

# Configuration Guide for SAS<sup>®</sup> 9.2 Foundation for OpenVMS<sup>™</sup> on HP Integrity



## Copyright Notice

The correct bibliographic citation for this manual is as follows: SAS Institute Inc., *Configuration Guide for SAS® 9.2 Foundation for OpenVMS™ on HP Integrity*, Cary, NC: SAS Institute Inc., 2010.

### **Configuration Guide for SAS® 9.2 Foundation for OpenVMS™ on HP Integrity**

Copyright © 2010, SAS Institute Inc., Cary, NC, USA.

Some software included in SAS Foundation may display a release number other than 9.2.

All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, by any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute Inc. Limited permission is granted to store the copyrighted material in your system and display it on terminals, print only the number of copies required for use by those persons responsible for installing and supporting the SAS programming and licensed programs for which this material has been provided, and to modify the material to meet specific installation requirements. The SAS Institute copyright notice must appear on all printed versions of this material or extracts thereof and on the display medium when the material is displayed. Permission is not granted to reproduce or distribute the material except as stated above.

U.S. Government Restricted Rights Notice. Use, duplication, or disclosure of the software by the government is subject to restrictions as set forth in FAR 52.227-19 Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries.

® indicates USA registration.

Other brand and product names are trademarks of their respective companies.

## Table of Contents

<b>Chapter 1 – Introduction .....</b>	<b>1</b>
Audience .....	1
Understanding This Book.....	1
Contacting SAS.....	1
Accessing Release Documentation .....	1
<b>Chapter 2 – Restricted Options .....</b>	<b>3</b>
Global Restrictions .....	3
Group Restrictions.....	3
User Restrictions .....	3
Additional information.....	3
<b>Chapter 3 - Post-Installation Configuration for Remote Browsing.....</b>	<b>5</b>
Configuring a Host With a Fully Qualified Domain Name .....	6
<b>Chapter 4 – Post-Installation Configuration for SAS/ASSIST Software .....</b>	<b>7</b>
Adding a Master Profile .....	7
<b>Chapter 5 – Post-Installation Setup for SAS/CONNECT Software.....</b>	<b>9</b>
<b>Chapter 6 – Post-Installation Configuration for SAS/GRAPH Software .....</b>	<b>11</b>
<b>Chapter 7 – Post-Installation Configuration for SAS/IntrNet Software .....</b>	<b>13</b>
Overview .....	13
<b>Installing and Configuring SAS/IntrNet Software .....</b>	<b>14</b>
Install Your Web Server Software .....	14
Install Your SAS Software.....	14
CGI Tools Installation Dialogs.....	14
Test the Web Server .....	16
Test the Application Broker .....	16
Configure a Socket Service .....	16
Starting the Socket Service.....	17
Testing the Socket Service.....	17
Configure Additional Services.....	18
<b>Chapter 8 – Post-Installation Configuration for SAS/SHARE Software .....</b>	<b>19</b>
<b>User Authentication.....</b>	<b>19</b>
<b>System Configuration for the TCP/IP Communications Method.....</b>	<b>19</b>
<b>Client Components .....</b>	<b>19</b>
SAS/SHARE Data Provider .....	19
SAS ODBC Driver .....	19
SAS/SHARE Driver for JDBC.....	19
SAS/SHARE SQL Library for C .....	20



# Chapter 1 – Introduction

## **Audience**

This document is intended for the SAS Installation Representative, designated as the person responsible for installing and maintaining SAS software for OpenVMS on HP Integrity systems at your site.

This document describes the configuration instructions for SAS Foundation, which is made up of server-side Base SAS and a variety of server-side SAS products (the exact products vary by customer). Information about the configuration of mid-tier and client-side products is available from your SAS Software Navigator.

The server-side configuration instructions contained in this document are for the configuration of a generic SAS server. If you wish to configure your server for more specific functions, such as a Workspace Server, Stored Process Server, OLAP Server, please refer to the *SAS 9.2 Intelligence Platform: Application Server Administration Guide*, located at <http://support.sas.com/documentation/configuration/index.html>.

