Paper 302-2008

Best Practices for SAS[®] Business Intelligence Administrators: Using the Configuration Troubleshooter to Keep SAS[®] Solutions and SAS[®] BI Applications Running Smoothly

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ABSTRACT

There is a tool that will help pinpoint access problems, check that security has been implemented correctly, debug WebDAV configuration issues, monitor the health of the Web application server, and more for your SAS[®] Business Intelligence installation. It will even allow you to create checks of your own, comparing configuration files to standards that you define. This tool is the Configuration Troubleshooter, and it is invaluable for creating and maintaining a smooth-running BI environment. This presentation will teach you how to use the Configuration Troubleshooter for maintenance and troubleshooting. Using case studies collected from SAS Technical Support, we will step through the process of problem discovery, investigation, and resolution using this tool.

WHAT IS THE CONFIGURATION TROUBLESHOOTER?

The Configuration Troubleshooter is a plug-in for SAS[®] Management Console that is used to query and display the configuration of a SAS Business Intelligence environment. The Configuration Troubleshooter gathers configuration data from three main sources: the SAS[®] Metadata Repository; Web servers and Web application servers; and configuration files, and displays the data in a window for review and interpretation. With the data in one location, configuration and setup information can easily be examined, passed to SAS Technical Support, or stored for later use.

Almost as important as what the Configuration Troubleshooter does is what it does **not** do; it does not make any configuration changes to your SAS Business Intelligence platform. This makes it safe for beginners as well as experienced SAS Administrators to use.

HISTORY

The Configuration Troubleshooter was initially created for developers of SAS BI products to use internally. It was first used with SAS[®] Web Report Studio to pinpoint early configuration problems. This small tool was useful enough that it was passed to SAS international consulting divisions. They found it so useful that it was developed into a product to help SAS customers troubleshoot and report on their own SAS BI configuration issues.

The Configuration Troubleshooter is now at version 3.1. The two most important additions in this version are the expanded online help and the new ability to download changes or updates from the SAS Customer Support Web site. Another addition that some customers might find useful is a Web agent that reads configuration files that are not available over a network-mapped disk drive. This agent is a small, Web application that is based on Java and can be installed on any of the three Web application servers (Apache Tomcat, BEA WebLogic, or IBM WebSphere) that are supported by the SAS BI platform.

STRUCTURE

The basic unit of inquiry in the Configuration Troubleshooter is the Rule, and Rules are collected into Models. SAS delivers a core set of Rules and Models in the Configuration Troubleshooter and SAS Administrators can extend these Rules and Models or add new ones to support site-specific requirements. A third element of the structure is the Profile, which the SAS Administrator customizes to identify the servers and applications that need to be checked.

To make a query, the SAS Administrator selects and runs a model. The results of the model are displayed in a summary screen that indicates a result status of **OK**, **problem**, or **"check it out"** for key rules that are included in the model. The SAS Administrator can drill into more detail about the results.

Rules can be simple or complex and encapsulate the processes for performing two types of tasks:

- comparing values
- listing information

Models are groupings of rules designed to address a specific task. For convenience, we describe three general categories, although the underlying structure of all models is the same:

- Error Models are used to diagnose a particular error.
- Diagnostic Models are used to support general troubleshooting.
- Exploratory Models are used to observe the system's current state.

A wizard helps the SAS Administrator create and edit profiles. Configuration Troubleshooter can maintain more than one profile, for example, to distinguish between development, test, and production environments.

A "manager" option in Configuration Troubleshooter enables the SAS Administrator to view all of the rules and all of the models defined in the system. An administrator can create and name custom models by grouping existing rules, and advanced users can create new rules.

RULES

In its most simple form, a *Rule* compares one value to another. Those values can come from a configuration file, the SAS Metadata Repository, or a Web server. The values can be compared to another such value from a different source or to a predefined constant, such as **true**.

The example in Display 1 shows a comparison of the SAS Workspace Server property **Currently running**, on the left, with the constant **true**, on the right.

