension Editor.</li> <li>• With the appropriate permissions, these users can create and administer dashboards with SAS BI Dashboard.</li> </ul>	Groups: <ul style="list-style-type: none"> <li>• SPM Users</li> <li>• Scorecard Modeler Group</li> <li>• Solutions Users</li> </ul> Roles: <ul style="list-style-type: none"> <li>• Solutions Services: Dimension Administrator*</li> </ul>
Administrators	These users might perform several types of administrative tasks at a site, including content administration, data administration, and IT administration. Content administration tasks might include managing folders in SAS Management Console or Document Manager.  With the Solutions Users group (which belongs to the SASSDM MySQL Users group) and the Data Administrators group, the users can perform data administration tasks such as loading data from source systems into SAS Strategy Management via SAS Data Integration Studio.  If users need access to the SAS Strategy Management Web application, they must belong to the SPM Users group and the Scorecard Modeler Group.	Groups: <ul style="list-style-type: none"> <li>• Administrators</li> <li>• Data Administrators</li> <li>• SPM MySQL Users</li> <li>• Solutions Administrators Group</li> <li>• Solutions Users</li> <li>• SPM Users*</li> <li>• Scorecard Modeler Group*</li> </ul>

For information about roles and permissions for SAS BI Dashboard, see “Managing Security for SAS BI Dashboard” in the *SAS Intelligence Platform: Web Application Administration Guide*.

For information about roles and permissions for SAS Web Report Studio, see “Managing SAS Web Report Studio Content and Users” in the *SAS Intelligence Platform: Web Application Administration Guide*.

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## SAS Financial Management Groups and Roles

### About SAS Financial Management Groups and Roles

There are no groups that are specific to SAS Financial Management, although it uses several groups from SAS Solutions Services and from the SAS Intelligence Platform. One group to notice is the Administrators group, which acts as a superuser group in SAS Financial Management. Users who belong to the Administrators group are not subject to security restrictions on models and cycles (although member security does apply to all users). Use caution in assigning users to this group.

SAS Financial Management uses several roles. Some roles apply to SAS Financial Management Studio. Other roles apply to creating and viewing reports in Microsoft Excel, or to submitting and approving forms.

## SAS Financial Management Roles

### Summary of Roles

The following roles grant specific capabilities in SAS Financial Management:

**Table 3.6** SAS Financial Management: Roles

Role Name	Display Name	Description
Analyst	Solutions Services: Analyst	<p>With the SAS Financial Management Add-In for Microsoft Excel, users with this role can create reports using read-only tables.</p> <p>They can export values to a metric table that can be used in SAS Strategy Management or the KPI Viewer, using the <b>Export as Measure</b> feature of the add-in.</p>
Finance Process Administrator	Financial Management: Process Administrator	<p>This role applies to an administrator who configures SAS Financial Management, creates cycles, rates, and form sets, manages data security, exports measures, and performs other administration tasks. Users with this role can use all the features of SAS Financial Management.</p> <p>In the Form Manager, users with this role perform tasks such as freeing a form that is stuck in the workflow process. They have access to all currently active forms, and they can edit form templates, enter data in forms, and submit, approve, reject, and recall forms.</p> <p>If a user with this role also belongs to the Administrators group, the user has full access to SAS Financial Management objects (cycles, result models, and composite results), regardless of permissions on these objects. However, member-level security (for cell data) still applies. For details about object-level and member-level security, see the online Help for SAS Financial Management Studio or the <i>SAS Financial Management: User's Guide</i>.</p>
Dimension Modeler	Solutions Services: Dimension Administrator	<p>Users with this role have access to all features of the Dimensions workspace of SAS Financial Management Studio. They can browse other content in SAS Financial Management Studio.</p> <p>This role also provides access to the SAS Solutions Dimension Editor.</p>
Cycle Administrator	Financial Management: Cycle Administrator	<p>Users with this role have access to all features of the Periods workspace and the Cycle manager of SAS Financial Management Studio. They can browse other content in SAS Financial Management Studio.</p>

Role Name	Display Name	Description
Rate Administrator	Financial Management: Rate Administrator	Users with this role have access to all features of the Rates workspace of SAS Financial Management Studio. They can administer rate sets and rate types for both exchange and driver rates.  They can browse other content in SAS Financial Management Studio.
Finance Adjuster	Financial Management: Model Administrator	Users with the Financial Management: Model Administrator role have access to all features of the Models workspace of SAS Financial Management Studio. This role includes the ability to create unbalanced manual adjustments. They can browse other content in SAS Financial Management Studio.  In Microsoft Excel, users with this role can create reports using read-only tables.
Form Administrator	Financial Management: Form Administrator	Users with this role have access to all features of the Forms workspace of SAS Financial Management Studio. They can browse other content in SAS Financial Management Studio.  In the Form Manager, they can administer forms.  With the SAS Financial Management Add-In for Microsoft Excel, they can edit form templates.
Form Submitter	Financial Management: Form Submitter	(Financial forms only)  Users with this role are primarily data-entry personnel who enter data in forms and submit them for approval, as part of a budgeting or similar process. They have access only to the forms that they have some responsibility for.
Form Approver	Financial Management: Form Approver	(Financial forms only)  Users with this role can approve forms that they have responsibility for and send them to the next stage in the approval process.
Planning Data Entry User	Financial Management: Planning Data Entry User	(Operational forms only)  Users with this role can submit, approve, or enter data into operational forms that they have been assigned.  Unlike financial form sets, an operational form set can have only one author and only one reviewer. Both the author and reviewer need the Financial Management: Planning Data Entry User role.

### ***Roles for SAS Financial Management Studio***

To log on to SAS Financial Management Studio, users must have at least one of the following roles:

- Financial Management: Process Administrator
- Solutions Services: Dimension Administrator
- Financial Management: Cycle Administrator

- Financial Management: Rate Administrator
- Financial Management: Model Administrator
- Financial Management: Form Administrator

These roles apply to both financial planning and operational planning.

Users with the Financial Management: Process Administrator role have full access to all features of SAS Financial Management Studio. In contrast, users with one or more of the other roles have full access to the workspaces that correspond to their roles, and read-only access to the other workspaces. However, the following tasks always require the Financial Management: Process Administrator role:

- Load exchange rates (Rates workspace)
- Load driver rates (Rates workspace)
- Export data records (Models workspace)

### ***Roles for SAS Data Integration Studio***

Users who run SAS Financial Management jobs in SAS Data Integration Studio should have the Solutions Services: Data Administrator role.

The following jobs require either the Financial Management: Cycle Administrator role or the Financial Management: Process Administrator role:

- Load Base Data
- Load OP Data

The following jobs require the Financial Management: Process Administrator role:

- Load Exchange Rates
- Load Driver Rates
- Load Cell Protection Rules
- Load Member Selection Rules
- Export Model Data

### ***Roles for Form Authors and Reviewers***

In SAS Financial Management, form authors and reviewers require the following roles:

- **Financial forms:**
  - To be assigned as author of a financial form, a user must have the Financial Management: Form Submitter role or the Financial Management: Process Administrator role.
  - To be assigned as reviewer of a financial form, a user must have the Financial Management: Form Approver role or the Financial Management: Process Administrator role.
- **Operational forms:** To be assigned as author or reviewer of an operational form, a user must have the Financial Management: Planning Data Entry User role or the Financial Management: Process Administrator role.

*Note:* From the Form Manager or from the Forms workspace of SAS Financial Management Studio, a user with the Financial Management: Process Administrator role or the Financial Management: Form Administrator role can access all forms (subject to any security restrictions that are in place).

**Example: SAS Financial Management Users**

The following table includes a list of typical users, the tasks that each user needs to accomplish, and the predefined groups and roles that are required for those tasks.

For a particular site, you might create a set of custom groups (sometimes called personas) that reflect the capabilities that are needed at the site. You would then assign these custom groups to the appropriate predefined groups and roles. You could also assign individual users to the predefined groups and roles. However, using custom groups simplifies maintenance.

