

Configuring SAS[®] 9 for Application Development with ASP.NET

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ABSTRACT

This paper describes how to configure the SAS DCOM settings and directory permissions to enable ASP.NET applications to launch SAS sessions.

A further discussion is presented on configuring the default command line options for SAS sessions launched as IOM Workspaces. Such sessions are typically invoked from ASP.NET applications

INTRODUCTION

Many organisations use web applications to distribute query and reporting services to large numbers of users throughout an organisation. Such websites are commonly, and cost effectively, built with Microsoft ASP.NET.

Integrating SAS functionality in server side processing of web applications is a commonly discussed topic. This paper, however, specifically discusses a topic often glossed over, i.e. the setup and configuration that enables SAS sessions to be launched and managed by the web application.

THE BASIC ENVIRONMENT

Mostly, SAS based web applications run on the local domain names of:

- ASPNET
- IUSR_MACHINENAME.

The local domain refers to the computer or server on which the IIS web server is running.

By default these internal Windows accounts only allow access to web folders (typically c:\inetpub\wwwroot*) to prevent unauthorised access to the other systems or materials held on the machine.

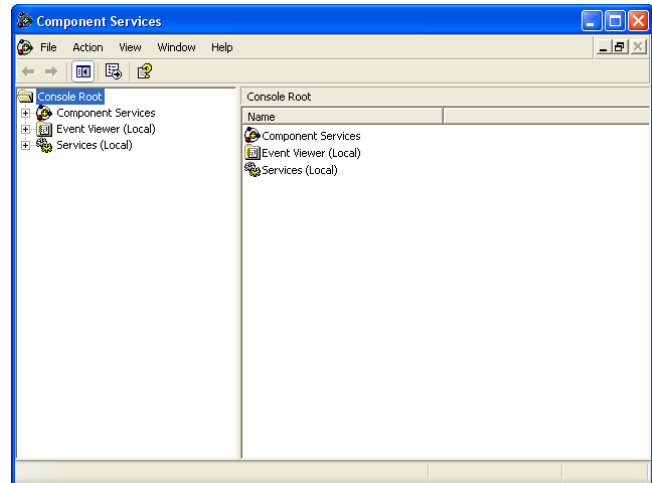
As SAS is integrated with .NET through COM services; these services must be configured to allow the above user names to:

- Launch services;
- Allow access to the WORK folder;
- Allow access to the SASUSER folder;
- Allow access to the installation folder of SAS.

Failure to do so will cause various execution errors or “unable to start COM service for this user” worded messages returned to the ASP.NET webpage.

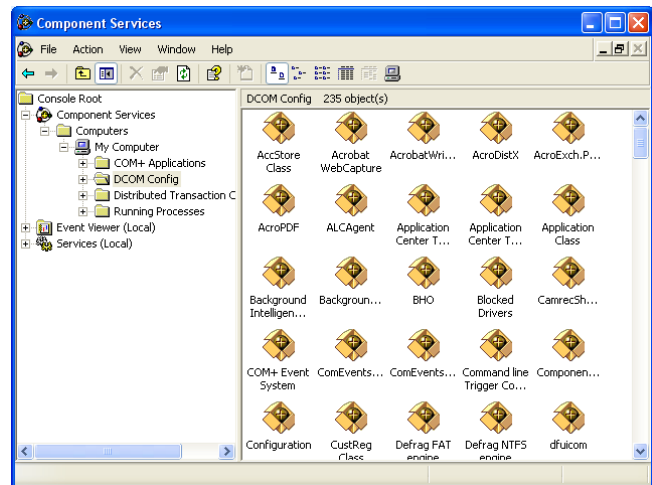
CONFIGURING DCOM

The DCOM configuration tool is opened from the command prompt with the `dcomcnfg` command. The following Microsoft Management Console (MMC) Window appears:

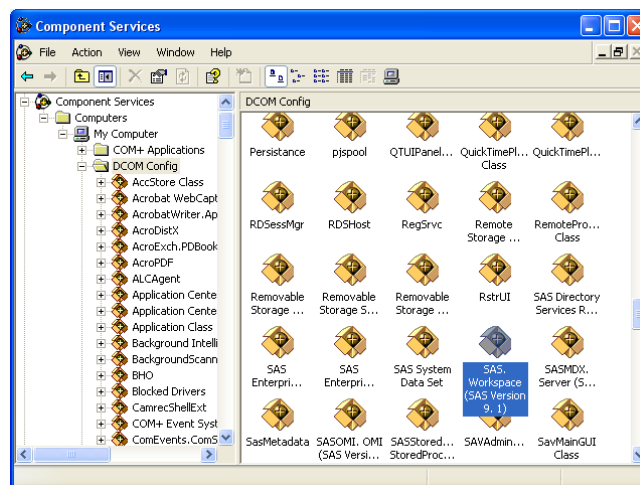


Drill into Component Services, the Microsoft firewall may require you unblock Microsoft Management Console (MMC) at this point.

Drill into Computers, revealing My Computer. Drill into DCOM Config. Windows may ask you to register various components. Press Yes to each.



At this stage your MMC window will look similar to the following figure.

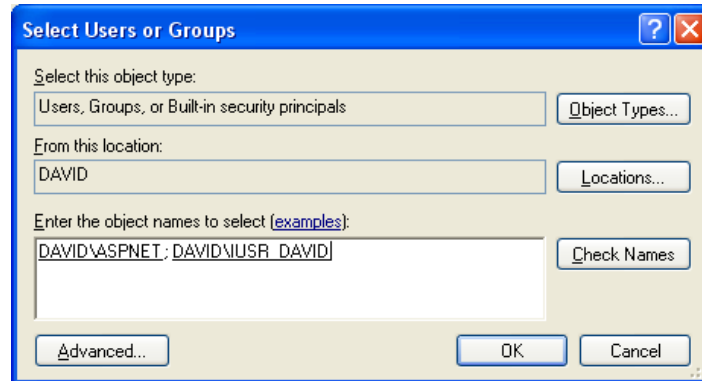


Search for the COM component named "SAS Workspace (SAS Version 9.1)" or your SAS version. The newest SAS version is found if multiple SAS versions are installed on the SAS machine.

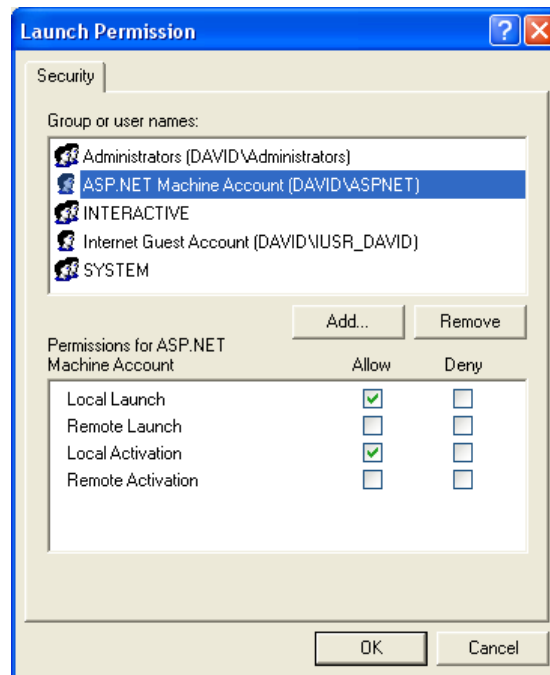
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Right-click, choose properties. Five tabbed property pages now appear where we finally configure the settings needed!

1. On the **General** tab ensure the Authentication level is **Connect**.
2. On the Security tab:
 1. Select Customise from the Launch and Activations group.
 2. Press the Edit button
 3. From the new Window press the Add button
 4. In the next Window add the [machine-name]\ASPNET and [machine-name]\USR_Machine-Name accounts. On a machine named DAVID this appears as follows:



5. Press OK.
6. For each of the two new users, ensure that Allow is checked for the Local Launch and Local Activation permissions. This appears as follows:



7. Press OK.
8. Repeat steps one to six for the Access Permissions group.
9. Return to the SAS Workspace property tabs, by pressing OK.
10. Check the Identity tab has "The Launching User" radio button selected.
11. Press OK to save all these settings.