🛞 Rule #3 (Model: I	General)						_ 🗆 ×
Name: Workspace si Description: Verifies ID: 504 Instructions: Click on that particular object.	erver: server is runn that the workspace one of the below of	ing server is running. njects to evaluate the	rule for th	at particular object.	Double click an obje	ct to view a list of pro	perties for
SASWorkspaceServe	r			Constant			
Object	Property	Value		Object	Property	Value	
SASMain - Workspa	Currently running	true	 Image: A second s	Constant	true	true	
Explanation SASWor	Explanation SASWorksnaceServer Constant						
The workspace set	ver is running.						•
Help						Refresh	ок

Display 1. Workspace Server: Server is Running

The green check indicates that the values match.

Comparison rules might compare a configuration value to a constant, as shown in Display 1, or to other configuration values. They can even compare a list of related configuration values to another list. *Display rules* are simple reports of values, such as the list of ports, as shown in Display 2.

erverComponent			
Object	Property	Value	
ASMain - Workspace Server	Port	8591	
ASMain - Stored Process Server	Port	8601	
ASMain - SAS Data Step Batch Server	Port	-1	
ASMain - Spawner	Port	8581	
rocess Manager	Port	1966	
ASMain - Java Batch Server	Port	-1	
TTP DAV Server	Port	8300	
/eb Application Server	Port	7001	
QL Server	Port	0	
cora	Port	0	

Display 2. List of Ports

Informational rules do not list any site-specific information. Instead, they list troubleshooting steps, such as the steps for troubleshooting a Web Distributed Authoring and Versioning (WebDAV) installation as shown in Display 3.

🕅 Rule #10 (Model: General)	_ 🗆 ×
Instructions: There may not be an error but please read the below comment for more information.	
Explanation Comment	
405 method not allowed	
404 not found	
403 forbidden	
Common checks for correct WebDav configuration include:	
Common checks for correct WebDay configuration include: 1) Is the WebDAV server running?	
2) Did you create the DAV directory according to the steps provided in the instructions.html file? For Apache, this is a physical disstem, the name is case-sensitive. For Xythos, this is a virtual directory.	irectory on the
3) Can you access the webdav site from a browser? If not, then the physical DAV server is not configured properly. For Xythos,	, confirm that the
SAS Web Administrator was given all permissions to the DAV subdirectory; these instructions are also given in the instructions.html	ml file.
4) Did you create the HTTP server definition correctly in the SAS Management Console? It needs the host, port and the /dav path	ι, spelled correctly
and enabled for webDav.	
5) In the SAS Management Console, can you expand the BIP Tree? Confirm that the machine and port are correct in the BIP Tree use Xythos, confirm the username and password are correct in the BIP Tree properties. If you have existing reports, see if you content of the BIP Tree.	e properties. If you an view properties
for them.	
0) Check the SAS Inteladata Server log for errors	
 Is the SAS Web Administrator's password correct in the WebReportStudioProperties xml file? If the password is encoded, use 	PROC
PWENCODE to compare encoded values.	
9) Can the SAS Web Administrator log in to the SAS Management Console? Make sure that the SAS Web Administrator has a me	tadata identity, and
reset the password for this user on the system if needed.	
10) Check the SAS Web Report Studio log errors.	
You can find more information on WebDay Configurations <u>here</u> .	
	efresh OK

Display 3. WebDAV Troubleshooting Tips

CASE STUDIES

To demonstrate the process of problem discovery, investigation, and resolution using the Configuration Troubleshooter, we've collected five case studies from SAS Technical Support. Each case study focuses on one element of the process.

- Case Study 1: Gather information to facilitate setting up a firewall for a production deployment. Use the pre-defined Server model to describe the distribution of SAS servers, ports, and access to each server.
- Case Study 2: Investigate potential permission problems that could be causing a user's inability to access some of the functionality of a SAS solution. Use the pre-defined Users model to help analyze user assignments, file permissions, and permission group assignments.
- Case Study 3: Investigate an intermittent problem that periodically prevents a user from accessing tables in a library defined in the SAS[®] Metadata Server. Use the pre-defined Library model to analyze library assignments, associations, and permissions.
- Case Study 4: Investigate potential conflicts in the WebDAV environment. Use the pre-defined WebDAV model to compare configuration settings with typical or expected values.
- Case Study 5: Gather information to facilitate moving a repository to a different environment, such as a bigger host server, or updated hardware. Use the predefined General Repository Migration model to identify and explore configuration files and identify settings that need to be reviewed or revised in order to support the new environment.

