# SAS® Environment Manager: User’s Guide

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</table>
What Is SAS Environment Manager?
SAS Environment Manager is a web application for SAS administration activities in a SAS Viya environment. SAS Environment Manager consists of a set of pages. Each page enables you to examine and manage a particular aspect of the environment.

How to Access SAS Environment Manager
To access SAS Environment Manager, select Manage Environment (under ADMINISTRATION) in the Applications menu (≡).

When a member of the SAS Administrators group signs in, they are asked whether they want to opt in to their assumable groups. Selecting Yes causes their membership in the SAS Administrators group to be in effect.

To sign out of all SAS web applications, click the avatar button in the application banner, and select Sign out.

Pages in SAS Environment Manager

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Property settings for services and other components.</td>
</tr>
<tr>
<td>Content</td>
<td>A virtual hierarchy of folders and objects, such as reports.</td>
</tr>
<tr>
<td>Contexts</td>
<td>Collections of settings for launching processes.</td>
</tr>
<tr>
<td>Data</td>
<td>Data source definitions for caslibs and tables.</td>
</tr>
<tr>
<td>Domains</td>
<td>Logical groupings for authentication, encryption, and connection information.</td>
</tr>
<tr>
<td>Import</td>
<td>...</td>
</tr>
<tr>
<td>Jobs and Flows</td>
<td>Definitions for jobs (scheduled SAS DATA step programs) and job flows (sequences).1</td>
</tr>
<tr>
<td>Licensed Products</td>
<td>Data about your SAS software licenses.</td>
</tr>
<tr>
<td>Mobile Devices</td>
<td>A blacklist or whitelist that determines which devices can use apps from SAS.</td>
</tr>
<tr>
<td>My Credentials</td>
<td>Personal IDs and passwords that are stored in a vault.</td>
</tr>
</tbody>
</table>
### Access to Functionality in SAS Environment Manager

**IMPORTANT** Not all users see all available pages. If you want to change the distribution of access to functionality, see *SAS Viya Administration: Access to Functionality*.

Predefined authorization rules affect access to functionality as follows:

- All authenticated users can access SAS Environment Manager.
- SAS Administrators see all available pages because the SAS Administrators group has a universal grant.
- Other authenticated users see only a subset of pages, as documented in the following table.

**Table 1  URIs for Access to SAS Environment Manager Functionality**

<table>
<thead>
<tr>
<th>Feature</th>
<th>URI</th>
<th>Predefined Grant</th>
</tr>
</thead>
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<tr>
<td>All pages</td>
<td>/SASEnvironmentManager/**</td>
<td>SAS Administrators</td>
</tr>
<tr>
<td>Application</td>
<td>/SASEnvironmentManager/</td>
<td>Authenticated Users</td>
</tr>
<tr>
<td>Data page</td>
<td>/SASEnvironmentManager/data</td>
<td>Authenticated Users</td>
</tr>
<tr>
<td>Servers page</td>
<td>/SASEnvironmentManager/servers</td>
<td>Authenticated Users</td>
</tr>
<tr>
<td>Content page</td>
<td>/SASEnvironmentManager/content</td>
<td>Authenticated Users</td>
</tr>
</tbody>
</table>

---

1. Job flows are supported if SAS Job Scheduler is licensed.
2. Deployed with SAS Decision Manager, SAS Model Manager, or Model Studio.
3. Deployed with SAS Data Quality.
### Configuration Page

**Introduction**

Use the **Configuration** page to perform the following tasks:

For concepts and background, see *SAS Viya Administration: Configuration Properties*.  

### About This Page

A service’s configuration consists of the following components:
- **configuration definition**: A schema that describes a type of configuration. You create configuration instances from a configuration definition. Some examples of configuration definitions are: jvm, spring, and sas.reportdata.

  Note: Configuration definitions that apply to one or a small set of services are referred to as service configuration definitions. System configuration definitions can apply to any service.

- **configuration instance**: A collection of name-value pairs (a property) that a service uses. (These name-value pairs can sometimes be nested.)

  Note: Certain configuration instances are required for a service to be able to run. See “Review Default Configuration Values” on page 10.

---

**Navigation**

In the applications menu (✏️), under **ADMINISTRATION**, select **Manage Environment**. In the vertical navigation bar, select 🗂️.

---

**View Configuration Definitions and Instances**

The Configuration window in SAS Environment Manager contains three views: **Basic services**, **All services**, and **Definitions**.
The **All services** view lists all SAS Viya services that are currently deployed and those that an administrator has not manually stopped. A SAS Viya service can be affected by one or more configuration instances. Most services have a one-to-one relationship with a configuration instance. However, some services are associated with more than one configuration instance. It is important to note that some services do not have any configuration instances, but you can specify configuration properties for any of these services.

The **Definitions** view lists all the SAS Viya configuration definitions.

The **Basic services** view contains those services with configuration properties for which SAS cannot create a reasonable default (for example, the machine name for your SMTP service). As an advanced topic, these configuration properties can be specified in an initial deployment using sitedefault.yml.
**Edit Configuration Instances**

Note: Most SAS Viya applications and servers have a corresponding service in which you set their configuration property values.

1. Using the drop-down list, choose **All services**.

   ![Dropdown list](image)

2. In the navigation pane, select a service whose configuration properties you want to change.

3. Next to the **configuration instance**, click ![Edit button](image).

4. In the **Edit Configuration** dialog box, change the value in one or more of the configuration property fields.

5. When you are finished, click **Save**.

**Create Configuration Instances**

In some situations, you might decide to create a configuration instance. For example, if you want to configure a logging level for a service that is not already associated with logging.level, you must create a new configuration instance of logging.level for that service.

1. Using the drop-down list, choose **All services**.

   ![Dropdown list](image)

2. Select a service for which you want to create a new configuration instance.

3. At the top of the content pane, click **New Configuration**.

4. In the Select Definition dialog box, select a **configuration definition** from which to create a new configuration instance.

5. In **Services**, make sure that the service displayed is the one for which you want to create a new definition. If the correct service is displayed, skip to **Step 6**.
Otherwise, do the following:

a. Next to **Services**, click 🔄.

b. In the Choose Services dialog box, highlight the service to which the configuration instance you are creating applies, and click ↔.

c. Remove any services for which you do not want to create a configuration instance, by highlighting the service and clicking ←.

d. When you are finished, click **OK**.

6. Continue entering values. When you are finished, click **Save**.

**TIP** Properties with a red asterisk (*) are required to have a value.

---

**Review Default Configuration Values**

1. In the top left corner of the window, make sure that **Basic services** is selected.

2. In **Basic services** list, select a service, application, or server whose configuration instance must be created.

**TIP** Incomplete required configuration instances are marked with a half-filled red circle.

3. On the right side of the window, next to the half-filled red circle 🔄, click ✉.

4. Most configuration definitions apply to only one service. In the New Configuration dialog box, if there is no edit icon (✍) next to the **Services** field, skip to **Step 5**.

   Otherwise, do the following:

   a. Next to **Services**, click 🔄.

   b. In the Choose Services dialog box, highlight the service to which the configuration instance you are creating applies, and click ↔.

   c. When you are finished, click **OK**.