## **Understanding This Book**

This document conforms to the following conventions:

Courier	Courier type indicates commands, directory paths, file names, menu items, Internet addresses, etc.
<i>Italics</i>	Italic type indicates documentation references or key notes.
<b>Bold</b>	Bold type indicates important text or concepts.
UPPERCASE	Uppercase type indicates variable and option settings.
Dollar sign \$	A dollar sign \$ or pound sign # at the beginning of an example
Pound sign #	indicates a sample UNIX command line.

## **Contacting SAS**

If you need to contact SAS, refer to the *SAS QuickStart Guide* for contact information..

## **Accessing Release Documentation**

Release documentation is included on the **Documentation for Installing and Configuring SAS CD**, consisting of Alert Notes, System Requirements, and this Configuration Guide. The latest versions of these enclosures are available on the Install Center Web page, <http://support.sas.com/installcenter>.



## Chapter 2 – Restricted Options

SAS Foundation options can be "restricted" by a site administrator so that once they are set by the administrator, they may not be changed by a user. An option can be restricted globally, by group, and by user. To restrict an option it must be added to the appropriate SAS Foundation configuration file and this file must have the permissions set by the administrator so that it cannot be updated by users. The option files are processed in the following order: global, group and user. If an option is specified in multiple files then the last occurrence gets used.

### ***Global Restrictions***

Create the file `SAS$ROOT:[MISC.RSTROPTS]RSASV9.CFG` and add options to this file in the normal config file format.

### ***Group Restrictions***

Create a file of the following format

```
SAS$ROOT:[MISC.RSTROPTS.GROUPS]<group name>_RSASV9.CFG
```

and add options to this file in the normal config file format.

**Example:** For user SMITH with UIC: [DEV,SMITH] the file name is

```
DEV_RSASV9.CFG.
```

### ***User Restrictions***

Create a file of the following format

```
SAS$ROOT:[MISC.RSTROPTS.USERS]<userid>_RSASV9.CFG
```

and add options to this file in the normal config file format.

**Example:** For user SMITH, the file name is

```
SMITH_RSASV9.CFG.
```

### ***Additional information***

To verify that an option has been set correctly follow this example:

1. Assume the option `/EMAILSYS=VMS` was specified in one of the restricted configuration files.
2. Submit the following code:

```
proc options restrict; run;
```

The SAS log should then show a message similar to

```
Option Value Information For SAS Option EMAILSYS  
Option Value: VMS  
Option Scope: SAS Session  
How option value set: Site Administrator Restricted
```

The following describes the process when a user attempts to change the option value.

1. Assume the option /EMAILSYS=VMS was specified in one of the restricted configuration files.
2. Submit the following code:

```
option emailsys=smtp;
```

