SAS® Event Stream Manager 6.1 for Windows: Deployment Guide
# Contents

**Chapter 1 / Introduction**
- Steps for a Successful Deployment ........................................... 1
- Contact SAS Technical Support .................................................. 2

**Chapter 2 / System Requirements**
- Hardware Requirements .......................................................... 3
- Operating System Requirements ................................................. 4
- Software Requirements ............................................................ 4
- User Account Requirements ........................................................ 5
- LDAP Requirements ................................................................. 6

**Chapter 3 / Pre-installation Tasks**
- (Optional) Create a Mirror Repository ........................................ 7
- Create the Deployment Scripts .................................................... 9
- Enable Required Ports .................................................................. 11
- Tune Your Windows System ......................................................... 12
- Specify Credentials for the postgres User Account ......................... 13

**Chapter 4 / Installing SAS Event Stream Manager**
- Deploy the Software on Windows ............................................... 15
- Configure LDAP Settings ............................................................ 15
- Install SAS Event Stream Manager ................................................. 16

**Chapter 5 / Post-installation Tasks**
- Complete SAS Event Stream Manager Setup .................................. 17

**Chapter 6 / Completing the Deployment**
- Product Documentation ............................................................ 21
- Review Example Templates for SAS Event Stream Manager .......... 21

**Chapter 7 / Managing Your Software**
- Overview ...................................................................................... 23
- Update SAS Event Stream Manager on Windows ......................... 23

**Chapter 8 / Uninstalling SAS Event Stream Manager**
- Uninstall SAS Event Stream Manager ........................................... 25
Introduction

Steps for a Successful Deployment

Before You Begin

Because the contents of this guide are subject to continual updates, make sure that you have the latest guide. You can always access the latest release of this guide from the following site:

SAS Viya Deployment Guides

If you accessed this guide directly from the Software Order Email (SOE), you are viewing the latest guide. If you are viewing a saved copy of the PDF version of this guide, the content might be outdated.

To use this guide successfully, you should have a working knowledge of Microsoft Windows PowerShell and the Windows operating system.

SAS Event Stream Manager is a web-based client that enables you to manage SAS Event Stream Processing environments. SAS Event Stream Manager 6.1 for Windows is optimized to support SAS Event Stream Processing 6.1 on Windows.

Use this guide to deploy SAS Event Stream Manager in your Windows environment. To install on Linux, a separate order that specifies the Linux platform is required.

Step 1 — Prepare for the Deployment

1 Perform one of the following tasks:
   - To update, upgrade, or add software to an existing deployment, go directly to “Managing Your Software” on page 23.
   - To deploy a new instance of the software, continue with the following steps.

2 Go to “System Requirements” on page 3 to learn about requirements for hardware, software, security, and more.

3 Go to “Pre-installation Tasks” on page 7 to prepare the environment before you deploy the software.
Step 2 — Perform the Deployment

1. Go to “Installing SAS Event Stream Manager” on page 15 to run the deployment scripts and install the software.

2. Go to “Post-installation Tasks” on page 17 to perform post-installation configuration.

Step 3 — Complete the Deployment

Go to “Completing the Deployment” on page 21 for best practices after deployment, including where to find additional documentation.

Contact SAS Technical Support

Technical support is available to all customers who license SAS software. However, you are encouraged to engage your designated on-site SAS support personnel as your first support contact. If your on-site SAS support personnel cannot resolve your issue, have them contact SAS Technical Support to report your problem.

Before you contact SAS Technical Support, explore the SAS Support website at support.sas.com/techsup/. This site offers access to the SAS Knowledge Base, as well as SAS communities, Technical Support contact options, and other support materials that might answer your questions.

When you contact SAS Technical Support, you are required to provide information, such as your SAS site number, company name, email address, and phone number, that identifies you as a licensed SAS software customer.
System Requirements

Hardware Requirements

The following table describes a standard set of specifications for a machine where SAS Event Stream Manager is deployed:

<table>
<thead>
<tr>
<th>Item</th>
<th>Recommended Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2 cores (x86 architecture)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon chip set with a minimum speed of 2.6 GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>16 GB of RAM</td>
</tr>
<tr>
<td></td>
<td>Memory clock speed of 1600 MHz</td>
</tr>
<tr>
<td>Disk Space and Speed</td>
<td>10 GB</td>
</tr>
<tr>
<td></td>
<td>10,000 RPM</td>
</tr>
</tbody>
</table>

Each machine that is used to access the user interface must have a minimum screen resolution setting of 1280 x 1024.
Operating System Requirements

Supported Operating Systems

For the full list of supported platforms, see: https://support.sas.com/en/documentation/third-party-software-reference/viya/34/support-for-operating-systems.html.