5. Continue entering values. When you are finished, click **Save**.

**TIP** You are required to provide a value for properties marked with a red asterisk (*).

6. Repeat steps 2 – 5 for every configuration instance that is incomplete 🔄.
Introduction

Use the Content page to perform the following tasks:

- add and manage folders
- add and manage shortcuts
- set permissions on content
- import, export, and delete content

For concepts and background, see SAS Viya Administration: Folders.

About This Page

Here are details and tips:

- The left side of the page displays a list of the folders to which you have access. Click to the right of a folder name to open the folder and to view the content and subfolders.
- Click to move up one level in the folder hierarchy.
- The name of the current folder is displayed in the menu at the top of the page. To move to a different level in the folder hierarchy, click the folder name and select the folder that you want to access from the menu.
- Click to sort by name or date of last use.
- To import and export content, see SAS Viya Administration: Promotion (Import and Export).
- To set permissions on content, see SAS Viya: General Authorization Window.

Navigation

In the applications menu, under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select .

Manage Content Properties

The right side of the Content page displays the properties for the currently selected object or folder. Expand the Basic Properties or Advanced sections to view the properties for the selected object or folder.
Click to change the name and description for a folder.

---

### Create a New Folder

Click the **New Folder** icon to create a new folder. The folder appears in the current location in the hierarchy, with the default name of **New Folder**. If you do not have permission to create a folder at the current level, the icon is not selectable. By default, only a SAS administrator can create a top-level folder.

### Search Folders

Click to search the folders. After the results are displayed in the Search Results dialog box, you can filter the results by object type, the user that modified the object, and the date on which the object was modified. Click next to an object in the **Results** list to view the object's type, location, date created, and date modified.

---

### Add a Shortcut

You can create a shortcut to a folder or an object and save the shortcut in a folder that you choose. Shortcuts enable you to quickly access folders or objects rather than having to navigate to them each time.

1. Right-click on the folder or object for which you want to create a shortcut and select **Add as shortcut** from the pop-up menu.
2. In the Add as shortcut window, select the location to which you want to save the shortcut. Click if you need to create a new folder.
3. Click **OK** to save the shortcut. The shortcut is named **Objectname-Shortcut** in your selected location.

**Note:** You cannot set permissions on a shortcut. Authorization values are specified for the child member that is associated with the shortcut.

---

### Move an Object or Folder

If you have the appropriate permissions, you can move an object or subfolder to a folder that you choose. You must have these permissions:

- **Source folder**
  - Read, Remove, Read (convey), Update (convey)

- **Object in the source folder that you are moving**
  - Read, Update
Target folder
Read, Add

See “Inheritance” in SAS Viya Administration: General Authorization for more information about permissions.

1 Right-click on the object that you want to move and select Move to folder from the pop-up menu.

2 In the Move to folder window, select the location to which you want to move the object. Click if you need to create a new folder.

3 Click OK to move the object.

Delete Content

Select a folder or other content in the hierarchy and click to remove the folder or content.

- If you have Update permission for the object that you are deleting, the selected object is moved to the Recycle Bin. No confirmation message is displayed. Right-click on the object in the Recycle Bin and select Delete to permanently delete the object.
  - Select Restore to move the object back to its original location. You must have Add permission on the original folder in order to restore an object. The original folder must be present in order to restore an object to its original location.
  - If you do not have Update permission for the object, the object is deleted permanently without being moved to the Recycle Bin. A confirmation message is displayed.

- If you are deleting content in a folder, you must have Remove permission for the folder and Delete permission for the object that you are deleting.

Contexts Page

Introduction

Use the Contexts page to perform the following tasks:

- Create a launcher and compute context
- Edit, delete or view a context

There are two types of server contexts.

- Compute Context
  A SAS Compute Server is run under a compute context. (Contexts are analogous to SAS 9 SAS Application Servers.) A compute context is a specification that contains the information that is needed to run a compute server. The information that is contained in a compute context is the user identity and any SAS options or autoexec file parameters to be used when starting the server.

- Launcher Context
The server that starts the compute server, SAS Launcher Server, itself requires a context. A launcher context is a specification that enables SAS administrators to apply environmental and access constraints on processes that are run by a launcher server.

For concepts and background, see *SAS Viya Administration: Server Contexts*.

### Navigation

In the applications menu (≡), under **ADMINISTRATION**, select **Manage Environment**. In the vertical navigation bar, select 🇳.

### Create a Launcher Context

1. Under **View**, select the Launcher context.

2. On the top left side of the **Contexts** page, click 🗄.

3. (Required) Enter a name for your context. Names must not be longer than 40 characters and can consist of any alphanumeric and special characters.

4. Enter values for creating a launcher context:
   - **Description**
     Enter a description of the context that you are creating.
   - **Port Range**
     Enter a range of ports. The SAS Launcher Server selects a port in the specified range in order to run the compute server.
   - **Environment Variables**
     Click ✉ and add the environment variable and its value that you want the launcher server to use when running the compute server.

5. Click **Advanced** to override the default server deployment settings that are used by the launcher service at launch time. Next, select the check box and provide values for all the fields.

6. After you are finished, click **Save** to create the launcher context.

### Create a Compute Context

1. Under **View**, select the Compute context.

2. On the top left side of the **Contexts** page, click 🗄.

3. (Required) Enter a name for your compute context.

4. Enter values for creating a compute context:
   - **Description**
Enter a description of the context that you are creating.

- (Required) **Launcher context**
  Select a launcher context with which to run the SAS Compute Server.

- (Required) **Identity type**
  Select one of the following:
  - Select **Authenticated users** in order for any authenticated user to use this context.
  - Select **Identities** by clicking - , and then select one or more users or groups to use this context.
  - **Attributes**
    Click on the - to add new attributes and their values.
    See “Compute Context Attributes” in *SAS Viya Administration: Server Contexts* for more details.

5 To add any SAS options or additional autoexec file settings that the compute server processes use at start-up, select **Advanced** and enter this information in their respective fields.

For more information, see **Customizing Your SAS Session By Using Configuration and Autoexec Files**.

6 After you are finished, click **Save** to create the compute context.

---

**Edit a Context**

1 Under **View**, select the type of context that you want to edit.

2 On the top right side of the Contexts page, click - or right-click on the selected context and select **Edit**.

3 Make your modifications, and click **Save** when you are finished.

---

**Delete a Context**

1 Under **View**, select the type of context that you want to delete.

2 On the left side of the Contexts page, click - or right-click on the selected context and select **Delete**.

3 Click **Yes** to confirm the deletion.

---

**View a Context**

1 Under **View**, select the type of context that you want to view.

2 The **Basic Properties** are displayed on the right side of the **Contexts** page.
Data Page

Use the **Data** page to define and manage caslibs and tables.

The **Data** page embeds SAS Data Explorer. See *SAS Data Explorer: User’s Guide*.

Domains Page

**Introduction**

Use the **Domains** page to manage the following types of domains:

<table>
<thead>
<tr>
<th>Domain Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>encryption domain</td>
<td>Makes a stored credential (an encryption key) available to designated identities to facilitate loading of encrypted files.</td>
</tr>
<tr>
<td>connection domain</td>
<td>Makes stored credentials (user IDs) available to designated identities to facilitate connections to servers that do not require a password.</td>
</tr>
<tr>
<td>authentication domain</td>
<td>Makes stored credentials (user IDs and passwords) available to designated identities to facilitate connections to servers that require a password.</td>
</tr>
</tbody>
</table>

For concepts and background about encryption domains, see *Encryption in SAS Viya: Data at Rest*.