The SAS log should then show a message similar to

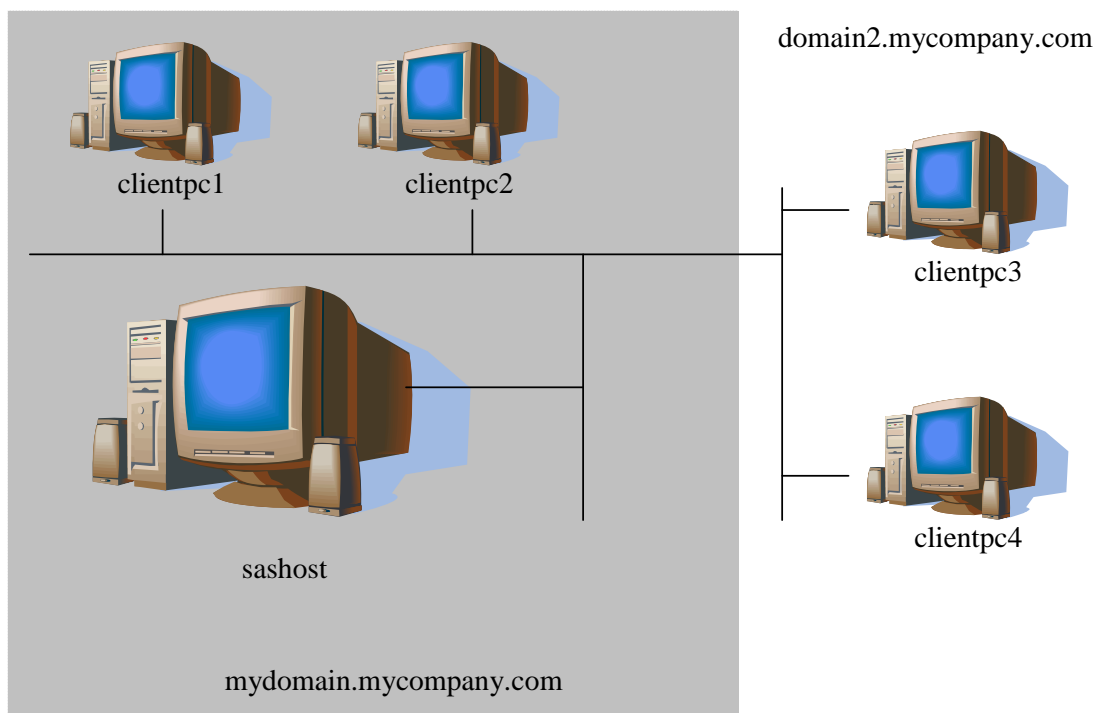
```
option emailsys=smtp;  
-----  
36  
WARNING 36-12: SAS option EMAILSYS is restricted by your Site  
Administrator and cannot be updated.
```



## Chapter 3 - Post-Installation Configuration for Remote Browsing

The SAS host may need to be configured appropriately for remote browsing. If one or more SAS desktop clients resides outside the DNS domain of the SAS host, then the host must be configured with a hostname that contains the fully qualified domain name (FQDN) of the host.

For example, SAS is installed on the host `sashost.mycompany.com`, two client computers exist in the same domain (`client1.mycompany.com` and `client2.mycompany.com`), and two other clients exist in another domain (`client3.domain2.mycompany.com` and `client4.domain2.mycompany.com`). This relationship is illustrated below.



If the system `sas.mycompany.com` is not configured with a hostname that is the FQDN for the system, then `client1` and `client2` will be able to view HTML content from SAS, but `client3` and `client4` will not. This is because URLs generated for the SAS host will not include the domain, as in `http://sashost:12345/output.html`.

Since `client1` and `client2` are in the same domain as SAS itself, their browser will build valid hostnames from their domain, `sashost.mycompany.com`. But `client3` and `client4`, which are outside the domain of the SAS host, will use their domain names to construct a complete hostname, which results in the invalid name `sashost.domain2.mycompany.com`.

By configuring the SAS host with the system's FQDN, URLs for HTML display are valid from all of clients. From the example, the valid URL for all clients is `http://sashost.mycompany.com:12345/output.html`.

## **Configuring a Host With a Fully Qualified Domain Name**

*Note:* Administrator privileges are required to make this change.

1. Enter the command:

```
$ tcpip
```

2. Enter:

```
set host sashost.mycompany.com /address=10.4.86.62 /alias=("sashost")
```

3. Type `exit` to quit the TCP/IP utility.

## Chapter 4 – Post-Installation Configuration for SAS/ASSIST Software

This chapter describes how to add a master profile to SAS/ASSIST software. You can use a master profile to override the default settings as sent by SAS. This allows you to provide a customized setup for SAS/ASSIST software. With the master profile, you can control the profile options of all SAS/ASSIST users from one central place. For information on the profile options, refer to *SAS/ASSIST Software Administrator's Guide*.