Note: SAS Event Stream Manager can also be installed on Red Hat Enterprise Linux, but a separate package, based on your software order, is required.

SAS Support for Alternative Operating Systems

SAS provides support on a limited basis for alternative operating system distributions that customers might select. For more information, see the official support policy statement at http://support.sas.com/techsup/pcn/altopsys.html.

Software Requirements

Windows PowerShell

Microsoft Windows PowerShell version 5.1 or later is required in order to install SAS Event Stream Manager on Windows. PowerShell is a framework that supports a scripting language and configuration management capabilities on Windows.

Follow these steps to determine the current version of PowerShell if it is already installed:

1 Start PowerShell.

2 At the PowerShell command prompt, enter the following command to find out the PowerShell version:

   $PSVersionTable.PSVersion

   In the output, verify that the major version is 5 and that the minor version is 1 or later.

3 If required, install a newer version of PowerShell by installing Windows Management Framework 5.1. Follow these steps:

   Note: You can skip this step if you are installing on Microsoft Windows Server 2016.


   b Double-click the executable, and follow the prompts to install it.

4 SAS Viya will use PowerShell scripts to configure and run services. Manually enable script execution in PowerShell by running the following command:

   Set-ExecutionPolicy -scope LocalMachine Unrestricted
Java Requirements

The Java Runtime Environment (JRE) must be installed on the machine where you install SAS Event Stream Manager. Only the JRE is required; the full JDK is not required. Oracle Java 1.8.x is supported.

To determine the version of Java that is installed on the local machine, follow these steps:

1. Open the Windows Control Panel.
2. Navigate to Programs and Features.

If Java is installed, one or more Java versions are listed in the Programs and Features panel. You can also navigate to java.com to automatically detect the Java version on your machine and to update your version.

Web Browsers

SAS Event Stream Manager includes some advanced user interface features, which require a newer web browser. For information about supported browsers, see: https://support.sas.com/en/documentation/third-party-software-reference/viya/34/support-for-web-browsers.html

If you cannot install one of the supported web browsers for use with SAS Event Stream Manager, be aware of possible unexpected user interface behavior. Because session cookies are required in order to maintain session state, be sure to enable cookies in your browser.

User Account Requirements

The user account that is used to perform the deployment process requires Administrator privileges. Administrator privileges are not required after the installation has completed in order to run an instance of an ESP server. The installation directory path enables Write access per user group, and it is owned by the user account that is used to perform the installation. To enable users to edit the product configuration files, the administrator can use a Group policy to grant Write access to these files to any user.

A user account is required in order to enable the SAS Infrastructure Data Server to start automatically. The SAS Infrastructure Data Server runs on PostgreSQL. SAS recommends using the name postgres for this user account. Create the account before you start the deployment process. Make sure that the account has the following attributes:

- A standard user account without administrator privileges
  (Optional) You can use a domain account for this purpose.
- A password that does not expire
  When you create the postgres user account:
  - Clear the check box labeled User must change the password at the next logon.
  - Select the check box labeled User cannot change password.
  - Select the check box labeled Password never expires.
- The privilege to Log on as a Service
  This setting requires explicit configuration even if the postgres user has administrator privileges. Use the Local Security Policy editor to add the postgres user to the Log on as a Service policy.
Before you start the installation process, you must specify security parameters for this user account. For more information, see “Specify Credentials for the postgres User Account” on page 13.

**LDAP Requirements**

An LDAP server is required to enable users to log on to SAS Event Stream Manager. LDAP also enables some critical services. Read access to your LDAP provider is required.

SAS Viya software requires a userDN and password in order to bind to the LDAP server. Anonymous binding is supported for clients that are authenticating to the LDAP server.

If the mail attribute is specified for LDAP accounts, it must have a non-null value that is unique for each user.

LDAPS is supported, but the required certificates are not configured automatically by the deployment process.