**Table 3.7** SAS Financial Management: Typical Users

Typical Users	Tasks	Groups and Roles (Optional*)
Report viewers	<p>These users can open reports from a portlet or from Document Manager.</p> <p>If the SAS Financial Management Add-In for Microsoft Excel is installed, the users can interact with dynamic reports and can save different versions of existing reports, depending on folder write permissions.</p> <p>They cannot log on directly to the middle tier from Microsoft Excel and cannot log on to SAS Financial Management Studio.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>• With membership in the Scorecard Data Entry Group, these users can enter data into forms for scorecards. They can access the tables in projects and scorecards that they are authorized to view. They use these tables to manage and use data-entry forms.</li> <li>• With the appropriate permissions, users can view reports in SAS Web Report Studio.</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> <li>• Information Consumer Group</li> <li>• Scorecard Data Entry Group*</li> </ul>
Report creators	<p>These users can create reports that retrieve information about existing models using the SAS Financial Management Add-In for Microsoft Excel. Because they have the Solutions Services: Analyst role, they can export values to a metric table that can be used in SAS Strategy Management or in the KPI Viewer.</p> <p>The users can log on directly to the middle tier from Microsoft Excel and can save reports to shared areas, depending on folder permissions.</p> <p>They cannot log on to SAS Financial Management Studio.</p> <p>Optional: With membership in the Scorecard Data Entry Group, these users can enter data into forms for scorecards. They can access the tables in projects and scorecards that they are authorized to view. They use these tables to manage and use data-entry forms.</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> <li>• Analyst Group</li> <li>• Scorecard Data Entry Group*</li> </ul>

Typical Users	Tasks	Groups and Roles (Optional*)
Budget submitters	<p>These users can enter data and submit planning forms via the Form Manager.</p> <p>Depending on folder write permissions, these users might be limited to sharing existing forms to their personal folders. They cannot design or publish form sets.</p> <p>With the SAS Financial Management Add-In for Microsoft Excel, these users can create reports.</p> <p>With the HCM Solution Users group and the HCM User role, these users can participate in the budgeting process for SAS Human Capital Management. (This capability requires SAS for Workforce Planning and Budgeting.)</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> <li>• HCM Solution Users*</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• Financial Management: Form Submitter</li> <li>• HCM User*</li> </ul>
Budget approvers	<p>These users can approve planning forms via the Form Manager.</p> <p>Depending on folder write permissions, these users might be limited to sharing existing forms to their personal folders. They cannot design or publish form sets.</p> <p>With the SAS Financial Management Add-In for Microsoft Excel, these users can create reports.</p> <p>With the HCM Solution Users group and the HCM User role, these users can participate in the budgeting process for SAS Human Capital Management. (This capability requires SAS for Workforce Planning and Budgeting.)</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> <li>• HCM Solution Users*</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• Financial Management: Form Submitter</li> <li>• Financial Management: Form Approver (bottom-up workflows only)</li> <li>• HCM User*</li> </ul>
Operational planning form authors or reviewers	<p>These users can edit or review an operational planning form.</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• Financial Management: Planning Data Entry User</li> </ul>

Typical Users	Tasks	Groups and Roles (Optional*)
Data administrators	<p>These users load data from source systems into SAS Financial Management via SAS Data Integration Studio. For more information about the role requirements for certain jobs, see <a href="#">“Roles for SAS Data Integration Studio” on page 48</a>.</p> <p>As members of the Solutions Users group, they can log on to the portal and use the Document Manager.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>Any users who run metric jobs or access the metric tables must be a member of the Solutions Users group, which has access to the SDMMET library. (The Solutions Users group also belongs to the SASSDM MySQL Users group.)</li> <li>With the Financial Management: Process Administrator role or one of the workspace roles, they can log on to SAS Financial Management Studio and update data. See <a href="#">“Roles for SAS Financial Management Studio” on page 47</a>.</li> <li>With the HCM Solution Users group and the HCM Analyst role, these users can create form sets for SAS Human Capital Management. (This capability requires SAS for Workforce Planning and Budgeting.)</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>SASSDM MySQL Users</li> <li>Data Administrators</li> <li>Solutions Users*</li> <li>Administrators</li> <li>HCM Solution Users*</li> <li>Analyst Group</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>Financial Management: Process Administrator (depending on job)</li> <li>HCM Analyst*</li> </ul>
IT administrators	<p>These users perform IT-related tasks. For example, they manage folders in SAS Management Console or Document Manager.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>With membership in the Analyst Group, they can run stored processes.</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>Solutions Users</li> <li>Solutions Administrators Group</li> <li>Analyst Group*</li> </ul>
Functional administrators	<p>The functional administrators are the power users, with full rights to SAS Financial Management Studio. They can create and modify models, cycles, dimensions, and form sets.</p> <p>Using the SAS Financial Management Add-In for Microsoft Excel, they can create reports. With the Solutions Services: Analyst role, they can export values to a metric table that can be used in SAS Strategy Management or the KPI Viewer.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>At least one functional administrator should be assigned to the Administrators group. A member of this group has “superuser” status in SAS Financial Management Studio and can manage all models and cycles, regardless of the permissions set on those objects. (Member-level permissions still apply, however.)</li> <li>With membership in the Scorecard Modeler Group, these users can manage scorecards and key performance indicators (KPIs).</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>Analyst Group</li> <li>Administrators*</li> <li>Scorecard Modeler Group*</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>Financial Management: Process Administrator</li> </ul>

Typical Users	Tasks	Groups and Roles (Optional*)
Finance adjusters	<p>These users have limited rights to SAS Financial Management Studio. They can create or edit models, make manual adjustments, and create or edit adjustment rules.</p> <p>Without additional roles, they have read-only access to Dimensions, Cycles, Rates, and Forms workspaces.</p> <p>Optional: With the Solutions Services: Dimension Administrator role, they can access all features in the Dimensions workspace of SAS Financial Management Studio.</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• Solutions Users</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• Finance Model Administrator</li> <li>• Solutions Services: Dimension Administrator*</li> </ul>

At a small site, some of these users might perform multiple functions. For example, one person might act as the data administrator, functional administrator, and IT administrator, or there might be a single group incorporating these functions.

For information about roles and permissions for SAS BI Dashboard, see “Managing Security for SAS BI Dashboard” in the *SAS Intelligence Platform: Web Application Administration Guide*.

For information about roles and permissions for SAS Web Report Studio, see “Managing SAS Web Report Studio Content and Users” in the *SAS Intelligence Platform: Web Application Administration Guide*.

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## SAS Human Capital Management Groups and Roles

### About SAS Human Capital Management Groups and Roles

SAS Human Capital Management users must meet the following qualifications:

- membership in the HCM Solution Users group
- membership in one of the following roles:
  - HCM User
  - HCM Analyst
  - HCM Administrator

*Note:* Assign users, not groups, to SAS Human Capital Management roles.

- a valid entry in the SAS\_USER\_EMPLOYEE table of the HCM database

For information about the ETL job that loads the SAS\_USER\_EMPLOYEE table, see the *SAS Solutions Services: Data Administration Guide*. You can also update this table manually, from the Administration application of SAS Human Capital Management. See the *SAS Human Capital Management: Administrator's Guide* for details.

### SAS Human Capital Management Groups

The following groups are part of SAS Human Capital Management:



**Table 3.8** SAS Human Capital Management: Groups

Group	Description
HCM Users	To log on to SAS Human Capital Management, users must belong to the HCM Solution Users group.
HCM MySQL Users	This group grants access to users who run stored processes and ETL processes that reference MySQL tables in the HCM database. It has a default login to the HCM database.
HR	The HR group is the default power user group. Members of this group are not subject to hierarchical filters, which are part of row-level security in SAS Human Capital Management. (Additional filters for users, groups, or roles still apply.) Each site can define its own power user group. For details, see “Securing Objects and Tables” in the <i>SAS Human Capital Management: Administrator's Guide</i> .

## SAS Human Capital Management Roles

SAS Human Capital Management users must be a member of one of these roles:

**Table 3.9** SAS Human Capital Management: Roles

Role	Description
HCM User	<p>Users with the HCM User role view employee, organizational, and geographic data, and create presentations and reports. These users can print information but cannot export it. They cannot create a document such as a geographic analysis, organization analysis, or a SAS report.</p> <p>Users with the HCM User role have these capabilities:</p> <ul style="list-style-type: none"> <li>Employee Browser: view employee detail (profile view), search for employees, and edit the category list.</li> <li>organization analysis: open and print organization charts; launch a linked scorecard; create a presentation view.</li> <li>geographic analysis: open a geographic analysis document and drill down into the content; print a map or employee list.</li> <li>general search: conduct a simple, advanced, or history search.</li> </ul>

Role	Description
HCM Analyst	<p>Users with the HCM Analyst role create the documents that are viewed by other users, including organization and geographic analyses. They can print, save, and export data.</p> <p>Users with the HCM Analyst role have these capabilities:</p> <ul style="list-style-type: none"> <li>• Employee Browser: all functions.</li> <li>• organization analysis: all functions. In addition to the HCM User privileges, these users can add and remove measures, create a new organization analysis, modify the display options, and simulate a reorganization.</li> <li>• geographic analysis: all functions. These users can create or open a geographic analysis document and drill down into the content; print a map or employee list.</li> <li>• general search: all functions, including saving and exporting search results.</li> </ul>
HCM Administrator	<p>Users with the HCM Administrator role configure SAS Human Capital Management and manage data security. These users have full access to all functionality within SAS Human Capital Management.</p> <p>In addition to the tasks that are described for the HCM Analyst role, these users can perform administration and configuration tasks, including importing tables, mapping hierarchies, configuring application defaults, and creating employee profiles.</p>

### **Example: SAS Human Capital Management Users**

The following list includes some hypothetical users at a SAS Human Capital Management site: general users (managers), report creators, HR analysts, and administrators, along with the groups and roles they might belong to.

*Note:* Membership in the appropriate groups and roles does not guarantee access to data or actions. For more information, see the “Security Administration” chapter of the *SAS Human Capital Management: Administrator's Guide*.