### Adding a Master Profile

Complete the following steps to add a master profile to SAS/ASSIST software:

1. Specify the location of the master profile by creating a new directory that will contain the master profile as shown in the following example:

```
$ CREATE/DIR DISK: [DIRECTORY]
```

All users with write access to this directory will automatically also have write-access to the master profile in SAS/ASSIST software. Select a name that conforms to the naming conventions at your installation. All users must have read access to this library.

2. Invoke SAS.

On line 1 of the `Program Editor` window of the SAS Display Manager System, type the physical pathname to be used as the SAS library to store the master profile. Execute the `Save` command to save the pathname in `SASHELP.QASSIST.PARMS.SOURCE`.

The location of the master profile is now known by SAS/ASSIST software.

3. Create the master profile.

The first time SAS/ASSIST software is started, a master profile is created if `SASHELP.QASSIST.PARMS.SOURCE` contains the name of an existing library and the person who starts SAS/ASSIST software has write access to this library.

4. Customize the master profile by starting SAS/ASSIST software and selecting `Setup ... Profiles ... Master/group`.

If you have write access to the SAS library containing the master profile, you can specify default values for your installation. New users will use these values as they start SAS/ASSIST software.

**Note:** *If you restrict values by typing `R` in `Status`, users will not be allowed to change the values you define.*

You can run SAS/ASSIST software in two different styles - workplace or block menu. The block menu can be new style or old style. You can control this using the profile options below.

```
Run workplace:
```

```
SAS/Assist style:           Workplace
```

Run block menu new style:

SAS/Assist style:	Block Menu
Save selections on end:	Yes
Menu Style:	New

Run old style:

SAS/Assist style:	Block Menu
Save selections on end:	Yes
Menu Style:	Old

By setting the default values in the master profile, you can control if users should use the new or old style of SAS/ASSIST software. In addition, there are many other profile options. For more information on these options, refer to *SAS/ASSIST Software Administrator's Guide*.

#### 5. Create group profiles.

From the master profile, it is possible to create group profiles to allow groups of users to have different setups. The master profile controls group profiles and user profiles when a user is not a member of any group. All users are indirectly controlled by the master profile when option values are set to a restricted (R) status.

From Setup...Master/Group, select Tools...Create Group Profile. To add users to a group profile, select Tools...Update User Group. By default, the userid is found in the macro variable &SYSJOBID. This value is set in the option Userid in the master profile (option type System Administration). Change the value if your site uses another variable to keep the userid. If the value name starts with &, it is a macro variable; otherwise, it is an environment variable, which is set before the start of SAS.

## Chapter 5 – Post-Installation Setup for SAS/CONNECT Software

If the SAS/CONNECT spawner is going to service more than one client user ID, the following images should be installed with READALL and IMPERSONATE privileges:

```
sas$root:[utilities.bin]sas_els_srvr.exe
```

```
sas$root:[utilities.bin]sas_security_srvr.exe
```

Use the following commands to install these images:

```
$ install replace/priv=(readall,impersonate) sas$root:[utilities.bin]sas_els_srvr.exe
```

```
$ install replace/priv=(readall,impersonate) sas$root:[utilities.bin]sas_security_srvr.exe
```

These privileges are required in order for the spawner to create a detached process with the connecting client as the owner.



## Chapter 6 – Post-Installation Configuration for SAS/GRAPH Software

To run the ODS Graphics Editor, a display must be set in the user ID's `login.com`. For example,

```
set display/create/node=<nodename>/transport=tcpip
```





## Chapter 7 – Post-Installation Configuration for SAS/IntrNet Software

This chapter has information for your SAS/IntrNet installation. It will help you install, configure, and test your SAS/IntrNet components.

The procedures for installing SAS software using the SAS Deployment Wizard are described in other documentation and not available from this chapter. Furthermore, the installation of your Web server is your responsibility and not described in SAS documentation.

When the SAS/IntrNet software has been installed, configured and tested using the procedures described in this chapter, review the latest version of the SAS/IntrNet product documentation online at <http://support.sas.com/documentation/onlinedoc/IntrNet/index.html>. The “What’s New” page at this Web site lists any recent changes to the product or documentation.

