

Ask the Expert

How Do I Manage My SAS[®] Viya[®]
Environment?

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Cesar is a solutions/cloud architect with over 20 years of experience helping customers adopt and evolve their infrastructure technologies, from operating systems and database management systems to analytics, AI and cloud computing.

Ask the Expert – SAS Viya Administration

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Agenda

- SAS Environment Manager Overview
- User and User Groups configuration page
- CAS Sessions and CAS configurations page
- Data configuration page
- Security Domains configuration page
- Rules (and Product/Functionality access) configuration page
- Workload Orchestrator and Jobs configuration page
- Session timeout and microservices memory and settings configuration
- Audit tool and Audit reports configuration
- Q&A

SAS Environment Manager

Overview

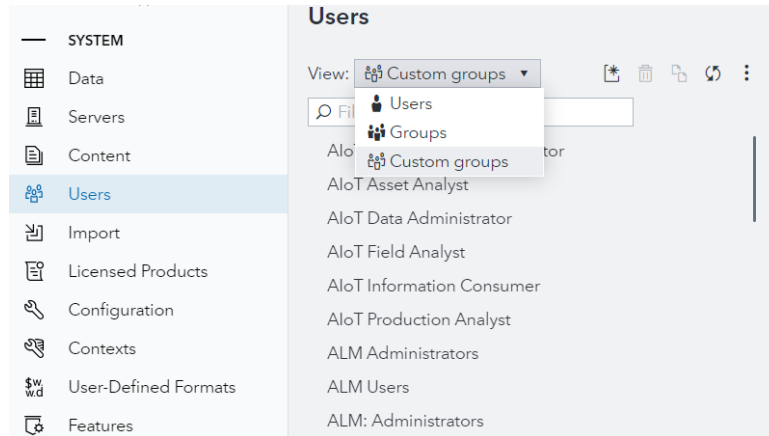
- Environment Manager is a web application for SAS administration activities on the SAS Viya platform.
- SAS Environment Manager consists of a set of pages.
- Each page enables you to examine and manage a particular aspect of the environment.

	C		Join		Quality Knowledge Bases	Collections of files for data quality operations such as parsing, standardization, and matching ³
	C		Lic		Rules	General authorization rules (not CAS access controls)
	C		Lo		Servers	SAS Viya platform server definitions and operation
	D		Me		Users	Identity information from your authentication store (Read-only) and the SAS Viya platform (custom groups)
	D		Me		User-Defined Formats	Custom formats and format libraries for data
	F		My		Credentials	Personal IDs and passwords that are stored by the Credentials service
	It		Publishing Destinations			Destinations for publishing decisions, models, and rule sets. ²

User and User Groups configuration page



- The *Users* page allows you to visualize Users located in your Identity Directory and User Groups residing in the same directory.
- The *Custom Groups* sub-page allows you to create and manage customized groups of users. There are a set of preconfigured Custom Groups.



CAS Sessions and CAS configurations page

Servers

- In the **Servers** page you can visualize the CAS servers enabled, the sessions currently on the system as well as performing changes to some configurations.

Sessions CAS Configuration Nodes

Sessions CAS Configuration Nodes

Name	Role	Connected	IP Address	UUID
controller.sas-cas-server-default.canada.svc.clust...	Controller	✓	192.168.5.145	47A1F6BD-5189-564F-9530-5F33B89879CD
worker-0.sas-cas-server-default.canada.svc.clust...	Worker	✓	192.168.5.86	CF1A42A7-09D3-3948-8688-F914CB74886A
worker-1.sas-cas-server-default.canada.svc.clust...	Worker	✓	192.168.4.19	E6F696A1-BE93-FA4B-BDFD-4089537BC8E2
CASIID				default
CASINSTANCE				default

You can also terminate CAS sessions!

CAS Sessions and CAS configurations page



Servers

- Also you can change some settings such as [superuser](#) Role Membership, CASlib management Privileges and Logging.