CASE STUDY 1: USING THE SERVERS MODEL WHEN SETTING UP A FIREWALL

One of our customers was setting up tighter security on his production system. He needed to know what SAS servers were running, where they were running, what ports they were using, and who had access to each server. Gathering this information might be an annoyance for an experienced SAS BI administrator, but it was overwhelming for the unfortunate user whose job was just to install a firewall. Server model to the rescue (Display 4)!

🕅 SAS Management Console - M/	SAS Management Console - MAandWRS						
<u>File Edit View Actions Tools Ro</u>	admaps <u>H</u> elp						
🖻 🍙 h 🛍 🗙 勝 🛱							
Repository: 🚺 Foundation				-			
Data Library Manager Metadata Manager	Applications: All	▼ Турез	All	•			
🕀 👰 Schedule Manager	Application	Name	Туре	Profile Defined Version			
Configuration Troublesh	Conorol		Evelore	▲			
SGF2008	General	Logins	Explore				
🗄 🖃 🛄 Batch Inputs	General	Repository	Explore				
🗄 📃 Batch Results	General	Servers	Explore				
🗄 🕀 🔊 Server Manager	General	Users	Explore				
🔛 🖳 😰 User Manager	General	Web Servers and Web Applications	Explore	•			
🕀 😥 XMLMap Manager			1				
🗄 🖽 Publishing Framework	🚺 🛈 This model returns basic	: information about all servers currentl	y defined.				

Display 4. Server Model

We showed the user how to select and use the Server model in the Configuration Troubleshooter plug-in for the SAS Management Console, shown in Display 4. The summary of results is shown in Display 5. Each row lists one rule. The result obtained from running each rule is displayed graphically in the column on the right.

🥎 G	ieneral (Profile: SGF2008)	l ×
O <u>p</u> tio	ns	
#	Name	Re
1	Server: HostName	 Image: A second s
2	Server: Port	V
3	Server: Supported domains	▲
4	Server: Supported User IDs	 Image: A set of the set of the
, <u> </u>	elp OK	

Display 5. Results of Running the Server Model

Of course, we want the details. Detailed results for rule 1 are pictured in Display 6 which shows the servers and the machines that host them.

🐧 Rule #1 (Model: General)		_	□ ×			
Name: Server: HostName Description: Lists the host name for each server. ID: 249						
Instructions: Click on one of the below (particular object. Double click an objec particular object.	objects to ev t to view a lis	aluate the rule for that at of properties for that				
ServerComponent						
Object	Property	Value				
SASMain - Workspace Server	HostName	ma01.trc.sas.com				
SASMain - Stored Process Server	HostName	ma01.trc.sas.com				
SASMain - SAS Data Step Batch Server	HostName	ma01.trc.sas.com				
SASMain - Spawner	HostName	ma01.trc.sas.com				
Process Manager	HostName	ma01.trc.sas.com				
SASMain - Java Batch Server	HostName	ma01.trc.sas.com				
HTTP DAV Server	HostName	ma02.trc.sas.com				
Web Application Server	HostName	ma02.trc.sas.com				
Explanation ServerComponent This is an informational rule, and is designed to help with data searches and to evaluate and explore metadata. 						
Help		Refresh OK	•			

Display 6. Details of Rule 1, Servers and Hostnames

Display 7 contains a listing of the ports for the servers that are defined to the metadata repository. Notice that you can expand the window to see all of the servers listed or scroll through them using the scroll bar on the right.

🕅 Rule #2 (Model: General)			_ 🗆 🗙				
Name: Server: Port Description: Lists the port for each server. ID: 250							
Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.							
Object	Property	Value					
SASMain - Workspace Server	Port	8591					
SASMain - Stored Process Server	Port	8601					
Explanation ServerComponent This is an informational rule, and is designed to help with data searches and to evaluate and explore metadata.							
Help	<u>R</u> efresł	n	ок				

Display 7. Servers and Their Ports

Display 8 shows the list of the authentication domains associated with each server.