### Overview

All SAS/IntrNet installations are made up of two components:

1. The SAS/IntrNet server (also referred to as the Application Server). This is where SAS Foundation is installed.
2. CGI Tools (also referred to as the Broker). This is where the `broker.cfg` file and its supporting files are installed.

CGI Tools For the Web Server is not available on OpenVMS on HP Integrity, the SAS/IntrNet server component will be installed on the OpenVMS machine and the CGI Tools component is installed on a different system machine. The Web server **must** be installed on the CGI Tools system prior to installing CGI Tools.

Installation Steps
Confirm that the Web server software (IIS, Apache, etc.) is on the machine where you will install CGI Tools.
On your application server system, start your SAS installation. Uncheck “CGI Tools for the Web Server” in the “Select Products to Install” dialog.
On your Web server system machine, start your SAS installation. Uncheck all products except “CGI Tools for the Web Server” in the “Select Products to Install” dialog. You can optionally check the IntrNet Monitor or Connect Drivers
Test the Broker
Configure a Socket Service
Start the Socket Service
Test the Socket Service

The steps are described more thoroughly in the sections that follow.

## Installing and Configuring SAS/IntrNet Software

### Install Your Web Server Software

Refer to your Web server's documentation for its installation procedures.

### Install Your SAS Software

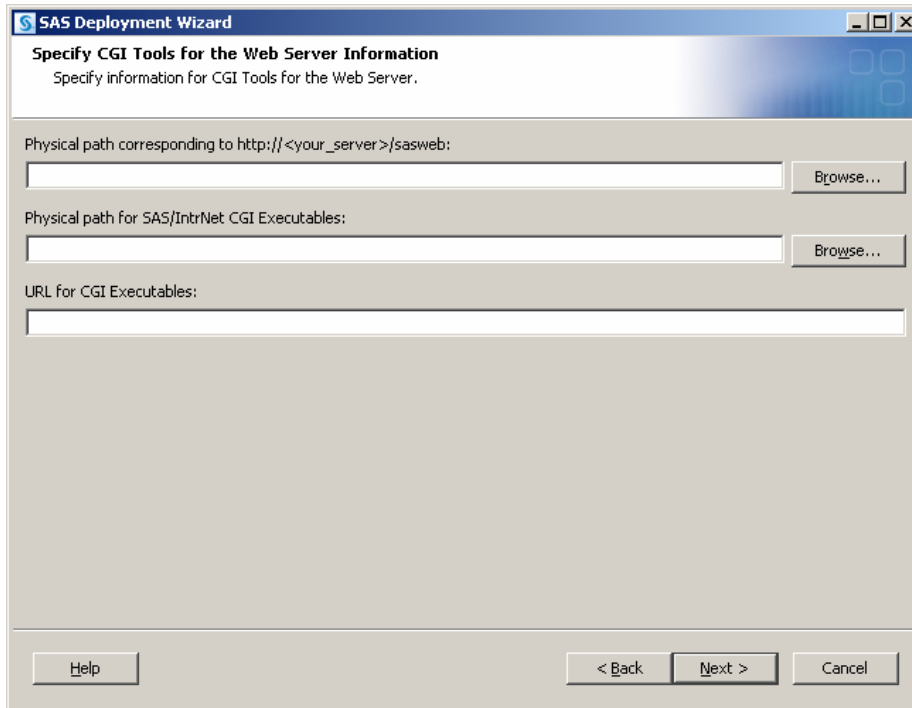
Refer to your *QuickStart Guide* for a description of how to start your SAS software installation.

Install the SAS software on the SAS System side, unchecking "CGI Tools for the Web Server" in the **Select Products to Install** dialog. Then start the SAS software install on the Web server and check "CGI Tools for the Web Server" in the **Select Products to Install** dialog. SAS/IntrNet Monitor and SAS/CONNECT Driver for Java are optional selections. Uncheck everything else.