Server Settings

Superuser Role Membership

Caslib Management Privileges

Logging

▶ SAS Administrators

SAS System Account

CAS Sessions and CAS configurations page





Servers

- Assuming the SuperUser role can allow you to dynamically change settings and also persist the changes. An example of this is *Paths List*

Server Settings

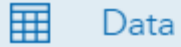
Paths List Superuser Role Membership Caslib Management Privileges Logging

Active list: Allowlist  

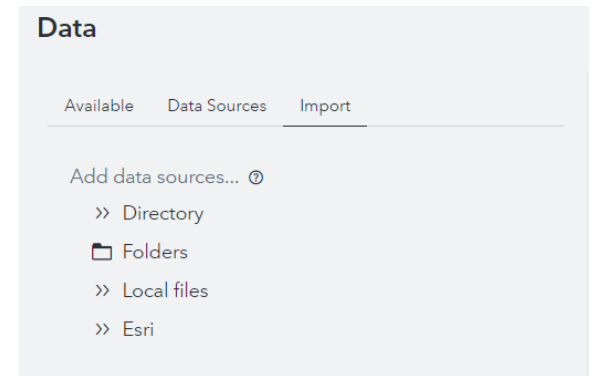
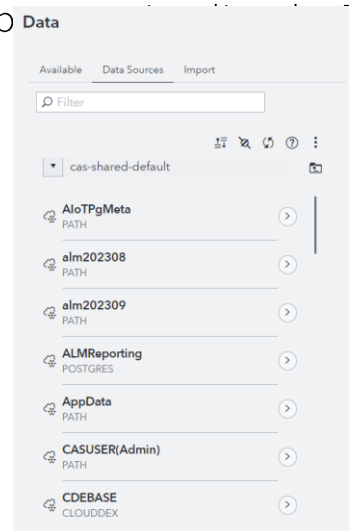
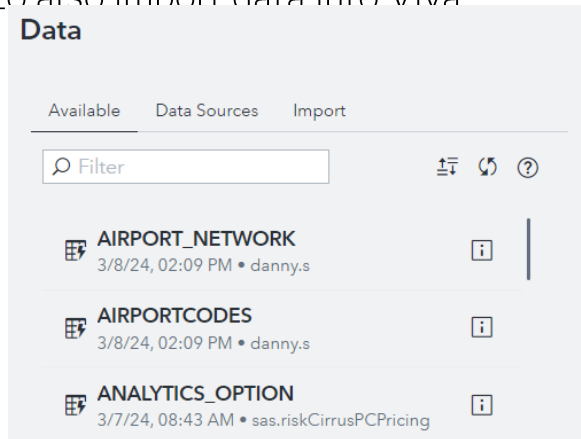
Available paths:

Paths	
/access-clients	
/cas/data/caslibs	
/export/canada/homes	
/export/demo	
/opt/sas/viya/config/data/cpset/stagecps	
/opt/sas/viya/config/data/riskmodel/content/promotion	
/sas-risk-alm-data	

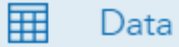
Data configuration page



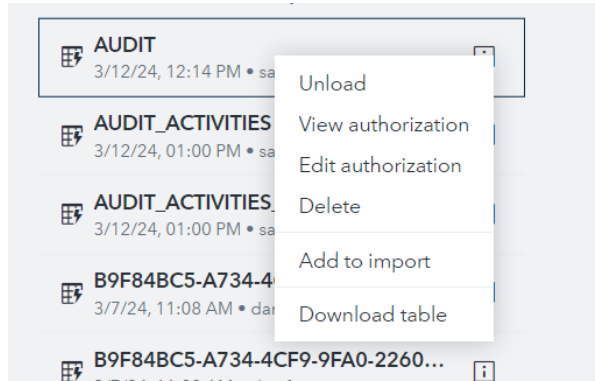
- In the “Data” page a SAS Viya Administrator can configure and manage caslibs and tables, Data Source connection settings, security/permissions and import data.
 - Normal users can also use this same page to view the data sources they have access to and to also import data into Viva



Data configuration page



- Authorization is a very important aspect of Data Sources management.
 - With a right-click you can access the menu of Authorization on any given Data Source/caslib configured.



Edit Authorization

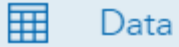
AUDIT

Show individual permissions Show horizontal column headings

Principal	Access Level	ReadInfo	Select	LimitedPromote	CreateTable	DropTable	DeleteSource	Insert	Update	Delete	AlterTable	ManageAccess
Authenticated Users	No Access	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
SAS Administrators	Custom	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓
sasapp	Full Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...	Custom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Preview Save Cancel

Data configuration page



- In the Edit Authorization sub-page you can add extra users, custom groups or even guest users to create customized Access Levels.

