



THE
POWER
TO KNOW.

SAS[®] Environment Manager 2.3 User's Guide

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SAS® Environment Manager 2.3: User's Guide

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What's New in SAS Environment Manager 2.3

Overview

SAS Environment Manager has the following new features and enhancements:

- The user definition process has been simplified. All users are now created in SAS metadata, rather than in SAS Environment Manager.
- Synchronization between users and subgroups defined in certain groups in metadata and user definitions in SAS Environment Manager has been added.
- The SAS Environment Manager agents now use a new default account for communication with the server.
- Support for creating a new Access Control Template (ACT) has been added
- Support for metadata clusters has been added.
- Support for managing metadata access has been added.
- A plug-in for managing a SAS Grid Manager grid has been added
- Support for creating folders and editing the properties of metadata objects has been added.

Managing Metadata Access

Selecting an object in the **Administration** tab enables you to manage metadata access for that object. The tasks that you can perform include the following:

- creating access control templates (ACTs) (available in the second maintenance release for SAS 9.4)
- updating ACTs
- applying ACTs to metadata objects
- applying explicit controls to objects
- managing repository-level controls
- specifying SELECT permission conditions that give users access to some but not all of the data within a physical table (available in the first maintenance release for SAS 9.4)

Metadata User Synchronization

Users in SAS Environment Manager are now mapped to users created in SAS metadata. During installation, three user groups are created in SAS metadata to contain SAS Environment Manager users. Users and subgroups that are members of these groups are mapped to user definitions in SAS Environment Manager with corresponding roles. A synchronization function has also been added. When users or subgroups are added to one of the supported groups in metadata, the synchronization function creates a corresponding user definition in SAS Environment and assigns the user to the correct role.

Internal Services Account

A new user ID, `sasevs@saspw`, is now used for communications between the SAS Environment Manager agent and server, to enable plugins to access SAS Metadata Server content, and for batch and other processes to access SAS Environment Manager. The ID is created in metadata and in SAS Environment Manager during installation.

Metadata Object Management

In addition to viewing the properties of metadata objects, some of those properties can now be edited. Properties that can be edited include the following:

- Name
- Description
- Keywords
- Responsible parties
- Extended attributes

Folders to contain metadata objects can also be added, updated, or deleted.

Recommended Reading

Here is the recommended reading list for this title:

- The online Help for SAS Environment Manager 2.3.
- *SAS Intelligence Platform: Middle-Tier Administration Guide.*
- *SAS Intelligence Platform: System Administration Guide.*
- *SAS Logging: Configuration and Programming Reference*

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x *Recommended Reading*

Chapter 1

Introduction to SAS Environment Manager

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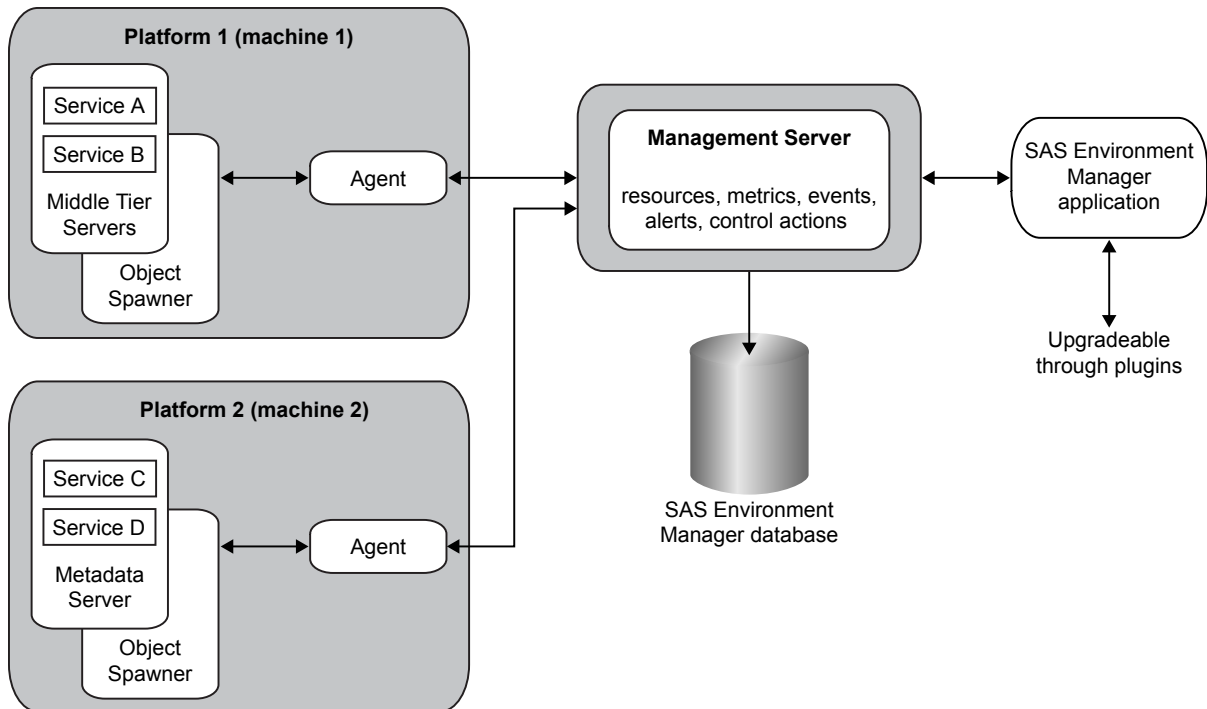
What is SAS Environment Manager?

SAS Environment Manager is a web-based administration solution for a SAS environment. The application can administer, monitor, and manage SAS resources, including administering the SAS Web Application Server and monitoring SAS foundation servers. The application collects and charts data on metrics for monitored resources, providing a comprehensive view of resource health and operation. It also provides functions such as auto-discovery of resources, monitoring of log events, and reporting of alerts. Over the lifecycle of SAS 9.4, functions will be added to extend SAS Environment Manager's capabilities as a centralized administration application for all SAS products.

SAS Environment Manager agents run on all SAS platforms except for z/OS.

SAS Environment Manager is based on VMWare's Hyperic product, with customizations and plugins to optimize the product specifically for a SAS environment. Some terms and concepts used in SAS Environment Manager are different than in other parts of SAS, but these are noted in this document.

The basic architecture of SAS Environment Manager consists of an agent process running on each platform in a SAS deployment that communicates to a central management server. Agents monitor detected resources and periodically report resource metrics back to the server. The server provides an interface for interacting with those agents, managing the data collected by the agents, distributing plugins, creating alerts and escalation procedures based on collected metrics, and graphing the metrics provided through the installed plugins.



There are five main components to SAS Environment Manager:

agent

An agent is a software process that runs on each platform (middle-tier and server-tier machine) in a SAS deployment. The agent is responsible for tasks such as discovering software components on its platform, gathering metric and availability data for the platform and components, and performing resource control actions. The agents communicate with the management server. Plugins are used to provide the agents with the information needed to discover SAS resources installed on a platform.

management server

The management server is responsible for communicating with the agents. It collects information about items such as discovered resources, metrics, and availability, and issues control actions received from the SAS Environment Manager application. Collected data is stored in the SAS Environment Manager database.

SAS Environment Manager database

The database is a Postgres database that is a repository for all of the information about all of the resources known to SAS Environment Manager. It uses the SAS Web Infrastructure Platform Data Server, which is based on PostgreSQL. After resources are discovered and added to your inventory, the database stores data collected from the agents about the resources.

SAS Environment Manager application

The application is the web-based interface to the SAS Environment Manager system. Resources discovered by the agents and added to the inventory are displayed and monitored. Metric and availability data collected by the agents and stored in the database is displayed and charted. Events and metric data are used to generate alerts. Control actions are sent back through the management server to the agents to control resources on the platforms. The application also includes a framework to add functions specific to SAS, such as server, library, and user administration.

plugins

Plugins enable agents to discover and monitor resources in a SAS environment. Each plugin is associated with a specific resource, and provides the agents with the instructions needed to recognize the resource during auto-discovery and to monitor and collect metrics for the resource.

Although open-source plugins are available for VMWare Hyperic, these plugins are not supported by SAS Environment Manager. You should use only plugins provided by SAS.

Resource Inventory Model

Overview

The SAS Environment resource inventory model contains three levels:

platform

A container such as an operating system or a SAS server tier that holds servers and services

server

Software product or process, such as a SAS Metadata Server, that runs on a platform

service

A task-specific software component, such as a SAS logical server, that runs on a server or platform

Platforms

Platforms are the highest level of resource type in SAS Environment Manager. They are containers that host other software and services. There are three major categories of platforms:

- operating system platforms
- SAS Application Server Tier
- Virtual and network platforms

An operating system platform consists of a computer (physical or virtual) and the operating system that runs on it. The SAS Environment Manager uses the system plugin to teach the agent how to auto-discover the operating system platform. You cannot manually add an operating system platform to inventory. SAS Environment Manager supports most of the operating systems on which SAS is supported.

The SAS Application Server Tier platform is an instantiation of a SAS deployment and a collective store of deployment-wide information such as license information and clustering. Resources in the SAS Application Server Tier platform include SAS Metadata Server and SAS Application Server and their logical servers (such as SAS Workspace Servers, SAS OLAP Servers, and SAS Stored Process Servers). The agent automatically discovers and creates the SAS Application Server through direct communication with the SAS metadata server as a platform resource.

Virtual and network platforms include a variety of platform types that do not map to an individual physical machine running a traditional operating system and are managed by an agent proxy. These include the following:

- resources that an agent monitors remotely over the network, such as network hosts and devices
- virtual resources such as VMware vSphere hosts and virtual machines
- distributed sets of resources, such as GemFire Distributed Systems

The agent does not automatically discover platforms other than the host operating system and the SAS Application Server Tier. You must manually create other platforms or supply resource properties data that enable the agent to manage them. Below are the virtual and network platform types that SAS Environment Manager supports:

- Cisco IOS
- GemFire Distributed System
- Network Device
- Network Host
- VMware vSphere Host
- VMware vSphere VM

Servers

In SAS Environment Manager, a server is commonly a software product or process that runs on a platform. Servers provide a communication interface and perform specific tasks upon request. The Monitoring Defaults page on the **Manage** tab lists all of the server types (along with platform and service types) that SAS Environment Manager supports.

Most server types are auto-discovered by a server type-specific SAS Environment Manager plugin. If the plugin that manages a server does not support auto-discovery, or if auto-discovery of a server fails, you might need to manually create a server. See [“Manually Adding a Server” on page 21](#).