Table 3.10 SAS Human Capital Management: Typical Users

Typical Users	Tasks	Groups and Roles (Optional*)
Managers	<p>These managers view and interact with reports. They can log on to SAS Human Capital Management, browse employees, and interact with a geographic analysis or organization analysis. They can print but cannot save data from those applications. They can also execute the standard stored processes.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>• With membership in the Scorecard Data Entry Group, these users can view KPIs and scorecards (depending on permissions).</li> <li>• With the Financial Management: Form Submitter role or the Financial Management: Form Approver role, users can participate in the budgeting process. (This capability requires SAS for Workforce Planning &amp; Budgeting.)</li> <li>• With the appropriate role, users can view and interact with reports in SAS Web Report Studio.</li> <li>• With the appropriate permissions, users can view a BI Dashboard on the Home page or in a portlet.</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• HCM Solution Users</li> <li>• Scorecard Data Entry Group</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• HCM User</li> <li>• Financial Management: Form Submitter*</li> <li>• Financial Management: Form Approver*</li> </ul>
Report Creators	<p>These users create reports for others to view and interact with. They can log on to SAS Human Capital Management and browse employees, create a geographic analysis, and create an organization analysis. They can save or export data from those applications. They can also execute the standard stored processes.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>• With membership in the Scorecard Modeler Group and the SPM Users group, these users can create and manage KPIs and scorecards. With membership in the Analyst Group, they can customize a scorecard or KPI but cannot create or manage them.</li> <li>• With the appropriate role and permissions, users can create and administer dashboards in SAS BI Dashboard.</li> <li>• With the appropriate role, users can create reports in SAS Web Report Studio.</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• HCM Solution Users</li> <li>• SPM Users</li> <li>• Analyst Group or Scorecard Modeler Group*</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• HCM Analyst</li> </ul>
HR analysts	<p>These users perform statistical analyses of the data in SAS Human Capital Management. Because they need access to all the data, they might need to belong to the HR (superuser) group. Membership in the HR group enables a user to access records for all employees, regardless of hierarchical filters. However, other filters might apply.</p> <p><i>Note:</i> Because some data is quite sensitive, use care in assigning membership in the HR group.</p> <p>If these users need to create reports as well as analyze them, they need the same groups and roles as report creators.</p>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• HCM Solution Users</li> <li>• Scorecard Data Entry Group</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• HCM User</li> </ul>

Typical Users	Tasks	Groups and Roles (Optional*)
Administrators	<p>These users have access to the full functionality of SAS Human Capital Management. They might perform several types of administrative tasks at a site, including content administration, data administration, and IT administration. If the site has SAS for Workforce Planning &amp; Budgeting, these users can create planning measures for use in the budgeting process.</p> <p>Optional:</p> <ul style="list-style-type: none"> <li>• With membership in the Data Administrators group, the users can run jobs in SAS Data Integration Studio.</li> <li>• If these users need to create or modify reports, they will also require the additional groups and roles that report creators have.</li> <li>• Any users who run metric jobs or access the metric tables must be a member of the Solutions Users group, which has access to the SDMMET library.</li> </ul>	<p>Groups:</p> <ul style="list-style-type: none"> <li>• HCM Solution Users</li> <li>• Administrators</li> <li>• Solutions Users*</li> <li>• Data Administrators</li> </ul> <p>Roles:</p> <ul style="list-style-type: none"> <li>• HCM Administrator</li> </ul>

For more information about the Financial Management: Form Submitter, Financial Management: Form Approver, and Financial Management: Process Administrator roles, see “[SAS Financial Management Groups and Roles](#)” on page 45.

For information about roles and permissions for SAS BI Dashboard, see “Managing Security for SAS BI Dashboard” in the *SAS Intelligence Platform: Web Application Administration Guide*.

For information about roles and permissions for SAS Web Report Studio, see “Managing SAS Web Report Studio Content and Users” in the *SAS Intelligence Platform: Web Application Administration Guide*.

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## Registering Users

### About Registering Users

For information about registering users, see the *SAS Intelligence Platform: Security Administration Guide*.

When you define a user, be sure to include the user's e-mail address. E-mail notifications are often sent to users. For the successful processing of some functions, you must define an e-mail address for every user.

*Note:* On Windows, in order for users to access a standard workspace server using credential-based host authentication, they need the local **Log on as a batch job** right on that machine. For more information, see “Windows Privileges” in the *SAS Intelligence Platform: Security Administration Guide*.

## Synchronizing Users, Groups, and Roles

### **About Synchronizing Users, Groups, and Roles**

*Note:* These procedures are not required for SAS Human Capital Management.

Information for users, groups, and roles is stored in database tables that must be kept in synchronization with the metadata. As a part of best practices, it is recommended that you set up a SAS Data Integration Studio job as a scheduled process to synchronize data tables.

### **Running a Batch Job**

The typical way to update user and group assignments is by using a batch job:

1. In SAS Data Integration Studio, create a batch job to update the Solutions Data Mart tables.
2. Then, schedule this job to be performed on a regular basis. Include these three jobs:
  - Load Users
  - Load Groups
  - Load User\_x\_Group

For more information about these jobs, see the *SAS Solutions Services: Data Administration Guide*. For information about creating batch jobs and about scheduling jobs, see the *SAS Intelligence Platform: System Administration Guide*.

### **Running the Import Users and Groups Stored Process**

In some cases, changes to users, groups, and roles might need to be reflected in the database as soon as those changes are made in the metadata. In that case, you can run the jobs manually, rather than waiting for the scheduled process to run. If you need to synchronize on demand, follow these steps:

1. Log on to the portal and open Document Manager.
2. Navigate to the **Products** ⇒ **SAS Solutions Services** ⇒ **5.2 Standard Reports** folder.
3. Select and run the **Import Users and Groups** stored process.

To run the stored process, click the stored process name.

If you have SAS Financial Management Studio, you might need to flush the role cache. See [“Clear User Cache” on page 57](#).

### **Clear User Cache**

The **Clear user cache** utility is used to clear a cache that is used only by SAS Financial Management planning security. For performance reasons, roles are cached when the Web application server is started. If you have changed any role assignments in SAS Management Console, you must flush the cache in order to use the new assignments when you assign form authors or reviewers in SAS Financial Management Studio.

To flush the cache without restarting the Web application server, follow these steps:

1. In the My Favorites portlet, click **Clear user cache**.

If this task is not already available, add it to a My Favorites portlet. For more information about the My Favorites portlet, see the online Help for SAS Solutions Services.

2. On the page that is displayed, click **Clear user cache**.

## Chapter 4

# Portal and Content Administration

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## Portal Administration

### *About Customizing the Portal*

This chapter includes information about customizing the portal for the solutions, including the portlets that are provided with SAS Solutions Services. For detailed information about portal administration, consult the following references:

- the online Help for the SAS Information Delivery Portal
- the *SAS Intelligence Platform: Web Application Administration Guide*, available at [support.sas.com/92administration](http://support.sas.com/92administration)

These references explain how to administer portal content, how to create page templates, and how to administer portal authorization.

*Note:* Membership in the Portal Admins group is no longer recommended.

### *My Favorites Portlets*

The My Favorites portlet has many uses. The portlet allows users to create lists of documents, files, folders, links, and tasks.

The following tasks can be added to a My Favorites portlet:

**Table 4.1** Tasks for a My Favorites Portlet

Task	Description
<b>Clear user cache</b>	Opens a page with a utility for flushing the role cache in SAS Financial Management
<b>Manage documents</b>	Opens the Document Manager, a SAS Solutions Services application with which users and administrators can manage content
<b>Manage forms</b>	Opens the Form Manager, in which users can access SAS Financial Management forms
<b>Manage Strategy Management Scorecard Projects and Templates</b>	Opens the Template and Project Manager page of SAS Strategy Management. If SAS Strategy Management is not installed, opens the KPI Viewer.
<b>New Strategy Management Scorecard Project</b>	Opens the New Project Wizard for SAS Strategy Management. If SAS Strategy Management is not installed, opens the KPI Viewer.
<b>Human Capital Management Home</b>	Opens the Home page of SAS Human Capital Management

## Alerts Portlets

An alert is a notification of an event that the user might need to respond to. Opt-in alerts are alerts that users choose to receive by setting properties on a document or a folder in the Document Manager. For example, a user might ask to be informed of a document being added to a folder, or of a comment being added to a document.

Workflow alerts are notifications of tasks that the user has to perform, such as approving a budget form. Users cannot choose not to receive these alerts.

To add an Alerts portlet to a page, follow these steps:

1. From the **Customize** menu, select **Edit Page** ⇒ **Edit Page Content**.
2. On the Edit Page Content page, select **Add Portlets** and add an Alerts portlet.

For more information about adding portlets to a page, see the online Help for the portal.

## KPI and Scorecard Portlets

The following portlets are available for KPIs and scorecards. (You must have licensed SAS Strategy Management to view scorecard elements.)



**Table 4.2** Portlets Available with SAS Solutions Services

Portlet Type	Description
Performance Dashboard portlet	Displays KPIs and scorecard elements in graphical format. Each element is represented by a dashboard that displays, in graphical format, the data ranges that have been defined. In addition to ranges, you can display comments, history data, and element properties from a dashboard.
Performance Data Entry portlet	Displays a Web data-entry form.
Performance Table portlet	Displays data for the selected KPI or scorecard in tabular form.
Strategy Management portlet	Displays multiple strategy views in a single portlet. KPI data can be displayed in the Table View, Aggregate View, Gauge View, and Trend Analysis tiles of this portlet. Scorecard data can be displayed using any of its tiles, including Association View and Scorecard Hierarchy.