To configure LDAP to enable access to SAS Event Stream Manager, follow the steps in “Configure LDAP Settings” on page 15 before you run the deployment script.
Pre-installation Tasks

(Optional) Create a Mirror Repository

Overview..........................................................7
Using SAS Mirror Manager with a Proxy Server...........7
Using SAS Mirror Manager....................................8
Create the Deployment Scripts................................9
Download the SAS Orchestration CLI.......................9
Create the Deployment Scripts with the SAS Orchestration CLI.................................................9
Store the Deployment Files..................................10
Deployment Scripts and Security............................11
Enable Required Ports........................................11
Tune Your Windows System.................................12
Update the Windows Registry...............................12
Additional Tuning Suggestions..............................13
Specify Credentials for the postgres User Account......13

(Optional) Create a Mirror Repository

Overview
SAS Mirror Manager is a command line utility for synchronizing a collection of software repositories from SAS. Its primary use is to create and manage mirror repositories for software deployment. Mirror repositories are optional and should be used if your deployment does not have access to the internet, or if you must always deploy the same version of software (such as for regulatory reasons).

As you select a location for your mirror repository, keep in mind that SAS Mirror Manager can be used to place the files in several locations, such as on a web server that serves the files by HTTP, or on a shared NFS mount. The default location for the files that SAS Mirror Manager will download is the C:\Users\user-ID\sas_repos directory. Ensure that the default location or the location that you select has adequate space. Also ensure that the machine where the mirror repository will be located has adequate space.

Using SAS Mirror Manager with a Proxy Server
If your environment requires a proxy server and is set up to use it, the SAS Mirror Manager commands will work automatically. However, if your environment is not set up to send data through the proxy, you can add an environment variable to the command to run SAS Mirror Manager. The environment variable identifies where the proxy is located and what is required to send data through it.
Use the environment variable that is appropriate for the target of the query that passes through the proxy. For example, if you are trying to reach a SAS repository, you should use the HTTPS environment variable because the SAS repository is on an HTTPS site. In most cases, the HTTPS environment variable is appropriate.

Here are some examples of SAS Mirror Manager commands that include environment variables.

**Example 1:** An HTTPS site.

```plaintext
set https_proxy=http://user-name:password@internet-proxy-server-FQDN:proxy-port
```

For example:

```plaintext
set https_proxy=http://proxyid:password@proxy.company.com:3129
```

Note: If you use the https_proxy variable, the command for SAS Mirror Manager might also require the `--cacert` option, which indicates the location of the certificate that the proxy will use. The proxy certificate will be one that your organization manages.

**Example 2:** An HTTP site.

```plaintext
set http_proxy=http://user-name:password@internet-proxy-server-FQDN:proxy-port
```

For example:

```plaintext
set http_proxy=http://proxyid:password@proxy.company.com:443
```

### Using SAS Mirror Manager

To create a mirror repository with SAS Mirror Manager:

1. The Software Order Email (SOE) indicated that you should save the SAS_Viya_deployment_data.zip file attachment. If you have not already saved the file, save it now.

2. Download SAS Mirror Manager from the SAS Mirror Manager download site to the machine where you want to create your mirror repository.
   
   Note: If you use Internet Explorer to download the Linux or Macintosh version, save the file as a .tgz file instead of a .gz file.

3. Uncompress the downloaded file.

4. At a command prompt, run the following command:

   ```plaintext
   mirrormgr.exe mirror --deployment-data path-to-deployment-zip-file-from-SOE --latest
   ```

   Note: If you have an HTTPS proxy, you might also need the `--cacert` option, which indicates the location of the certificate that the proxy will use. The proxy certificate will be one that your organization manages.

   By default, the repositories are placed in C:\%USERPROFILE%\sas_repos. You can change this location by using the `--path` option, followed by the full directory location of the mirror destination. This guide refers to that location as \sas_repos. However, if you want to use a different location, replace instances of \sas_repos in this guide with the actual location that you select.

   The default location for the logs for SAS Mirror Manager is C:\%LOCALAPPDATA%\mirrormgr\mirrormgr.log. To specify an alternative log location:

   Note: Specify the command on a single line. Multiple lines are used here to improve readability.