Examples of server types include the following:

- SAS Metadata Server
- SAS Object Spawner
- Postgres server
- SAS Home Directory Service

Services

In SAS Environment Manager, a service is a software component dedicated to a particular task that runs on a server or platform. A service that runs on a server is a service, and a service that runs on a platform is a platform service.

The resource plugin that discovers a platform or server also discovers key services, such as CPUs, network interfaces, and file systems that are running on the platform.

You can also configure a platform service that serves as a proxy for a resource that the SAS Environment Manager agent can monitor over the network. Examples include

- DNS service
- POP3 service
- Fileserver mount

- Windows service
- Network host storage

For more information, see [“Manually Configuring a Service”](#) on page 21.

Services that run on a server can be either an internal component of the server or a deployed item. Logical SAS servers are considered to be services that run on SAS server resources. Examples of services that run on servers include the following:

- PostgreSQL database
- SAS Object Spawner
- SAS Logical Workspace Server
- SpringSource tc Runtime Cache

The Monitoring Defaults page on the **Manage** tab lists the supported platform service types (along with platform types and server types) provided by the installed plugins.

Chapter 2

Finding Your Way Around

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Finding Your Way Around

The SAS Environment Manager interface is organized around five main areas, as illustrated in this figure:

The following table describes the main functional areas of SAS Environment Manager:

Main Page	Contents
Dashboard	Configurable collections of portlets; this is the initial view when starting SAS Environment Manager.
Resources	Resource-level monitoring and management.
Analyze	Deployment-wide views of events and alerts.
Administration	Metadata folders, basic properties of metadata objects, security and access controls

Main Page	Contents
Manage	Native users, roles, permissions, plugins.

Viewing Important Information at a Glance: the Dashboard

The Dashboard is the starting point when you sign in to SAS Environment Manager. The page consists of a collection of views (called portlets) of resources and metrics that are the most important to your environment. The Dashboard is customizable, so you can specify how many portlets are displayed, which metrics and functions they present, and which resources they cover. For example, your Dashboard could contain a portlet to display recently auto-discovered resources, a portlet to display recent alerts, or a portlet to display the availability of a group of selected servers. Selecting an entry (such as a resource or an alert) in a portlet takes you to detailed information about the entry.

Each user can access their own personal Dashboard as well as a Dashboard for each of the native roles of which the user is a member. Each Dashboard can be customized to meet the needs of the user or role.

An example Dashboard page is displayed in this figure.

Figure 2.1 Example Dashboard

The screenshot shows the SAS Environment Manager interface. At the top, there's a navigation bar with 'Dashboard', 'Resources', 'Analyze', 'Administration', and 'Manage'. Below this, a 'Select a Dashboard' dropdown is set to 'Super User Role'. The main area contains several portlets:

- Auto-Discovery:** Shows 'No resources to display'.
- Recent Alerts:** A table with columns: Date / Time, Alert Name, Resource Name, Fixed, Ack.

Date / Time	Alert Name	Resource Name	Fixed	Ack
02/28/2013 11:10 AM	Supervisor Failure	SASMeta -	No	
02/28/2013 11:00 AM	I/O Subsystem	SASMeta -	No	
02/27/2013 02:01 PM	Log Monitoring	Ob...	No	
02/27/2013 01:33 PM	Log Monitoring	Ob...	No	
- Problem Resources:** Shows 'Availability Alerts OOB Last'.
- Recently Added:** Shows 'No resources to display'.
- Control Actions:** A table with columns: Resource Name, Control Action, Date / Time, Message.

Resource Name	Control Action	Date / Time	Message
Metadata Server	Resume	02/25/2013 11:58 AM	eration 15.02. NOTE: Server is RUNNING on 25Feb2013:11:58:01. NOTE: PROCEDURE METADOPERATE used (Total process time): real time 0.02 seconds cpu time 0.01 seconds NOTE: SAS Institute Inc., SAS Campus Drive, Cary, NC USA 27513-2414 NOTE: The SAS System used: real time 0.50 seconds cpu time 0.07 seconds Server is resumed Log files are located at: /pp/SAS/Config/Lev1/SASMeta/MetadataServer/Logs
- Quick Control Frequency:** A table with columns: Resource Name, # of Control Actions, Most Frequent Control Action.

Resource Name	# of Control Actions	Most Frequent Control Action
Metadata Server	2	Resume
Metadata Server	2	Pause

Monitoring Platforms, Servers, and Services: the Resources Pages

Use the **Resources** pages to monitor, configure, and manage inventory resources. The main Resources page lists the inventory of resources, organized by type:

- Platforms
- Servers
- Services
- Compatible Groups/Clusters
- Mixed Groups
- Applications

Other selections under Resources enable you to view only resources that are currently down or to select from recently viewed resources. This figure shows a server resource list.

Figure 2.2 Resource List

The screenshot shows the SAS Environment Manager interface. At the top, there's a navigation bar with 'Dashboard', 'Resources', 'Analyze', 'Administration', and 'Manage'. Below this, the 'Servers > All Servers' section is active. A search bar and filter options are present, including 'All Server Types', 'All Groups', and 'Owned by HQ Match'. The main content is a table listing various server resources with columns for 'Server', 'Server Type', 'Description', and 'Availability'. The table includes entries like 'HQ Agent 5.0.0', 'PostgreSQL 9.x', 'ActiveMQ 5.7', and 'SAS Config Level Directory 9.4'. At the bottom, there are buttons for 'Delete', 'Enable All Alerts', and 'Disable All Alerts', along with a 'Total: 15' and 'Items Per Page: 15' indicator.


Server	Server Type	Description	Availability
HQ Agent 5.0.0	HQ Agent	Hyperic HQ monitor Agent	🟡
PostgreSQL 9.x localhost:5432	PostgreSQL 9.x		🟡
ActiveMQ 5.7	ActiveMQ 5.7		🟢
HQ Agent 5.0.0	HQ Agent	Hyperic HQ monitor Agent	🟢
Hyperic - Apache Tomcat 6.0	Apache Tomcat 6.0		🟢
Object Spawner - ptnode19	SAS Object Spawner 9.4	/home/opt/SAS/Config/Lev1/ObjectSpawner	🟢
PostgreSQL 9.x localhost:5432	PostgreSQL 9.x		🟢
SAS Config Level Directory 9.4	SAS Config Level Directory 9.4	SAS Config Level Directory 9.4 at /opt/SAS/Config/Lev1	🟢
SAS Home Directory 9.4	SAS Home Directory 9.4	SAS Home Directory 9.4 at /opt/SAS/Home/SASFoundation/9.4	🟢
SASApp - OLAP Server	SAS OLAP Server 9.4	/home/opt/SAS/Config/Lev1/SASApp/OLAPServer	🟢
SASMeta - Metadata Server	SAS Metadata Server 9.4	/home/opt/SAS/Config/Lev1/SASMeta/MetadataServer	🟢
tc Runtime SASServer1_1	SpringSource to Runtime 7.0	/home/opt/SAS/Config/Lev1/Web/WebAppServer/SASServer1_1	🟢
vFabric Web Server 5.2 WebServer	vFabric Web Server 5.2		🟢
SAS 9.4 Application Server Tier SASApp	SAS Server Context		🟢
SAS 9.4 Application Server Tier SASMeta	SAS Server Context		🟢

The icons on the left of the resource name enable you to quickly jump to the Monitor, Inventory, or Alerts page for the resource. Selecting the resource name displays the Monitor page for the resource. A lock icon indicates that, because of your permissions, a particular feature is not available for a particular resource.

Use these strategies to locate resources on the **Resources** page:

- Only one inventory type is displayed at a time. To access resources of a different inventory type, click a link in the table header.

Platforms (3) | Servers (15) | Services (1177) | Compatible Groups/Clusters (3) | Mixed Groups (1) | Applications (1)

- To further limit the display, you can specify criteria in the **Search** row and then click  (at the end of the **Search** row). Not all criteria are supported for all inventory types.
- To include only resources that you own, select the **Owned by** check box.
- There might be multiple pages of resources in the list. Use the controls below the list to navigate.
- You can use **Resources** ⇒ **Recently Viewed** ⇒ *the page name* to quickly return to a page that you recently viewed.
- As an alternative to browsing and filtering on the **Resources** page, you can use the search field (on the right side of the application banner) to quickly locate a resource by its name.
- To view a list of resources that are not currently available, select **Resources** ⇒ **Currently Down**.
- You can initiate resource management tasks from the **Resources** page.

Monitoring Resource Events and Alerts: the Analyze Pages

Overview

The **Analyze** pages contain the Alert Center, the Event Center, and the Operations Center. These pages enable you to quickly view and work with alerts and events throughout your system.

An event is any sort of activity in a resource that you are monitoring. Alerts are a user-defined type of event that acknowledges a critical condition in a selected resource. You can configure SAS Environment Manager to also log events for log messages and resource configuration changes.

Alert Center

The Alert Center page provides a deployment-wide view of alerts and alert definitions.

The default view of the Alert Center is the **Alerts** tab, which displays a table with information about currently active alerts. You can use the filter controls to filter by criteria such as status, type, and priority. Clicking on an entry in the **Alert Definition** column in the table displays detailed information about the alert.

Alert Center

Alerts | Definition

Alert Filter

Show:

Not Fixed

In Escalation

All

Alert type:

Resource ▼

Minimum priority:

! Low ▼

In the last:

day ▼

Group:

-- All Groups -- ▼

Resource Alerts Previous Page 1 Next

<input type="checkbox"/>	Date	Alert Definition	Resource	Platform	Fixed	Ack	Priority
<input type="checkbox"/>	3/25/13 9:55 AM	Host Credentials	Object Spawner - ptnode20		No		Med
<input type="checkbox"/>	3/25/13 3:47 AM	Stored Process Canceled	Object Spawner - ptnode20 SASApp - Stored Process Server		No		Med
<input type="checkbox"/>	3/24/13 7:45 PM	Server Hot Running	Object Spawner - ptnode20 SASApp - Pooled Workspace Server		No		Med
<input type="checkbox"/>	3/24/13 4:45 PM	Server Launch	Object Spawner - ptnode20		No		Med

Click the icon to acknowledge an alert

Although you can select the check box next to an alert and click **Fixed** to identify the problem as having been corrected, the Detail page for the alert enables you to not only mark the alert as fixed, but also to enter information about the resolution of the alert.

Object Spawner - ptnode20 SASApp - Stored Process Server: Stored Process Canceled: Alert Detail

[<< Resource Alert List](#)

Alert Properties

Name: [Stored Process Canceled](#) Priority: !! - Medium

Resource: [Object Spawner - ptnode20 SASApp - Stored Process Server](#) Alert Date: 03/25/2013 03:47 AM

Description: Stored process has been canceled at the user's request Alert Status: Not Fixed

Condition Set

If Condition: Event/Log Level(ERR) and matching substring "Stored process canceled at user's request"

Actual Value: mayhem /home/opt/SAS/Config/Lev1/SASApp/StoredProcessServer/Logs/SASApp_STPServer_mayhem.log: Stored process canceled at user's request.