ኺ Rule #3 (Model: Gener	al)		_ 🗆 ×			
Name: Server: Supported domains Description: Lists the supported domains for each server. ID: 251 Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.						
ServerComponent						
Object	Property	Value				
TITE DAY Server	Domains	Deraukkum				
Web Application Server	Domains	DefaultAuth				
SQL Server	Domains	OledbAuth				
trcora	Domains	TrcOraAuth	•			
Incora Domains IncoraAuth Explanation ServerComponent This is an informational rule, and is designed to help with data searches and to evaluate and explore metadata.						
Help		Refresh	ок			

Display 8. Servers and Authentication Domains

This last rule, shown in Display 9, lists all of the supported users for each server. After less than 15 minutes of research, our firewall installer knew which users needed to be able to use which servers through which ports.

ζ	🕅 Rule #4 (Model: General)			□×
	Name: Server: Supported User IDs Description: Lists the supported u ID: 246 Instructions: Click on one of the be of properties for that particular obje	s ser IDs for each low objects to (ect.	n server. evaluate the rule for that particular object. Double click an object to view	v a list
	ServerComponent			
	Object	Property	Value	
	SASMain - Workspace Server	SupportedUs	John Kelsey, SAS Administrator, SAS Demo User, SAS Guest, SAS Trusted	
	SASMain - Stored Process Server	SupportedUs	John Kelsey, SAS Administrator, SAS Demo User, SAS Guest, SAS Trusted	
	SASMain - SAS Data Step Batch S	SupportedUs	John Kelsey, SAS Administrator, SAS Demo User, SAS Guest, SAS Trusted	
	Explanation ServerComponent	,		
	This is an informational rule, an	d is designed t	o help with data searches and to evaluate and explore metadata.	▲ ▼
	Help		<u>R</u> efresh OK	

Display 9. Supported Users

CASE STUDY 2: TROUBLESHOOTING PERMISSIONS WITH THE USERS MODEL

A customer called SAS Technical Support because he was unable to use some of the functionality of the primary product I support, SAS[®] Marketing Automation. I knew that other customers at this site had been able to use the missing functionality, so I suspected a permissions problem. We ran the Users model in his Configuration Troubleshooter, focusing on the first two rules in particular. We looked at Rule 2 first, because so many problems that at first appear to be BI Platform issues later turn out be UNIX directory-permissions problems (Displays 10 and 11).

🐧 G	eneral (Profile: SGF2008)	_ 🗆 ×
Option	8	
#	Name	Res
1	User: Identity groups	A
2	Logins: matches between logins and users	A
3	User: User is included in a SAS workspace server's credential list	A
4	OLAP server: user included in credential list	×
5	User: list of trusted users	<u> </u>
He	β	OK

Display 10. Results of Running the Users Model

ኺ Rule #2 (Mode	el: General)						_ 🗆 🗙
Name: Logins: matches between logins and users Description: Lists the matches between logins and users. ID: 128							
Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.							
Person				Login			
Object	Property	Value		Object	Property	Value	
John Kelsey	Logins belongin	europe\sukjke		europe\sukjke	Displayable Name	europe\sukjke	
testUser	Logins belongin	sasdemo		sasdemo	Displayable Name	sasdemo	
emmas	Loains belonain	ma01 \emmas		ma01\emmas	Displayable Name	ma01\emmas	•
Explanation Person Login A user can be associated with multiple logins. The login can be inherited as part of a group, or specified for an individual under their own personal identity. You can check individual logins by clicking on the User manager, clicking on the user that you wish to examine, and then select the logins tab. This will give a listing of the logins that a user has assigned specifically to them.							
Help						Refresh	ок

Display 11. Detailed Results from the Logins Rule

This rule lists all of the SAS users that are registered in the SAS Metadata Repository on the left. On the right side of the window, all of the logins known to the SAS Metadata Repository are listed. This rule enables us to select a user and then see which operating system logins are associated with that ID. In Display 11, we can see by the green check on the right that testUser is associated with the operating system login sasdemo. We kept our setup very simple, but it's possible for a given SAS user to have multiple logins for multiple domains.

We can also use this rule to see which SAS IDs are associated with a particular operating system login. To do this, we select a value on the right and view the green-checked values on the left. In this case, we found the operating system login for our SAS user, and then checked the file permissions to make sure that the login ID was allowed by the operating system to read and write in the necessary directories. It was.

That didn't solve our problem, so next we took a look at the permissions group assignment for the user. SAS Marketing Automation has two special permissions groups that control what a user is allowed to do. The rule shown in Display 12 lists all SAS BI users on the left and all SAS BI groups on the right. When you select a user, green checks appear to the right of all of the groups associated with that user. Similarly, when you select a group, green checks appear to the right of all users that are in that group.