   ```plaintext
   mirrormgr.exe mirror --deployment-data path-to-deployment-zip-file-from-SOE
   --path location-of-mirror-repository --log-file location-of-logs\mirrormgr.log --latest
   ```

   The \sas_repos directories are explained as follows:

   - The entitlements.json is a list of the repositories to which you are entitled.
   - The location_group_declarations.json file and the sasmd directory contain data that is used by the SAS Orchestration CLI to create the order-specific tools for your deployment.
Any remaining directories are the software repositories, organized by native deployment tools:

- repos contains yum files for Linux.
- win contains MSI files for Windows.
- deb contains APT files for Debian.

5. (Optional) After the initial download is complete, move the file structure to a web server or shared NFS mount. The destination machine does not have to be connected to the internet.

---

**Create the Deployment Scripts**

The SAS Orchestration Command Line Interface (CLI) uses the order information that was included in your Software Order Email (SOE) to create deployment scripts for your SAS Viya software. The SAS Orchestration CLI can be run on Linux or Windows and it requires the Java Runtime Environment 1.8.x. It also requires access to the internet.

Before you use the SAS Orchestration CLI, ensure that the SAS_Viya_deployment_data.zip file attachment from your SOE is copied to a directory on a machine that runs the Linux, Macintosh, or Windows operating system.

**Download the SAS Orchestration CLI**

1. The SOE indicated that you should save the SAS_Viya_deployment_data.zip file attachment. If you have not already done so, save that file now.

2. Go to the SAS Orchestration CLI download site and download the SAS Orchestration CLI for the operating system where you stored the ZIP file.

   The SOE recommended that you save the ZIP file to a machine that runs Windows, which is where you will install the SAS software that you purchased. But you could also store it on a machine that runs Macintosh or Linux.

3. If you used Internet Explorer to download the Linux or Macintosh version of the SAS Orchestration CLI, change the file extension from .gz to .tgz.

4. Uncompress the TGZ file (Linux or Macintosh) or ZIP file (Windows) in the same location where you downloaded it. The result is a file named sas-orchestration on Linux or Macintosh or a file named sas-orchestration.exe on Windows.

**Create the Deployment Scripts with the SAS Orchestration CLI**

**Basic Command**

To create the deployment scripts, use the command that is appropriate for the operating system where the SAS Orchestration CLI is located.

Note: The following commands are organized by the operating system where the SAS Orchestration CLI will run, rather than by the operating system where your SAS Viya software will be deployed. After you create the deployment scripts, you can move them to the machine where you will deploy your software.

**Linux or Macintosh**

`./sas-orchestration build --input location-of-ZIP-file-including-file-name`
Using the SAS Orchestration CLI creates a new file named sas-viya-deployment-script.zip.

Options

Use a Proxy Server

If you use an unauthenticated proxy to reach the internet, you must add the following option to the run command in order to make an outgoing connection:

```
--java-option "-Dhttps.proxyHost=proxy-server-IP-address-or-host-name"
```

In addition, if the proxy server is not using the default proxy port of 80, you must also add the following option:

```
--java-option "-Dhttps.proxyPort=proxy-server-port-number"
```

If you use both options, they should not be combined into a single option. The following is an example of using both options on a Linux machine:

```
./sas-orchestration --java-option "-Dhttps.proxyHost=my.proxy.com -Dhttps.proxyPort=1111" build --input /tmp/SAS_Viya_deployment_data.zip
```

The `--java-option` tags must come before the `build` command.

Use a Mirror Repository

If you created a mirror repository with SAS Mirror Manager, you must include its location with the `--repository-warehouse` option.

```
./sas-orchestration build --input c:\sas\install\SAS_Viya_deployment_data.zip --repository-warehouse URL-to-mirror-repository-content
```

Here is an example:

```
./sas-orchestration build --input c:\sas\install\SAS_Viya_deployment_data.zip --repository-warehouse c:\DeploymentFiles\sas_repos
```

For more information about SAS Mirror Manager, see "(Optional) Create a Mirror Repository" on page 7.

Help with Options

The SAS Orchestration CLI includes several options. To learn about all the options for the SAS Orchestration CLI, use the appropriate command:

**Linux or Macintosh**

```
./sas-orchestration build --help
```

**Windows**

```
./sas-orchestration.exe build --help
```

Store the Deployment Files

SAS recommends that you create a directory for storing files that are used to deploy and maintain your software. SAS recommends using `\sas\install`. This guide assumes that you will use `\sas\install`. However, if you do not use `\sas\install`, replace those instances in this guide with the actual location that you select.