Enable Action(s): Each time conditions are met.

Control Type: none

Notification Actions

Notify Roles: (none)

Notify Users: (none)

Fix

Resolution for Fix:

Click the "Fixed" button to mark alert condition as fixed

[<< Resource Alert List](#)

The **Definition** tab in the Alert Center contains a table listing all of the defined alerts. Clicking on an alert takes you to the definition page for the alert, where you can view more detailed information or edit the alert.

Event Center

The Event Center page provides a deployment-wide view of all events that have been logged for resources. Alerts are automatically logged as events. You can configure SAS Environment Manager to also log events for log messages, resource configuration changes, and resource metric triggers.

To access the event center, select **Analyze** ⇒ **Event Center**.

Operations Center

The Operations Center lists resources that are down or have unfixed alerts. You can use filters to find resources and problem types of interest. This concise view displays the current number of unavailable resources and unfixed alerts, and a one line problem summary for each resource.

The screenshot displays the SAS Operations Center interface. At the top, there are control panels for 'Display Filters' (Status Type: All Alerts, Platform Filter, Group Filter: None), 'Current Filter Totals' (Resources: Down Platforms: N/A, Down Resources: N/A; Alerts: Unfixed Alerts: 4, Alerts in Escalation: 0), and 'Table Controls' (Items per page: 50, Refresh interval: 1 minute, Updated at 11:06:41, population took 151 ms).

The main section is titled 'Resource Details for All Hosts' and contains a table with the following columns: Platform, Resource, Alert Name, Priority, Status Type, Last Escalation, Last Check, Duration, State, and Status Information. The table lists several alerts, including 'TCP Attempt Fails', 'SASMeta: Metadata Time in Calls per Minute', 'Postgres SQL: egi Memory Size changed', 'Project Workspace Server ERROR message in log', 'HG Agent: HG Agent Fetching Metrics', 'Object Spawner: Object Spawner: Abort (error) Failure', 'HG Agent: HG Agent Memory', and 'TCP Attempt Fails'.

Performing SAS Tasks: the Administration Page

The Administration page enables you to access and manage folders and folder contents in the SAS Metadata server. After you select a folder or an object contained in a folder, you can perform these tasks:

- view details about the folder or object’s metadata
- modify the name, description, keywords, responsible parties, and extended attributes for folders and objects
- manage metadata access (such as access control templates and permissions)
- create, update, and delete folders

Configuring SAS Environment Manager: the Manage Page

Overview

Use the pages under Manage to control how the SAS Environment Manager application works.

Authentication/Authorization

The **Authentication/Authorization** area enables you to manage SAS Environment Manager users and user roles. These users and roles are not the same as the users and roles in SAS metadata that control access to SAS metadata objects, although SAS Environment Manager users are synchronized with users that are defined in metadata and added to specific groups. Use the **Administration** tab to control authorization for metadata objects.

In order to distinguish between the SAS Environment Manager access features and those in SAS metadata, this document and the SAS Environment Manager online Help refers to features internal to SAS Environment Manager as native features (such as native users or native roles). However, the SAS Environment Manager interface does not use the native terminology.

Server Settings

The **Server Settings** area enable you to change the settings for the SAS Environment Manager server, the defaults for monitoring, the configuration of escalation schemes, and the SAS Environment Manager plugins.

Server Settings

contains settings for the SAS Environment Manager server, including global alert properties, e-mail configuration, and notification properties

Monitoring Defaults

contains default monitoring and alerting definitions for all types of platforms, platform services, and servers supported by SAS Environment Manager.

Escalation Schemes Configuration

enables you to define notification or logging actions that are taken for alerts.

Plugin Manager

lists all currently loaded plugins and enables you to delete and update existing plugins, and load new ones. Deleting or updating a plugin cannot be reversed. Always save a copy before deleting or updating a plugin. You can find additional plugins for SAS Environment Manager at the Enterprise Management Integration area of SAS Customer Support on the web (support.sas.com/rnd/emi).

Plugins

The **Plugins** area contains functions that are added to the base functionality of SAS Environment Manager to perform a specific action. Plugins include the following:

- Network and Host Dependency Manager
- Groovy Console
- HQ Health
- HQ Web Services API
- tc Server Command-line Interface

License Usage Status

The **Licenses Usage Status** area displays the number of licenses in use on the platform as well as the total number of licenses allowed.

Chapter 3

Viewing Information at a Glance: Using the Dashboard

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Reading the Dashboard

The Dashboard is your first view every time you start SAS Environment Manager. It is an at-a-glance view of the things that are most important to you when administering your environment, such as favorite resources, recent alerts, and resources that are currently experiencing problems.

The page contains a collection of portlets that provide information at a glance for a measure or a type of resource. You can select which portlets appear on the Dashboard, so the Dashboard shows you the information you most need to see. Selecting an entry in a portlet takes you to more detailed information about the entry. For example, selecting an entry in the **Recent Alerts** portlet takes you to the Alert Detail page for that alert. The following figure illustrates a sample Dashboard portlet.

Figure 3.1 Sample Portlet

Resource Type	Availability
FileServer Mount	6
Linux	2

Updated: 2:21 PM

The Dashboard is divided into two columns, and the portlets that can appear differ between the left and the right column. Some portlets can appear only once on a Dashboard, whereas other portlets can appear more than once. The portlets that can appear more than once are ones that display information about a selected group of resources. Each instance of the portlet displays information about different resources. The portlets that can appear only once display information for the entire environment.

This table lists the portlets that you can choose to appear on a Dashboard, as well as where they can appear and how many instances are allowed.

Table 3.1 Portlets

Name	Description	Location	Instances
Auto-Discovery	Lists new and changed resources and enables you to add them to the inventory. Check this portlet after you install a plugin to accept the newly discovered resources into the inventory.	Right	One
Availability Summary	Indicates the availability of selected resources, grouped by resource type. This portlet refreshes every minute.	Left	Multiple
Control Actions	Lists recently performed actions on managed resources and upcoming scheduled actions. Also indicates which quick control actions are most frequently performed.	Right	One
Favorite Resources	Lists selected resources.	Right	One
Saved Charts	Displays selected charts as a slide show.	Left	One
Recent Alerts	Lists the most recently triggered alerts for selected resources. This portlet refreshes every minute.	Right	Multiple
Recently Added	Lists platforms that have been recently added to inventory.	Left	One
Search Resources	Enables you to search for resources. The search supports case-insensitive, partial-term queries for a specified inventory type.	Left	One
Summary Counts	Displays a count of managed resources by inventory type. Only those resources that you are allowed to access are displayed.	Left	One
Group Alerts Summary	Displays traffic light indicators for resource alerts and group alerts for selected groups. To view a list of alerts that have fired for a group, click that group's traffic light. To view a group page, click that group's name.	Right	One
Metric Viewer	Displays selected metrics for selected resources. This portlet refreshes every minute.	Right	Multiple


Name	Description	Location	Instances
Problem Resources	Lists all resources that have problem metrics and provides details, including availability status, number of alerts per resource, number of times the metric has been out of bounds, and the most recent time that the out-of-bounds metric was collected.	Right	One

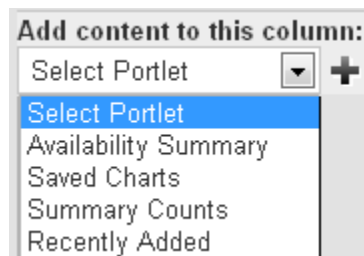
Because the Dashboard page can be customized, each user has access to multiple Dashboards, with each one modified according to different needs. Each user has access to a personal Dashboard, which contains portlets selected by the user. In addition, each user can also access a Dashboard for each of the native roles of which the user is a member. Each of those Dashboards is customized with the portlets that are most useful for that role. To choose a different Dashboard, select the one that you want to use from the **Select a Dashboard** field.

A new Dashboard type is automatically created whenever you create a new native role.


Customizing Your Dashboard

You can customize any Dashboard to which you have access by selecting portlets to appear on your Dashboard and by selecting the information that is displayed in each portlet.

To add a portlet to your Dashboard, use the **Add content to this column** menu to select from the available portlets and then click the Add icon , which is beside the field. The portlets displayed in the list depend on whether you are adding a portlet to the right or left column and which portlets have already been added to the Dashboard.




After the portlet is placed on your Dashboard, you can click and drag the portlet header to move it to a different location. However, you cannot move a portlet from one column to another.

To change the information that a portlet displays, click on the configuration icon  in the portlet's header. Use the Portlet Configuration page to select options that narrow the focus of the information displayed in the portlet. The options available are unique to each portlet. Examples include the following:

- how many of the most recent control actions are displayed (**Control Actions** portlet)
- the number and type of alerts issued for selected resources (**Alerts** portlet)
- specified resources (**Availability Summary** portlet)

You can use groups (compatible groups, mixed groups, and application groups) to make your Dashboard portlets more useful. Groups enable you to organize resources by type or function within your organization. You can then configure portlets to display information about resources in particular groups, so your Dashboard contains information about the resources that are most vital to you.

To remove a portlet from the Dashboard, click on the delete icon  for the portlet.

Chapter 4

Finding Resources in Your System

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Automatically Discovering and Adding SAS Resources

When the SAS Deployment Wizard installs SAS applications, it creates a file called `auto-approved.properties`. This file is located in the `<agenthome>/conf` directory. This file lists all of the resource types that are automatically monitored after they have been discovered. When you run SAS Environment Manager for the first time, the application auto-discovers and auto-accepts the resources listed in the `auto-approved.properties` file. All of the resources in your initial SAS installation are automatically in your inventory when you start using SAS Environment Manager. Resource types that are not listed in this file must be accepted for monitoring after they have been discovered.

Using the Auto-Discovery Portlet

The Auto-Discovery portlet displays a list of servers and platform services that are auto-discovered but not auto-accepted. All SAS resources should be auto-discovered and auto-accepted, so they will not appear in this portlet. Resources that are listed on the portlet are known but are not yet being monitored. After the resources from the initial SAS installation have been discovered and added to the inventory, the Auto-Discovery portlet lists new resources from custom plug-ins that have been added to the monitored platforms.