The screenshot displays the 'Data configuration page' interface. On the left, there is a table with columns labeled 'le' and 'ource'. A checkbox labeled 'Show horizontal column headings' is visible. A menu is open over the table, showing options: 'Add Identities', 'Add Guest', and 'Filter by:'. The 'Filter by:' dropdown is expanded, showing a list of identity types: 'Custom groups', 'Users', 'Groups', 'Custom groups', 'AloT Asset Analyst', 'AloT Data Administrator', 'AloT Field Analyst', 'AloT Information Consumer', and 'AloT Production Analvst'. To the right, a 'Selected Identities' panel shows 'No items selected.' with an upward arrow.

Security Domains configuration page



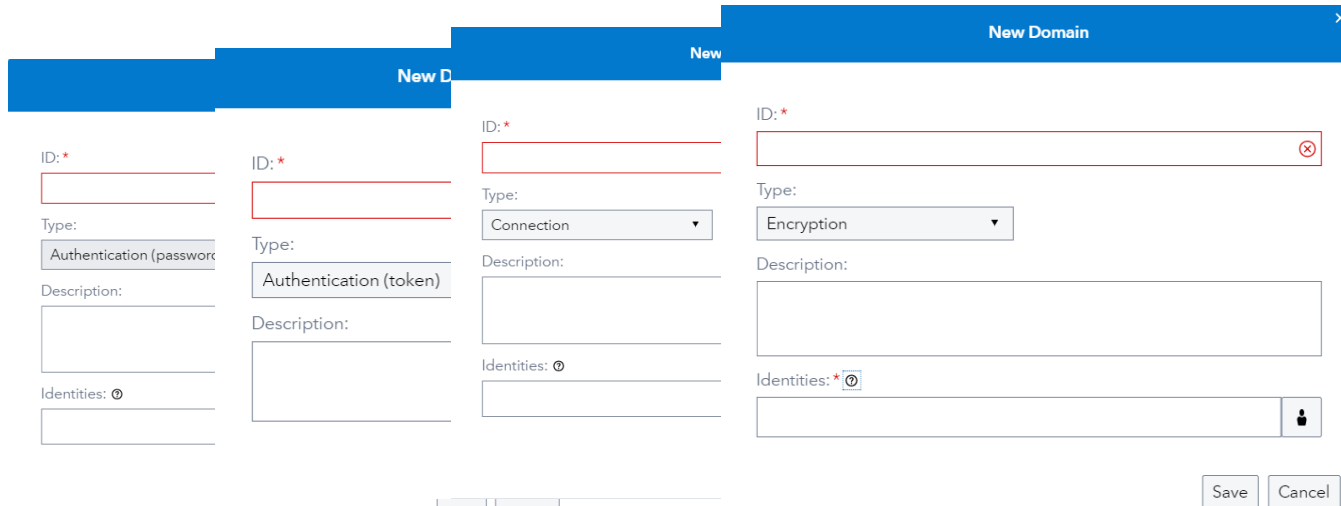
- Security Domains are used to manage the following types of domains:

Encryption	makes a stored credential (an encryption key) available to designated identities to facilitate loading of encrypted files
Connection	makes stored credentials (user IDs) available to designated identities to facilitate connections to servers that do not require a password
Authentication (password)	makes stored credentials (user IDs and passwords) available to designated identities to facilitate connections to servers that require a password
Authentication (token)	allows a group-managed service account to manage the credentials for a token domain and assign those credentials to a user or group. The administrator specifies which group-managed service accounts have access to the Authentication (token) domain. Only authorized group-managed service accounts have access to the token domain. IMPORTANT Only one group-managed service account should be assigned to a token domain.

Security Domains configuration page

 Domains

- Security Domains are used to manage the following types of domains:

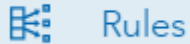


The screenshot displays three overlapping 'New Domain' configuration forms. The forms are for different domain types: Authentication (password), Authentication (token), and Encryption. Each form includes fields for ID, Type, Description, and Identities. The Encryption form is the most prominent and shows a red border around the ID field, indicating a validation error. The Identities field in the Encryption form has a red 'x' icon next to it. The forms are arranged in a way that they appear to be part of a sequence or a comparison of options.