For concepts and background about connection and authentication domains, see *SAS Viya Administration: External Credentials*.

**About This Page**

Here are details and tips:

- 

- 

**Navigation**

In the applications menu (**ADMINISTRATION**), select **Manage Environment**. In the vertical navigation bar, select **Domains**.
Manage Encryption Domains

**IMPORTANT** Rotation of encryption keys is not supported. For that reason, you cannot modify a stored key. The only way to implement a new key is to create a new encryption domain. You cannot delete the old encryption domain, but you can edit its description.

Add a Domain

1

2 step here

**CAUTION**
don't lose the key

3

4 Save...

Note: now available to be assigned to a caslib (programatically or via data explorer)

Assign Identities to a Domain

In general, an encryption domain’s identity assignments are managed by SAS Administrators. However, an encryption domain’s identity assignments can also be managed by users who are already assigned to that encryption domain. Identity assignments can be direct (to the user) or indirect (through group memberships).

Here is one way to assign identities to an encryption domain:

1 On the **Domains** page, right-click the encryption domain, and select **Credentials**.

2 In the **Credentials for Domain** view, right-click the credential, and select **Edit**.

3 In the Edit Credential window, click [user icon].

4 adjust until the ? list includes the appropriate identities.

Assigning a user to an encryption domain enables the user to use the domain’s stored encryption key. That ability facilitates access to encrypted data in associated caslibs.
Manage Authentication and Connection Domains

Add a Domain

1

2

Manage Credentials in a Domain

Assign Identities to a Credential

Import Page

Introduction

Use the Import page to ...

For concepts and background, see SAS Viya Administration: Promotion (Import and Export).

About This Page

Here are details and tips:

- ..

- ..

Navigation

In the applications menu, under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select ..
Jobs and Flows Page

Introduction

Use the Jobs and Flows page to perform the following tasks:

- Schedule jobs or job flows to run at a specific time or in response to a specific trigger
- Create a new job flow or edit an existing job flow
- Create a job from a SAS DATA step program
- View the execution history of a job or a job flow
- Unschedule, delete, and view the properties of a job or job flow

For concepts and background, see SAS Viya Administration: Jobs and Flows.

About This Page

Here are details and tips:

Navigation

In the applications menu, under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select  .
Monitor Jobs

View a Table of Job Executions

By default, when you open the Monitoring tab, the Monitor table displays a list of all jobs that have executed in the previous 24 hours. The table displays the job name, the start date and time, the status, and the user that submitted the job. If the job has completed, the table also includes a link to download the log, if one was created. You can also list the end date and time, the run time, and the environment in which the job ran, although these columns are not displayed by default. For information about changing the columns that are displayed, see “Tables” in SAS Viya Web Applications: General Usage Help.

Note: If you change to a different time zone, the new time zone is not automatically reflected in the Monitor table. Close and reopen your browser to use the new time zone in the Monitor table.

If a job did not complete successfully, the message Failed appears in the Status column. Click the message to view information (if available) about the reason for the failure.

View a Chart of Job Executions

From the Monitoring tab, click 🧲 to display a chart of the jobs that have executed in the selected time period (the default is the previous 24 hours). The sliders below the graph enable you to zoom into a specific time window within the selected time period.

Jobs that ran successfully are displayed in green. Jobs that failed are displayed in red.

Place your cursor over a bar in the chart to display the name, start time, and status of the job.

Filter Details about Jobs

You can specify filters to narrow the jobs that are displayed in the Monitoring tab. For example, you can specify that only jobs that failed or only jobs that were created by a specific user are displayed.

To filter by job status, select one or more check boxes in the Status list that you want to display.

To filter by creator, select one or more check boxes in the Created By list. You can enter text in the Filter text box to find an existing creator or to specify a creator. You can filter by creator only if you opted in to the SAS Administrators group when you signed in to SAS Environment Manager.

After you have selected all the filters that you want to use, click Apply. The filters affect the jobs that are displayed in both the table of jobs and the jobs bar chart.

To remove a filter, deselect its check box and click Apply. To remove all filters in either the Status or Created By list, click Reset next to the list. To remove all filters, click Reset all.

Rerun a Job from the Monitoring Tab

To rerun a job, right-click on the job in the Jobs and Flows table and select Execute from the pop-up menu. A copy of the job is created and is displayed in the list.
Delete a Job from the Monitoring Tab

Details about jobs remain in the list on the Monitoring tab unless you delete the entry. To delete the entry for a job execution, right-click the entry in the Jobs and Flows table and select Delete from the pop-up menu.

View the Job Log

If the job execution component for a job generated a log, you can download the log file for further analysis. Not all jobs create a log. Click Download in the Log column to save or open a local copy of the log file. The specific behavior depends on your browser.

Schedule Jobs

Schedule a Job

1. On the Scheduling tab, click to display the Jobs and Flows table. The table is displayed by default when you open the Scheduling tab. By default, the table displays the job name, scheduled status, description, and the date on which the job was created. You can also choose to display the ID of the user that created the job, the date on which the job was last modified, the ID of the user who last modified the job, the job ID, the scheduled job ID, and the job type. These columns are not displayed by default. For information about changing the columns that are displayed, see “Tables” in SAS Viya Web Applications: General Usage Help.

2. Select a job in the Jobs and Flows table.

3. Click in the toolbar or select Schedule from the pop-up menu.

4. (Optional) To run the job under credentials other than your own, in the Schedule Job window, specify the user ID under which the job should be run in the Run as field. Click to select from specified identities. The user that you select must have previously signed in to SAS since it was installed.

5. Activate the Enabled control for one or more triggers in the Available triggers table. A trigger controls when the job runs. See “Create a Time Trigger for a Job” on page 22 to define a new trigger. You can use a trigger only with the job for which it was created.

Note: Currently, Time Event is the only supported trigger type.
Create a Time Trigger for a Job

1. In the Schedule Job window, click + above the Available triggers table.

2. In the New Trigger window, assign a name to the new trigger. The name is specified as New trigger by default.

3. Use the Frequency field to specify how often the trigger should be repeated (such as a specified number of minutes, hours, or days).

4. Depending on your choice for the frequency interval, different fields appear in the window to enable you to completely specify a frequency for the trigger. For example, if you select Yearly in the Frequency field, you can specify a day of a month (such as the first of January), the last day of a month, or a specific weekday in a month (such as the third Thursday in February). If you specify Minutes in the Frequency field, you can specify that the job runs every 5, 10, 15, 20, or 30 minutes. Use these fields to specify the criteria for the trigger interval.

   Note: If you select Date List in the Frequency field, you cannot select a date more than once.

5. In the Start time field, specify when the job schedule should start. Click the entry in the Start time field to select a time. Times are specified in 24-hour format.

   For example, if you use the Frequency fields to specify that the job runs every hour, and you specify 10:15 in the Start time field, the job runs at 10:15, 11:15, 12:15, and so on. If you use the Frequency fields to specify that the job runs every 20 minutes, and you specify 09 in the Start time field, the job runs at 9:00, 9:20, 9:40, and so on.