To discover and add resources, follow these steps:

1. On the Dashboard, check the **Auto-Discovery** portlet to see whether new resources are listed.

2. Select the check box beside the resources that you want to monitor and select **Add to Inventory**.
3. Go to the Resources page. The resources you just added are listed in the appropriate table, together with any resources that are already being monitored. However, an Unknown icon (🕒) is displayed in the **Availability** column for the new resources, because SAS Environment Manager has not begun to collect monitoring data. SAS Environment Manager collects data at intervals rather than continuously, so you must wait for the next data-collection cycle.
4. After approximately five minutes, data should be collected for the new resources and the **Availability** column reflects the status of the resources.

If the status of a new resource is displayed as Unknown even after a period of waiting, then the resource might not be completely configured for data collection. To configure the resource, follow these steps:

1. In the Resource page, locate the resource whose status is unknown and click on the entry in the Resources table. The Monitor page for the selected resource is displayed.
2. A message is displayed if the resource needs to be configured. If you need to perform additional configuration steps, select **Inventory** to display configuration details for the resource.
3. Scroll to the **Configuration Properties** area of the page and verify that the properties are correct. Click **Edit** to make changes to the properties.

Performing an Auto-Discovery Scan

If you know that resources have been added on a platform that you are monitoring, you can run an auto-discovery scan on the platform to locate the resources. Once the resources have been discovered, you can add them to your inventory for monitoring.


To perform an auto-discovery scan of a platform, follow these steps.

1. Using the **Resources** tab, go to the Detail page for the platform that you want to scan.
2. Select **Tools Menu** ⇒ **New Auto-Discovery**
3. If you want to scan for all servers and system processes on the platform, click **OK**.
4. If you want to scan for specific server types, select the check boxes for the server types that you want to scan for. You can also select attributes such as directories to include or exclude from the scan and the depth at which to scan. When you have specified the scanning criteria, click **OK** to start the scan.

Rediscovering Resources

After resources have been auto-discovered, there might be some resources that cannot be added to the inventory for some reason. If this happens, you can clear the contents of the auto-discovery queue and try discovering them again. After the resources are removed from the queue, and you restart the agent, the agent will rediscover the resources.

To clear the auto-discovery queue follow these steps:

1. Select **Manage** ⇒ **HQ Health** to display the HQ Health page.
2. On the HQ Health page, select the **Database** tab.
3. In the **Action** field, select **Purge AIQ Data** and click .

You can also manually delete any server resources from the Resources page. The servers are then rediscovered when you run an auto-discovery scan.

Manually Adding a Server

There might be some instances where you need to monitor a server that is not auto-discovered by the SAS Environment Manager agent. To manually add a server, follow these steps:

1. Navigate to the Resource Detail page for the platform on which the server runs.
2. Select **Tools Menu** ⇒ **New Server** to display the New Server page.
3. On the New Server page, specify the server name.
4. Use the **Server Type** menu to select the type of server. If the server type that you want to add is not listed, it is not supported by SAS Environment Manager and cannot be added.
5. In the **Install Path** field, specify the full pathname to the server software.
6. Click **OK** to complete the server definition.

Note: Because the agent does not update data continuously, it might take several minutes before metric data begins appearing for the new server.

Manually Configuring a Service

There might be some instances where you need to monitor a service that is not auto-discovered by the SAS Environment Manager agent. To manually add a service, follow these steps:

1. In the Resources view, select the platform that contains the service that you want to monitor.
2. In the Detail view for the selected platform, select **Tools Menu** ⇒ **New Platform Service**.
3. Specify a name for the service and select the service type. Common selections include **HTTP**, **Fileserver File**, and **TCP**.
4. Click **OK** to create the service and display the service details. Select the **Configuration Properties** link on the page.
5. Use the instructions on the Configuration Properties page to specify the options needed to monitor the service.

Chapter 5

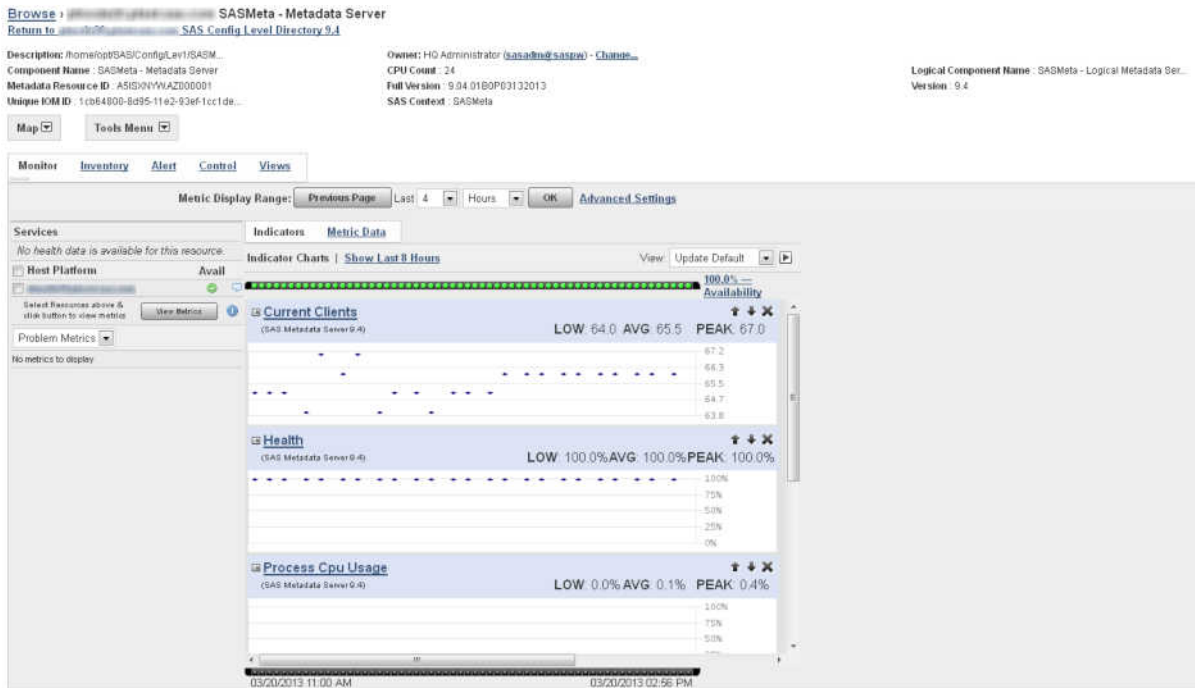
Monitoring and Controlling Resources

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Monitoring Resources

A central capability of SAS Environment Manager is the ability to monitor resources. Monitoring enables you to track a resource's availability and overall health. A variety of metric data is displayed, both in numeric and graphic format, to enable you to examine detailed information about the resource's operation.

To view the monitoring information for a resource, select a resource from the table on the Resources page.



The fastest way to check the status of the selected resource is to use the availability bar, which is above the indicator charts. The availability bar displays a color-coded dot that represents the availability during a time slice. The length of each time slice depends on the display range that you select (for example, if you display the past eight hours of data, each dot corresponds to approximately eight minutes). The percentage of time that the resource was available is displayed at the end of the availability bar.

The dots are color-coded using the following format:

Green

100% availability

Yellow

Partial availability; between 0% and 100%

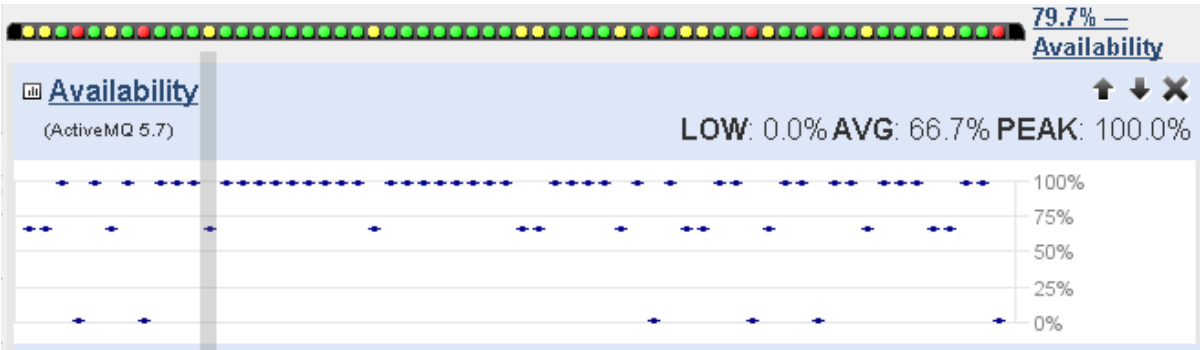
Red

0% availability

An availability bar such as the one in the following figure shows that the resource fluctuated between being available, partially available, and unavailable over the most recent time slices.



To help determine the cause of availability problems, click on the dot for a particular time slice. The selected time slice is highlighted on the indicator charts below the availability bar. This function helps you quickly check the charts for data that might correspond to the availability problem.



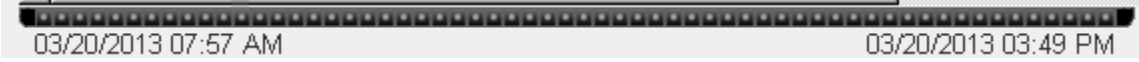
To change the metrics that are displayed in the metric charts, use the menu on the left side of the page to select either **All Metrics** or **Problem Metrics**, and then click **View Metrics** to display a list of available metrics. Click the arrow beside a metric to add the chart to those displayed on the page.

Select Resources above & click button to view metrics View Metrics !

All Metrics **OOB Alerts**

Process Cpu Usage	0	0	! ➔
Process Resident Memory Size	0	0	! ➔
Availability	0	0	! ➔

The events bar is displayed below the indicator charts. It is similar to the availability bar, with dots representing time slices. The bar displays only a red dot if an event occurs during a time slice. If no event occurs, the bar remains black.



Managing SAS Resources

SAS Server Names

Because SAS Environment Manager is based on VMWare’s Hyperic, some server names in SAS Environment Manager do not match the names that are used in a SAS deployment. Use this table to determine the name of the server that you are interested in.