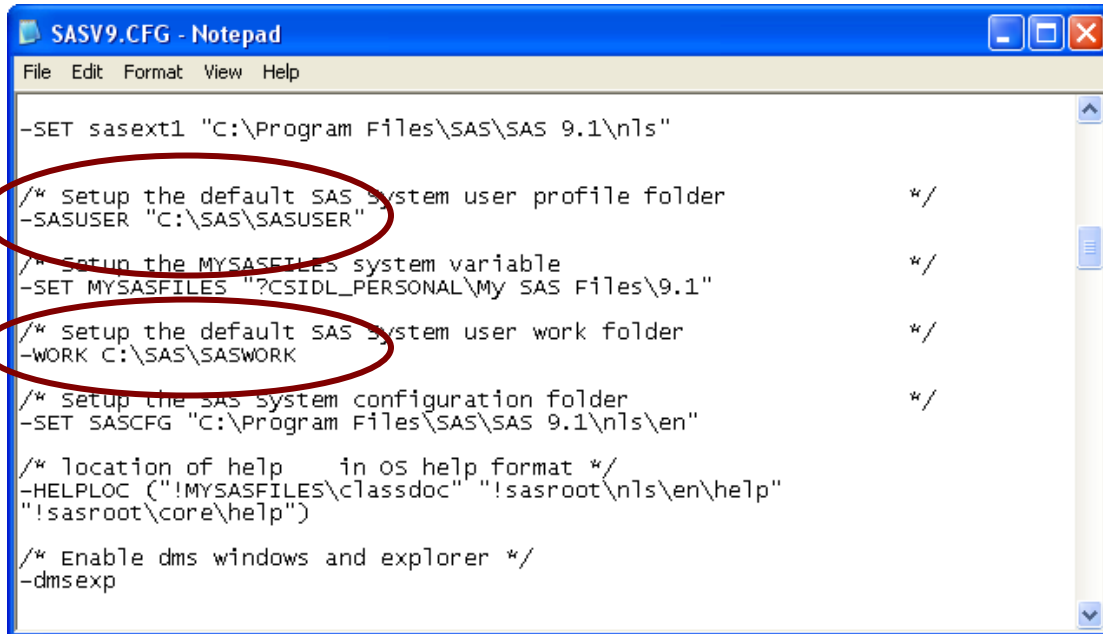
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ENABLING DIRECTORY ACCESS

The two accounts discussed in the Introduction must be given at least Write and Execute permissions to the following three folders:

- The .\Program Files\SAS* folders;
- A permanent location for the WORK folder;
- A permanent location for the SASUSER folder.

Note: Both the WORK and SASUSER folder must be configured in the SASV9.CFG file to point at fixed locations (rather than being directed to a user name profile). The following figure shows a SAS configuration file after this edit:



```
-SET sasext1 "C:\Program Files\SAS\SAS 9.1\nls"

/* Setup the default SAS system user profile folder */
-SASUSER "C:\SAS\SASUSER"

/* Setup the MYSASFILES system variable */
-SET MYSASFILES "?CSIDL_PERSONAL\My SAS Files\9.1"

/* Setup the default SAS system user work folder */
-WORK C:\SAS\SASWORK

/* Setup the SAS system configuration folder */
-SET SASCFG "C:\Program Files\SAS\SAS 9.1\nls\en"

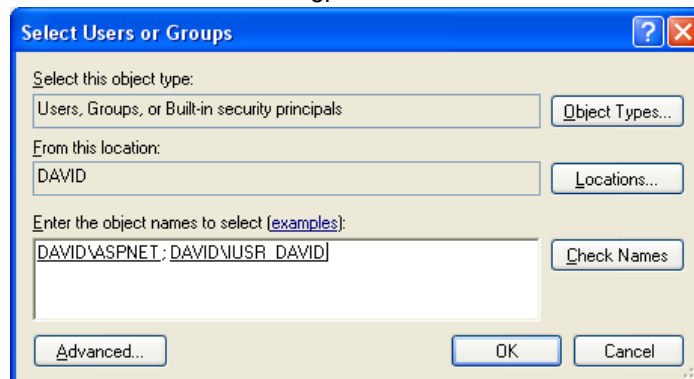
/* location of help in OS help format */
-HELPOC ("!MYSASFILES\classdoc" "!sasroot\nls\en\help"
"!sasroot\core\help")

/* Enable dms windows and explorer */
-dmsexp
```