If you have licensed SAS Strategy Management, the following portlets are also available:

**Table 4.3** Portlets Available with SAS Strategy Management

Portlet Type	Description
Performance Aggregate Table portlet	Displays data for the selected scorecard and all of its children.
Performance Association portlet	Displays the hierarchical relationship between scorecard elements of a single scorecard or project.
Performance Diagram portlet	Displays data in the form of diagrams, to illustrate the relationships between elements. The data can be based on project element types or scorecard element types.

For information about these portlets, see the online Help.

---

## Administering Content















### Content and Document Manager

In terms of SAS Solutions Services, content is any document, stored process, or viewable object.

SAS Solutions Services provides a Web application, Document Manager, that displays content in a hierarchical folder structure. For information about accessing Document Manager from the portal, see [Table 4.1 on page 60](#).

The following content types are supported in Document Manager:

**Table 4.4** Supported Content Types

Icon	Content Type	Description
	Cube	OLAP cube (opens in SAS Web Report Studio, if it is installed)
	ExcelReport	Microsoft Excel document
	ExcelReport-Dynamic	Microsoft Excel document that can be updated dynamically from the server (can be imported into Document Manager but cannot be opened in a portlet)
	Folder	Document Manager folder, which can contain documents and other folders
	InformationMap	Information map (opens in SAS Web Report Studio, if it is installed)
	KPIProject	Key performance indicator (KPI) project. (For information about creating KPI projects, see the online Help.)
	PDFDocument	PDF document
	SolutionsLink	Link to another document
	SPMProject	Scorecard project (available with SAS Strategy Management)
	StoredProcess	Stored process
	WebDocument	HTML document or other valid MIME type, including Microsoft PowerPoint files and BMP or JPG images
	WebReportStudio	SAS Web Report Studio report (opens in SAS Web Report Studio, if it is installed) <i>Note:</i> Data explorations also open in SAS Web Report Studio.
	WordDocument	Microsoft Word document
	WordDocument-Dynamic	Microsoft Word document that can be updated dynamically from the server

With SAS Solutions Services and the portal, system administrators can customize content for a particular site, so that each group of users can have its own view of that content. Content that is displayed within the Document Manager tree view can also be shown in portlets.


## Document Manager Folders

Document Manager displays these top-level folders, depending on folder permissions:

- **Products:** Containing folders that hold content that is delivered with each of the products in your installation.
- **Shared Data:** Containing user-created content that is shared among multiple users.
- **My Folder:** the current user's folder for personal content. The default permissions on each user's folder allow access only to that user.

To create additional folders in Document Manager, select **New** ⇒ **New Folder**. For more information, see the online Help.

## Security Authorization for Content

To assign permissions to these folders or to the documents in the folders, click the action menu  at the left of the folder or document name and select **Properties**. For more information, see the online Help.

The permissions that you assign are metadata permissions and can also be assigned in SAS Management Console.

*Note:* Inherited permissions are not displayed in Document Manager, although you can view those permissions in SAS Management Console. In the Document Manager properties, you see only those users and groups with permissions that are specifically set for this file or folder.

As you assign document and folder permissions, here are some best practices to keep in mind:

- Grant or deny permissions to groups rather than to individual users.
- Deny broadly, to the largest group that should be denied permission.
- Grant narrowly, to the smallest group that requires the permission.
- Apply permissions to folders and let content items in the folders inherit those permissions. Keep these points in mind:
  - Users must have Read Metadata permission for a folder in order to access its contents.
  - The SAS Solutions Administrator needs ReadMetadata, Read, WriteMetadata, Write, and Create permissions for SAS Financial Management content.

For further information about the processing of permissions and the way that the SAS Metadata Server makes authorization decisions, see “Authorization” in the *SAS Intelligence Platform: Security Administration Guide* (available at [support.sas.com/92administration](http://support.sas.com/92administration)). This book contains numerous examples of applying metadata security.



## Chapter 5

# Administering the Middle Tier

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## Overview

### *About the Managed Servers*

Depending on the solutions that you installed and your choices during the configuration steps, your system will have several managed servers. The following table shows the default servers, listen ports, and a partial listing of the contents, consisting of enterprise archive (EAR) files. For complete information, see the WebLogic Console and the *SAS-config-dir\Lev1\Web\Common* directory.

Server (Default Name)	Partial Contents (EAR Files)	Default Listen Port
SASServer1	The Web Infrastructure Platform (WIP), the Logon Manager, the SAS Information Delivery Portal, SAS BI Dashboard	7001
SASServer2	The SAS WebDoc application, SAS Web Report Studio, SAS Web OLAP Viewer	7101
SASServer3	SAS Solutions Services and the solutions	7201
SASServer4	ODCS	7301
SASServer5	Planning Data Entry	7401

You might also install one or more secondary ODCS servers on additional managed servers. See “[Secondary ODCS Servers for Operational Planning](#)” on page 69.

The SAS Remote Services application must be started before the managed servers. If you restart SASServer1 (where sas.wip.services9.2.ear is deployed), you must restart the other managed servers as well.

### Additional Information

For detailed information about administering Web applications and the Web application server, see the *SAS Intelligence Platform: Web Application Administration Guide*, available at <http://support.sas.com/92administration>. That book also contains information about topics such as the following:

- tuning the Web application servers
- administering the SAS remote services
- installing a custom theme and setting the default theme
- modifying application configuration properties in the Configuration Manager plug-in of SAS Management Console
- administering the SAS Information Delivery Portal, SAS Web Report Studio, SAS BI Dashboard, and SAS Web OLAP Viewer
- WebDAV administration

*Note:* WebLogic clustering is not supported by SAS Solutions Services and the solutions.

For additional information, see *SAS 9.2 Web Applications: Tuning for Performance and Scalability* at <http://support.sas.com/resources/thirdpartysupport/v92>. This document includes information about performance tuning and setting JVM options.

---

## Oracle WebLogic Server Modifications

The following modifications might be necessary for the Oracle WebLogic managed servers, depending on your system configuration:

- **URL Mapping:** WebLogic appears to treat domains differently if they are referenced differently (for example, <http://Dxxx/yyy> and <http://Dxxx.mycompany.com/yyy>). This situation causes problems when a Web application stores information in the HttpSession context. There is a configuration parameter called **Frontend Host** that addresses this issue. According to the WebLogic documentation, this parameter should be set when the Host information coming from the URL might be inaccurate due to the presence of a firewall or proxy. If this parameter is set, the HOST header is ignored and this value is used instead.

The **Frontend Host** parameter is part of the HTTP Protocols for a managed server. For instructions about modifying these protocols, see the WebLogic documentation.

- **If you installed SAS Human Capital Management:** To ensure best performance, restart the managed servers, as well as the SAS application servers, once a week.
- **If you installed SAS Strategy Management:** If you have a configuration with a large number of concurrent users or with a large amount of data, increase the queue size for

that managed server. For instructions, see the online Help for the WebLogic administration console.

## IBM WebSphere Server Modifications

### Set Total Transaction Lifetime Timeout

The total transaction lifetime timeout value specifies the length of time, in seconds, for a transaction to be completed before it is rolled back. The default value that is configured by the solutions is 120 seconds. If your configuration needs additional time, increase this value as follows:

1. Log on to the WebSphere administrative console.
2. In the navigation tree, select **Servers** ⇒ **Application Servers** (WebSphere 6) or **Servers** ⇒ **Server Types** ⇒ **WebSphere Application Servers** (WebSphere 7).
3. On the Application Servers page, click the name of the managed server for SAS Solutions Services and the solutions (typically, SASServer3).
4. Under **Container Services**, select **Transaction Service**.

[Application servers](#) > [SASServer3](#) > **Transaction Service**

Use this page to specify settings for the transaction service. The transaction service is a server runtime component that can coordinate updates to multiple resource managers to ensure atomic updates of data. Transactions are started and ended by applications or the container in which the applications are deployed.

Runtime

Configuration

**General Properties**

Transaction log directory

\* Total transaction lifetime timeout  
 seconds

\* Async response timeout  
 seconds

\* Client inactivity timeout  
 seconds

\* Maximum transaction timeout  
 seconds

**Additional Properties**

■ [Custom Properties](#)

5. Specify a new value for **Total transaction lifetime timeout**.  
 You might need to experiment by increasing the value considerably. If that works, try decreasing the value until you find a limit that works at your site.
6. If necessary, modify the value for **Maximum transaction timeout**.  
 This value specifies the length of time, in seconds, for all transactions that run in this server. Its value should be greater than or equal to the total transaction lifetime timeout value.
7. If necessary, modify the value for **Client inactivity timeout**.

This value specifies the length of time, in seconds, between transactional requests from a remote client.

8. Save your changes.
9. Make similar changes to the ODCS managed server (typically, SASServer4).
10. Restart SASServer3, the ODCS managed servers, and the Web Data Entry (WDE) managed server (typically, SASServer5).