SAS Server Name	Server Name Displayed in SAS Environment Manager
SAS Environment Manager	Apache Tomcat 5.5, 6.0, 7.0
SAS Environment Manager Agent	HQ Agent
SAS Web Server	vFabric Web Server 5.1, 5.2

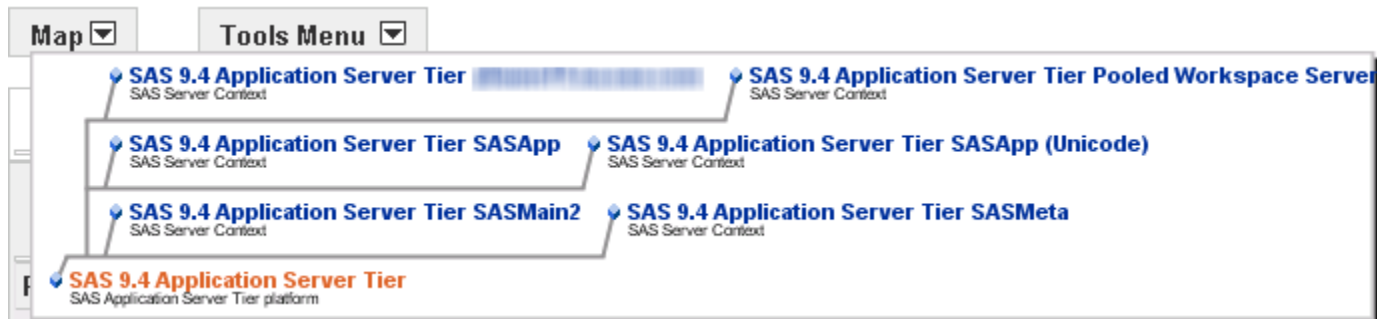
SAS Web Application Server	SpringSource tc Runtime 7.0
SAS Web Infrastructure Platform Data Server	PostgreSQL 9.x
SAS JMS Broker	Active MQ 4.0, 5.0, 5.1, 5.2, 5.3, 5.4, 5.7

Using the Map Control

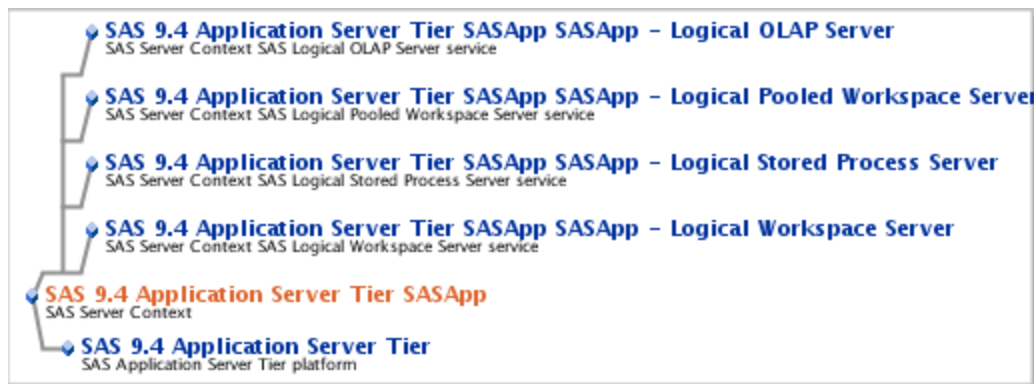
The **Map** control provides a visual representation of resources and the next level of parent and child resources. You can click on any of the resources listed on the map to go to the Monitor page for that resource. The **Map** control is available on the Monitor page for a resource.

The map for a platform displays the servers under the platform, and the map for a server displays the services under the server. You can use the map to better understand how a SAS environment is presented in SAS Environment Manager.

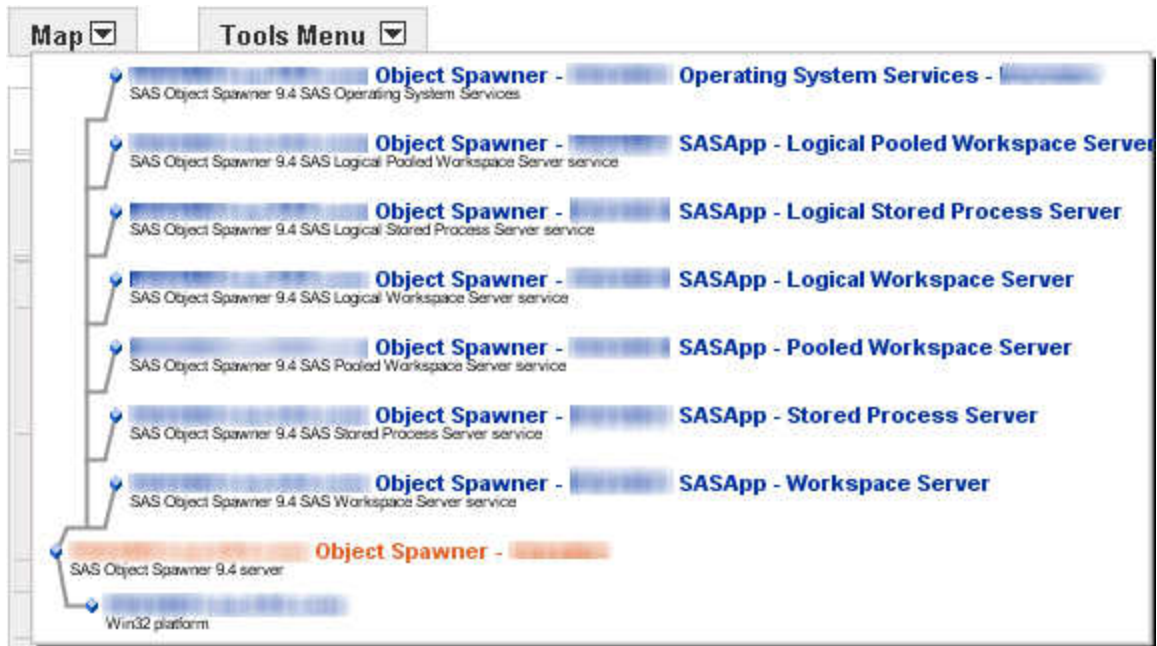
In SAS Environment Manager, the SAS Application Server Tier is considered to be a platform. The map for the platform illustrates the SAS servers that are part of the server tier.



Logical SAS servers, such as logical workspace servers or logical stored process servers, are treated in SAS Environment Manager as services, so they are displayed as children under the SASApp server.



For a SAS Object Spawner, the services listed in the map are the servers that are spawned by the spawner.



Making Resources Easier to Locate

Organizing Resources into Groups

In SAS Environment Manager, resources are organized into groups to make them easier to locate and manage. There are six different types of groups:

- platform resource groups
- server resource groups
- service resource groups
- compatible groups
- mixed groups
- applications

resource groups

These groups are automatically created. When resources are discovered and then added to the inventory of monitored resources, they are added to the appropriate resource group. The three resource groups that are automatically created in SAS Environment Manager are platforms, servers, and services. It is important to note how SAS resources map to the resource hierarchy. For example, logical SAS servers are added to the services group.

compatible groups

These groups contain selected instances of a single type of resource (for example, SAS Object Spawners). Creating a compatible group enables you to view aggregate metrics for a resource type. Compatible groups also make it easier for you to locate resources that you need to monitor. For example, you can create a group containing several servers of critical importance, which prevents you from having to search for those servers among the large numbers that might be on your site. After you create a

compatible group, you can add resources to the group if they match the selected group type.

mixed groups

These groups are user-created groups that can contain multiple types of resources. Mixed groups can contain other groups, platforms, servers, and services, or applications. Availability is the only metric that is available for a mixed group. This type of group is useful for functions such as checking the availability of a SAS Object Spawner and all of the spawned services or for viewing the collective availability of a group of resources.

application

These groups are a set of selected services, usually running in different servers on multiple platforms, that together fulfill a single business purpose. Creating application groups enables you to manage your infrastructure from an application perspective, as opposed to a hardware perspective.

Creating a Group

To create and populate a group, follow these steps:

1. In the Resources page, select **Tools Menu** ⇒ **New Group**.
2. In the New Group page, specify a name for the group.
3. Use the **Contains Resources** menu to select the type of group that you want to create.
4. Use the **Select Resource Type** menu to select the type of resource the group will contain.
5. Click **OK** to create the group.
6. In the Resources page, click on a resource that you want to add to the group.
7. In the Details page for the selected resource, select **Tools Menu** ⇒ **Add To Group**.
8. In the Group Manager page, select the group to which you want to add the resource. If the group that you want to add the resource to is not listed, the selected resource type is not the same as the resource types specified for the group.

Creating an Application

To create and populate an application, follow these steps:

1. In the Resources page, select **Tools Menu** ⇒ **New Application**
2. In the New Application page, specify a name for the application. Click **OK** to create the application.
3. The Configuration page for the application appears. In the **Services** area, click **Add to List** to select resources for the application.
4. In the **Services List**, select the services in the **Services** list that you want to add to the application and use the arrow button to move them to the **Add Services** list. Click **OK** when you finish selecting services, and then click **OK** again to create the application.

Controlling Resources Using Control Actions

What is a Control Action?

Control actions enable you to control certain types of servers and services from SAS Environment Manager. You can create control actions to perform operations such as starting, stopping, restarting, pausing, and resuming a server or starting, stopping and sending messages through a service. The specific actions available depend on the server or service type selected. You can define resource actions to run immediately, to run on a schedule, or to run in response to an alert.


You can use control actions to control these types of servers:

- Postgre SQL SAS Web Infrastructure Platform Data Server (PostgreSQL 9.x)
- SAS Object Spawner
- SAS OLAP Server
- SAS Metadata Server
- SAS Web Application Server (SpringSource tc Runtime)

Performing Immediate Resource Control Actions

To use a control action to perform an immediate action on a resource, follow these steps:

1. In the Resource Details page for the selected server or service, click **Control**. If this menu item is not present, the resource does not support control actions. The Control Action page is displayed.

2. In the **Quick Control** area, select the type of action that you want to perform in the **Control Action** field.
3. Specify any arguments for the action in the **Control Arguments** field.
4. Click  to perform the action.

Scheduling Resource Control Actions

To create a scheduled resource control action, follow these steps:

1. In the Resource Details page for the selected resource, click **Control**. If this menu item is not present, the resource does not support control actions. The Control Action page is displayed.

2. In the **Control Action Schedule** area, click **New**. The Scheduled Control Action page is displayed.
3. Select the action that you want to perform in the **Control Action** field.
4. In the **Schedule** area, select the radio button next to the date and specify the date and time that the scheduled action should take place.
5. Specify how often the action should recur and when the scheduled recurrence should end.

The screenshot shows the 'Control Action Properties' dialog box. At the top, there is a 'Control Action' dropdown menu set to 'Restart' and a 'Description' text area. Below this is the 'Schedule' section. It includes a 'Start' section with a radio button for 'Immediately' and a date/time picker set to 'Jun 13, 2014' at '11:00' PM. A note below says 'Specify date & time to view restoration options'. The 'Recurrence' section has a dropdown set to 'Weekly' and a field for 'Every 1' week(s). Below this are checkboxes for days of the week: Sunday (checked), Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. The 'Recurrence Ends' section has a radio button for 'No End' and a date picker set to 'Oct 6, 2015'. At the bottom are 'OK', 'Reset', and 'Cancel' buttons.

6. Click **OK** to save the scheduled control action.

To view the list of scheduled control actions for the resource, click **Control** in the Resource Details page for the selected resource. All scheduled control actions are listed in the **Control Action Schedule** area.