6. Specify the time zone to use when evaluating the time for the trigger, and the date on which the trigger starts.

   Note: If you choose Date List in the Frequency field, you must select the same value in the Time zone field for every scheduled date.

7. Specify when the trigger ends. You can specify that the trigger never ends, that it ends after a certain number of times, or that it ends on a specific date.

8. Click Save.

9. Repeat these steps to create other triggers for the job.

Edit a Scheduled Job

After a job is scheduled, you can edit the schedule for the job. Follow these steps:

1. Select a scheduled job in the Jobs and Flows table on the Scheduling tab. Scheduled jobs with at least one enabled trigger contain ☑ in the Scheduled column. Scheduled jobs with disabled triggers contain a disabled icon ⬇ in the Scheduled column.
2 To modify the schedule for the job, click 📋 or select **Edit Schedule** from the pop-up menu. In the Edit Schedule window, you can add, edit, and remove triggers for the job. Click **Save** when you have finished modifying the schedule.

**View a Graph of Scheduled Jobs**

From the **Scheduling** tab, click 📊 to display a chart of the jobs that are scheduled over a selected time period. The default time period is one year, and all scheduled jobs are shown. The sliders below the graph enable you to zoom into a specific time window within the selected time period.

---

**CAUTION**

Each scheduled job is listed on a separate line in the graph. Bars in the chart represent each scheduled execution of a job.

Place your cursor over a bar to display the job name, status, and the date and time of the scheduled execution.

**Disable the Schedule for a Job**

To prevent a job from running its specified schedule, you can either unschedule the job or disable the triggers. Unscheduling the job prevents the job from running on the defined schedule and also removes the triggers that are specified for the job. Disabling the triggers prevents the job from running the schedule but preserves the defined triggers.

To unschedule a job, select a scheduled job in the **Jobs and Flows** table in the **Scheduling** tab. Click 🛠️ from the toolbar or select **Unschedule** from the pop-up menu.

---

**CAUTION**

When you unschedule a job, any enabled triggers that are associated with the job are deleted. To unschedule a job and keep the triggers, instead of selecting **Unschedule**, edit the schedule and manually disable the triggers.

To disable the triggers, select a scheduled job in the **Jobs and Flows** table in the **Scheduling** tab. Click 📋 from the toolbar or select **Edit Schedule** from the pop-up menu. In the Edit Schedule dialog box, disable all slider controls in the **Enabled** column of the **Available triggers** table. If you disable all triggers for a job, the disabled icon 🚫 appears in the **Scheduled** column of the **Jobs** table. A 📋 appears in the column if any of the triggers for the job are enabled.

**Run a Job**

1 To run a job from the **Scheduling** tab, right-click a job in the **Jobs and Flows** table in the **Scheduling** tab.

2 To run the job under your own credentials, click ⬤ in the toolbar or select **Run** from the pop-up menu.

3 To run the job under credentials other than your own, select **Run As** from the pop-up menu. This option is available only if you are logged on as a SAS administrator. The Select Identities window appears, and you can select the user ID under which the job should run.
Note: The user ID that you select must have previously signed in to SAS.

You can run a job regardless of whether it has been scheduled.

View Execution History for a Job
You can view information about previous runs of a job that is available for scheduling.

1. In the Scheduling tab, right-click a job in the Jobs and Flows table.
2. Select Execution history in the pop-up menu or select 📊 from the toolbar.
3. Information about previous runs of the selected job is displayed in the Monitoring tab.

View Job Properties
To view properties for a job, select a job in the Jobs and Flows table and click 🧐 in the toolbar or select Properties from the pop-up menu. The information in the Job properties window is read-only.

Delete a Job from the Schedule Tab
Jobs remain in the list on the Scheduling tab unless you delete them. To delete a scheduled job, follow these steps.

1. Select a job in the Jobs and Flows table.
2. Click 🗑️ in the toolbar or select Delete from the pop-up menu.

Note: You cannot delete any of the provided CAS table state management jobs (Import cas-shared-default Public data, Load cas-shared-default Public data, and Unload cas-shared-default Public data).

Create and Schedule Job Flows

Create a Job Flow
To create a job flow:


2. In the New Job Flow window, select objects that you want to add to the flow in the tree view and drag them to the flow editor. You can also use the Add Object menu to add the first objects to the flow. You can then select ‍ and select Add ➔ object_name from the pop-up menu to add more objects.

3. As you add objects to the flow, make connections between the objects in order to specify the sequence of the flow. Click on the right side of the first object in the order and drag a line to the right side of the next object in the order. Each object (other than gates) can have only one input connection and one output connection. Objects change positions in the window automatically as you make connections.
By default, a connection from a job to another object (a job dependency) specifies that the connected object runs when the job completes successfully. You can change the job dependency criteria. See “Modify a Job Dependency” on page 25.

A connection from a time event to a job specifies that the job runs only the first time that the time event conditions are met. If you specify a repeating time condition, the connected job does not run every time that the time event conditions are met.

By default, the flow is defined as completed when either all of the objects and actions complete successfully or when any object in the flow fails. You can change this behavior from the flow properties. See “View Job Flow and Object Properties and Attributes” on page 27.

Non-administrative users can view flows that are created by other users, but they cannot open, edit, or schedule those flows, and they cannot change or unschedule scheduled flows.

Modify a Job Dependency

By default, a connection from a job to another object (a job dependency) specifies that the connected object runs after the job completes successfully.

To change the job dependency criteria, select the connection between a job and another object and select .

Here are the possible conditions for the job dependency:

- Completes successfully
- Ends with any exit code
- Starts
- Ends with exit code (you specify the exit code criteria)
- Maximum run time (you specify the run time)
- Minimum run time (you specify the run time)

Create a Time Event

1 In the New Job Flow window, expand Events in the object tree and drag a Time entry to the flow editor.

2 Select the time event and click in the toolbar on the left side of the flow editor.

3 In the Time Event Properties area, assign a name to the event. The name is specified as Time event n by default.

4 Use the Frequency field to specify how often the event should be repeated (such as a specified number of minutes, hours, or days).

   Note: The time event is true every time the time event conditions are met. However, a job that is dependent on the time event executes only the first time that the conditions are met.

5 Depending on your choice for the frequency interval, different fields appear in the window to enable you to completely specify a frequency for the event. For example, if you select Yearly in the Frequency field, you can specify a day of a month (such as the first of January), the last day of a month, or a specific weekday in a month (such as the third Thursday in February). If you specify Minutes in the Frequency field, you can specify that the job runs every 5, 10, 15, 20, or 30 minutes. Use these fields to specify the criteria for the event interval.
Note: If you select Date List in the Frequency field, you cannot select a date more than once.

6 In the Start time field, specify when the job schedule should start. Click the entry in the Start time field to select a time. Times are specified in 24-hour format.

For example, if you use the Frequency fields to specify that the job runs every hour, and you specify 10:15 in the Start time field, the job runs at 10:15, 11:15, 12:15, and so on. If you use the Frequency fields to specify that the job runs every 20 minutes, and you specify 09 in the Start time field, the job runs at 9:00, 9:20, 9:40, and so on.

7 Specify when the event ends. You can specify that the event never ends, that it ends after a certain number of times, or that it ends on a specific date.