🕅 Rule #1 (Model: General)			_ 🗆 ×				
Name: User: Identity groups Description: Specifies the identity groups that a user belongs to. ID: 108 Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.							
Person	User Groups						
Value	Object	Property	Value				
SAS Guest	SAS General Servers	Users belong to ea	John Kelsey				
SAS Demo User 🗸 📃	MarketingAutomationAdvancedUser	Users belong to ea	John Kelsey				
SAS Web Administrator	MarketingAutomationNoviceUser	Users belong to ea	SAS Guest				
🛛 John Kelsey 🛛 🗸 🛁	Portal Admins	Users belong to ea	John Kelsey				
t itestUser 🗸 🔽	Portal Demos	Users belong to ea	SAS Demo				
Explanation Person User Groups Specifies the user groups that the selected user belongs to. This is an informational rule, and is designed to help with data searches and to evaluate and explore metadata.							
Help		_	Refresh OK				

Display 12. Details of the Users Model

Bingo! Our user was not in the correct permissions group. We used the User Manager Plug-in in the SAS Management Console to assign him to the MarketingAutomationAdvancedUser group, and this immediately solved his problem!

CASE STUDY 3: USING THE LIBRARY MODEL

Our next problem is a strange situation at a customer site where users appeared to intermittently lose access to the tables in a library that was defined in the SAS Metadata Repository. The problem did not seem to be related to the user or the time of day. We ran the library diagnostic, which checks the following:

- which libraries are preassigned
- which libraries are associated with which Workspace Server (that is, which server context)—for example, a SAS/SHARE[®] server context versus the SASMain context
- which **users** have been granted direct read permissions for a given library (Neither this rule, nor the group permissions rule, traces inherited permissions.)
- which **groups** have been granted direct read permissions for a given library

We ran the Diagnostic model for this particular library by choosing **Run Model with User Input** when asked, and then as shown in Display 13, specified the library, **telco**.

🕅 Run Model with Use	r Input		×
D	ata Library	telco 🔽]
	ок	Cancel	

Display 13. Data Library Specified as telco

Running this model, we could see that the users and groups all had the appropriate permissions. We asked the System Administrator to check the operating system permissions, to see if they had been changed, and they had not. We then looked at the rule Library, as shown in Display 14.

👚 Rule #1 (Model: General)				_ 🗆 ×
Name: Data library: library is preassigned Description: Identifies libraries that are preassign ID: 551	ed.			
Instructions: Click on one of the below objects to e to view a list of properties for that particular object.	evaluate	the rule for that pa	articular object.	Double click an object
Data Library		Constant		
Object Property Value		Object	Property	Value
telco Preassigned Libraries true	✓	Constant	true	true
Explanation Data Library Constant		[<u>F</u>		
A library is marked as preassigned. Preassigne	d librari	ies are required fo	r certain functi	ons such stored 📩
processes.				
				•
Help			Refr	esh OK

Display 14. Library Is Preassigned Rule

This library was, indeed, preassigned. This came as a surprise to the customer who had called in the problem. He explained that rather than preassigning the library, they defined the library in their user-defined code that ran within our application. These two library definitions were interfering with each other, confusing the SAS Metadata Server into closing the library after the user-defined code completed. Once the library was closed, it no longer acted like a preassigned library. The customer decided to stop using this libname in his code and the problem disappeared.

CASE STUDY 4: GETTING WEBDAV UP AND RUNNING USING THE WEBDAV MODEL

Many of our BI client applications rely on a WebDAV server to store and manage text files. Recall that WebDAV stands for Web Distributed Authoring and Versioning. It can be thought of as a Web-accessible file server. The SAS® Information Delivery Portal, SAS Web Report Studio, and SAS Marketing Automation all use WebDAV to enable users to manage and share BI files. When a customer called SAS Technical Support and was unable to use SAS Web Report Studio or SAS Marketing Automation, we suspected the WebDAV server was incorrectly configured. Fortunately, we have a diagnostic model set up to help you get this server up and running within the BI Platform.

Display 15 shows the tests that are performed for each of the rules in the WebDAV model.