Performing Server Actions in Response to an Alert

To define a control action to occur in response to an alert, follow these steps:

1. Create or edit an alert definition. See [“Defining an Alert” on page 34](#) for more information. On the Alert Definition page, click **Control Action**, then click **Edit**. The Add Control Action page is displayed.
2. Use the **Resource Type** field to select the type of server or service for which you want to create the control action.
3. After you select the resource type, the **Resource Name** field is populated with all instances of the selected resource type. Select the instance for which you want to create the control action.
4. Select the type of action to be performed in the **Control Type** field. The field contains only actions that are supported on the selected resource type.
5. Click **OK** to define the control action. The defined action will now take place whenever the associated alert occurs.

Chapter 6

Working with Events and Alerts

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Creating Resource Events

Overview of Events

SAS Environment Manager provides the capability to monitor metrics, scan log files, manage configuration changes, and monitor availability. When there is a change in a resource's threshold value for one of these items, an event is recorded in SAS Environment Manager's event message system. Events are also automatically created for certain types of entries in SAS server logs, and you can specify other criteria that will create events based on SAS server logs. All events throughout the entire deployment are displayed in the Event Center. To access the Event Center, select **Analyze** ⇒ **Event Center**.

Figure 6.1 Event Center

Date	Status	Resource	Subject	Detail
3/4/13 2:09 PM	Error	SASMeta - Metadata Server	meyhen_home\log\SAS\Config\Level1\SASMeta\MetadataServer\Log\SASMeta_MetadataServer_meyhen.log	The SAS Metadata Supervisor failed to initialize
3/4/13 2:09 PM	Alert	SASMeta - Metadata Server	Supervisor Failure	meyhen_home\log\SAS\Config\Level1\SASMeta\MetadataServer\Log\SASMeta_MetadataServer_meyhen.log The SAS Metadata Supervisor failed to initialize
3/4/13 2:07 PM	Error	SASMeta - Metadata Server	meyhen_home\log\SAS\Config\Level1\SASMeta\MetadataServer\Log\SASMeta_MetadataServer_meyhen.log	The SAS Metadata Supervisor failed to initialize
3/4/13 2:07 PM	Alert	SASMeta - Metadata Server	Supervisor Failure	meyhen_home\log\SAS\Config\Level1\SASMeta\MetadataServer\Log\SASMeta_MetadataServer_meyhen.log The SAS Metadata Supervisor failed to initialize
3/4/13 2:03 PM	Alert	Object Spawner - jtnode19 SASApp - Stored Process Server	Stored Process Canceled	meyhen_home\log\SAS\Config\Level1\SASApp\StoredProcessServer\Log\SASApp_STPServer_meyhen.log Stored process canceled at user's request.
3/4/13 2:03 PM	Error	Object Spawner - jtnode19 SASApp - Stored Process Server	meyhen_home\log\SAS\Config\Level1\SASApp\StoredProcessServer\Log\SASApp_STPServer_meyhen.log	Stored process canceled at user's request.
3/4/13 2:03 PM	Error	Object Spawner - jtnode19 SASApp - Stored Process Server	meyhen_home\log\SAS\Config\Level1\SASApp\StoredProcessServer\Log\SASApp_STPServer_meyhen.log	Access is denied. File: meyhenms_secret1.txt
3/4/13 2:03 PM	Alert	Object Spawner - jtnode19 SASApp - Stored Process Server	Access Denied	meyhen_home\log\SAS\Config\Level1\SASApp\StoredProcessServer\Log\SASApp_STPServer_meyhen.log Access is denied. File: meyhenms_secret1.txt

The table shows information about recently recorded events, including the status, the resource involved, and information about what caused the event to be triggered. You can subset the table to locate events more quickly. For example, you can show only the events that have at least Error status, or only the ones that affect resources in a specified group.

Clicking on the name of the resource in the event table takes you to the resource's Detail page.

Creating Events Based on SAS Server Logs

SAS Environment Manager monitors the log files for SAS servers and automatically creates events for error messages recorded in those logs. These logs use the standard logging facilities of SAS. For more information, see *SAS Logging: Configuration and Programming Reference*. The events are added to the rest of the events recorded by SAS Environment Manager.

The types of SAS servers whose logs are used to create events are as follows:

- SAS Metadata Server
- OLAP server
- Object spawner
- Stored process server
- CONNECT spawner
- Workspace server
- Pooled workspace server

You can also change the configuration to look for specific types of SAS server log entries in addition to errors. The file `sev_logtracker_plugin.properties` contains entries for each type of SAS server log entry that SAS Environment Manager looks for. You can add to this file to create events for criteria of your choosing. Each SAS server has its own properties file, so logging events can be created for specific server types.

For example, all `sev_logtracker_plugin.properties` files contain these entries by default:

```
# All fatal
level.fatal.1=.*
```

```
#
# All errors
level.error.1=.*
#
# User lockout warnings
level.warn.1=.*Access to this account.*is locked out.*
```

The entries in this file use the format

```
level.[level_of_message].[sequential_number]=[regular_expression]
```

.

level.fatal.1=.* specifies that an event is created whenever a message appears in the SAS log with a level of Fatal. The message can contain any text. The second entry produces the same result for Error messages.

level.warn.1=.*Access to this account.*is locked out.* specifies that an event is created whenever a message with a level of Warn appears that also contains the text **Access to this account.*is locked out.**

To add your own entries to the properties file in order to create events for specific messages, follow these steps:

1. Edit the file `<server_config_directory>/sev_logtracker_plugin.properties` (for example, `/opt/SAS/Lev1/SASApp/OLAPServer/ sev_logtracker_plugin.properties`)

2. Add a line for the message that you want to track. The format is

```
level.[level_of_message].[sequential_number]=[regular_expression]
```

For example, this entry looks for an INFO message containing the phrase “AUTOEXEC processing beginning”:

```
level.info.1=.*AUTOEXEC processing beginning.*
```

.

3. If you add multiple entries to look for messages at the same log level, increment the number. For example,

```
level.info.2=.*Message text here.*
```

4. Save the file. SAS Environment Manager automatically uses the revised file.

Working with Resource Alerts

Overview of Alerts

If you want to identify a type of event for notification or further action, you can create an alert. Alerts are a user-defined type of event that indicates a critical condition in a selected resource. When an alert occurs, it must be acknowledged, and alerts are listed until they are marked as being fixed. You can define escalation schemes to identify the actions that happen if an alert is not fixed within a specified time.

Alerts are logged by the agents and all events throughout the entire deployment are displayed in the Alert Center. To access the Alert Center, select **Analyze** ⇒ **Event Center**.

Alert Center

Alerts Definition

Alert Filter

Show:

Not Fixed

In Escalation

All

Alert type:

Resource ▼

Minimum priority:

! Low ▼

In the last:

day ▼

Group:

-- All Groups -- ▼

Resource Alerts								Previous	Page 1	Next
<input type="checkbox"/>	Date	Alert Definition	Resource	Platform	Fixed	Ack	Priority			
<input type="checkbox"/>	3/25/13 9:55 AM	Host Credentials	Object Spawner - ptnode20		No		Med			
<input type="checkbox"/>	3/25/13 3:47 AM	Stored Process Canceled	Object Spawner - ptnode20 SASApp - Stored Process Server		No		Med			
<input type="checkbox"/>	3/24/13 7:45 PM	Server Hot Running	Object Spawner - ptnode20 SASApp - Pooled Workspace Server		No		Med			
<input type="checkbox"/>	3/24/13 4:45 PM	Server Launch	Object Spawner - ptnode20		No		Med			

Fixed Acknowledge Click the icon to acknowledge an alert

You can filter the alerts, for example, so that only the most recent ones or the ones of a specified type are displayed. Click the icon to acknowledge an alert. Select the check box next to an alert, and then click **Fixed** to fix the alert. You can also click on the entry in the **Alert Definition** column to display the Alert Details page, where you can view details about the alert and mark the alert as fixed (with comments).

Object Spawner - ptnode20 SASApp - Stored Process Server: Stored Process Canceled: Alert Detail

[<< Resource Alert List](#)

Alert Properties

Name: [Stored Process Canceled](#) Priority: !! - Medium

Resource: [Object Spawner - ptnode20 SASApp - Stored Process Server](#) Alert Date: 03/25/2013 03:47 AM

Description: Stored process has been canceled at the user's request Alert Status: Not Fixed

Condition Set

If Condition: Event/Log Level(ERR) and matching substring "Stored process canceled at user's request"

Actual Value: mayhem /home/opt/SAS/Config/Lev1/SASApp/StoredProcessServer/Logs/SASApp_STPServer_mayhem.log: Stored process canceled at user's request.

Enable Action(s): Each time conditions are met.

Control Type: none

Notification Actions

Notify Roles: (none)

Notify Users: (none)

Fix



Resolution for Fix:

Fixed Click the "Fixed" button to mark alert condition as fixed

[<< Resource Alert List](#)

Defining an Alert

To define an alert, follow these steps:

1. Select **Resources** ⇒ **Browse** or use a dashboard portlet to locate the resource for which you want to create an alert.
2. There are three icons on the left of the entry for the resource in the table . Click on the alert icon , which is on the right of the group. The Alerts page for the resource appears.

Browse > ptnode22.ptest.sas.com Object Spawner - ptnode22

Description: /opt/SAS/Config/Lev1/ObjectSpa... Owner: HQ Administrator (sasadm@saspw) - Change...

Component Name : Object Spawner - ptnode22 CPU Count : 24 Metadata Resource ID: A5KE8INU.AZ000003

Full Version : 9.04.01M1P10302013 Version : 9.4 Unique IOM ID: 1267f000-aa6b-11e3-932b-d48564...