8 Click Save.

9 Repeat these steps to create other time events for the job flow.

Add a Command Line Action

1 In the New Job Flow window, select , and then select Add ➔ Command Line Action from the pop-up menu. A Command Line n object is placed in the flow editor.

2 Select the object, and then select from the toolbar.

3 In the Command Line Action pane, specify the name and description for the action. In the Command line field, specify the command that runs when the object is activated. You can also specify the priority that the action should take in the operating system when it runs. The action completes successfully if the return code from the command is zero (0). If the return code is any value other than zero, the action fails.

The command syntax must match the operating system of the server on which the command runs.

Here are examples of commands that you can specify:

The full path to a batch SAS program and any job options.

```
/opt/sas/spre/home/SASFoundation/bin/sas_u8 -sysin /tmp/jobtest.sas -log /tmp/jobtest.log
```

The full path to a shell script (Linux) or batch file (Windows).

```
/opt/sas/viya/tmp/job.sh
```

The file job.sh can contain commands such as the following:

```
#!/bin/bash
echo "hello world" >> /opt/sas/viya/tmp/job.log
```

A shell script command. If you want to use multiple commands in Linux, you can begin the command line with bash -c.

```
/bin/bash -c 'ls -la /opt/sas/viya/home/bin/ >> /opt/sas/viya/command/test4'
```

```
/bin/bash -c 'rm /opt/sas/viya/command/test4'
```

Command-line actions are not monitored or logged. Add the appropriate logging options to the command if you want to produce a log. Because commands run using the credentials of the user who created the flow, make sure that you have permissions for any folders that the command uses.

4 Select ➤ to close the Command Line Action pane.
Work with Saved Actions

You can save command-line action objects to the Saved Actions area, and then use those objects in other flows. You can save only command-line actions.

Saved actions can be used only in flows that you create. They cannot be shared with other users.

To save a command-line action to the Saved Actions area, right-click on the object in the flow editor and select Add to Saved Actions.

To use a saved command-line action, expand the Saved Actions node in the selection tree and drag a saved action to the flow editor.

Right-click on a saved action to delete it or view its properties.

View Job Flow and Object Properties and Attributes

The properties and attributes for a job flow are available from the toolbar on the right side of the flow editor when nothing is selected in the editor window. Click to open the Job Flow Properties area, where you can specify the name and description. Click to open the Attributes area, where you can specify the flow completion criteria, the source for the flow exit code, and notification options.

Click ➔ to close the properties or attributes view.

Select an object in a flow and click to view its properties. Information other than properties is also available for some objects. For example, if you select a job, these types of information are available:

Arguments ( )
- Contains name-value pairs for values such as contentType and backupType

Job definition ( )
- Contains details about the job such as ID and parameters

Action ( )
- Contains the name, description, job request, and priority.

Schedule a Job Flow

To create a schedule for a job flow, including the execution time and the time interval:

1 Right-click on a job flow and select Schedule from the pop-up menu.

2 Select or create a trigger to schedule the flow. Here are the steps to create a trigger:

   a In the Schedule Flow window, click ➔ above the Available triggers table.

   b In the New Trigger window, use the Frequency field to specify how often the trigger should be repeated (such as a specified number of minutes, hours, or days, or on specific days).

   c Depending on your choice for the frequency interval, different fields appear in the window to enable you to completely specify a frequency for the trigger. For example, if you select Yearly in the Frequency field, you can specify a day of a month (such as the first of January), the last day of a month, or a specific weekday in a month (such as the third Thursday in February). Use these fields to specify the criteria for the trigger interval.

   Note: If you select Date List in the Frequency field, you cannot select a date more than once.
In the **Start time** field, specify when the job schedule should start. The field specifies an offset from midnight. Click the entry in the **Start time** field to select a time. Times are specified in 24-hour format.

For example, if you use the **Frequency** fields to specify that the job runs every hour, and you specify **00:10** in the **Start time** field, the job runs at 12:10, 1:10, 2:10, and so on.

If you specify **Hourly** in the **Frequency** field, the value of the **Start Time** field (the offset from midnight) must be less than the value for the **Every** field (the skip count of occurrences). If you specify an invalid value, a warning message is displayed and the **Every** field is set to the nearest valid value. Note that this restriction is used only for flow triggers and is not present for job triggers.

---

**Note:** If you specify **Minutes** in the **Frequency** field and specify a **Start time** of **00**, the minute intervals begin immediately. For example, if the current time is 10:27, and you schedule a flow that uses a trigger to activate every five minutes with a start time of **00**, then the flow runs at 10:32, 10:37, 10:42, and so on.

---

e Specify the time zone to use when evaluating the time for the trigger and the date on which the trigger starts.

**Note:** If you choose **Date List** in the **Frequency** field, you must select the same value in the **Time zone** field for every scheduled date.

---

f Specify when the trigger ends. You can specify that the trigger never ends, that it ends after a certain number of times, or that it ends on a specific date.

g Click **Save**.

h Repeat these steps to create other triggers for the job.

3 Click **Save** to save the schedule for the flow.

### Execute a Job Flow

To execute a job flow immediately, right-click on a flow and select **Execute** from the pop-up menu.

The **Flow name Execution History** window displays only the most recent instance of a flow executed using this command. If you use the **Execute** command on a flow that has also executed from a schedule, the history for only the scheduled executions is displayed.

### View the Execution History for a Job Flow

1 In the **Scheduling** tab, right-click on a job flow in the **Jobs and Flows** table. Select **Execution history** from the pop-up menu.

2 The **Flow name Execution History** window displays the results for the specified flow. By default, the window displays the 20 most recent executions of the flow. However, the entries that are displayed depend on several factors.

- If the flow was executed as a result of a schedule, the window displays all instances of the flow's schedule executions.
- If the flow was executed from the **Execute** command, the window displays only the most recent instance of the flow's execution.
If the flow was executed both by a schedule and the **Execute** command, the window displays only scheduled executions.

You can filter for the execution status and change the time period that is displayed (the default is the previous 24 hours).

3. Expand the entry for an execution instance to view the execution status of the objects in the flow. The status is displayed for these objects:

- Jobs that have executed
- Jobs that are running
- Jobs that are marked for execution
- Subflows (flows that are included in the flow), regardless of whether they execute
- Command line actions

The status is not displayed for these objects:

- Jobs that cannot execute because their dependencies are not met and therefore are not included.
- Gates
- Time events

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**Licensed Products Page**

**Introduction**

Use the **Licensed Products** page to perform the following tasks:

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- 

For concepts and background, see **SAS Viya Administration: Licensing**.

**About This Page**

Here are details and tips:

- 
- 

Navigation

In the applications menu (☰), under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select ☰.

Task 1

Task 2

Mobile Devices Page

Introduction

Use the Mobile Devices page ☰ to...

For concepts and background, see SAS Viya Administration: Mobile.

About This Page

Here are details and tips:

- 
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Navigation

In the applications menu (☰), under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select ☰.

Task 1
Task 2

My Credentials Page

Introduction

Use the My Credentials page to perform the following tasks:

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For concepts and background, see SAS Viya Administration: External Credentials.

About This Page

Here are details and tips:

- 

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Navigation

In the applications menu, under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select.

Task 1

Task 2
Publishing Destinations Page

Use the Publishing Destinations page to configure and manage certain types of output location for published items.

The Publishing Destinations page is available if SAS Decision Manager, SAS Model Manager, or Model Studio is deployed.