For more information about these parameters, see the online Help for the WebSphere administrative console.

### **Increase the Log File Size**

The default sizes for WebSphere log files and history files might be too small to capture substantial logging. To change the log settings:

1. Log on to the WebSphere administrative console.
2. In the navigation tree, select **Troubleshooting Logs and Trace**.
3. On the Logging and Tracing page, click the server name.
4. Click **JVM Logs**.
5. For the System.out log, find the **File Size** for the **Log File Rotation**, and change the **Maximum Size** from 1 MB to 10 MB. You can adjust this value to suit your configuration.
6. To save log files that have been rotated, increase the value of **Maximum Number of Historical Log Files**.
7. Make the same changes for the System.err log.
8. Save your changes.

---

## **Performance Improvement in SAS Financial Management**

### **Overview**

Depending on your site's configuration and needs, the following performance improvements are possible in SAS Financial Management:

- **Secondary ODCS servers:** To make operational planning more efficient, you can add secondary ODCS servers to your configuration. When a form set is published, its forms are distributed to the available secondary servers.

For more information, see [“Secondary ODCS Servers for Operational Planning” on page 69](#).

- **Multiple query processors:** If you have a site in which many users are executing queries at the same time, you can add query processors to an ODCS managed server. This option does not improve the processing time for a single query. However, it enables multiple queries to execute simultaneously.



For more information, see [“Multiple Query Processors for Multi-User Environments”](#) on page 73.

## Secondary ODCS Servers for Operational Planning

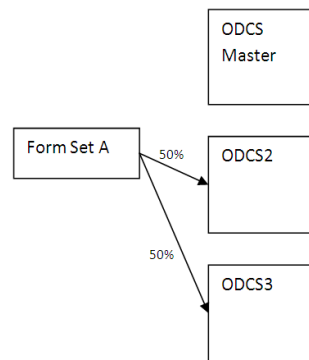
### How Secondary Servers Are Used

In SAS Financial Management, operational planning is supported by a configuration that includes a primary ODCS server and, as an option, one or more secondary ODCS servers. The main benefit of secondary servers is to distribute the load for the planning process.

*Note:* Secondary ODCS servers are not used by financial planning.

When a form set is published, the forms are distributed based on the ODCS servers that are available. In a configuration with two secondary ODCS servers, the forms are divided between the servers, as in this simplified diagram:

**Figure 5.1** Form Set Distribution with Two Secondary ODCS Servers



By default, the primary (master) ODCS server is not a target of the distribution, although this default can be changed. (See [“Configure the Primary ODCS Server to Share the Load”](#) on page 71.)

### Install an Additional Secondary ODCS Server

During installation and configuration, secondary ODCS servers are established, based on your plan file. Typically, each ODCS EAR runs on a different host, to take full advantage of the additional memory and processing power, and each ODCS EAR references its own local SAS\_FACT table. Each ODCS EAR also has an ODCSDS data source that points to the SASSDM database on the primary server.

Post-installation, you can create additional secondary ODCS servers. Follow these steps:

*Note:* If you are replacing an existing server, see [“Replace a Secondary ODCS Server”](#) on page 71.

1. Make sure that users have logged off.

Via the SAS Web Administration Console, you can send an e-mail message to users, notifying them of your intention to shut down the managed servers. You can also force users to log off. For more information, see [“Administering the SAS Web Infrastructure Platform”](#) in the *SAS Intelligence Platform: Web Application Administration Guide*.

2. Shut down the ODCS managed servers and the managed server to which you deployed SAS Financial Management (by default, SASSERVER3).

3. In the SASSDM database for the primary ODCS server, view the records in the SAS\_ODCS\_SERVER table. Note the host names shown in the SERVER\_HOSTNAME column. If the new secondary server's host name matches a name that is already in this column, change the host name of the new server before proceeding. (Do not delete or edit the existing database record.)
4. Install the secondary server on the target machine.

Use your original plan file and follow the instructions under “Deployment of the SAS OLAP Data and Compute Server (ODCS) Secondary Mid-Tier” in the *Installation Instructions for Release 5.2 of the SAS Performance Management Solutions*.

This book is available on the SAS Software Depot as **products** \soldatatier\_92110\_prt\_xx\_sp0\_1\readme.pdf, or at <http://support.sas.com/documentation/installcenter/en/ikfmofrii/63034/PDF/default/install.pdf>.

*Note:* SAS Financial Management Web Data Entry is also deployed to the secondary ODCS Server.

5. If you configured any JVM options for your primary ODCS server, configure the same options for your new secondary server.
6. Start the managed servers that you shut down.

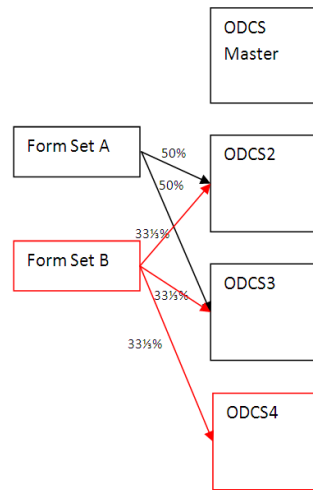
### ***Effects of Installing an Additional Secondary Server***

It is important to understand the effect of installing a new secondary ODCS server. On the host machine for the secondary server, the installation script creates a database called SASSDM, containing a single SAS\_FACT table. It also creates at least two data sources:

- FACTDS, pointing to the local SASSDM database
- ODCSDS, pointing to the primary ODCS server's full SASSDM database

The new server automatically registers itself with the primary ODCS server. As a result, the new server is visible to SAS Financial Management when it distributes forms during the next publish operation for a form set. Data for a form set that is already published continues to reside with its original secondary server (the work load is not rebalanced). However, the new secondary server is included in the list for future publish operations.

This diagram shows an additional secondary server, ODCS4. The forms that are part of form set A, which was published before ODCS4 was added, continue to reside on ODCS2 and ODCS3. However, form set B was published after ODCS4 was installed, and so one-third of its forms are distributed to each of the three secondary ODCS servers.

**Figure 5.2** Form Set Distribution After Addition of a Secondary ODCS Server

If you republish a form set and select the option to delete existing data, then the republish operation can also take advantage of a new secondary server.

### **Configure the Primary ODCS Server to Share the Load**

By default, in an installation with both primary and secondary ODCS servers, the primary ODCS server is used for financial planning, and operational planning is performed on the secondary ODCS servers.

If the site does very little financial planning, you might want the primary ODCS server to share in the load, so that it can also be a target for published forms. To configure this behavior:

1. Add the following option to the JVM options for the managed server for SAS Financial Management (by default, SASServer3):  

```
-Dop.forms.useMaster=true
```
2. Restart the managed server for SAS Financial Management (by default, SASSERVER3) and all ODCS managed servers.

*Note:* In a configuration with no secondary servers, all forms are published to the primary ODCS server.

### **Replace a Secondary ODCS Server**

It is possible for a new secondary server to replace an existing secondary server and take over its current form sets. Follow these steps:

1. Make sure that users have logged off.  
 Via the SAS Web Administration Console, you can send an e-mail message to users, notifying them of your intention to shut down the managed servers. You can also force users to log off. For more information, see “Administering the SAS Web Infrastructure Platform” in the *SAS Intelligence Platform: Web Application Administration Guide*.
2. Shut down the ODCS managed servers and the managed server to which you deployed SAS Financial Management (by default, SASSERVER3).
3. In the SASSDM database for the primary ODCS server, view the records in the SAS\_ODCS\_SERVER table. Note the host names shown in the SERVER\_HOSTNAME column. If the new (replacement) secondary server’s host

name matches a name that is already in this column, change the host name of the new server before proceeding. (Do not delete or edit the existing database record.)

4. Install the secondary server on the target machine.

Use your original plan file and follow the instructions under “Deployment of the SAS OLAP Data and Compute Server (ODCS) Secondary Mid-Tier” in the *Installation Instructions for Release 5.2 of the SAS Performance Management Solutions*.

This book is available on the SAS Software Depot as **products** \soldatatier\_92110\_prt\_xx\_sp0\_1\readme.pdf, or at <http://support.sas.com/documentation/installcenter/en/ikfmofrii/63034/PDF/default/install.pdf>.

*Note:* SAS Financial Management Web Data Entry is also deployed to the secondary ODCS Server.

5. If you configured any JVM options for your primary ODCS server, configure the same options for your new secondary server.
6. Copy the existing server's SASSDM.SAS\_FACT table to the replacement server's SASSDM database:

- a. At a command prompt on the source machine, dump the SAS\_FACT table:

```
cmd> mysqldump sassdm sas_fact -hhost_name1
      -uusername -ppassword > sas_fact.sql
```

- b. At a command prompt on the target machine, drop the SAS\_FACT table (which should be empty) and replace it with the table from the source machine:

```
cmd> mysql -hhost_name2 -uusername -ppassword
mysql> drop table sassdm.sas_fact;
mysql> exit;
cmd> mysql -hhost_name2 -uusername -ppassword sassdm < sas_fact.sql
```

7. On the primary ODCS host, edit the SASSDM.SAS\_ODCS\_SERVER table.

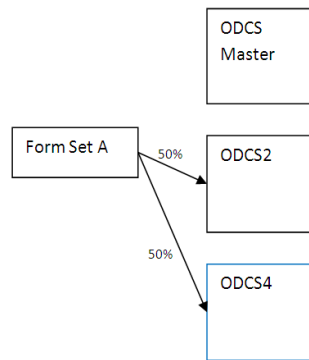
In the record for the old server, replace the SERVER\_HOSTNAME and SERVER\_PORT values with the host name and port number of the new secondary server. Be sure to enter the full host name (including the domain). Do not use aliases, shortened names, or apparently equivalent names.