Form Type	ID:*	Type	Description	Identities: ⓘ
Authentication (password)	<input type="text"/>	Authentication (password)	<input type="text"/>	<input type="text"/>
Authentication (token)	<input type="text"/>	Authentication (token)	<input type="text"/>	<input type="text"/>
Encryption	<input type="text"/>	Encryption	<input type="text"/>	<input type="text"/>

Buttons: Save, Cancel

Rules (and Product/Functionality access) configuration page



- 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 i.e. the ability to import data into SAS Data Explorer.
 - view conditions for multiple rules at the same time.

Rules (and Product/Functionality access) configuration page

Rules

Rules Filter

- Object URI
 - URI or URI pattern
- Container URI
- Principal (no filter)
 - Authenticated Users
 - Everyone
 - Guest
 - SASAdministrators
 - ApplicationAdministrators
 -
- Setting (no filter)
- Accept Type (no filter)
- Accept Item Type (no filter)
- Content Type (no filter)
- Rule Status (no filter)
- Description

Apply


Search

Object URI	Principal	Setting	Permissions
/capability/sas/capability/create	SASAdministrators		
/authorization/rules/	Authenticated Users		
/capability/sas/capability/create	sasapp		
/capability/sas/capability/read	SASAdministrators	Grant	Read
/authorization/rules	Authenticated Users	Conditional Grant	Create
/capability/sas/capability/read	sasapp	Grant	Read
/authorization/rules	Authenticated Users	Conditional Grant	Create
/capability/sas/capability/assign...	SASAdministrators	Grant	Read
/authorization/rules	Authenticated Users	Grant	Update
/authorization/rules/*	Authenticated Users	Conditional Grant	Read, Update, Create, Delete
/capability/sas/capability/assign...	sasapp	Grant	Read
/capability/sas/capability/elevat...	SASAdministrators	Grant	Read
/authorization/rules/*	Authenticated Users	Conditional Grant	Read, Update, Create, Delete
/**	SASAdministrators	Grant	Read, Remove, Update, Create,


URI of product/functionality Setting


Permissions

Rules (and Product/Functionality access) configuration page


 Rules

Edit Rule

Object URI: 

Container URI: 

Principal type: *

Principal: * 

Rule type: *

Condition:

Permissions: *

Description:

Reason:

URI of product/functionality Setting

Condition

Permissions

Workload Orchestrator and Jobs configuration page



Workload Orchestrator

- Administrators can manage all jobs and the configuration of Queues, Hosts and Logs.

Workload Orchestrator

Information

General

Version: 1.2.22

License expiration date: Nov/29/2024

Build date: March 14, 2022 08:54:53 PM

GUI build date (version): March 10, 2022 08:39:50 PM (4.48.17-SNAPSHOT)

Jobs

Total: 0

Pending: 0

Running: 0

Queue Status

default Priority 10

OPEN-ACTIVE

Jobs pending: 0

Jobs running: 0

Jobs suspended: 0

highpriority Priority 100

OPEN-ACTIVE

Jobs pending: 0

Jobs running: 0

Jobs suspended: 0

Job Status

No items are available.

Non-admins

Workload Orchestrator

Information

General

Version: 1.2.22

License expiration date: Nov/29/2024

Build date: March 14, 2022 08:54:53 PM

GUI build date (version): March 10, 2022 08:39:50 PM (4.48.17-SNAPSHOT)

Jobs

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Pending: 0

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default Priority 10

OPEN-ACTIVE

Jobs pending: 0

Jobs running: 0

Jobs suspended: 0

highpriority Priority 100

OPEN-ACTIVE

Jobs pending: 0

Jobs running: 0

Jobs suspended: 0

Host Status

intnode01 20% Utilized

OPEN-OK

intnode02 19% Utilized

OPEN-OK

Administrators

Workload Orchestrator and Jobs configuration page



Workload Orchestrator

- Administrators can manage all jobs and the configuration of Queues, Hosts and Logs.