1. If necessary, move the sas-viya-deployment-script.zip file to the machine where you will be deploying your software. The recommended location is `\sas\install`.

2. In the same directory where you have saved sas-viya-deployment-script.zip, uncompress it.
Deployment Scripts and Security

The deployment scripts created by the SAS Orchestration CLI are PowerShell scripts. The PowerShell scripts are not digitally signed because they are created at deployment time based on your software order and the options you set when you run the SAS Orchestration CLI. If your organization requires that PowerShell scripts be digitally signed, you will have to sign the created scripts yourself. For information about how to digitally sign PowerShell scripts, see “About Signing” and the Microsoft PowerShell support site.

By default, the deployment scripts include a statement that allows them to bypass any PowerShell security policy that may be set up. Perform the following steps to remove this ability.

1. Open one of the BAT files from the uncompressed ZIP file. If you accepted the defaults, those files are located in \C:sas\install\powershell-deployment\.

2. Locate the following line:
   ```powershell
   set ARGS=%ARGS% -ExecutionPolicy Bypass
   ```

3. Revise the line using one of the following methods:
   - Turn the command into a comment by adding `rem` to the beginning of the line.
     ```powershell
     rem set ARGS=%ARGS% -ExecutionPolicy Bypass
     ```
     Using this option allows you to enable the command later if you change your mind about the security policy or if it changes.
   - Delete the line completely.

4. Save and close the BAT file.

5. Repeat these steps for each BAT file in the directory.

Enable Required Ports

The following ports are used by SAS Viya and should be available before you begin to deploy your software. The same ports should also be available for any firewalls that are configured on the operating system or the network.

<table>
<thead>
<tr>
<th>Process</th>
<th>Required Port</th>
<th>Requires Allowed Inbound Traffic From</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>httpd</td>
<td>80 (internal)</td>
<td>anywhere</td>
<td>See note below.</td>
</tr>
<tr>
<td></td>
<td>443 (external)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>default SAS Messaging Broker</td>
<td>5672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMQP client access port</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vault</td>
<td>8200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAS Configuration Server</td>
<td>8300–8309, 8500, 8501</td>
<td>SAS uses HashiCorp Consul as its configuration server. Ports should be open to both UDP and TCP traffic.</td>
<td></td>
</tr>
<tr>
<td>default SAS Messaging Broker</td>
<td>15672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>management web console port</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note: In order to secure web access to your SAS software, only port 443 (HTTPS) should be open externally on the machine where SAS Event Stream Manager is deployed, and port 80 should be open internally.

In addition, any ports that will be used for ESP servers must be open to HTTP traffic. For more information, see Using the ESP Server.

Update the user port range. From a command prompt, run the following commands, based on your version of Internet Protocol:

```
netsh int ipvn set dynamicport tcp start=32768 num=32767
netsh int ipvn set dynamicport udp start=32768 num=32767
```

where $n$ indicates the version of your Internet protocol, either 4 or 6.

After you run the command, restart Windows.

---

### Tune Your Windows System

#### Update the Windows Registry

Microsoft recommends performing a system backup before editing the registry.

1. At a command prompt, type `REGEDIT`. The Registry Editor opens.

2. Go to the `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters` registry subkey.

3. Add the DWORD value with a name of `TcpTimedWaitDelay` and a value of 30 Decimal.

4. Go to the `HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Control\PriorityControl` registry subkey.

5. Add the DWORD value with a name of `Win32PrioritySeparation` and a value of 36 decimal.

6. Go to the `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\AFD\Parameters` registry subkey.

7. Add the following DWORD values:

<table>
<thead>
<tr>
<th>Name</th>
<th>Recommended Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EnableDynamicBacklog</td>
<td>1 decimal</td>
</tr>
<tr>
<td>MinimumDynamicBacklog</td>
<td>20 decimal</td>
</tr>
<tr>
<td>MaximumDynamicBacklog</td>
<td>1000 decimal</td>
</tr>
<tr>
<td>DynamicBacklogGrowthDelta</td>
<td>10 decimal</td>
</tr>
</tbody>
</table>

The recommended values specify the number of connections that you want to be available. These values request a minimum of 20 and a maximum of 1000 available connections. The number of available connections is increased by 10 each time.