Do not change the SERVER\_ID value (which is referenced by other tables) or the SERVER\_TYPE value. (A SERVER\_TYPE of 0 signifies a secondary server; a SERVER\_TYPE of 1, a primary server.)

8. Save your changes.
9. Start the managed servers that you shut down.

*Note:* Only the primary ODCS server should have a SASSDM.SAS\_ODCS\_SERVER table.

Referring to [Figure 5.1 on page 69](#), if you replaced server ODCS3 with a server named ODCS4, the result would be as follows:

**Figure 5.3** Result of Replacing a Secondary ODCS Server

Server ODCS4 would continue to process the forms that were originally on the ODCS3 server.

## Multiple Query Processors for Multi-User Environments

### Overview

SAS Financial Management supports an optional configuration in which multiple query processors can be attached to an ODCS managed server. With this configuration, ODCS jobs are automatically routed to various machines where the ODCS query processor is running.

The benefit of this configuration is that it maximizes query processing concurrency in multi-user environments. It is most effective in situations where there are many concurrent users executing small simultaneous queries. While it does not improve the performance of individual queries, it does allow more queries to execute simultaneously and thus improves overall throughput.

### Configure ODCS Target Machines

In a configuration with multiple query processors, each target machine must be network-accessible from the ODCS server, and each target machine must have installed the Java Development Kit (JDK). (For the correct JDK version, see the system requirements document.)

To configure a target machine:

1. Create a directory on the target machine.
2. Copy each JAR file from the top-level directory of the exploded ODCS application (sas.solutionsodcs5.2.ear) to the target directory.

The exploded EAR files are in the *SAS-config-dir*\Lev1\Web\Staging\exploded directory.

3. On the target machine, run the query processor:

```
java -classpath jarfiles -Xms800m -Xmx800m -Xss256k _
-Dlog4j.configuration= _
file:///C:/SAS/Config/Lev1/Web/Common/LogConfig/SASODCS-log4j.xml _
-Dodcs.dispatcher.host=host QueryProcessor
```

*Note:* Line breaks (“\_”) added for readability.

- *jarfiles* refers to the JAR files that you copied in the previous step. If you list each file, separate the JAR filenames with semicolons.

Alternatively, you can use a wildcard to include all the JAR files in a particular directory; for example:

```
java -classpath "D:\ODCS_QP\*" ...
```

- **-Xms** and **-Xmx** determine the initial and maximum Java heap size. For best results, these values should be the same. The optimal heap size varies from customer to customer and from site to site.
- **-Xss** represents the thread stack size. In a 32-bit environment, the recommended value is 256K. In a 64-bit environment, 512K.
- The **-Dlog4j.configuration** option specifies the path to the log4j configuration file. You can use the same configuration file that is used by the ODCS application, or a different file.
- The **-Dodcs.dispatcher.host** option specifies the name of the machine on which the ODCS application is running.

You can include additional options, in the form **-Doption=value**, as described in the table below.

**Table 5.1** Query Processor Options

Option	Description and Default Value
<code>odcs.dispatcher.port</code>	The TCP/IP port on which the in-process RMI registry is hosted by ODCS and through which the query processors make the bootstrap contact.  The default is <b>9876</b> .
<code>odcs.dispatcher.passkey</code>	The password key handshake between the query processor and the dispatcher. If the passkey does not match, the query processor cannot connect to the dispatcher to run queries. The passkey must be specified by both the dispatcher and the query processor.  The default value is <b>passkey</b> .
<code>odcs.queryprocessor.maxthreads</code>	The number of CPUs that are available on the machine that hosts the query processor. Because the algorithms are CPU-bound, adding more threads than physical CPUs causes context switching and degrades performance.  The default is <i>number of available processors</i> .
<code>odcs.queryprocessor.reattach</code>	If this value is set to <b>false</b> (the default), then the query processor shuts down when the ODCS dispatcher stops running. If the value is <b>true</b> , then the query processor waits for the dispatcher to start again and reattaches to the dispatcher immediately.  In a solutions production environment, reattaching might be practical. In a development environment, the typical reason for shutting down the ODCS server is to modify the JAR files. As a result, reattaching would result in a <code>ClassCastException</code> .

When a query processor is started, it checks to see whether the ODCS server is running. If so, it attaches to the server and waits for the server to send it jobs to process. Otherwise, the query processor waits until the ODCS server starts and then attaches to the server.

### Configure ODCS Server Options

The ODCS server (the managed server on which the ODCS application is running) acts as the dispatcher. When you start the server, you can pass it any of the optional arguments that are listed in the table below. Use the syntax `-Option=value`.

**Table 5.2** ODCS Server Options

Option	Description and Default Value
<code>odcs.dispatcher.port</code>	<p>The TCP/IP port on which the in-process RMI registry is hosted by ODCS and through which the query processors make the bootstrap contact.</p> <p>The default port number is 9876. If you change this port number, you must also add or modify the <code>odcs.dispatcher.port</code> JVM option for the ODCS managed server (SASServer4).</p>
<code>odcs.dispatcher.passkey</code>	<p>The password key handshake between the query processor and the dispatcher. If the passkey does not match, the query processor is not allowed to connect to the dispatcher to run queries. The passkey must be specified by both the dispatcher and the query processor—for example, by passing this argument to the command lines of both the ODCS server and the query processor:</p> <pre data-bbox="746 877 1235 905">-Dodcs.dispatcher.passkey=mysecretpassword</pre> <p>The default is <b>passkey</b>.</p>
<code>odcs.dispatcher.ipfilter</code>	<p>A comma-separated list of Internet addresses of machines that are allowed to connect. If you specify such a list and a query processor tries to connect to an IP address that is not in the list, the connection is rejected.</p> <p>There is no default.</p>
<code>odcs.dispatcher.use.internal.qp</code>	<p>If <b>true</b> (the default), the dispatcher uses the built-in internal query processor, in addition to any external query processors that might be available. There are benefits to running queries locally. In-process queries do not require the data to be serialized to them. Moreover, if you configure only a few external query processors, then the ODCS server might be better used to share the query load, in addition to the data and dispatch.</p> <p>If this argument is <b>false</b>, the dispatcher does not process any queries locally, so that it is always available to route queries to external query processors. This mode is useful if you have a large number of query processors.</p>





## Chapter 6

# Viewing and Configuring the Log Files

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## Log File Locations and Configuration Files

The following log files are located on the middle tier, where you installed the Web application server.

**Table 6.1** *Middle-Tier Log Files*

Application	Log File Information
SAS Solutions Services	The logs for these applications are configured using the <i>application-log4j.xml</i> files in the <b><i>SAS-config-dir\Lev1\Web\Common\LogConfig</i></b> directory.
SAS Financial Management	The default log file location is <b><i>SAS-config-dir\Lev1\Web\Logs</i></b> .
SAS Human Capital Management	

Application	Log File Information
SAS Strategy Management Remote Services	<p>For local services, SAS Strategy Management and the remote services use the logging framework from the SAS Web Infrastructure Platform. You can modify the logging configuration in the Foundation Services Manager of SAS Management Console. For more information, see “Administering SAS Web Applications” in the <i>SAS Intelligence Platform: Web Application Administration Guide</i>. The default log file location is <b><i>SAS-config-dir\Lev1\Web\Logs</i></b>.</p> <p>SAS Strategy Management has two additional log files (log.txt and bmf_log.txt) that by default are written to the <b><i>SAS-config-dir\Lev1\Web\Logs\SAS Strategy Management</i></b> directory. The log.txt and bmf.log.txt log files are configured in the <b><i>SAS-config-dir\Lev1\Web\Common\LogConfig</i></b> directory. Most of the output for these loggers goes to the console. (See below.)</p>
Oracle WebLogic servers	By default, the log files for the Oracle WebLogic servers are located in subdirectories under <b><i>SAS-config-dir\Lev1\Web\SASDomain\servers\server-name\logs</i></b> directory, where <i>server-name</i> is the name of the managed server. Output to the WebLogic console is written to these log files.
IBM WebSphere servers	By default, the log files for the IBM WebSphere servers are located in the <b><i>WebSphere-install-dir/profiles/profile-name/logs/server-name</i></b> directory.

---

## Dynamically Configuring Logging Levels

### **SAS Human Capital Management**

For SAS Human Capital Management, you can dynamically change the logging levels on the **Configuration** tab of the SAS Human Capital Management Administration application. For details, see the *SAS Human Capital Management: Administrator's Guide*.