To apply the necessary security settings each folder must be selected in turn. Using Windows Explorer:

1. Select the folder (e.g. C:\Program Files\SAS);
2. Right click and select Properties;
3. From the Security tab which has now appeared, select the Add button;
4. In the next Window add the [machine-name]\ASPNET and [machine-name]\IUSR_Machine-Name accounts. On a machine named DAVID this appears as follows:

5.



6. Press OK, twice, returning to Windows explorer.
7. Repeat steps one to five for the folders designated as:
 - WORK;
 - SASUSER.

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RESTART

It is recommended that Windows XP and 2003 operating systems be restarted. This is particularly to ensure the changes to DCOM settings are applied.

CONFIGURING IOM SAS WORKSPACE COMMAND LINE OPTIONS

When a client application launches a SAS session from a Windows desktop or web application through COM or DCOM, the following is the command line used to launch the SAS session:

```
C:\PROGRA~1\SAS\SAS9~1.1\SAS.EXE -config "C:\Program Files\SAS\SAS
9.1\sasv9.cfg" -objectserver -nologo -noterminal -noxcmd
```

This can be seen by opening the COM component SAS Workspace (SAS Version 9.1 as described earlier in this paper).

In some situations it may be preferred to alter the default, or add additional, command line settings.

For example, if it is required to enable filename PIPE functionality from within SAS code the XCMD option needs to be enabled.

Note: Beware that implementing this option opens the possibility of harmful or malicious SAS code being executed.

Before following the next step, it is strongly recommended that the registry is backed-up.

The following text will alter the registry settings required to launch the SAS IOM server with XCMD enabled:

```
Windows Registry Editor Version 5.00

[HKEY_CLASSES_ROOT\CLSID\{CF7BC7E6-C7E8-11D5-87E3-
00C04F38F9F6}\LocalServer32]
@="C:\\PROGRA~1\\SAS\\SAS9~1.1\\SAS.EXE -config \\\"C:\\Program
Files\\SAS\\SAS 9.1\\sasv9.cfg\\\" -objectserver -nologo -noterminal -xcmd"

[HKEY_CLASSES_ROOT\CLSID\{440196D4-90F0-11D0-9F41-
00A024BB830C}\LocalServer32]
@="C:\\PROGRA~1\\SAS\\SAS9~1.1\\SAS.EXE -config \\\"C:\\Program
Files\\SAS\\SAS 9.1\\sasv9.cfg\\\" -objectserver -nologo -noterminal -xcmd"
```

Paste the above code into a text file and make the file extension “.reg”. From Windows explorer, right-click and select the “Merge” option to update the registry.

SETTINGS FOR WINDOWS SERVER 2003

Whilst all the instructions within this paper so far can be applied to both Windows XP and Windows Server operating systems, the Windows Server family of operating systems are inherently more secure than XP clients. The following settings of the CMD.EXE file must also be applied on Windows XP if it is desired to allow operating system shells to be called from the SAS code.

Locate the CMD.EXE in the Windows System32 folder. Select its properties and security settings. The following two system user accounts must be granted the appropriate privileges to successfully allow SAS sessions to interact with operating commands:

- BATCH

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- ASPNET

Specific discussion of this can be found on <http://support.sas.com> under SAS note SN-V9-013521.

This enables the X statements and SYSTASK COMMAND statements to be issued from SAS code called by .NET

REFERENCES

1. <http://support.sas.com/ctx/samples/index.jsp?sid=812&tab=downloads>
2. http://support.sas.com/rnd/itech/doc9/admin_ldap/sasserver/comdcom/xpsp2.html
3. http://support.sas.com/rnd/itech/doc9/admin_oma/sasserver/startserv/cmd_com.html

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