### CGI Tools Installation Dialogs

The following screens appear for CGI Tools for the Web Server and SAS/GRAPH Java Applets for all installations. Click **Help** on any dialog for information about the fields.

Customary entries are documented following each screen shown below. Customize the entries according to your environment.



The following are examples of common entries for popular Web servers. Customize your entries according to your own web Server environment. These fields will tell SAS where your Web server software is located.

#### Physical path corresponding to `http://<your_server>/sasweb:`

IIS: `C:\Inetpub\wwwroot\sasweb`

Apache (Windows): C:\program files\Apache Software Foundation\Apache2.2\htdocs\sasweb

Apache (UNIX): /usr/local/apache2/htdocs/sasweb

**Physical path for SAS/IntrNet CGI Executables:**

IIS: C:\Inetpub\scripts

Apache (Windows): C:\program files\Apache Software Foundation\Apache2.2\cgi-bin

Apache (UNIX): /usr/local/apache2/cgi-bin

**URL for CGI Executables:**

IIS: http://<web\_servername>/scripts

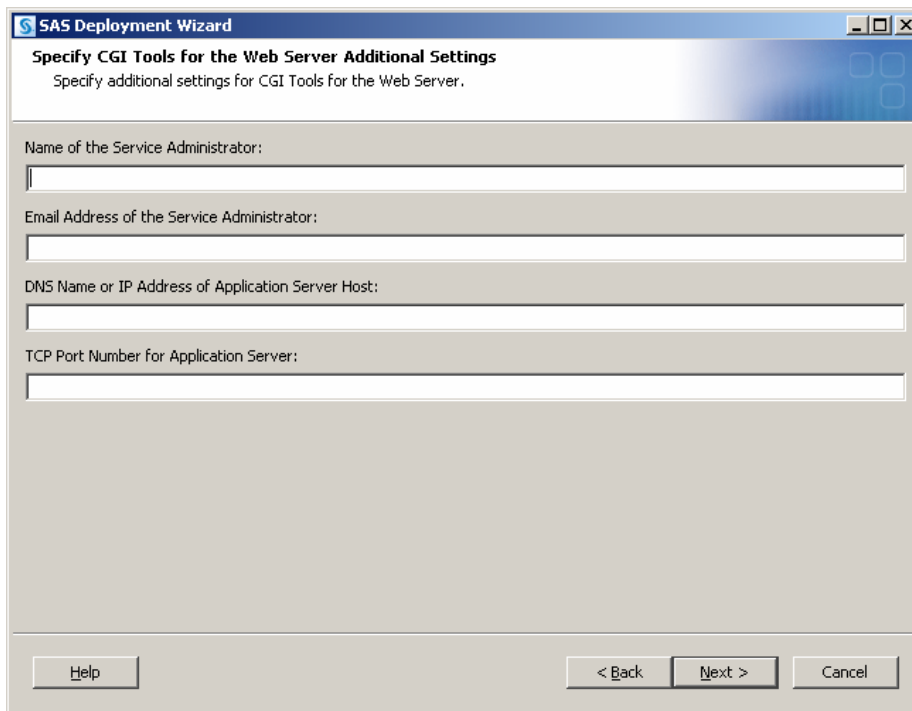
Example: http://abcserver.comp.com/scripts

Apache (Windows): http:// <web\_servername>/cgi-bin

Example: http://abcserver.comp.com/cgi-bin

Apache (UNIX): http://<web\_servername>/cgi-bin

Example: http://abcserver.comp.com/cgi-bin



Note that your entries for this dialog are added to the broker .cfg file. The broker .cfg file is a text file that can be edited after the installation is complete.

**Name of the Service Administrator:**

(optional) Enter the name of the administrator (for example, John Doe).

**Email Address of the Service Administrator:**

(optional) Enter the e-mail address of the administrator (for example, NetAdmin@comp.com).

**DNS Name or IP Address of Application Server Host:**

Enter the DNS name or IP address of the application server host where SAS Foundation is located.