🥎 G	_ 🗆 🗙					
Optio	ns					
#	Name	Result				
1	BIP Tree: DAV Server exists					
2	PBIP Tree: DAV Server content base paths match					
3	HTTP Server: DAV support					
4	WebDav server: DAV location is accessible					
	5 BIP Tree: 'Day Port' matches the HTTP server 'Port'					
6	Logins: Domain matches HTTP server domain					
7	WebDAV: Troubleshooting common errors 405, 404, 403	0				
8	HTTP Server: HTTP server exists in the repository.	v				
9	HTTP Server: server is running	v				
H	Help OK					

Display 15. Tests for the WebDAV Model

As Display 16 illustrates, the details for the first rule show the Web address that has been defined for the WebDAV server.

🕅 Rule #1 (Model: General)							
Name: BIP Tree: DAV Server exists Description: Verifies that the BIP Tree contains a content server. ID: 102							
Instructions: Click on one of the belo to view a list of properties for that pa BIP Tree	Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.						
Object	Property	Value					
BIP Tree	DAV Server	http://ma02.trc.sas.com:8300/sasdav/wrs					
Explanation BIP Tree							
BIP references a content server.							
							
Help		<u>R</u> efresh O	<				

Display 16. Web Address Defined for the WebDAV Server

If you type that Web address into a browser while your WebDAV server is running, then type in your SAS Administrator user ID and password when asked for authentication, you will see a list of directories and files served by the WebDAV server. In our customer's case, this check went fine. We knew that the WebDAV server was functioning and was accepting the customer's SAS Administrator user ID.

Many of the other rules compare the definition of the WebDAV server under the SAS Management Console Server Manager to various values to make sure everything connects appropriately. As Display 17 shows, Rule 2 compares the path expected by the BI Manager BIP Tree to the Server Manager definition. As it turned out, this was the problem with the customer's configuration.

🕅 Rule #2 (Model: General)						
Name: BIP Tree: DAV Server content base paths match Description: Verifies that the base paths specified by the HTTP server and the BIP Tree properties match. ID: 114						
Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to view a list of properties for that particular object.						
BIP Tree HTTP Server						
Object Property Value Object Property Value						
BIP Tree DAV Base Path /sasdav/wrs HTTP DAV Ser Content Locatio /sasdav/wrs						
Explanation BIP Tree HTTP Server						
The base path specified in the BIP tree matches the base path of the HTTP server.						
Help OK						

Display 17. Details of Rule 2

To perform the same check without the Configuration Troubleshooter, the customer would have had to go to BI Manager plug-in ▶ BIP Tree. Then, right-click BIP Tree and select Properties, then select the Content Mapping tab (which is shown in Display 18).

🕅 SAS Management Console - MAandWRS						
<u>File Edit View Actions Tools Roadmaps H</u>	elp					
🙃 🚘 🗈 📾 🗙 🖄 🖉 👘 🗖						
	Properties X					
Repository: 🚺 Foundation	Content Manning Quethovisation					
SAS Management Console						
Environment Management	ontent mapping					
Access Control Terr File s	ystem					
Erria Permissions	p <u>a</u> th:					
Er-Sig Bl Manager Er-Sig BlP Tree	DAV location					
Erve	er: HTTP DAV Server					
E Base Base	path: /sasdav/wrs					
Marketing Automatio	http://ma02.trc.sas.com:8300/sasdav/wrs					
🗄 📃 SAS Data Integration 👘 User	ID: ma01\saswbadm					
E - Data Library Manager E - Metadata Manager Pass	word: *******					
Configuration Traublech	rm password: ********					
SGF2008						
III : i itim Batch Innuts						

Display 18. Details of the Content Mapping Tab

As shown in Display 19, to get the right side of the comparison, the customer would have to go to **Server Manager** > **HTTP DAV Server**. Then right-click **HTTP DAV Server**, select **Properties**, and then select the **Options** tab.

As shown in Display 15, the third rule in the WebDAV model checks that WebDAV is supported by the HTTP Server. To get this information, the customer would view the HTTP DAV Server Properties as shown in Display 19, highlight the listed **Base Path**, click **Edit**, and check that the base path and **Supports WebDAV** properties were correct. For all of this, you'd need to know what you're looking for and be able to remember where to find it.

