Configuration Guide

Configuring Apache HTTP Server as a Reverse Proxy Server for SAS® 9.3 Web Applications Deployed on Oracle WebLogic Server

This document describes how to configure Apache HTTP Server as a reverse proxy server to a WebLogic server that is hosting SAS 9.3 Web applications. In particular, this document highlights steps specific to SAS that are required when you set up an HTTP server for SAS Enterprise BI Server Web applications. You can set up an HTTP server in many ways, depending on your individual operating environment and business needs. However, this document focuses on one possible configuration as an example.

Note: The information in this document supplements the Oracle's WebLogic Server documentation that describes how to configure Apache HTTP Server with the WebLogic server plug-in. The WebLogic Server documentation is provided in Using Web Server Plug-Ins with Oracle WebLogic Server.

Configure the WebLogic Server Plug-In to Apache HTTP Server

To configure Apache HTTP Server with the WebLogic Server plug-in, follow these steps:

1. Locate the correct plug-in in ***WL_HOME*/server/plugin/** based on your operating system and architecture:

Operating System	Location
Solaris	***WL_HOME*/server/plugin/solaris/sparc** ***WL_HOME*/server/plugin/solaris/sparc/largefile** ***WL_HOME*/server/plugin/solaris/x86** ***WL_HOME*/server/plugin/solaris/x86/largefile**
Windows 32-bit	***WL_HOME*/server/plugin/win/32**
HP-UX 11i	***WL_HOME*/server/plugin/hpux11/IPF64**
AIX	***WL_HOME/server/plugin/aix/ppc***
Linux	***WL_HOME/server/plugin/linux/x86_64***
Windows	*Note that for SAS 9.3, SAS only supports the Midtier on 64-bit servers. Only a 32-bit Apache Plugin is made available in the Weblogic installation. The user can run a 32-bit Apache in front of 64-bit Weblogic servers.*

After locating the correct directory, choose the correct file:

Apache HTTP Server Version	Regular Encryption	128-bit Encryption
Standard Apache Version 2.0.x (Note that Oracle has deprecated the 2.0.x Apache plugin as of WLS 10.0. It is still available and supported with WLS 10.3, but 2.2.x is recommended.)	`mod_wl_20.so`	`mod_wl128_20.so`
Standard Apache Version 2.2.x	`mod_wl_22.so`	`mod_wl128_22.so`

2. Copy the plug-in to the ***APACHE_HOME***`/modules` directory.
3. Edit the ***APACHE_HOME***`/conf/httpd.conf` file so that Apache HTTP Server:
   - loads the WebLogic plug-in
   - configures the plug-in with information about the WebLogic Server
   - uses the plug-in for the SAS Web applications

   Add the LoadModule, IfModule, and Location directives to the `httpd.conf` file. See the following example:

```
LoadModule weblogic_module modules/mod_wl_22.so
<IfModule mod_weblogic.c>
Include conf/weblogic.conf
</IfModule>
```

4. Create the ***APACHE_HOME/conf/weblogic.conf*** file. The following link contains a configuration file and instructions that can be copied and pasted: **support.sas.com/resources/thirdpartysupport/v93/appservers/ApacheWeblogicConfig.txt** .

Deploy SAS Web Application Themes and SAS Flex Application Themes to an HTTP Server

SAS Web Application Themes (SAS Themes) enable you to apply uniform visual customization to your SAS Web applications. Similarly, *SAS Flex Application Themes* (SAS Flex Themes) provide more visual customization and interactivity for Flex applications. These theme sets, which are collections of HTML resources such as images and cascading style sheets, reside on the same Web application server. SAS recommends that you deploy SAS Themes and SAS Flex Themes content to an HTTP server in order to shift the processing load of serving static HTML files from the Web application server to the HTTP server.

The following steps explain how to deploy SAS Themes and SAS Flex Themes to the open-source Apache HTTP Server. The process for deploying the themes to other HTTP servers is similar.

To deploy the SAS Themes:

1. Navigate to ***APACHE_HOME*/htdocs** and create a new directory named **SASTheme_default**.
2. Navigate to ***SAS-configuration-directory*/Levn/Web/Staging/exploded/**. From this directory, copy the contents of **sas.themes.ear** into ***APACHE_HOME*/htdocs/SASTheme_default**.

To deploy the SAS Flex Themes:

1. Navigate to ***APACHE_HOME*/htdocs** and create a new directory named **SASFlexThemes**.
2. Navigate to ***SAS-configuration-directory*/Levn/Web/Staging/exploded/**. From this directory, copy the contents of **sas.flexthemes2.5.3.ear** into ***APACHE_HOME*/htdocs/SASFlexThemes**.

Change the Connections for the SAS Web Applications

After SAS Themes and Flex Application Themes are deployed to the HTTP server and the SAS Web applications are distributed to different servers, information about how to access the applications such as host and port must be updated in SAS metadata. Change the connection information to a URL that includes the load-balancing HTTP server host name and port.

To change the connection access point, follow these steps in SAS Management Console.

1. Select **Application Management ► Configuration Manager**.
2. Right-click the SAS Web application that you want to reconfigure, and select **Properties.**
3. Click the Connection tab, set Host Name and Port Number to the host name and port number of the load-balancing HTTP server, and then click **OK**.