8. Modify the SubSystems registry value.
Note: If you are performing a programming-only deployment, skip this step.

a Go to the HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Session Manager \SubSystems\Windows registry subkey. Here is an example of the value:

   %SystemRoot%\system32\csrss.exe ObjectDirectory=\Windows SharedSection=1024,20480,768...

b Right-click the Windows registry name and select Modify. The Edit String window appears.

c Change the value for the third number in the SharedSection entry according to 20480. Here is an example of the revised entry:

   %SystemRoot%\system32\csrss.exe ObjectDirectory=\Windows SharedSection=1024,20480,20480 ...

9 Click OK.

10 Close the Registry Editor.

11 Restart Windows.

Additional Tuning Suggestions

The following list includes general recommendations for configuring Windows systems:

- Disable Windows indexing on any directories that are used by SAS software.
- Set Windows performance settings so that background processes are favored.
- Set the maximum power profile in the system BIOS for all systems, except Intel Sandy Bridge.
- Disable the C1E BIOS setting on Dell systems.

Specify Credentials for the postgres User Account

Use a deployment script to save the credentials for the postgres user account that you created previously. This user account enables the SAS Infrastructure Data Server, which runs on PostgreSQL, to start automatically. SAS Infrastructure Data Server is required to support SAS Event Stream Manager. Be sure to complete these steps before you start the deployment process.

Note: The name for this user account, postgres, is recommended. However, you might have selected another name for this account when you created it.

1 Navigate to the directory where you extracted the contents of the sas-viya-deployment-script.zip file that you created using the SAS Orchestration CLI.

   The recommended location is \sas\install.

2 In the \sas\install\powershell-deployment directory, verify the presence of the encryptPostgresUser.bat script.

   Note: The setup.bat script and the encryptPostgresUser.bat script must be in the same directory.

3 From that directory, run the following command:

   .\encryptPostgresUser.bat
The script prompts you for the user ID and password of the postgres user account. If you are using a localhost account, you should provide only the user name. If you are using a domain account, the user name should include the domain name.

`domain-name\user-name`

As the script runs, it creates a file named postgres.xml in the same directory.

**Note:** Do not delete the postgres.xml file. Deployment components continue to use it after the deployment process has completed. Similarly, do not delete the postgres user account.
Installing SAS Event Stream Manager

Deploy the Software on Windows
Use the procedures in this section to deploy your SAS software on a single machine. The information in this section assumes that you have completed the steps that are described in “Create the Deployment Scripts” on page 9.

When you order SAS software, SAS sends a Software Order Email (SOE) to your business or organization. Your SOE includes information about the software order, including several file attachments and instructions for generating a deployment playbook using the SAS Orchestration CLI.

If you have not already done so, be sure to uncompress the file that is attached to your SOE, as instructed in the email text.

The user account that performs the deployment requires Administrator privileges for the Windows machine where the software is installed.

Configure LDAP Settings
The sitedefault.yml file is used to configure authentication for SAS Event Stream Manager. Before you run the installation script, enable the script to configure the LDAP server for use with SAS Logon Manager:

1. Locate the sitedefault_sample.yml file on the machine where you will be deploying your software.
   - The unzip operation saves the file in \powershell-deployment\config\consul\files
     \sitedefault_sample.yml. The recommended location to unzip the sas-viya-deployment-script.zip is
     \sas\install.

2. Make a copy of sitedefault_sample.yml in the same directory, and name the copy sitedefault.yml.

3. Use your preferred text editor to open sitedefault.yml.

4. Add values that are valid for your site, and save the file.

When you run setup.bat, the updated sitedefault.yml file is used automatically.
Install SAS Event Stream Manager

1. Navigate to the C:\sas\install\ directory where you uncompressed the sas-viya-deployment-script.zip file that you created.

2. Locate the setup.bat file in the C:\sas\install\powershell-deployment directory. You can use this file in one of two ways:
   - Right-click the file, and select Run as Administrator from the menu. Using this method does not include command options. The software is downloaded and installed on the local machine, then the script configures and starts any necessary services.
   - Open a command prompt (being sure to select Run as administrator) from the Windows Start menu. Run the following command:
     ```
     setup.bat options
     ```
     When the command is run without options, the script downloads and installs software on the local machine and then configures and starts any necessary services. Descriptions of the optional flags follow.

