Getting to Know an Undocumented SAS® Environment
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ABSTRACT
For many companies, SAS has been used for decades and there may or may not be people still around that know the details about the SAS deployment. For a more complex SAS environment (such as a SAS Enterprise Business Intelligence environment), it is harder to decipher how it was deployed. This paper intends to help communicate the steps on how to become familiar with the details of a SAS environment whether it is a basic SAS Foundation install or a multi-server SAS Enterprise Business Intelligence Environment. This paper intends to help a new SAS administrator or user become familiar with a SAS environment for which there is no or limited documentation.

INTRODUCTION
Although a SAS administrator and a SAS user need to know different types of information to do their job, there are some basic processes one can follow to get to know an unfamiliar SAS environment. This paper will not differentiate between what type of SAS person needs to know which type of information. This paper will be organized into the following sections:

• What
• Where
• Who

The examples in this paper will mostly be using Microsoft Windows but the concepts will certainly extend to UNIX and LINUX.

CONCEPTS
The concepts communicated in this paper are meant to outline methods for learning about a SAS environment. This will be organized into what, where, who.

What
What SAS modules, products, solutions exist in the SAS environment?

There are a few ways to find out what is licensed and installed in a SAS environment. One of the best ways to get a handle on the SAS licenses is to look in the SAS Software Depot.

In the SAS Software Depot there should be a directory called install_doc. Inside this directory is a folder for each of your SAS Software Orders. Inside these folders are documents that explain your SAS Software Order as shown in Figure 1.

Figure 1: The install_doc directory in the SAS Software Depot

By looking in these files, one can tell what SAS Software is included in your company’s license. An excerpt from the ordersummary.html is shown in Figure 2.
SAS Software Summary for Order 99JFZJ

The following is a list of the software that comprises your order. Unlike the SAS Order Information sheet, which on your order, if you have located this document without first consulting your Software Order E-mail, please find that:

The Java Runtime Environments (JREs) included in your order are part of this order summary. If there is more than host. The SAS Deployment Wizard will help you determine which JRE needs to be installed for your software order.

- Advanced Analytics Common Components 9.3
- BASE Infrastructure to support Hadoop 9.3
- Base SAS 9.3
- Base SAS Help and Documentation 9.3
- Base SAS JAR Files 9.3
- Base SAS Statistical Procedures 9.3
- CGI Tools for the Web Server 9.3

Another interesting document in this directory is the soi.html (see Figure 3). This also contains the products and bundles with some additional information such as the tech support site number.

Figure 3: The soi.html

Information for Tech Support Site 70011420:

<table>
<thead>
<tr>
<th>Site Name:</th>
<th>EXPERIS IT SERVICES US LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tech Support Site Number:</td>
<td>70011420</td>
</tr>
<tr>
<td>Contracts Site Number:</td>
<td>41840</td>
</tr>
<tr>
<td>Operating System:</td>
<td>Microsoft® Windows® Workstation &amp; Server 32-bit</td>
</tr>
<tr>
<td>Product:</td>
<td>SAS 9.3 TS1M1, Rev. 930_12w16</td>
</tr>
</tbody>
</table>

Product(s) Ordered
Gold Partner Program, including the products:
- Base SAS
- SAS AppDev Studio
- SAS Enterprise Guide
- SAS Integration Technologies
- SAS OLAP Server
- SAS/ACCESS Interface to ODBC
- SAS/ACCESS Interface to OLE DB
- SAS/ACCESS Interface to PC Files
- SAS/AF
- SAS/ASSIST

If you would like to see what license has been applied to a particular SAS desktop or SAS server, you can run the following code:

PROC SETINIT NOALIAS; RUN;

An example of the SAS LOG after running this code is shown in figure 4.
Another interesting piece of information to learn about your environment is not only what has been licensed but what has been installed. By running the following code, you can get a report about what has been installed on the server or desktop.

```sas
proc product_status; run;
```

As you can see in Figure 5, this procedure shows the exact version of the products that have been installed.

**Figure 5: SASLOG after Running PROC PRODUCT_STATUS**

```sas
3 proc product_status;run;
```

For Base Product ...
- Custom version information: 9.21_M3
- Image version information: 9.02.02M3P032410

For SAS/STAT ...
- Custom version information: 9.22
- Image version information: 9.02.02M0P033110

For SAS/GRAPH ...
- Custom version information: 9.21_M2

For SAS/ETS ...
- Custom version information: 9.22
- Image version information: 9.02.02M0P033110

For SAS/FSP ...
- Custom version information: 9.21_M2
Where
Where is the software installed and where are the relevant configuration and autoexec files?