### **SAS Strategy Management**

For SAS Strategy Management, you can dynamically change logging levels for the Web application. The new priorities apply until the managed servers are restarted. Follow these steps:

1. Log on to SAS Strategy Management as a user in the SAS Administrators group.
2. Redirect your browser to **`http://server:port/SASStrategyManagement/admin/Logging`**.
3. Default logging contexts are displayed on the page.
4. Locate the priority that you want to change and select the radio button in the appropriate DEBUG, INFO, WARN, ERROR, or FATAL column.

*Note:* SAS Technical Support might provide you with a specific logging context. If so, type the context in the box at the bottom of the page and select a priority.

5. Click **Set Options**.

---

## Configure a Log File for the SAS Financial Management Reports

On the data tier, you can configure a log file to be written when a stored process uses the `Javaobj` interface. `Javaobj` is a mechanism that is similar to Java Native Interface (JNI) for instantiating Java classes and accessing their methods and fields. This mechanism is used by the standard reports that are shipped with SAS Financial Management.

You can also use this log file to capture output from SAS Data Integration Studio jobs that invoke SAS code.

To log this output, follow these steps:

1. Create a `log4j.properties` file that is similar to the following:

```
# Hierarchy: DEBUG < INFO < WARN < ERROR < FATAL
log4j.appender.A1=org.apache.log4j.FileAppender
log4j.appender.A1.layout=org.apache.log4j.PatternLayout
log4j.appender.A1.layout.ConversionPattern=
    %d{MM-dd HH:mm:ss,SSS} [%t] [%-5p%c{1}] - %m%n

# Modify the path to the log file as needed
log4j.appender.A1.File=c:/tmp/logs/javaapi.log
log4j.appender.A1.Append=False
log4j.rootLogger=INFO, A1
log4j.rootCategory=INFO, A1

# for FM API logging, uncomment this line
# log4j.category.com.sas.solutions.finance.api=DEBUG

# for SAS Data Integration Studio logging, uncomment this line
# log4j.category.com.sas.solutions=DEBUG
log4j.category.com.sas.solutions.finance=DEBUG
```

*Note:* Line break (“\_”) was added for readability.

2. Add the following line to the JREOPTIONS of the `sasv9_usermods.cfg` file:

```
-Dlog4j.configuration=file:/c:/log4j.properties
```

The configuration file is located in the `SAS-config-dir\Lev1\SASApp` directory.

Be sure to add the option within the parentheses that specify the JRE options. Modify the path to the `log4j.properties` file as needed.

---

## Log Files for Client Applications

Both SAS Financial Management Studio and SAS Solutions Dimension Editor write log messages to a file called `client.log`, in a location that is relative to the Java system property `user.home`. This property represents the user's home directory (in this case, the user who is logged on to Windows).

If you are running Windows Vista and logging is not working correctly, edit the application's .ini file and set `user.home` explicitly, like this:

```
-Duser.home=C:\Users\userid  
-data  
@user.home\SAS\FinancialManagementStudio\5.2
```

`userid` represents the Windows user.

The .ini files are located in the following directories:

- `SAS-install-dir\SASFinancialManagementStudio\5.2`
- `SAS-install-dir\SASSolutionsDimensionEditor\5.2`

For information about logging from SAS Data Integration Studio, see “Configure a Log File for the SAS Financial Management Reports” on page 79.

---

## Temporary Files for the Excel Add-In

The SAS Financial Management Add-In for Microsoft Excel saves temporary files in the `My SAS Files\FMTempFiles` directory relative to the Excel default save location.

Do not delete temporary files from this directory while Excel is running.

---

## Additional Log Files

- For information about log files for other Web applications, such as SAS Web Report Studio and SAS Web OLAP Viewer, see the *SAS Intelligence Platform: Web Application Administration Guide*.
- For information about log files that are generated by the SAS servers, see “Enabling Server Logging” in the *SAS Intelligence Platform: System Administration Guide*.

Both books are available at [support.sas.com/92administration](http://support.sas.com/92administration).

## Chapter 7

# Administering MySQL Server

---

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---

## MySQL Overview

SAS Solutions Services stores common data in a MySQL database that is created during the installation process. Support for INNODB tables must be enabled within MySQL to provide transaction support, which is required by a number of SAS Solutions Services components.

---

## Windows: MySQL Installation and Configuration

### *Installing and Configuring the MySQL Server*

For installation and configuration information, see the `readme.pdf` file that is located in the SAS Software Depot, in the appropriate subdirectory of the `third_party\MySQL_Database_Server\5_0_86` directory.

### *Reconfiguring MySQL*

The MySQL server is configured to read its configuration settings from the `MySQL-install-dir\my.ini` configuration file. If you need to adjust your MySQL configuration, you can modify these configuration settings in the MySQL Administrator, or you can edit the `my.ini` file directly. Before you make any changes, be sure to make a backup copy of the `my.ini` file. After making your changes, restart the service.

The MySQL client reads its configuration information from a copy of the `my.ini` file that is located in the Windows root directory (for example, `C:\WINNT\my.ini`). If you modify the `MySQL-install-dir\my.ini` file, be sure to copy your modified file to the Windows root directory.

---

## UNIX: MySQL Installation and Configuration

The path to the MySQL executable (typically, `/usr/local/mysql/bin`) must be on the user's path. For information about installing and configuring MySQL on UNIX, see the `readme.pdf` file that is located in the SAS Software Depot, in the appropriate subdirectory of the `third_party\MySQL_Database_Server\5_0_86` directory.

Excessive I/O in MySQL might be an indicator that sorts are not occurring in memory. In that case, you might consider increasing `sort_buffer_size`. See "Tuning Server Parameters" in the MySQL Reference Manual for considerations in changing this parameter, which is allocated per thread. As a test, you might temporarily set `sort_buffer_size` as high as 32M. However, a lower permanent setting might be more appropriate. To modify a parameter setting, you edit the `MySQL-install-dir/my.cnf` file and restart the MySQL server.

At Solaris sites with heavy data usage, you can improve performance by editing the `my.cnf` file to set the `thread_concurrency` value. This value is used in determining the number of threads to be run simultaneously. The recommended value is as follows:

```
number-of-cpus * (2..4)
```

## Appendix 1

# Configuring the SAS Environment Files

---

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---

## Overview

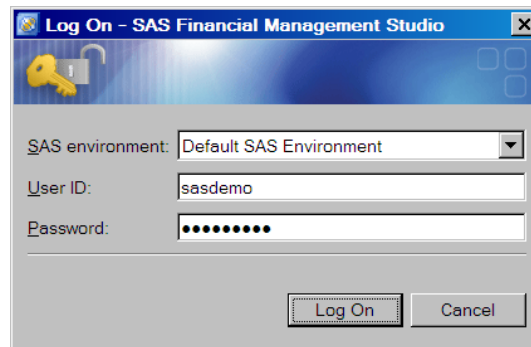
### *About the SAS Environment Files*

SAS Solutions Services and the solutions use two environment files:

- **the SAS environment file** (sas-environment.xml): applies to the SAS Financial Management Studio and SAS Solutions Dimension Editor client applications
- **the Solutions environment file** (EnvironmentFactory.xml): applies to the SAS Solutions Services Add-In for Microsoft Office and the SAS Financial Management Add-In for Microsoft Excel

These files enable desktop client applications to determine the location of required services on the middle tier and to obtain a list of services available in the environment.

When you log on SAS Financial Management Studio or SAS Solutions Dimension Editor, you are asked to select a SAS environment in which the application will operate. Here is an example logon box for SAS Financial Management Studio. The **SAS environment** drop-down box contains a list of available environments. You select an environment and connect to the middle tier for that installation.



When you log on to the middle tier from Microsoft Word or Microsoft Excel, you are presented with a similar dialog box.

For information about specifying these values during an installation, see “Installing Client Applications” in the installation guide.

### See Also

[“Additional Documentation” on page 4](#)

---

## Deploying the SAS Environment Files to an HTTP Server

For the purposes of validating the installation and configuration at a site, use the default `sas-environment.xml` and `EnvironmentFactory.xml` locations. After validation, you should deploy those files to a location where they are accessible by all possible clients. The recommended deployment location is an HTTP server.

You must deploy the `sas-environment.xml` and `EnvironmentFactory.xml` files to a central location if any of the following situations is true:

- At your site, the solutions are used in multiple environments such as development, test, and production environments. You want your users to be able to select from a list of available environments.
- Secure Sockets Layer (SSL) is configured for the solutions at your site.
- Web authentication is configured for the solutions at your site.