   - **-install**
     Only installs the software and services. If you use this option, the software and services will not be configured and the services will not be started.

   - **-config**
     Configures the installed software, and configures and starts the services. This option fails if you run the command before the software and services have been installed.

As the batch job runs, a Downloads folder is created in the directory where you are running the batch script. The software is downloaded from secure repositories to this new folder on your computer.

To conserve space, after the setup.bat script has been run and the deployment is complete, you can delete the .msi files in the C:\sas\install\downloads directory.

If the deployment process fails, but you are able to recover from the error, be sure to restart the deployment using the appropriate deployment commands. In addition, if you receive a message to reboot during the deployment process, make sure that use the same deployment commands.
Post-installation Tasks

Complete SAS Event Stream Manager Setup
Take a few steps after the installation has completed to prepare the environment.

Start the ESP Server
When the deployment script has completed, most SAS processes are already running. However, you must manually start the ESP server.

In order to manage SAS Event Stream Processing instances with SAS Event Stream Manager, you must locate and define ESP servers that are running in your environment. SAS recommends that you start your ESP servers with some additional instructions that enable secure, persistent sockets between SAS Event Stream Manager and ESP servers. SAS Event Stream Manager can then locate and manage ESP servers automatically.

To start an ESP server with a connection to SAS Event Stream Manager:

1. Provide SAS Logon Manager with a client ID and client secret for SAS Event Stream Manager. First, obtain the value of the SAS Configuration Server (Consul) token for your environment:

   Note: Specify the command on a single line. Multiple lines are used here for improved readability.

   ```
   sudo cat /opt/sas/viya/config/etc/SASSecurityCertificateFramework/tokens/consul/default/client.token
   ```

2. Run a curl command to request a registration token for a new client. In this example, the client is named app:

   ```
   curl -X POST "http://localhost/SASLogon/oauth/clients/consul?callback=false&serviceId=app" -H "X-Consul-Token: X-Consul-Token-value"
   ```

   For X-Consul-Token-value, substitute the value for the Consul token, which you obtained from the previous step.

   Note: Specify the command on a single line. This request must pass a callback=false query string parameter and authenticate directly by passing a Consul token. If the Consul token that you specified in the command is valid, SAS Logon Manager returns the OAuth access token for registration in the response.

3. Use the registration token to register the client ID. This step establishes the ESP server as a new client of SAS Logon Manager. Run the following curl command:

   ```
   ```
4 Create an XML file with filename esm.xml. Make sure that it uses the required syntax. Here is an example:

```xml
<esm>
  <server name="SAS-Event-Stream-Manager-host">
    <url>http://fully-qualified-host-name</url>
    <auth>
      <clientId>client-ID</clientId>
      <clientSecret>client-secret</clientSecret>
      <user>user-name</user>
      <password>password</password>
    </auth>
  </server>
</esm>
```

a For SAS-Event-Stream-Manager-host, substitute the host name of the machine where SAS Event Stream Manager is running.

b For fully-qualified-host-name, substitute the fully qualified domain name of the machine where the SAS Event Stream Manager server is running.

c For client-ID, substitute the client ID that you provided to SAS Logon Manager for the SAS Event Stream Manager instance.

d For client-secret, substitute the client secret that you provided to SAS Logon Manager for SAS Event Stream Manager.

e For user-name, substitute a user name for an LDAP user account that is valid for use with SAS Logon Manager.

f For password, substitute the password that corresponds to the user account that you specified.

Repeat the `<server></server>` section of the file as many times as required to accommodate all SAS Event Stream Manager servers.

5 Save the file in a network-accessible directory.

6 Open a command prompt by clicking Start and entering cmd in the Search box.

7 Start the ESP server. Here is an example of the command:

```
$DFESP_HOME\bin\dfesp_xml_server -esm file:\\full-path-to-file\esm.xml
```

The `-esm file:\\esm.xml` argument instructs the ESP server to read the contents of the esm.xml file. Other values that provide server start-up instructions are defined in the esp-properties.yml configuration file. For more information, see Server Configuration Properties.

8 The following message is displayed:
Access control disabled (permissions.yml not present)

The file that is referenced is required only to enable access control on the ESP server. You can ignore this message.