SAS Management Console - M/r	Ref 13 contra	
File Edit Minu Actions Tools Ro	HTTP DAV Server Propert	iies X
🖻 🍺 🖻 🎕 🗙 🔌	General Options Notes	Extended Attributes Authorization
Repository: 🚺 Foundation		
ReportStudio	Software Version:	4 0 48
⊞⊒ Samples ⊡⊒ Marketing Automatio	Vendor:	Xythos
	Application Server Type:	(None)
T - Data Library Manager		_
E Metadata Manager	Base Path(s):	Available item <u>s:</u> Selected items:
E 🔞 Schedule Manager		✓ /sasdav/wrs
🖃 🕺 Configuration Troublesh		
🕂 🚟 SGF2008		<u> </u>
🗄 📃 Batch Inputs		
🗄 🗀 Batch Results		
🖻 📣 Server Manager		New Edit Delete
🗄 😤 SASMain		
🗄 📑 SASMain - Spawnei		Edit Base Path
🗄 🔡 Process Manager		
HTTP DAV Server		Base Path: Reactor tours
🛨 😓 Web Application Ser		
E SQL Server		Description:
🛨 🔛 trcora		
🔛 User Manager		Comparing Mark D 01/
H 2 XMLMap Manager		
E - 1 Publishing Framework		
Foundation Services Ma		OK Cancel Help
E S Annie Henter		
Application Monitor		
T Maintenance		
E Marketing Automation		
		OK Cancel <u>H</u> elp

Display 19. HTTP DAV Server Properties Options Tab

The other rules are similar, except rules 7 and 9. Rule 7 is an informational rule that gives further troubleshooting hints for WebDAV configurations. Rule 9 contacts the HTTP server to make sure it is running. The problems with WebDAV configuration are so much easier to solve when all of the details are laid side by side by in the Configuration Troubleshooter, but are tricky without the Configuration Troubleshooter.

CASE STUDY 5: MIGRATING A REPOSITORY USING THE GENERAL REPOSITORY MIGRATION MODEL

The final case study focuses on migrating a repository. It is not uncommon for customers to call and let us know that they are moving their repository to a bigger server or merely retiring their old one. But the names of the servers are stored in places the customer doesn't even remember, throughout the metadata repository. What do we do? We run the General Repository Migration diagnostic model.

When the model is run, the first thing it does is ask where to search for the configuration files. If you happen to know where these files are, you can enter the exact location. Otherwise, enter the path to the /Lev1 directory on the SAS Metadata Server machine and the Configuration Troubleshooter will do the rest. The results will most likely appear as all yellow triangles, as shown in Display 20. The yellow triangle denotes information that needs to be examined by a SAS Administrator in order to be interpreted.

🕅 G	eneral (Profile: SGF2008)	⊐ ×			
Option	8				
#	Name	Re			
1	Repository: Authentication domain matches server's domain	4			
2	Server: Host matches which login prefixes	▲			
3	Repository: Authentication domain matches login's domain	▲			
4	Users: list of administrative users	-			
5	User: list of trusted users	-			
6	Repository: Host name matches a server's host name	-			
7	Repository: Host name matches a service's host name	-			
8	Logins: hostname prefix matches the repository's host name	▲			
Identifies the matches between the server hosts and machine-specific login prefixes. Logins in the repository may or may not					
He	lp Of	(

Display 20. Results of Running the General Repository Migration Model

There is not sufficient space to go into each of these rules in depth, but I will show details of one of these rules. As shown in Display 21, Rule 8 gathers and displays all of the login IDs, allows you to sort by domain, and puts a red **X** by any of the login IDs that do not have the same domain as the highlighted repository.

🕅 Rule #8 (Model: General)							
Name: Logins: hostname prefix matches the repository's host name Description: Logins prefixed with hostname match repository's host name ID: 516 Instructions: Click on one of the below objects to evaluate the rule for that particular object. Double click an object to							
Repository	roperties for tha	t particular of	oject.	Login			
Object	Property	Value		Object	Property	Value	
Foundation	MachineName	ma01		ma01\sassrv	Login ID includes host machi	ne ma01	V 🔺
				ma01\saswbadm	Login ID includes host machi	ne ma01	
				sm	Login ID includes host machi	ne	×
				europe\sukjke	Login ID includes host machi	ne europe	×
				sasdemo	Login ID includes host machi	ne	× –
				ma01\emmas	Login ID includes host machi	ne ma01	
Explanation Repository Login This is an informational rule, and is designed to help with data searches and to evaluate and explore metadata.							
Help					Re	fresh	ок

Display 21. Details of Rule 8

The detailed configuration information displayed for any of these rules can also be stored for later reference by creating Batch Inputs and Batch Results. **Note:** Creating Batch Inputs and Batch Results is beyond the scope of this talk, but they are well documented in the online help.