ID	State	User	Name	Queue	Host	Start Time	End Time
8	COMPLETED	Delilah	doWork5mins	default	uaa	April 7, 2022 12:05:20 AM	April 7, 2022 12:10:44 AM
9	COMPLETED	Delilah	doWork5mins	default	uaa	April 7, 2022 12:05:31 AM	April 7, 2022 12:10:55 AM
10	COMPLETED	Henrik	doWork5mins	highpriority	uaa	April 7, 2022 12:12:50 AM	April 7, 2022 12:23:19 AM
11	COMPLETED	Henrik	doWork10mins	highpriority	uaa	April 7, 2022 12:12:50 AM	April 7, 2022 12:23:19 AM
12	COMPLETED	Henrik	doWork10mins	highpriority	uaa	April 7, 2022 12:12:55 AM	April 7, 2022 12:23:23 AM
13	COMPLETED	Delilah	doWork5mins	highpriority	uaa	April 7, 2022 12:13:04 AM	April 7, 2022 12:18:26 AM
14	COMPLETED	Delilah	doWork10mins	highpriority	uaa	April 7, 2022 12:13:13 AM	April 7, 2022 12:23:34 AM
15	COMPLETED	geladm	doWork10mins	highpriority	uaa	April 7, 2022 12:13:25 AM	April 7, 2022 12:23:54 AM
16	HOST-FAILED	geladm	doWork10mins	highpriority	uaa	April 7, 2022 12:24:18 AM	April 7, 2022 12:24:44 AM
17	RUNNING	Delilah	doWork10mins	highpriority	uaa	April 7, 2022 12:24:29 AM	-
			doWork10mins	highpriority	uaa	April 7, 2022 12:24:43 AM	April 7, 2022 12:24:43 AM

Workload Orchestrator and Jobs configuration page



Workload Orchestrator

Dashboard Jobs **Queues** Hosts Logs Configuration Log Levels

Filter

Advanced Filter

- State (no filter)
- Priority
- Jobs Pending (no filter)
- Jobs Running (no filter)
- Maximum Jobs (no filter)
- Maximum Jobs Per Host (no filter)

Default queue: default

<input type="checkbox"/>	Name	Tenant	State	Priority	Jobs Pending	Jobs Running	Maximum Jobs	Maximum Job...
<input checked="" type="checkbox"/>	default	uaa	OPEN-ACTIVE	10	0	0	Undefined	Undefined
<input type="checkbox"/>	priority	uaa	OPEN-ACTIVE	100	0	0	Undefined	Undefined