See SAS Viya Administration: Publishing Destinations.

Quality Knowledge Bases Page

Use the Quality Knowledge Bases page to configure data quality operations such as parsing, standardization, and matching.

The Quality Knowledge Bases page is available if SAS Data Quality is deployed.

See SAS Viya Administration: QKB Management.

Rules Page

Introduction

Use the Rules page to manage authorization rules directly. Here are key points:

- The Rules page is an advanced interface. It should be available to only SAS Administrators. See “Access to Functionality in SAS Environment Manager” on page 5.
- To manage access to content such as folders and reports in SAS Environment Manager, you can use a simpler interface. See SAS Viya: General Authorization Window.
- To manage CAS access controls in SAS Environment Manager, use the Data page. (The Rules page does not affect CAS objects such as caslibs and tables.)

Here are examples of tasks that you might perform on the Rules page:

- View and filter rules.
- Enable and disable rules.
- Replace the principal in a rule.
- View and edit a rule’s description or reason.
- Use an existing rule as the basis for a new rule.
Work with rules that affect access to functionality.

View conditions for multiple rules at the same time.

For concepts and background, see SAS Viya Administration: General Authorization.

About This Page

Here are details and tips:

- To ensure that all rules that should be visible to you are displayed, refresh the display and click Reset all in the Rules Filter pane.
- On the Rules page, you cannot see rules that are directly assigned to objects for which you lack the Secure permission.
- The search field searches only the Object URI, Description, Reason, and Condition columns.
- To add, remove, or reorder columns, click 🗂️, and select Manage columns.
- You cannot sort the values within a column.
- You can use the Rules Filter pane to view a subset of rules. Some filters take effect immediately, other filters take effect after you click Apply.
- You can clear a filter by clicking its Reset link. You can clear all filters by clicking Reset all at the top of the pane.
- The Guest principal type is always listed, regardless of whether guest access is enabled.
- Display names for users and groups are not available on the Rules page.

Navigation

In the applications menu (≡), under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select 🛠️.

Add a Rule


2. In the New Rule window, provide values for at least the required attributes. Here are tips:
   - In some fields, you can click an icon to browse instead of directly entering a value.
   - If a warning indicates that the Principal value cannot be validated, make sure the value is an ID, not a display name. If the principal is a service account (such as sasapp or sas.folders), you can ignore the warning.
   - To populate the list of permissions, use the Clear All, Select All, and Choose buttons.

3. Click Save.

4. On the Rules page, right-click the new rule, and select Properties. Verify that the attributes of the new rule are as you intended.
5 If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

---

**Edit a Rule**

1 On the **Rules** page, right-click a rule, and select **Edit**.

   Note: You cannot edit a share-based rule.

2 In the **Edit Rule** window, modify attributes as needed. Here are tips:
   - If a warning indicates that the Principal value cannot be validated, make sure the value is an ID, not a display name. If the principal is a service account (such as sasapp or sas.folders), you can ignore the warning.
   - If the rule does not have a condition, an **Add Condition** button is present. If the rule has a condition, an **Edit Condition** button is displayed.

3 Click **Save**.

4 On the **Rules** page, right-click the rule, and select **Properties**. Verify that the attributes of the new rule are as you intended.

5 If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

---

**Copy a Rule**

1 On the **Rules** page, right-click a rule, and select **Copy**.

   Note: You cannot copy a share-based rule.

2 In the **New Rule** window, modify attributes as needed.

3 Click **Save**.

4 On the **Rules** page, right-click the new rule, and select **Properties**. Verify that the attributes of the new rule are as you intended.

5 If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

---

**Delete a Rule**

1 On the **Rules** page, right-click a rule, and select **Delete**.

2 In the confirmation window, click **Delete**.
If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

### Edit a Condition

1. On the Rules page, right-click a rule, and select Edit.
2. In the Edit Rule window, click Edit Condition.

   Note: If a rule does not have a condition, an Add Condition button is present. If a rule has a condition, an Edit Condition button is displayed.

3. In the Edit Condition window, edit the expression. Your syntax is validated when you click OK.
4. Click Save.
5. If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

### Delete a Condition

1. On the Rules page, right-click a rule, and select Edit.
2. In the Edit Rule window, click Edit Condition.

   Note: If a rule does not have a condition, an Add Condition button is present. If a rule has a condition, an Edit Condition button is displayed.

3. In the Edit Condition window, delete the expression.
4. Click Save.
5. On the Rules page, verify that the condition no longer exists. Right-click on the rule, select Properties, and verify that the Condition field is blank.
6. If the rule affects a content object (such as a folder or report), use the Authorization window to verify that the results are as you intended.

### Locate a Particular Rule

Here are general tips:

- Filter requirements are cumulative. For example, if you set two filters, only rules that meet both criteria are displayed.
- Remember to click Apply after you set or modify certain filters.
You can search for rules that contain specified text in the ObjectUri, Description, Reason, or Condition field. The search is not case-sensitive. The search looks for the specified text in any of the four supported fields.

Here are tips for locating a rule by date:

- In the Rules Filter pane, under Date Modified, click \( \text{select a date or date range.} \)
- Each rule’s Date Modified value indicates when the rule was created or most recently modified.
- To add the Date Modified column to the display, click \( \text{Manage columns.} \)

Here are tips for locating a rule by identity:

- The Modified By filter is based on who created or last updated a rule.
- To add the Modified By column to the display, click \( \text{Manage columns.} \)
- The Principal filter is based on who a rule is assigned to.
- Both the Modified By and the Principal filters use ID values, not display name values. For example, to display only rules that were created by userA, specify userA in the Modified By filter.
- To display only rules that are assigned to the SAS Administrators group, specify SASAdministrators in the Principal filter.
- Rules that are predefined or generated can have a Modified By value that does not correspond to a user or group that is known to the identities service.

Here are tips for locating a rule by the URI of the rule’s target:

- To view only those rules that target a specific content object, use the technique that is appropriate for the type of URI, as follows:
  - Browse content objects for the object URI for a rule target. In the drop-down list under Object URI, select URI.
  - Browse container objects for the container URI for a rule target. In the drop-down list under Container URI, select URI.
- To view only those rules that do not specify an object URI, select (blank URI) from the drop-down list under Object URI.
- To view rules that either specify /** as the object URI or do not specify an object URI, select (global URI) from the drop-down list under Object URI.
- To view only those rules that do not specify a container URI, select (blank URI) from the drop-down list under Container URI.

Manage Share-Based Rules

Administrators can view and delete share-based rules on the Rules page in SAS Environment Manager. When you delete a share-based rule, the corresponding share is automatically deleted along with the rule.

On the Rules page, the following constraints apply to managing share-based rules:

- You cannot add share-based rules. Sharing is primarily a user-driven activity. Share-based rules are automatically created when users share content in SAS Drive.
- You cannot edit or copy share-based rules. Any changes to share-based rules must be coordinated with changes to the associated shares, and must conform to requirements that are specific to share-based rules.

All share-based rules are created with generated text in the Description field. Here is an example:
The user "userA" shared an object with the specified principal. (This is a share-based rule.)

On the Rules page, you can filter for share-based rules as follows:

- To display only share-based rules, enter the following text in the Description filter:
  
  This is a share-based rule

- To display only share-based rules for a particular share recipient, specify the preceding Description filter and specify the share recipient in the Principal filter.