**TCP Port Number for Application Server:**

The customary default port number is 5001, but you can use any valid available port on your system between 256 – 65535.

**Test the Web Server**

To determine if the Web server is running, launch the Web server's browser and enter `http://localhost`. This will return a Web page if the Web server is running.

If you do not receive a web page, you must debug or reinstall your Web server before continuing.

**Test the Application Broker**

To verify that CGI Tools was installed correctly and can access the `broker.cfg` file, point your Web browser to the following URL:

Windows:

IIS - `http://your_webserver/scripts/broker.exe`

Apache - `http://your_webserver/cgi-bin/broker.exe`

Other hosts:

`http://your_webserver/cgi-bin/broker`

Replace `your_webserver` with the name of the Web server. The URL path might also need to be changed if you installed CGI Tools to a different directory. You should see a Web page similar to the following:

**SAS/IntrNet Application Dispatcher**

**Application Broker Version 9.2 (Build 1495)**

[Application Dispatcher Administration](#)

[SAS/IntrNet Samples](#)

[SAS/IntrNet Documentation](#) - requires Internet access

If you do not receive this page, you must debug your Web server installation before continuing. Verify that your Web server is enabled for CGI execution in the directory where you installed the Application Broker (`broker.exe` and `broker.cfg` files). This directory was determined by what was entered for **Physical path for SAS/IntrNet CGI Executables** during the CGI Tools installation above.

**Configure a Socket Service**

You must create a default Application Dispatcher service to run any of the sample programs supplied with SAS/IntrNet. You should create the default service with the SAS/IntrNet Configuration Utility (`inetcfg`).

To create and start the default service on OpenVMS on HP Integrity, perform the following steps:

1. From a system prompt, submit `@sas$root:[tools]inetcfg.com`.  
As the configuration utility runs, you are prompted for information about the service that you are creating.
2. Press **Return** to name the service `DEFAULT`.
3. Press **Return** to accept the suggested value for the server root directory.
4. Type **S** to define a socket service. Press **Return** to continue.
5. Press **Return** to select one server for this service.
6. Type the TCP/IP port number or name that you reserved for the default Application Server and press **Return**.
7. A password is not necessary for the default service. You can add an administrator password later if you use this service for production applications. Press **Return** to continue.
8. The utility displays the information that you entered for this service. Verify that the information is correct. If the information is correct, press **Return** to create the service. Read the messages to determine if the service was created correctly. One of these messages contains the path for the service directory created by the utility. You should note this path for use later in this process.
9. The configuration utility created a `START.COM` file that starts the default Application Server. To start the server, change to the service directory created by the utility. Then submit the following command:

```
@START.COM
```

## Starting the Socket Service

As stated above, to start the server, change to the service directory created by the utility. Then submit the following command:

```
@START.COM
```

## Testing the Socket Service

1. To make sure that the service was installed and started correctly, point your Web browser to this URL:

Windows:

IIS - `http://your_webserver/scripts/broker.exe`

Apache - `http://your_webserver/cgi-bin/broker.exe`

Other hosts:

`http://your_webserver/cgi-bin/broker`

Replace `your_webserver` with the name of the Web server. The URL path might also need to be changed if you installed the Application Broker to a different directory. You should see the following Web page:

## SAS/IntrNet Application Dispatcher Application Broker Version 9.2 (Build 1495)

[Application Dispatcher Administration](#)

[SAS/IntrNet Samples](#)

[SAS/IntrNet Documentation](#) - requires Internet access

2. Click on the **Application Dispatcher Administration** link to see if the Application Broker can read the `broker.cfg` file. The Application Dispatcher Services Web page should open.
3. Verify connectivity between the Application Server and the Web server. Click on the **Application Dispatcher Administration** link and then click on the **ping** link under **SocketService default** heading. If the ping is successful, you should see:

```
Ping. The Application Server <hostname>:<port_number> is functioning properly.
```