Change the Connection for SAS Content Server

Similar to the change required for each of the SAS Web applications, SAS metadata must be changed to identify the host name and port of the HTTP server. To reconfigure the host name and port of the SAS Content Server in SAS metadata, follow these steps in SAS Management Console:

1. Select **Server Manager ► SAS Content Server**.
2. Right-click the **Connection: SAS Content Server** icon in the right panel and select **Properties**.
3. Click the Options tab and set the **Host name** and **Port number** values to the host name and port number of the HTTP server.
4. Click **OK**.
5. In SAS Management Console, click the **Folders** tab.
6. Right-click the **SAS Folders** icon at the root of the folder tree in the left pane and select **Properties**.
7. Click the **Content Mapping** tab and use the Server menu to select **SAS Content Server**. The URL field then shows the HTTP Server host name and port. Click **OK**.

Change the WebDAV Repository URL

Just as in the previous step, because SAS Content Server is accessed through the HTTP server, you must reconfigure SAS metadata with the connection information for the WebDAV repository. The following applications use SAS metadata to identify the connection information for the WebDAV repository provided by SAS Content Server:

- Remote Services
- SASBIPortlets4.3 Local Services
- SASJSR168ReportPortlet4.3 Local Services
- SASPackageViewer4.3 Local Services
- SASPortal4.3 Local Services
- SASStoredProcess9.3 Local Services
- SASWebReportStudio4.3 Local Services

To reconfigure the WebDAV URL for the applications, follow these steps in SAS Management Console:

1. Select **Environment Management ► Foundation Services Manager**.
2. Select the application and then select **Core ► Information Service**.
3. Right-click **`Information Service`** and select **`Properties`**.
4. In the **Information Service Properties** dialog box, click the **`Service Configuration`** tab and then click **`Configuration`**.
5. In the **Information Service Configuration** dialog box, click the **`Repositories`** tab.
6. Select **`WebDAV`** and then click **`Edit`**.
7. Change the **`Host`** and **`Port`** values to the host name and port of the HTTP server.
8. Click **`OK`** to close the **Information Service Configuration** dialog box.
9. Click **`OK`** to close the **Information Service Properties** dialog box.
10. Restart SAS Remote Services and the Web application servers that are hosting the SAS Content Server application.

Disable the Redirection Filter for the SAS Web Applications

By default, the SAS Web applications use a special redirection filter. When used with an HTTP server, this filter must be disabled. Start SAS Management Console, and then follow these steps:

1. Select **Application Management ► Configuration Manager**.
2. Right-click **`SAS Application Infrastructure`**, and select **`Properties`**.
3. Click **`Advanced`**, and then click **`Add`**.
4. Enter a property name of **`App.RedirectionFilterDisabled`** and a value of **`true`**.

Start the Software Applications and Verify the Configuration

Start the software applications in the following order:

1. SAS Remote Services
2. Apache HTTP Server
3. the Web application server

After the Web application server is available and the SAS Web applications are active, verify that the configuration is valid by opening a Web browser to an application such as SAS Information Delivery Portal: ***your-http-server*/SASPortal**. If the configuration is valid, then you are challenged for log on credentials and then the SAS Information Delivery Portal application is available.

Troubleshooting

The following list identifies the high-level steps used to troubleshoot this configuration:

1. Confirm that Apache HTTP Server is running and that your Web browser is connecting to Apache HTTP Server by viewing the ***APACHE_HOME*/logs/access.log** file as you make a request.
2. Uncomment the `Debug` and `DebugConfigInfo` options in the `httpd.conf` file and restart Apache HTTP Server.

   The `Debug` option enables logging from the WebLogic Server plug-in to record debugging information to **/tmp/wlproxy.log** in UNIX operating environments and **c:\TEMP\wlproxy.log** in Windows operating environments.

   The `DebugConfigInfo` option enables viewing the configuration parameters for the plug-in. When this option is `ON`, it enables a special query parameter, `__WebLogicBridgeConfig`.

   In your browser, navigate to ***your-http-server*/SASPortal?__WebLogicBridgeConfig.**

   If the Web page does not display at all, then either Apache HTTP Server or the WebLogic Server plug-in is not installed correctly. If the Web page does display, then confirm that host, port, and status is OK for the servers in the General Server List.
3. View the WebLogic Server log. If there is no activity in the log when a URL for a SAS Web application is accessed, then check the following items:
   - Use SAS Management Console to review the properties for the SAS Web application and confirm that the host and port values are set to the Apache HTTP Server. Use the information in section "**Error! Reference source not found.**" for instructions on how to access the metadata.
   - Use the WebLogic Server Administration Console to check the server start up parameters. Confirm that the **-Dsas.auto.publish.port=** parameter identifies the port that the WebLogic Server is listening on. For a single WebLogic Server topology, the SAS Deployment Wizard sets the port to 7001.

Recommended Reading

The following URLs are current as of July 2011.

Oracle Corporation. 2011. *Oracle® Fusion Middleware Using Web Server Plug-Ins with Oracle WebLogic Server.* Available at
download.oracle.com/docs/cd/E21764_01/web.1111/e14395/toc.htm.