From a batch program or SAS Display Manager, you can run the following code:

```sas
proc options long; run;
```

The results from this code will look like the excerpt in Figure 6..

**Figure 6: PROC OPTIONS excerpt**

<table>
<thead>
<tr>
<th>1</th>
<th>proc options long;run;</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SAS (r) Proprietary Software Release 9.2 T32M3</td>
</tr>
</tbody>
</table>

**Portable Options:**
- **APPEND** = Append at the end of the option value
- **APPLETLOC=C:\Program Files\SAS\SASGraph\Java\Applets\9.2** = Location of Java applets
- **ARMAGENT=** = ARM Agent to use to collect ARM records
- **ARMLOG=** = Location where ARM records are to be written
- **ARMESUBSYS=(ARM_NONE)** = Enable/Disable ARMing of SAS subsystems
- **NOASYNCH=** = Do not enable asynchronous input/output
- **AUTOSAVLOC=** = Identifies the location where program editor contents are auto saved
- **NSIGNON** = SAS/CONNECT remote submit will not automatically attempt to SIGNON
- **BINDING=DEFAULT** = Controls the binding edacs for duplexed output
- **DOSFILE** = Add Byte Order Mark when creating Unicode files
- **BOTTOMMARGIN=0.000 IN** = Bottom margin for printed output
- **BUFSIZE=** = Number of buffers for each SAS data set
- **BYRR=** = Size of buffer for page of SAS data set
- **BYLINE=** = Set the error flag if a null data set is input to the BYSORT procedure
- **BYEOR** = Print the by-line at the beginning of each by-group

**Host Options:**
- **ACCESSIBILITY=STANDARD** = Enable Extended Accessibility
- **ALTLOG=** = Specifies the destination for a copy of the SAS log
- **ALTPRN=** = Specifies the destination for a copy of the SAS PROCEDURE output file
- **APPEND=** = Append a new path to the end of a concatenated path.
- **AUTHPROVIDERDOM=** = Authentication providers associated with domain suffixes
- **AUTHSERVER=** = Specify the authentication server or domain.
- **AUTHEXEC=** = Specifies the autexec file to be used
- **AWSCONTROL=(SYSTEMMENU MINMAX TITLE)** = Used to customize the appearance for the SAS AWS. Valid parameters are TITLE/ NOTITLE SYSTEMMENU/NOSYSTEMMENU MINMAX/NOINMAX
- **AWSDEF=(0 0 79 79)** = Specify the initial size and position of the SAS AWS. This should be specified as follows: 0 0 100 100
- **AWSMENU=** = Show the main window’s (AWS) menu.
- **AWSMENUERGE=** = Add host specific menu items to the main window’s (AWS) menu.
- **AWSITLE=** = Specify the text for the SAS AWS title bar.
- **COMAUXI1=** = Specify auxiliary 1 communication access method id.
- **COMAUX2=** = Specify auxiliary 2 communication access method id.
- **COMDEF=(BOTTOM CENTER)** = Specify command dialog default display location.
- **CONFIG=C:\Program Files\SAS\SASFoundation\9.2(32-bit)\nlsrc\en\SASV9_CFG** = Specifies a SAS configuration file.

You can also go to the Help Menu from interactive SAS and choose the “About SAS 9” item. In addition, if you are a SAS Enterprise Guide user, you can run any of the above code and go to the “About SAS Enterprise Guide” on the help menu.
Figure 8: Help > About SAS 9

![About SAS 9](image)