4. To complete installation testing, type this URL in your browser address line:

Windows:

```
IIS - http://your_webserver/scripts/broker.exe?_service=
default&_program=sample.webhello.sas
```

```
Apache - http://your_webserver/cgi-bin/broker.exe?_service=
default&_program=sample.webhello.sas
```

Other hosts:

```
http://your_webserver/cgi-bin/broker?_service=default&_program=
sample.webhello.sas
```

You should see the string "Hello World!" in large bold type in your browser. If you do not, add the debug option to create a log:

Windows:

```
IIS - http://your_webserver/scripts/broker.exe?_service=
default&_program=sample.webhello.sas&_debug=131
```

```
Apache - http://your_webserver/cgi-bin/broker.exe?_service=
default&_program=sample.webhello.sas&_debug=131
```

Other hosts:

```
http://yourWebserver/cgi-bin/broker?_service=default&_program=
sample.webhello.sas&_debug=131
```

Save the log screen on the browser for SAS Technical Support.

### Configure Additional Services

This chapter only describes how to configure a simple default Application Dispatcher service. There are many reasons you may want to configure additional services, including segregating applications by security or performance requirements and implementing more scalable servers. See the "Using Services" section of the SAS/IntrNet Application Dispatcher documentation at <http://support.sas.com/documentation/onlinedoc/intrnet/index.html> for information on configuring additional services, using the Load Manager, and adding pool services.

# Chapter 8 – Post-Installation Configuration for SAS/SHARE Software

## ***User Authentication***

A SAS/SHARE server can be invoked such that clients must provide authentic userid/password credentials. If so, the TCP Access Method will authenticate the userid/password pair. In order for this to work, the following two images should be installed with READALL and IMPERSONATE privileges:

```
sas$root:[utilities.bin]sas_els_srvr.exe
sas$root:[utilities.bin]sas_security_srvr.exe
```

Use the following commands to install these images:

```
$ install replace/priv=(readall,impersonate) sas$root:[utilities.bin]sas_els_srvr.exe
$ install replace/priv=(readall,impersonate) sas$root:[utilities.bin]sas_security_srvr.exe
```

## ***System Configuration for the TCP/IP Communications Method***

We suggest each SAS/SHARE server be defined as a service. The server name should be one to eight characters in length. The first character must be a letter or underscore; the remaining seven characters can include letters, digits, underscores, the dollar sign (\$), or the at sign (@). For more information on defining TCP service names, refer to your TCP/IP software documentation.

## ***Client Components***

SAS/SHARE software includes client components that are used outside of your SAS installation. The 9.2 SAS/SHARE client components are available from the SAS 9.2 Software Download site. The SAS/SHARE client components are described below.

### **SAS/SHARE Data Provider**

The SAS/SHARE Data Provider enables you to access, update, and manipulate SAS data using applications compliant with OLE DB and ADO on Windows platforms.

### **SAS ODBC Driver**

The SAS ODBC Driver enables you to access, update, and manipulate SAS data from ODBC compliant applications on Windows platforms.

### **SAS/SHARE Driver for JDBC**

The SAS/SHARE Driver for JDBC enables you to write applets, applications, and servlets that access and update SAS data. The Java Tools package that includes the SAS/SHARE driver for JDBC also includes the SAS/CONNECT driver for Java. If you are writing Java programs using these interfaces, you may also want to use the tunnel feature. This optional feature can be used with the Java applets you write to solve some common configuration problems.

## **SAS/SHARE SQL Library for C**

The SAS/SHARE SQL Library for C provides an application programming interface (API) that enables your applications to send SQL queries and statements through a SAS/SHARE server to data on remote hosts.







THE  
POWER  
TO KNOW.

**[support.sas.com](https://support.sas.com)**

SAS is the world leader in providing software and services that enable customers to transform data from all areas of their business into intelligence. SAS solutions help organizations make better, more informed decisions and maximize customer, supplier, and organizational relationships. For more than 30 years, SAS has been giving customers around the world The Power to Know®. Visit us at **[www.sas.com](https://www.sas.com)**.