Follow these steps:

1. Deploy the `sas-environment.xml` file to the HTTP server.  
This file is located in the `SAS-config-dir\Lev1\Web\Common` directory.
2. Deploy the `EnvironmentFactory.xml` file to the HTTP server.  
This file is located in the `SAS-config-dir\Lev1\Web\Applications\SASSolutionsServices5.2` directory.
3. On each client machine, edit the appropriate .INI file:
  - for SAS Solutions Services Add-In for Microsoft Office and SAS Financial Management Add-In for Microsoft Excel: `SAS-install-dir\SASSolutionsServicesAdd-InforMicrosoftOffice\5.2\SASSolutionsOfficeClient.ini`



Change the URL to the environment file so that it points to the HTTP server. For example:

```
[Environment Factory]
http://myhttpserver:port/EnvironmentFactory.xml
```

- for SAS Financial Management Studio: ***SAS-install-dir***  
***\SASFinancialManagementStudio\5.2\fmstudio.ini***

Change the location of the sas-environment.xml file to point to the HTTP server location. For example:

```
-Denv.definition.location=http://myhttpserver:port/sas-environment.xml
```

- for SAS Solutions Dimension Editor: ***SAS-install-dir***  
***\SASSolutionsDimensionEditor\5.2\soldimedit.ini***

Make the same change that you made to the .INI file for SAS Financial Management Studio.

4. If your end users perform their own client installations, make them aware of the URLs to these files.

### See Also

- “Defining Additional SAS Environments ” on page 85
- “Defining Additional Solutions Environments” on page 85

---

## Defining Additional SAS Environments

The SAS environment file (sas-environment.xml) applies to the SAS Financial Management Studio and SAS Solutions Dimension Editor client applications.

If you want your end users to select from multiple SAS environments, modify the sas-environment.xml file that you deployed to an HTTP server. Include information about each of the available environments.

For more information, see “Configuring the SAS Environment File” in the *SAS Intelligence Platform: Web Application Administration Guide*. That book is available at [support.sas.com/92administration](http://support.sas.com/92administration).

---

## Defining Additional Solutions Environments

### Overview of the EnvironmentFactory.xml File

The Solutions environment file (EnvironmentFactory.xml) applies to the add-in clients for Microsoft Office applications. By default, the EnvironmentFactory.xml file defines a single Solutions environment that represents the installation in which it resides. The file has the following structure:

```
<environments>
  <environment name="environment-name">
    <object>
```

```

...
</object>
... [additional object definitions]
</environment>
... [additional environment definitions]
</environments>

```

The *environment-name* is an identifier that appears in the selection list when a user logs on to the middle tier from SAS Solutions Services Add-In for Microsoft Office or SAS Financial Management Add-In for Microsoft Excel.

### Customizing the EnvironmentFactory.xml File

To customize the EnvironmentFactory.xml file to support more than one configuration of the solutions, follow these steps:

1. Open the EnvironmentFactory.xml file that you deployed to an HTTP server.
2. Copy the default environment definition (from `<environment name="default">` through `</environment>`) and paste it directly after the `</environment>` tag of the first entry.
3. Give this second environment definition a new environment-name, such as `test`. Names must be valid as XML attributes.
4. Modify the server name (and port number, if necessary) of each entry for the `test` environment definition.

In a WebLogic configuration, the result might resemble the following:

#### Example Code A1.1 EnvironmentFactory.xml Example with Two Environments

```

<environments>
  <environment name="test">
    <object>
      <name>default</name>
      <java.naming.factory.initial>
        weblogic.jndi.WLInitialContextFactory
      </java.naming.factory.initial>
      <java.naming.provider.url>
        t3://server1:7201
      </java.naming.provider.url>
    </object>
    <object>
      <name>login</name>
      <webservice.url>
        http://server1:7201/SASSolutionsServices/services/AuthenticationService
      </webservice.url>
    </object>
    ...
  </environment>
  <environment name="production">
    <object>
      <name>default</name>
      <java.naming.factory.initial>
        weblogic.jndi.WLInitialContextFactory
      </java.naming.factory.initial>
      <java.naming.provider.url>

```

```

    t3://server2:7201
  </java.naming.provider.url>
</object>
<object>
  <name>login</name>
  <webservice.url>
    http://server2:7201/SASolutionsServices/services/AuthenticationService
  </webservice.url>
</object>
  ...
</environment>
</environments>

```

5. Follow steps 2–4 (with a different **environment-name** and different server names) to create an environment definition for the production environment.
6. Save your changes.
7. Restart the server.

It is not necessary to restart the managed servers or redeploy the SAS Solutions Services application. The next time users try to log on to the middle tier from one of the Microsoft Office add-ins, the new environment choices are available.

*Note:* The EnvironmentFactory.xml file should be synchronized with the sas-environment.xml file. That is, if you define multiple SAS environments for SAS Financial Management Studio, you should define comparable Solutions environments for the add-ins.



## Appendix 2

# Default Port Usage

### Overview

The servers in the SAS Intelligence Platform communicate with clients and other servers using TCP/IP. Each server listens on a particular port or ports for incoming requests. During installation, the SAS Deployment Wizard enables you to either accept the default ports or to specify different port numbers for some servers.

### Default Port Numbers for SAS Servers and Spawners

The following table shows the default port numbers for SAS servers and spawners that are installed in a **Lev1** SAS environment that includes the SAS Performance Management solutions. The table also includes default third-party ports.

Your site might use different port numbers than the ones that are shown here. For a complete list, see the pre-install checklist for your site.

**Table A2.1** Default Port Numbers and Descriptions

Port Number	Description
25	SMTP mail: Port used by mailhost or Simple Mail Transfer Protocol (SMTP). Used to send administrative e-mail notices and end-user alert notifications.
80	HTTP Server: Handles proxy requests to application server. Also used for static assets such as themes, style sheets, and images.
2171	SAS Table Server port.
3306	Database server port. All JDBC access from the managed servers goes through this port to the MySQL server. SAS/ACCESS to MySQL also uses this port.
5091	SAS Remote Services application port.  All client access to remote Foundation Services is directed through this port. In solutions deployments, only middle-tier clients communicate via RMI. Therefore, it is not necessary to open this port to external access (that is, to other clients on the network) in a firewall-protected environment.
5451	SAS OLAP Server port.
5556	(Oracle WebLogic Server) NodeManager port.

Port Number	Description
6051	Event Broker service: listen port for administrator.
7001, 7101, 7201, 7301, 7401	(Oracle WebLogic Server) Nonsecure listen ports for managed servers. Additional managed server port numbers are incremented by 100. Used by Web applications and by many of the client applications, such as SAS Financial Management Studio.
7002, 7102, 7202, 7302, 7402	(Oracle WebLogic Server) Secure listen ports for managed servers. Additional managed server port numbers are incremented by 100.
7501	(Oracle WebLogic Server) Listen port for the administration server.
7551	SAS/CONNECT Server port.
8111	Event Broker service: used by SAS Solutions Services for HTTP transports into the Foundation Services Event Broker. Events fired by SAS code into the middle tier are communicated via this port.
8451	Operating System Services scheduler port.
8551	SAS/SHARE Server.
8561	SAS Metadata Server: Default port for metadata access. This is also the default multicast UDP port number.
8571	SAS Object Spawner Load Balancing: Load-balancing requests from SAS Object Spawner go through this port.
8581	SAS object spawner: operator port.
8591	SAS Workspace Server port. Might also be shared by Metadata utilities SAS Workspace Server port.
8601	SAS Stored Process Server: bridge connection.
8611, 8621, 8631	SAS Stored Process Server: load balancing connections 1, 2, and 3 (MultiBridge).
8701	SAS Pooled Workspace Server port.
8801, 8811, 8821	SAS object spawner: pooled workspace server port banks 1, 2, and 3.
9000	Port used to register SAS BI portlets with the portal.
9876	The default port on which the in-process RMI registry is hosted by ODCS and through which the query processors make the bootstrap contact.
10021	SAS Deployment Tester server port.

When you set up a multiple-level SAS environment (for example, an environment that consists of separate levels for development, test, and production), the SAS Deployment Wizard increments each port number by 1 for each level. For example, the default **Lev1** port number for the SAS Metadata Server is 8561. A **Lev2** environment would use port 8562.

*Note:* SAS PC Files Server uses port 8621 by default, but this port is also used by the SAS Stored Process Server. If you installed SAS PC Files Server and need to change its port number, see [“Configure PC Files Server” on page 7](#).

For additional information, see the “Default SAS Ports” appendix of the *SAS Intelligence Platform: System Administration Guide*.

## Default Port Numbers for Third-Party Software

**Table A2.2** Default Port Numbers and Descriptions for Third-Party Software

Software	Port Number	Description
Oracle WebLogic Server	5556	NodeManager port.
	7001, 7101, 7201, 7301, 7401	Nonsecure listen ports for managed servers. Additional managed server port numbers are incremented by 100. Used by Web applications and by many of the client applications, such as SAS Financial Management Studio.
	7002, 7102, 7202, 7302, 7402	Secure listen ports for managed servers. Additional managed server port numbers are incremented by 100.
	7501	Listen port for the administration server.
IBM WebSphere Application Server	8879	SOAP port for administrative console.
	8880, 8881	SOAP port for application servers (additional application servers increment by 1).
	9043	Secure HTTPS port for administrative console.
	9044, 9045, 9046, 9047, 9048	Secure HTTPS ports for application server (additional application servers increment by 1).
	9060	Non-secure HTTP port for administrative console.
	9080, 9081, 9082, 9083, 9084	Non-secure HTTP ports for application server (additional application servers increment by 1).
	9809	RMI port for administrative console.
	9811, 9812	RMI ports for application servers (additional administrative consoles increment by 1).





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## Your Turn

We welcome your feedback.

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