Activate Inactivate

All users can access Queues tab

Administrators can Activate/Inactivate or Open/Close queues

Workload Orchestrator and Jobs configuration page



Workload Orchestrator

Dashboard Jobs Queues **Hosts** Logs Configuration Log Levels

Filter

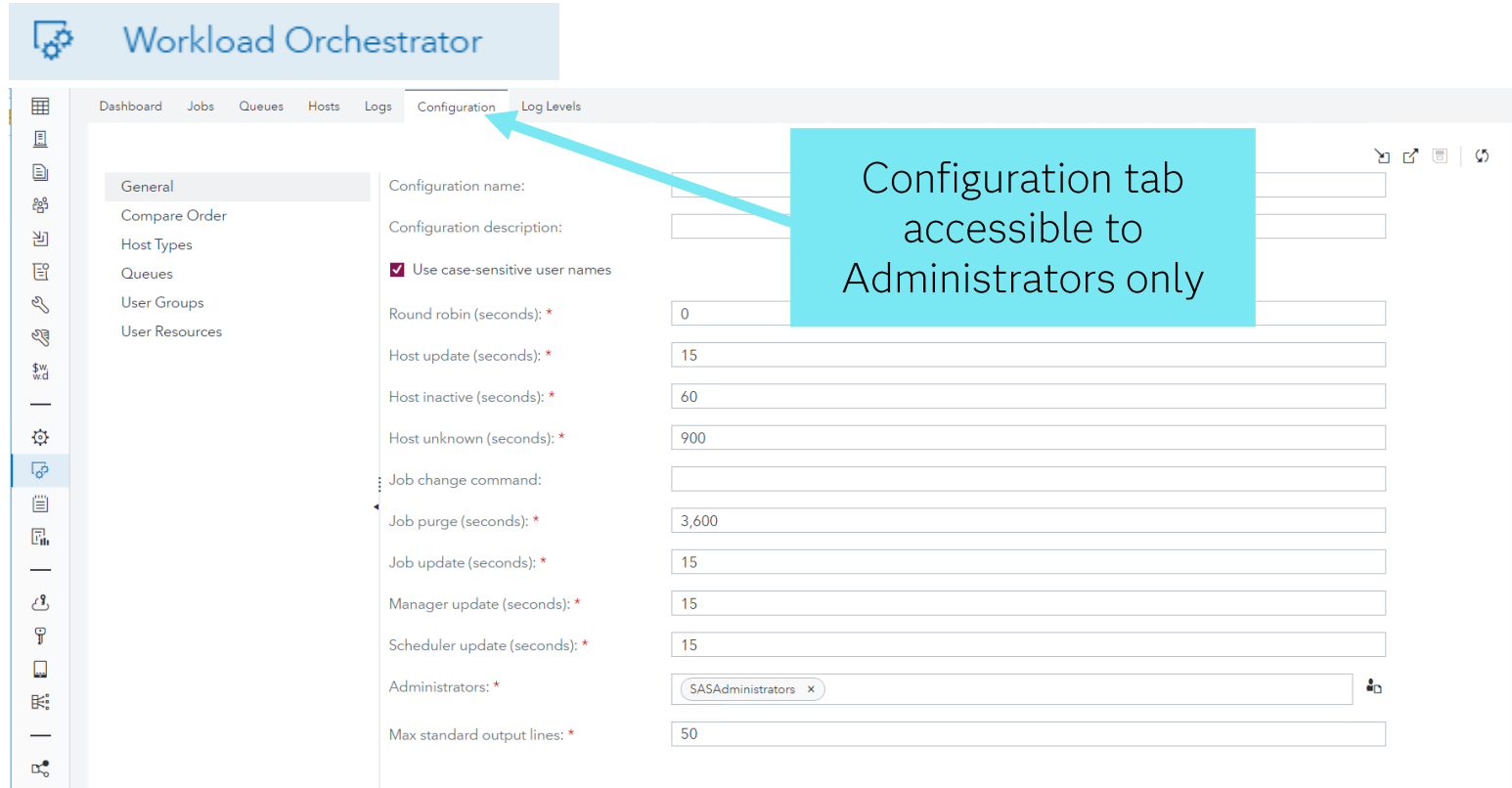
Advanced Filter

All users can access Hosts tab

<input type="checkbox"/>	Name	State	Maximum Jobs Allowed	Jobs Running	Jobs Suspended	Operating System	!
<input type="checkbox"/>	innode01	OPEN-OK	8	0	0	Linux	
<input type="checkbox"/>	innode02	OPEN-OK	8	0	0	Linux	
<input type="checkbox"/>	innode03	OPEN-OK	8	0	0	Linux	
<input type="checkbox"/>	innode04	OPEN-OK	8	1	0	Linux	
<input type="checkbox"/>	innode05	OPEN-OK	8	0	0	Linux	

Administrators can Open/Close hosts

Workload Orchestrator and Jobs configuration page



Workload Orchestrator

Dashboard Jobs Queues Hosts Logs Configuration Log Levels

General

Compare Order

Host Types

Queues

User Groups

User Resources

Configuration name:

Configuration description:

Use case-sensitive user names

Round robin (seconds): *

Host update (seconds): *

Host inactive (seconds): *

Host unknown (seconds): *

Job change command:

Job purge (seconds): *

Job update (seconds): *

Manager update (seconds): *

Scheduler update (seconds): *

Administrators: *

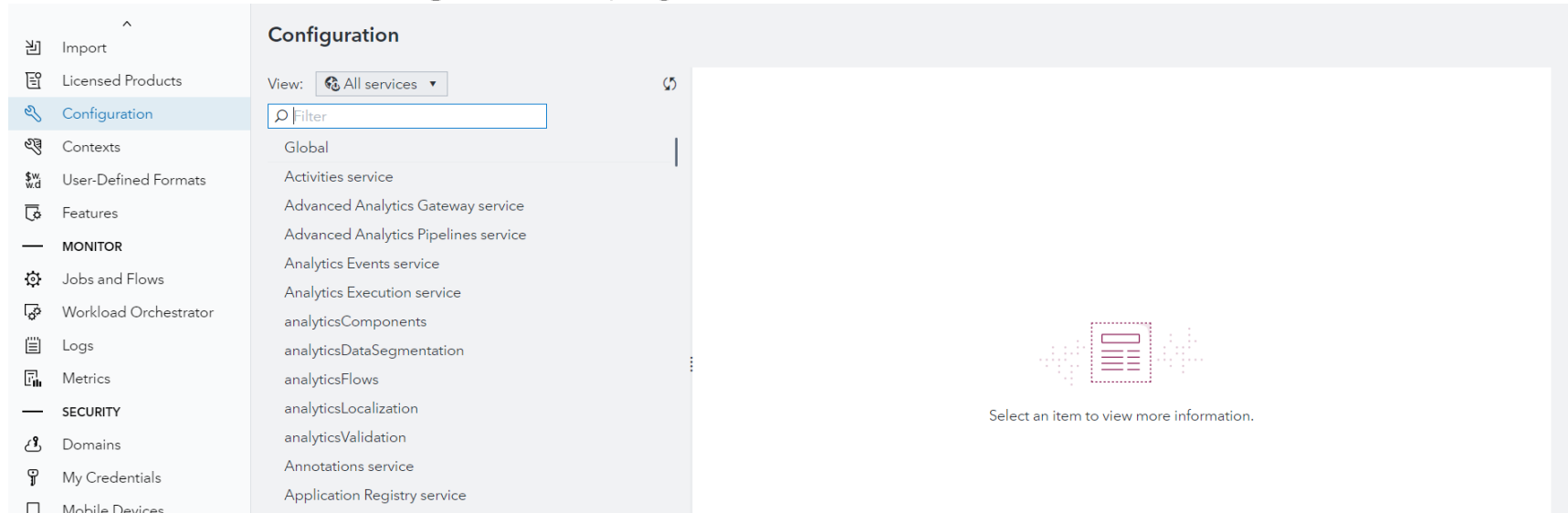
Max standard output lines: *

Configuration tab accessible to Administrators only

Session timeout and microservices memory and settings configuration

Configuration

- To configure microservices settings, such as timeout and memory settings we use the **Configuration** page.



The screenshot displays the SAS Configuration page. On the left is a navigation sidebar with categories: Import, Licensed Products, Configuration (highlighted), Contexts, User-Defined Formats, Features, MONITOR, Jobs and Flows, Workload Orchestrator, Logs, Metrics, SECURITY, Domains, My Credentials, and Mobile Devices. The main content area is titled 'Configuration' and includes a 'View:' dropdown set to 'All services', a search filter box containing the text 'Filter', and a list of services: Global, Activities service, Advanced Analytics Gateway service, Advanced Analytics Pipelines service, Analytics Events service, Analytics Execution service, analyticsComponents, analyticsDataSegmentation, analyticsFlows, analyticsLocalization, analyticsValidation, Annotations service, and Application Registry service. The right side of the page is mostly blank, showing a faint icon and the text 'Select an item to view more information.'

Session timeout and microservices memory and settings configuration

Configuration

- We configure Java settings

The screenshot displays the SAS Configuration interface. On the left, a sidebar titled 'Configuration' shows a list of services: 'catalog', 'catalogTableBot', 'SAS Logon Manager' (highlighted), and 'SASInformationCatalog'. The main area shows the configuration for 'SAS Logon Manager'. A table lists configuration instances, with one instance highlighted by a blue box:

Parameter	Value
java_option_xmx:	-Xmx512m

Below this, the configuration is categorized under 'sas.casmanagement.global'. It includes a GUID: 8d76d8e9-9727-45df-a1ba-88b6946bb8c4, described as 'The globally unique identifier for the configuration instance.' The 'Services' section indicates 'Global', with a note: 'Services to which this configuration instance applies. 'Global' indicates the configuration instance applies to all services.'

Session timeout and microservices memory and settings configuration

Configuration

- We configure timeout settings

The screenshot displays the SAS Configuration interface. On the left, a sidebar shows a list of services under the 'View: All services' filter. The 'SAS Logon Manager' service is selected and highlighted. The main content area shows the configuration details for this service. A 'New Configuration' button is visible in the top right. The configuration details include a GUID, a description of the GUID, and a list of services to which the configuration applies (Global). A blue box highlights the session timeout settings: 'http.session.maxAge: 4h' and 'servlet.session.timeo... 4h'.

Configuration

View: All services

log

catalog

catalogTableBot

SAS Logon Manager

SASInformationCatalog

New Configuration

The following configuration instances are used to configure the service "SAS Logon Manager":

Filter

GUID: 708acd05-7faa-481d-9203-8e59c443eee2

The globally unique identifier for the configuration instance.