SAS Context : N/A

Map Tools Menu

Monitor Inventory Alert Control Views

Alerts Configure

<input type="checkbox"/>	Alert Definition	Description	Date Created	Last Modified	Active
<input checked="" type="checkbox"/>	Object Spawner ERROR message in log	Object Spawner ERROR message in log	03/04/2014 07:48 AM	03/29/2014 10:05 PM	Yes
<input checked="" type="checkbox"/>	Object Spawner User Lockout	User account lockout on Object Spawner due to excessive logon failures	03/04/2014 07:48 AM	03/29/2014 10:05 PM	Yes
<input checked="" type="checkbox"/>	Object Spawner Failed Connections	Object Spawner failed to spawn server request	03/03/2014 03:20 PM	03/29/2014 10:05 PM	Yes
<input checked="" type="checkbox"/>	Object Spawner Major (page) Faults	Major Faults are page faults requiring disk activity. Possible indication of a memory constraint causing slow performance	03/04/2014 08:19 AM	03/29/2014 10:05 PM	Yes
<input checked="" type="checkbox"/>	Object Spawner Server Health % < 100	Object Spawner Health < 100%. Service Ping (equivalent of SASMC Validate) to confirm server is responding	03/03/2014 03:28 PM	03/29/2014 10:05 PM	Yes

New... Delete Set Active: Yes Total: 5 Items Per Page: 15

* Resource Type Alert Definitions (cannot be deleted)

3. Click **New** to display the New Alert page.

Alert Properties

Name:

Description:

Priority:

Active: Yes No

Condition Set

Conditions: (absolute value)

> (Greater than) % of

value changes

Control Action: = (Equal to)

Events/Logs Level: Substring to Match (optional, 150 chars max):

Config changed and match file name (optional, 150 chars max):

Add Another Condition

Recovery Alert: Select alert name:

Enable Action(s): Each time conditions are met

Within a time period of minutes Occurrence:

Enable Action Filters: Generate one alert and then disable alert definition until fixed

Disregard control actions that are defined for related alerts.

OK Reset Cancel

4. In the **Alert Properties** area, specify the name and priority for the alert and whether it is active.
5. In the **Condition Set** area, specify the conditions that must be met in order for the alert to be triggered. You can specify up to three conditions for each alert. Use these fields to specify the condition that triggers the alert

Metric

specifies that the alert is triggered based on the value of a metric that is monitored for the resource. You can specify that the condition is based on comparison to a fixed value, a percentage of a value, or a change in value. If you want to create an alert for a metric that is not listed, you must first enable collection of that metric.

Update the metric collection settings for the resource type (choose **Monitoring Defaults** from the Manage page) or for the specific resource (click **Metrics** on the resource's Monitor page).

Inventory Property

specifies that the alert is triggered based on a change in the value of a resource property (such as version number). This condition is available only for certain types of resources (such as platforms and SAS Metadata Servers).

Control Action

specifies that the alert is triggered when an action meets a specified condition (such as the action of stopping a failed server). This condition is available only for servers that can be controlled through control actions. See “[Controlling Resources Using Control Actions](#)” on page 29 for more information.

Events/Logs Level

specifies that the alert is triggered when a selected type of log entry (such as Error) and an optional accompanying text string appears in the log.

If you are defining an alert based on events from SAS server logs, the available values in this field do not match the logging levels available in SAS server logs. The four SAS Environment Manager levels must match the six levels in SAS server logs. Selecting Error in this field matches both the Fatal and Error levels in SAS server logs. Selecting Debug in this field matches both the Trace and Debug levels in SAS server logs.

Config changed

specifies that the alert is triggered when a configuration file changes (you can choose to specify the name of the configuration file).

- In the **Enable Action** field, specify whether the alert is triggered only once, or periodically as long as the alert condition persists.
- Click **OK** to define the alert and display the Alert Configuration page.

Escalation	Control Action	Notify Roles	Notify Users	Notify Other Recipients	Script	OpenNMS
<input type="checkbox"/>	First Name	Last Name	Username ▲	Email		Department
<input type="checkbox"/>	HQ	Administrator	sasadm@saspw			
<input type="button" value="Add to List"/>		<input type="button" value="Remove from List"/>		Total: 1		Items Per Page: <input type="text" value="15"/>

[<< Return to Alert Definitions](#)

- On the Alert Configuration page, you can specify an escalation scheme and identify the users and roles that should be notified when the alert occurs. To create an escalation scheme, see “[Defining an Escalation Scheme](#)” on page 36.
- Click **Return to Alert Definitions** when you are finished.

Defining an Escalation Scheme

An escalation scheme is a series of actions that take place when an alert is not acknowledged or fixed within a certain period of time. An escalation scheme can be applied to multiple alerts. You can define an escalation scheme to perform any of these actions:

- send an e-mail or SMS message
- make an entry in a system log
- issue an SNMP notification

To define an escalation scheme, select **Manage** ⇨ **Escalation Schemes Configuration** (in the **Server Settings** area).

Escalation Schemes Configuration

<< Return to Manage

Escalation Name:	An escalation scheme allows you to order alert notifications and actions. It can be applied to one or more alert definitions.
Default Escalation	
Step 1 - Create New Escalation Scheme:	
* Name: <input type="text"/>	
Description: <input type="text"/>	
If the alert is acknowledged:	
<input type="radio"/> Allow user to pause escalation for <input type="text" value="Until Fixed"/>	
<input checked="" type="radio"/> Continue escalation without pausing	
If the alert state has changed:	
<input checked="" type="radio"/> Notify previously notified users of the change	
<input type="radio"/> Notify entire escalation chain of the change	
If alert is not fixed when escalation ends:	
<input checked="" type="radio"/> Stop escalation execution	
<input type="radio"/> Repeat escalation actions	
<input type="button" value="Next Step"/>	

For information about the information required when defining an escalation scheme, refer to the Help for the page.

Example: Defining an Alert for SAS Work Directory Space

This example provides information for setting up an alert to be triggered whenever the SAS Work directory reaches 90% of its capacity. The alert should be issued once every two hours until the condition is cleared. When the alert is triggered, users with the Operations role should be notified.

1. Locate the service **SAS Home Directory 9.4 SAS work directory**. The service is under the **SAS Home Directory 9.4** server.
2. Navigate to the Resource Detail page for the service. On the Detail page, select **Alert** ⇒ **Configure** to display the Alert Configuration page. Click **New** to display the New Alert Configuration page.
3. Name the alert, select the priority, and specify that the alert should be active.

Name:	<input type="text" value="SAS Work capacity"/>	* Priority:	<input type="text" value="!! - Medium"/>
Description:	<input type="text"/>	* Active:	<input checked="" type="radio"/> Yes <input type="radio"/> No

4. In the **If Condition** area, select the **Metric** radio button, then select **Use Percent** in the **Metric** field.
5. To specify 90% capacity, enter **.9** in the **absolute value** field. To specify that the alert is triggered whenever the used capacity exceeds 90%, specify and select **> (Greater than)** from the comparison menu.

* If Condition: <input checked="" type="radio"/> Metric: <input type="text" value="Use Percent"/>			
<input checked="" type="radio"/> is	> (Greater than)	<input type="text" value=".9"/>	(absolute value)
<input type="radio"/> is	> (Greater than)	<input type="text"/>	% of <input type="text" value="Select..."/>
<input type="radio"/> value changes			

- In the **Enable Action(s)** field, specify **1** for the number of times the alert is issued, **2** for the timer period, and select **hours** for the time period units. These values specify that the alert is issued one time every two hours while the alert conditions are met.

*Enable Action(s): Each time conditions are met
 Once every times conditions are met within a time period of

- Click **OK** to define the alert and display the Configuration page for the new alert.
- Select **Notify Roles**, and then select **Add to List**.
- Select the check box beside **Operations** in the **Roles** list and use the arrow control to move the role to the **Add Role Notification** list.
- Click **OK** to close the Role Selection page and then **Return to Alert Definitions** to complete the process of defining the alert.

Example: Defining an Alert for a SAS Server Log File

This example provides information for setting up an alert to be triggered whenever a warning message for the I/O Subsystem appears in the log of the SAS Metadata Server. The alert should be issued every time an error appears in the log.

- Follow the procedure in “[Creating Events Based on SAS Server Logs](#)” on page 32 to create an event from the SAS Metadata Server log file. Add the entry

```
level.warn.2=.*I/O Subsystem.*
```

to the sev_logtracker_plugin.properties file for the SAS Metadata Server.
- Locate the server **SASMeta – SAS Metadata Server** in the Resource page.
- Navigate to the Resource Detail page for the server. On the Detail page, select **Alert** ⇒ **Configure** to display the Alert Configuration page. Click **New** to display the New Alert Configuration page
- Name the alert, select the priority, and specify that the alert should be active.

Alert Properties

Name: *Priority:

Description: *Active: Yes
 No

- In the **If Condition** area, select the **Event/Logs Level** radio button, then select **Warn** in the **Event/Logs Level** field.

In the **match substring** field, enter **I/O Subsystem**. These values specify that an alert is issued whenever an event is found for a Warn message from the log containing the string “I/O Subsystem.”

Events/Logs Level: and match substring (optional,150 chars max):

- In the **Enable Action(s)** area, select the **Each time conditions are met** radio button. This specifies that the alert is triggered each time an I/O Subsystem warning appears in the log.
- Click **OK** to define the alert.

Example: Defining an Alert for Available Memory

This example provides information for setting up an alert to be triggered whenever the free memory on a SAS Web Application Server falls below 90% of 1.3 GB. The alert should be issued once every fifteen minutes until the condition is cleared.

1. Locate the server in the Resource page. The Resources page lists SAS Web Application Server using the server type SpringSource tc Runtime.
2. Navigate to the Resource Detail page for the server. On the Detail page, select **Alert** ⇒ **Configure** to display the Alert Configuration page. Click **New** to display the New Alert Configuration page
3. Name the alert, select the priority, and specify that the alert should be active.
4. In the **If Condition** area, select the **Metric** radio button, then select **Heap Memory Free** in the **Metric** field.
5. To specify the memory condition for the alert, enter 90 in the **%** field and then select **1.3 GB (Min Value)**. Select **< (Less than)** from the comparison menu.

* **If Condition:** Metric: Heap Memory Free

is > (Greater than) (absolute value)

is < (Less than) % of 1.3 GB (Min Value)

6. In the **Enable Action(s)** field, specify **1** for the number of times the alert is issued, **15** for the timer period, and select **minutes** for the time period units. These values specify that the alert is issued one time every 15 minutes while the alert condition is met.