- To display only share-based rules that were generated by a particular user, include that user's ID in the Description filter text as follows:
  
  The user "userID" shared an object with the specified principal

TIP You cannot instead use the Modified by filter, because all share-based rules are generated with a Modified by value of sas.authorization. Do not assume that all rules that have a Modified by value of sas.authorization are share-based rules.

Servers Page

Introduction

These instructions explain how to view and modify SAS Cloud Analytic Services (CAS) settings.

Use the Servers page to view and modify SAS Cloud Analytic Services (CAS) settings. Here are examples of the tasks you might perform:

Note: The tasks described in this section can be performed only by SAS Administrators.

- View CAS Server properties, configuration, environment variable, and user session information
- Terminate a CAS user session
- Manage CAS server nodes and CAS role memberships
- Manage path lists and adjust caslib management privileges

For concepts and background, see SAS Viya Administration: SAS Cloud Analytic Services.

Navigation

In the applications menu, under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select .
View CAS Server Properties and System Information

You can view CAS server properties (such as machine name and port) and system information (such as CAS version and build date).

Note: You can also view CAS server metrics.

1. Select the CAS server whose properties and system information that you want to view.
2. On the right side of the list, click ↪.
3. To close the pane, in the top left corner of the pane, click ➔.

View CAS Server Configuration

You can view CAS server configuration values and identify how they were set (for example, the maximum CAS table size, the location of the permstore, the HTTP port being used, and so on).

1. Select the CAS server whose configuration you want to view.
2. Click 🔍.
3. Make sure that the CAS Configuration tab is selected.
4. To return to the Servers page, in the top left corner of the window, click ؛.

View CAS Start-up Options and Environment Variables

You can view environment variable and command-line option values used to run a CAS server.

1. Select the CAS server whose run-time environment you want to view.
2. Click 🔍.
3. Make sure that the Nodes tab is selected.

TIP If the list of server nodes is not displayed, immediately above the list, click ؛.

4. In the list of server nodes, select the CAS controller, backup controller, or worker whose run-time environment you want to view.
5. Click ؛.
6. To return to:
   - the list of CAS server nodes.
Immediately above the list, click →.

- the Servers page.

In the top left corner of the window, click →.

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**View CAS User Session Information**

You can view information about a CAS server session such as the session name, session ID, connection state, and so on. If you are a member of the **Superuser** role and assume that role when prompted during sign-in to SAS Environment Manager, you can **terminate** sessions.

1. Select the CAS server whose sessions you want to view.
2. Click →.
3. Make sure that the Sessions tab is selected.

**TIP**
To view additional details, add columns to the table. Click → and select **Manage columns**.

4. To return to the Servers page, in the top left corner of the window, click →.

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**Terminate a CAS User Session**

You can terminate all CAS sessions that you started. To terminate other users’ CAS sessions, you must be a member of the **Superuser** role and assume that role when prompted during sign-in to SAS Environment Manager.

1. Select the CAS server whose session you want to terminate.
2. Click →.
3. With the specified server highlighted, click →.
4. If it is not already selected, select **Sessions**.
5. On the Sessions tab, select the check boxes for the sessions that you want to terminate, and click →.
6. In the alert box that is displayed, confirm your selection by clicking **Terminate**.
7. In the top right of the window, click **Relinquish** to surrender the Superuser role for the specified server.
8. To return to the Servers page, in the top left corner of the window, click →.
View CAS Server Nodes

You can view basic information such as machine name, connection state, and role for all of the nodes that belong to a CAS server.

1. Select the CAS server whose nodes you want to view.
2. Click 🔗.
3. Make sure that the Nodes tab is selected.
4. To return to the Servers page, in the top left corner of the window, click ☐️.

Manage CAS Server Nodes

To manage CAS server worker nodes, you must be a member of the Superuser role and assume that role when prompted during sign-in to SAS Environment Manager.

1. Select the distributed CAS server whose worker nodes you want to manage.

   IMPORTANT CAS servers running in SMP mode are non-distributed and do not have worker nodes.

2. Click 🔗.

   The current admin user is granted permission to have temporary superuser role privileges. The user now can modify any operations of the CAS server.

3. With the specified server highlighted, click 🔗.

4. If it is not already selected, select Nodes to see the worker nodes for the specified CAS server.

   TIP If the list of server nodes does not display immediately above the list, click ☐️.

5. To add or to remove a worker node, click ✏️.

6. In the Edit Nodes window, perform one of the following actions:
   - Add a worker node
     Click ✐ and enter the fully qualified domain name for the machine of the CAS worker node that you are adding.
   - Remove a worker node
     Select the CAS worker node in the table, click ☒, and, in the alert box, confirm the removal by clicking Yes.

Note: The process of dropping (removing) a worker node ensures that active and backup copies of table blocks are preserved. This requires that all sessions complete their actions and
pause while the blocks are moved. Long-running actions are canceled, and occasionally, a session might need to be killed so that the operation can proceed. The data movement often takes minutes.

7 To save any changes, click **Save**. Otherwise, click **Cancel**.

8 In the top right of the window, click **Relinquish** to surrender the Superuser role for the specified server.

9 To return to the Servers page, in the top left corner of the window, click  

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**Manage CAS Role Memberships**

For each CAS server, be sure to designate at least one user (other than the server’s process owner) to the Superuser role. In the initial deployment, users that you add to the SAS Administrators predefined custom group have membership in the Superusers role. If you want to designate a user to the role without providing the extra privileges of SAS Administrators, follow these instructions.

**Manage Direct Membership in the CAS Superuser Role**

1 Right-click a CAS server, and select **Assume the Superuser role**.

2 Right-click the server again, and select **Settings**.

3 In the Superuser Role Membership section of the Server Settings window, click  

4 To add a member, do the following in the **Select Identities** window:
   a In the left pane, select **Users**.
   b In the left pane, click the name of a user. The user’s properties are displayed in the far right pane.
   c Click ➔.

5 To remove a member, do the following in the **Select Identities** window:
   a In the **Select Identities** list, click the user that you want to remove. The identity’s properties are displayed in the right pane.
   b Click ←.

6 Click **OK**.

7 Click **Relinquish** in the status bar to relinquish the Superuser role.

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**Assume the Superuser Role**

In SAS Environment Manager, you become a Superuser only after you explicitly assume that role. For example, you might assume the role to troubleshoot and resolve an access issue or to manage format libraries. To assume the Superuser role:
1 In the list of servers, right-click the name of the server for which you want to assume the role, and select **Assume the Superuser role**.

   The status message reminds you that you have assumed the role.

2 After you perform the task that required the role, click **Relinquish** in the status bar.

**Note:** Use the Superuser role only when it is required for a specific task. Be sure to relinquish the role when you are finished.

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### Manage Path Lists (Whitelists and Blacklists)

To change CAS server path list (whitelist and blacklist) settings, you must be a member of the **Superuser** role and assume that role when prompted during sign-in to SAS Environment Manager. For more information about how CAS manages whitelists and blacklists, see "Paths List" in **SAS Viya Administration: SAS Cloud Analytic Services**.