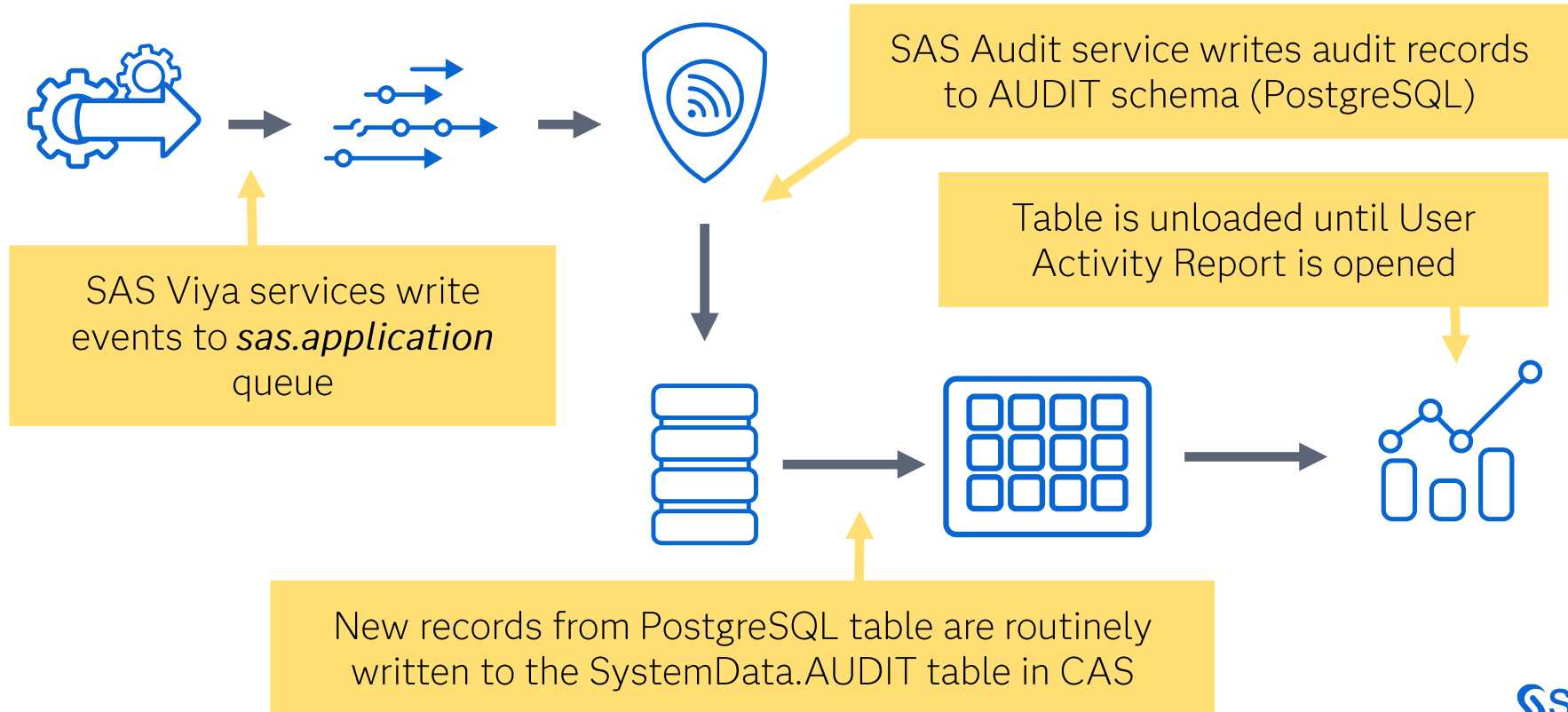
Services: Global

Services to which this configuration instance applies. 'Global' indicates the configuration instance applies to all services.

http.session.maxAge: 4h

servlet.session.timeo... 4h

Auditing framework recap



Audit tool and Audit reports configuration



Configuration

The screenshot displays the SAS Environment Manager interface for configuring the Audit service. The left sidebar shows a list of services, with 'Audit service' selected. The main content area shows a list of configuration instances used to configure the 'Audit service'.

SAS® Environment Manager - Manage Environment

Configuration

View: All services

Filter

- analyticsDataSegmentation
- analyticsFlows
- analyticsLocalization
- analyticsValidation
- Annotations service
- Application Registry service
- arke
- Audit service**
- Authorization service
- CAS Access Management service
- CAS Formats service
- CAS Management service

New Configuration

The following configuration instances are used to configure the service "Audit service":

Filter

- > jvm
- > sas.audit.archive.process
- > sas.audit.archive.system
- > sas.audit.purge
- > sas.audit.record
- > sas.audit.reporting
- > sas.audit.reporting.activities
- > sas.casmanagement.global

Demo

Q&A