When it is started with the optional \-esm file:\esm.xml argument, the ESP server automatically registers with SAS Event Stream Manager, which can then manage it. The esm.xml file instructs the ESP server where to locate SAS Event Stream Manager. The ESP server registers itself with SAS Logon Manager as a new client with a new secret. SAS Logon Manager can then provide a token that enables the ESP server to set up a persistent web socket for secure communications with SAS Event Stream Manager.

For more information about the ESP server, see SAS Event Stream Processing: Using the ESP Server.

Log On to SAS Event Stream Manager

SAS Event Stream Manager uses SAS Logon Manager for logon functionality. SAS Logon Manager uses LDAP for user authentication.

1. Open the following URL:

   http://host:port/SASEventStreamManager

   The host is the system on which SAS Event Stream Manager is installed. The port is the port number used by the system that hosts SAS Event Stream Manager. The default port is 80.

   The Sign In to SAS window is displayed.

2. Enter your user ID and password, and click Sign In.

   If you are a member of the SASAdministrators group, the Assumable Groups window is displayed. Group membership is not required.

Successful logon to the SAS Event Stream Manager user interface indicates that the software has been installed correctly.
Completing the Deployment

Product Documentation

After you install, configure, and verify the deployment, you are ready to begin using SAS Event Stream Manager to manage SAS Event Stream Processing applications and analyze streaming event data in real time. The next step is to read the SAS Event Stream Manager User’s Guide, which explains how to manage SAS Event Stream Processing deployments. You can find this guide on the SAS Event Stream Manager product page.

Review Example Templates for SAS Event Stream Manager

Example files are provided to help you learn to use SAS Event Stream Manager. You can find the example job templates in the SAS Event Stream Manager examples package, which you can download from the SAS Support Knowledge Base.

The package includes the resources that are required to create a deployment and deploy a job. A full set of instructions for using example job templates is included in the SAS Event Stream Manager: User’s Guide, which is available on the SAS Event Stream Manager product page.
Managing Your Software

Overview

SAS Event Stream Manager supports updates. However, it does not support upgrades because the present version of the software is the first to run on Windows.

What Is an Update?

An update replaces some or all of your deployed software with the latest versions of that software. Updated software is intended to be compatible with existing configuration, content, and data. To perform an update, you will run the same tools that were run during the initial deployment. You do not need a new software order to perform an update.

You might determine that your software requires an update, or you might be notified by SAS that updates are available.

SAS recommends that you create a backup of the deployed software environment before you perform an update.

After an update has completed, any user-modified configuration values are maintained.

Update SAS Event Stream Manager on Windows

You can use Windows installation tools that work with MSI files to apply all available updates to SAS software on a selected machine.

1. On the machine where you installed SAS Event Stream Manager, create a backup copy of the current configuration by saving copies of any files that are located in `C:\ProgramData\SAS\Viya\etc\SASEventStreamManager\default`. Save them in a directory outside of the installation directory, which is `C:\Program Files\SAS` by default.

2. Navigate to the directory where you uncompressed the ZIP file that you downloaded.
   Note: The SOE that enabled you to install the SAS software provided a link to the ZIP file to be downloaded.

3. Locate the setup.bat file. Right-click the file, and select Run as Administrator from the menu.

   The update proceeds automatically.
When the software update has completed successfully, a message is displayed that indicates success.
Uninstalling SAS Event Stream Manager

You can use the native Windows installation features to uninstall SAS Event Stream Manager:

1. Access Control Panel from the Start menu.
2. Click Programs or, in some versions of Windows, Add/Remove Programs.
3. Click Uninstall a Program.
   The list of programs that are installed on the computer is displayed.
4. Locate SAS Event Stream Manager in the list of installed programs.
5. Right-click, and select Uninstall.
   The uninstallation removes SAS Event Stream Manager.
6. (Optional) Manually remove any environment variable settings that you changed to enable connections in a Kerberos environment.
   Note: If you installed the software on a drive other than the default (C:\), the uninstallation procedure is now complete; all files and directories have been removed.
7. Manually remove the license file, which is saved in C:\Program Files\SAS\Viya\SASEventStreamManager\6.1\etc\license.
8. Manually remove the logs directory, which is located at C:\Users\Public\SAS\Viya\logs\install folders.
9. When the uninstallation completes, restart the computer.