**IMPORTANT** CAS does not support blacklists for caslibs on Amazon S3.

1 Select the CAS server whose whitelist or blacklist you want to access.

2 Click 🔄.

3 With the specified server highlighted, click 🛑.

4 Make sure that the **Paths List** tab is selected.

5 To modify the active list, or to switch between a whitelist, blacklist, or no list, on the right side of the Server Settings window, click 🛑.

   If you select the blacklist or whitelist, you can add or remove paths to the list.

**Note:** By default, the SAS Viya install and various configuration directories are on the blacklist.

**IMPORTANT** On Linux, if a blacklist path is changed to a symbolic link, then the blacklist should be updated using the fully resolved path.

6 To save any changes, click **Save**. Otherwise, click **Cancel**.

7 When you are finished, click **Close**.

8 In the top right of the window, click **Relinquish** to surrender the Superuser role for the specified server.
Adjust Caslib Management Privileges

To adjust caslib management privileges for a particular CAS server in SAS Environment Manager, you must be a member of the Superuser role and assume that role when prompted during sign-in to SAS Environment Manager.

1. Select the CAS server whose caslib management privileges you want to adjust.
2. Click 🗝️.
3. With the specified server highlighted, click ⚙️.
4. Select Caslib Management Privileges to view identities and their caslib privileges.
5. To modify privileges, click 🏻.
6. For the identities listed, choose to enable (or disable) the ability to add and delete session and global caslibs.
   Regardless of access controls, the Superuser can add and manage all caslibs.

   Note: This display shows directly granted privileges. Indirectly granted privileges and denials of privileges are not reflected in this display.

7. To save any changes, click Save. Otherwise, click Cancel.
8. When you are finished, click Close.
9. In the top right of the window, click Relinquish to surrender the Superuser role for the specified server.

Stop a CAS Server

To shut down a CAS server, you must be a member of the Superuser role and assume that role when prompted during sign-in to SAS Environment Manager.

1. Select the CAS server that you want to stop.
2. Click 🗝️.
3. Right-click the CAS server, and select Stop server.
4. In the alert box that is displayed, confirm your selection by clicking Stop the Server.
5. In the top right of the window, click Relinquish to surrender the Superuser role for the specified server.
Users Page

Introduction

Use the **Users** page to perform the following tasks:

- view users and group information
- manage custom groups
- manage profile pictures (avatars)
- reload identities cache

For concepts and background, see *SAS Viya Administration: Identity Management*.

About This Page

On the **Users** page, the information displayed for users and groups comes from your organization's directory service (such as LDAP or Microsoft Active Directory), and is read-only. Properties for custom groups are stored in SAS and can be edited using SAS Environment Manager.

Here are details and tips:

- Enter a string in the **Filter** field to search for identities within the category that you selected (Users, Groups, or Custom groups). To restore the complete list of identities, clear the filter field.
- Click an identity in the left pane to see its properties in the right pane. An identity’s properties include the following:
  - contact information (for users only)
  - a list of groups that the identity is a member of. indicates custom groups, and indicates groups from your identity provider.
  - Access recently viewed identities by using the drop-down box at the top of the right pane.

Navigation

In the applications menu, under **ADMINISTRATION**, select **Manage Environment**. In the vertical navigation bar, select 🛡️.
Manage Custom Groups

Add or Remove Custom Group Members

Note: A custom group is a group that exists in SAS but not in your identity provider.

1. Select Custom groups from the drop-down list in the toolbar.
2. In the left pane, click the name of the group whose members you want to update.
3. In the Members section of the right pane, click .
   The Edit Members window displays the custom group’s current members in the right pane.
4. To add a member, do the following:
   a. In the left pane of the Edit Members window, select Users, Groups, or Custom groups from the drop-down box.
   b. In the left pane, click the name of a user, group, or custom group identity. The identity’s properties are displayed in the far right pane.
   c. Click or double-click the identity.
5. To remove a member, do the following in the Edit Members window:
   a. In the Select Identities list, click the user, group, or custom group identity that you want to remove. The identity’s properties are displayed in the right pane.
   b. Click or double-click the identity.
6. When you are finished adding and removing members, click OK.

Note: To add, edit, or delete users and groups (other than custom groups), use your organization’s identity provider (for example, Microsoft Active Directory) to which SAS Viya is connected.

If you add or remove a user, the change takes effect the next time that this user logs on. If the user is currently logged on, his or her previous memberships continue to apply.

Create a New Custom Group

Create custom groups to give members similar permissions.

1. Select Custom groups from the drop-down list in the toolbar.
2. Click in the toolbar.
3. In the New Custom Group window, enter a unique name and ID for the group. You can also enter a description.
   a. Do not assign a custom group the ID of sasapp. SAS Viya reserves the group identifier sasapp for internal use by services.
Do not assign a custom group the ID of CASHostAccountRequired. CASHostAccountRequired is a reserved custom group name.  
Do not use an apostrophe (‘) in a custom group ID. The use of an apostrophe (‘) interferes with the use of that group’s identity on the Users page in SAS Environment Manager as well as accessing that group’s identity when working with authorization.  
Create an ID that is easily recognizable. For example, for the group “Report Testers”, you could use “ReportTesters” as the ID.

4 Click Save.

TIP You can also create a custom group by copying a custom group. To do so, click the existing group (or custom group) and select . Then you can edit the properties and members of the new custom group as needed.

Edit a Custom Group’s Basic Properties
1 Select Custom groups from the drop-down list in the toolbar.
2 In the left pane, click the name of the group whose properties you want to edit.
3 In the basic properties section of the right pane, click .
4 In the Edit Custom Group window, enter your changes to the name or description.
   
   Note: You cannot edit the ID of a custom group.

5 Click Save.

Delete a Custom Group
1 Select Custom groups from the drop-down list in the toolbar.
2 Click the custom group that you want to delete. The group’s properties are displayed in the right pane.
3 Click , and then click Delete in the confirmation window.

Manage Profile Pictures (Avatars)
1 Select Users, Groups, or Custom groups from the drop-down list in the toolbar.
2 On the Users page, enter a string in the Filter field to search for identities within the category that you selected (Users, Groups, or Custom groups). To restore the complete list of identities, clear the Filter field.
3 Click an identity in the left pane to see its properties in the right pane. The profile picture appears below the identity name.
4 To add a profile picture:
a Click on the profile picture.
b From the Edit Profile Picture window, select Choose Picture from the drop-down list.
c Navigate to the image that you want to use for the profile picture, and click Open.

5 To remove a profile picture:
   a Click on the profile picture.
   b From the Edit Profile Picture window, select Remove from the drop-down list.
   c In the Remove Profile Picture confirmation window, click Remove.

6 Click Save.

Note: When you copy a group or custom group, the profile picture is not copied to the new group. If desired, you should assign a new profile picture to the new group.

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Reload Identities Cache

1 Select  from the toolbar, and click Reload Identities.

2 A Reload Identities confirmation window appears with a warning that reloading the users and groups can take several minutes. Click Yes if you want to continue.

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User-Defined Formats Page

Introduction

Use the User-Defined Formats page  to perform the following tasks:

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For concepts and background, see SAS Viya Administration: Data.

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About This Page

Here are details and tips:

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Navigation

In the applications menu (≡), under ADMINISTRATION, select Manage Environment. In the vertical navigation bar, select $v$.

Task 1

Task 2