![System Information](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS Name</td>
<td>Microsoft Windows 7 Enterprise</td>
</tr>
<tr>
<td>Version</td>
<td>6.1.7601 Service Pack 1 Build 8060</td>
</tr>
<tr>
<td>Other OS Description</td>
<td>Not Available</td>
</tr>
<tr>
<td>OS Manufacturer</td>
<td>Microsoft Corporation</td>
</tr>
<tr>
<td>System Name</td>
<td>MG-4236-R8EN3A</td>
</tr>
<tr>
<td>System Manufacturer</td>
<td>LENOVO</td>
</tr>
<tr>
<td>System Model</td>
<td>4236D26</td>
</tr>
<tr>
<td>System Type</td>
<td>x64-based PC</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel(R) Core(TM) i5-2520M CPU</td>
</tr>
<tr>
<td>BIOS Version/Date</td>
<td>LENOVO 88ET66WW (1.36), 1</td>
</tr>
<tr>
<td>SMBIOS Version</td>
<td>2.6</td>
</tr>
<tr>
<td>Windows Directory</td>
<td>C:\WINDOWS</td>
</tr>
<tr>
<td>System Directory</td>
<td>C:\WINDOWS\system32</td>
</tr>
<tr>
<td>Boot Device</td>
<td>\Device\HarddiskVolume1</td>
</tr>
<tr>
<td>Locale</td>
<td>United States</td>
</tr>
<tr>
<td>Hardware Abstraction Layer</td>
<td>Version = &quot;6.1.7601.1.7514&quot;</td>
</tr>
<tr>
<td>User Name</td>
<td>CORP\mpus52107</td>
</tr>
<tr>
<td>Time Zone</td>
<td>Eastern Daylight Time</td>
</tr>
<tr>
<td>Installed Physical Memory (RAM)</td>
<td>4.00 GB</td>
</tr>
</tbody>
</table>
Figure 9: Help > About SAS Enterprise Guide
If you are dealing with a planned SAS installation, there are some important directories and files to consider. The main directory to look at for a planned SAS installation is the SAS configuration directory. This directory will typically contain a directory named Lev1. Inside this directory are files which will tell the story of how the SAS environment is installed and configured. If there are multiple SAS servers in the deployment, begin with the SAS Metadata server, then the SAS Application server and then finally the SAS Web Applications server. These could be all on one physical server or spread across multiple physical servers.

Figure 10: <SAS Configuration Directory>\Lev1\n
<table>
<thead>
<tr>
<th>Name</th>
<th>Date modified</th>
<th>Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AppData</td>
<td>5/16/2012 3:27 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>10/11/2011 2:31 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>BLBATCH</td>
<td>10/11/2011 2:31 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>ConfigData</td>
<td>10/11/2011 2:22 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>ConnectSpawner</td>
<td>10/11/2011 2:26 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>CustomAppData</td>
<td>10/11/2011 2:50 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>10/11/2011 2:20 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>DeploymentTesterServer</td>
<td>10/11/2011 3:55 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Documents</td>
<td>10/11/2011 4:25 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Logs</td>
<td>10/11/2011 2:20 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>ObjectSpawner</td>
<td>10/12/2011 4:24 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>SASApp</td>
<td>6/7/2012 9:56 AM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>SASMeta</td>
<td>10/11/2011 3:04 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>SchedulingServer</td>
<td>10/11/2011 2:23 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Shared</td>
<td>10/11/2011 3:02 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Temp</td>
<td>10/11/2011 2:27 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>10/11/2011 4:25 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>Web</td>
<td>10/11/2011 2:34 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>WIPSchedBatch</td>
<td>10/11/2011 2:32 PM</td>
<td>File folder</td>
<td></td>
</tr>
<tr>
<td>level_env</td>
<td>10/11/2011 2:20 PM</td>
<td>Windows Batch File</td>
<td>2 KB</td>
</tr>
<tr>
<td>sasv9_meta</td>
<td>10/11/2011 2:20 PM</td>
<td>SAS Configuration...</td>
<td>1 KB</td>
</tr>
</tbody>
</table>

In the presentation, we will delve into the directories and the information they hold. The main ones we will be discussing are:

- Documents
- Logs
- SASApp
- SASMeta
- Utilities

We will also explore the SAS Management Console to see what information is easily leveraged about a SAS environment.
Who
Who installed/deployed the SAS environment? What credentials were used? This can be determined by looking at
the user directories in Windows. If you are on UNIX/Linux, you can look in the /home/ directories. The file you are
looking for is SDWPrefs.txt. There are various other files as well depending on the type of installation.

CONCLUSION
Companies using SAS Software should have documentation that outlines the details about the SAS environment.
When that documentation is sparse, non-existent or out of date, users can find out information about the SAS
environment by using the methods in this paper.

REFERENCES
SAS Technical Support Website www.support.sas.com

CONTACT INFORMATION
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