THE CONFIGURATION TROUBLESHOOTER MANAGER

The Configuration Troubleshooter Manger allows you to view all of the rules at once, create and name your own models by grouping rules as you like, and even allows the advanced user to create new rules.

To get to the Configuration Troubleshooter Manager, right-click **Configuration Troubleshooter** and select **Manager**, as shown in Display 22.

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<u>File Edit View Actions T</u> ools	<u>R</u> oadmaps <u>H</u> elp	
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Repository: 间 Foundation		
🖽 🗐 Data Library Manager	Name	Түре
🖽 🖽 Metadata Manager		Profile
E () Schedule Manager	Batch Inputs	Folder
Configuration Troubleshoo		Folder
SGF2008	O Retresh	
🗄 📃 Batch Inputs	💥 New Profile	
🗄 📃 Batch Results	955 Manager	
📃 🕀 🔊 Server Manager	Ve Manager	
•	Updates	
3 object(s)	About Configuration Troubleshooter	💽 🛐 ma01.trc.sas.com : 8561

Display 22. Accessing the Configuration Troubleshooter Manager

In the next window, select **File > Rules**, as shown in Display 23, to see all of the rules.

🎏 The Config	juration Troubleshooter Manager 📃 🗖 🗙
File Preference	is <u>H</u> elp
Rules	
Models 19 Exit re roubleshout customize th	er is used to create and edit rules and models used by the Configuration Troubleshooter, when a made or items are created they will automatically be detected by the Configuration oter by just refreshing the Configuration Troubleshooter tree. By using this manager, you can ne Configuration Troubleshooter to better address your configuration or problem.
To create or	edit either a model or a rule select the appropriate option from the File menu.
For help wit	n creating and editing either models and rules select the appropriate option from the Help menu.

Display 23. Accessing the Rules in the Configuration Troubleshooter Manager

The window shown in Display 24 normally comes up with a list that shows ALL of the rules. To see a specific subset of rules, we can choose filters and then click the **Filter Rules** button. The results of setting such a filter are shown here.

攬 The C	onfigur	ation Troubleshooter Manager		_ 🗆 ×
<u>File</u> Prefe	rences	<u>H</u> elp		
lf you wisl wish to cr	h to edi eate a i	t a rule then filter the rules using the below of new rule then press the New button.	ptions, select the desired rule and press the (Dpen button. If you
Object:	User G	roups	▼ Include Predefi	ned Rules
Property:	All		🔽 🔽 Include Custo	m Rules
Rules:		Fit	r Rules	
ID	I	Name	Description	Predefined
108		User: Identity groups	Specifies the identity groups that a user belong	
132		Person: User group membership	Lists the membership of each user group and t	
215		Logical server: 'Pooled Login' matches a login f	Verifies that the pooled login for a logical serve	
523		Group: Read permission for data libraries	Identifies the groups who have been granted re	
575		Access control entry: Use by identities	Identifies the access control entries used by ea	
Help		Open	New	Close

Display 24. Filtering Rules in the Configuration Troubleshooter Manager

We can then choose **File Models** to create a model of our own that contains all of these rules. Similarly, we could create a model that contains all HTTP rules.

CONCLUSION

As you can see, the Configuration Troubleshooter can be a powerful time-saver. The models we covered in this paper, and many more, can even be run in batch so that the health of the system can be monitored and documented automatically. You can use the Configuration Troubleshooter models to solve problems on your own or share your results with SAS Technical Support if your system ever has a problem that you are unable to solve on your own. The ease of looking at historical and current data across the entire BI Platform makes pinpointing the source of any problems faster and more accurate.

The Configuration Troubleshooter is still early enough in its lifecycle that customers like you can make a difference in how it develops. You can do this by providing feedback on how we can make it more useful for you, as well as by submitting rules, models, and anecdotes of your Configuration Troubleshooter experience.

CONTACT INFORMATION

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