* **Enable Action(s):** Each time conditions are met

Once every times conditions are met within a time period of

7. Click **OK** to define the alert.

Chapter 7

Managing Metadata Access

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Access Management

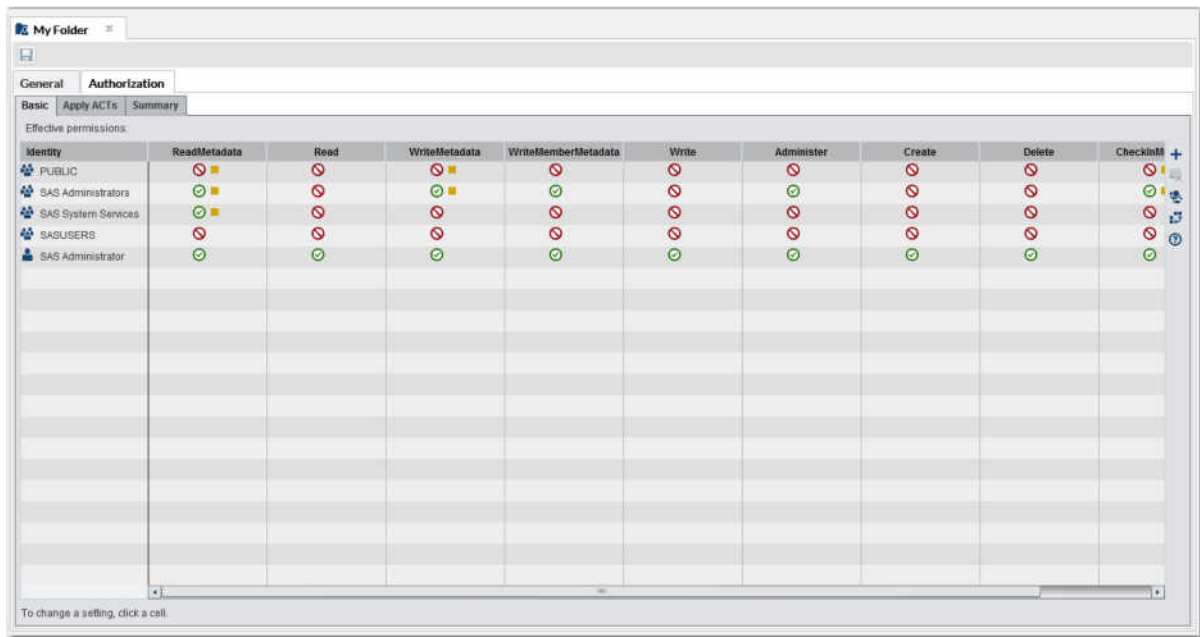
You can use SAS Environment Manager to manage access in the metadata authorization layer. The access control tasks that are provided by SAS Environment Manager include:

- application of ACTs to objects
- maintenance of access control templates (ACTs)
- application of explicit controls to objects
- management of repository-level controls

Over the lifecycle of SAS 9.4, functions will be added to extend SAS Environment Manager's capabilities as a centralized administration application for all SAS products. SAS Environment Manager is not currently a replacement for SAS Management Console, and no functionality has been removed from SAS Management Console.

To manage access to metadata objects in SAS Environment Manager, follow these steps:

1. Select the **Administration** page.
2. Right-click on an object in the **Folders** pane, and select **Open**. The tab corresponding to the object that you selected is displayed. For example, if you right-clicked **My Folder**, the **My Folder** tab will be displayed.
3. Select the **Authorization** tab. A window similar to the following is displayed:



Creating an ACT

Why Create Custom ACTs?


Several predefined ACTs are provided. To further centralize access management, create an ACT for each access pattern that you use repeatedly. Here are some common patterns and tips:

- It is often useful to create ACTs to manage Read access for different business units.
- It is often useful to create an ACT that manages Write access for a functional group that includes users from multiple business units.
- You do not have to capture all of an object's protections in one ACT. You can use combinations of ACTs, explicit controls, and inherited settings to define access to an object.

Instructions

1. Access the **Administration** page.
2. From the **Folders** pane, navigate to **SAS Folders** ⇒ **System** ⇒ **Security** ⇒ **Access Control Templates**.

3. Right-click **Access Control Templates** and select **New Access Control Template**.
4. In the New Access Control Template window, enter a name and description for the ACT. Click **Save**. The new ACT opens in its own tab.
5. On the **Authorization** ⇒ **ACT Pattern** tab:
 - a. Click **+**. In the Add Identities window, select users and groups that will have explicit settings in the pattern. Click **OK**.
 - b. On the **ACT Pattern** tab, click cells and make selections from the drop-down list to define the ACT's pattern.
6. On the ACT's **Authorization** tabs, protect the new ACT. For example, one approach is to add an explicit denial of WriteMetadata for PUBLIC and an offsetting explicit grant of WriteMetadata for SAS Administrators.

Note: It is important to prevent regular users from modifying or removing an ACT.
7. In the toolbar at the top of the tab, click  to save the new ACT.
8. To use the ACT, apply it to one or more objects.

Note: The applied ACT contributes its pattern of access controls to the object's protections. The object can also have explicit controls and other applied ACTs (as well as inherited settings).
9. If necessary, adjust the ACT's pattern. The advantage of using an ACT is that you can change the pattern without revisiting the objects to which the pattern is applied.

Using an ACT


Why Use ACTs?

Use ACTs to avoid having to repeatedly add the same explicit controls for the same identities on multiple objects. When you apply an ACT to an object, the pattern settings in an ACT are added to the direct controls of an object.

TIP Settings in the pattern of an ACT affect access to all of the objects to which the ACT is applied. Settings on the **Authorization** tab for an ACT affect who can access that ACT.

Instructions

1. Open the object to which you will apply the ACT. On the **Authorization** ⇒ **Apply ACTs** tab for an object, select the check box for the appropriate ACT.

TIP The repository ACT (which is usually named Default ACT) should not be directly applied to any object. Instead, the repository ACT participates through inheritance, serving as an access control parent of last resort.
2. On the **Authorization** ⇒ **Basic** tab for an object, notice that the identities that participate in the pattern of an ACT are listed. Verify that the revised settings are as you expect.
3. In the toolbar at the top of the tab, click .

Updating an ACT

CAUTION:

One ACT can protect thousands of objects. Changes that you make to an ACT's pattern affect every object that ACT is applied to.

To update an ACT, follow these steps:

Locating an ACT

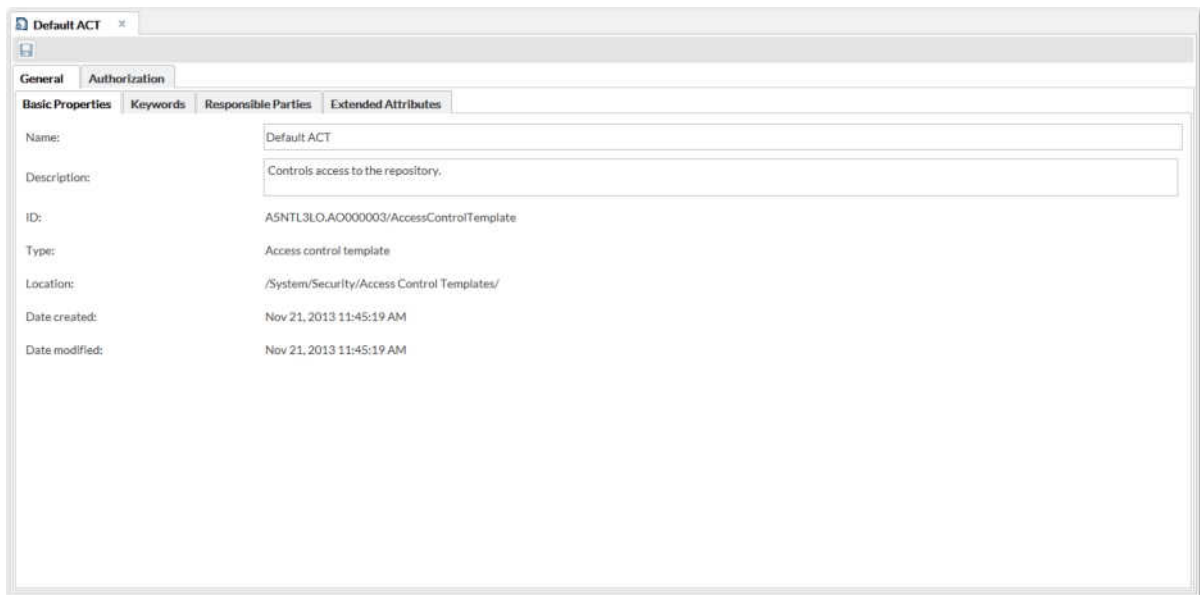
1. Access the **Administration** page.
2. From the **Folders** pane, navigate to **SAS Folders** ⇒ **System** ⇒ **Security** ⇒ **Access Control Templates**.


Note: To locate ACTs that are in custom repositories, your navigation path will vary slightly. For example: **SAS Folders** ⇒ *custom-repository* ⇒ **System** ⇒ **Security** ⇒ **Access Control Templates**.

3. Find the ACT that you want to update.

Modifying an ACT

4. Right-click the ACT and select **Open**. A window similar to the following is displayed:



5. To understand the potential impact of your intended changes, examine the ACT's **Usage** tab.
6. To modify the ACT's pattern:
 - a. Adjust settings on the **Basic** tab.
 - b. In the toolbar at the top of the tab, click .
3. (Optional) Navigate to an object that uses the ACT and verify that the revised settings are as you expect.

Note: To delete an existing ACT, use SAS Management Console. For more information, see *SAS Management Console: Guide to Users and Permissions*.

Reviewing or Adjusting Repository-Level Controls

Which ACT is the Repository ACT?

If your site has multiple metadata repositories, you have multiple repository ACTs. Each repository has its own repository ACT, which is usually named Default ACT.

As an alternative to opening each ACT to determine which repository it belongs to, navigate to the ACT from within the **Folders** view.

- ACTs for the foundation repository are located in the **SAS Folders** ⇒ **System** ⇒ **Security** ⇒ **Access Control Templates** folder.
- ACTs for a custom repository are located in the **SAS Folders** ⇒ *custom-repository* ⇒ **System** ⇒ **Security** ⇒ **Access Control Templates** folder.

Note: The repository ACT indicator is located at the bottom of the *access-control-template* ⇒ **Authorization** ⇒ **Usage** tab.

Why Adjust the Repository-Level Controls?

CAUTION:

Altering the repository-level controls for service identities can prevent necessary access. We recommend that you do not change these settings.

Here are some key points about working with repository-level controls for a foundation repository:

- If you want some or all users to have default Read access to all data, grant the Read permission at the repository level.
- If you want to experiment with changing repository-level access, we recommend that you create a new ACT and designate that ACT as the repository ACT (instead of modifying the original repository ACT).
- All users need ReadMetadata and WriteMetadata access to the foundation repository. It is appropriate for the SASUSERS group to be granted these permissions in the pattern of the repository ACT.

Adding an Explicit Grant or Denial

1. Open the object that you want to protect or make available.
2. On the **Authorization** ⇒ **Basic** tab, locate the user or group that you want to assign an explicit control to. If the user or group is not listed, click **+** to open the Add Identities window.

Note: An explicit grant of the ReadMetadata permission is automatically set for each identity that you add.


3. Click a cell and make a selection from the drop-down list.

Note: If the selected identity is unrestricted, all permissions are granted and you cannot make changes.

Note: When you click outside the cell, the yellow diamond that indicates an explicit control is displayed in the cell that you updated.

4. If you changed the access for a group, review the impact on all of the listed identities.

Note: This is important because controls that you add for a group can affect access for all members of that group. For example, an explicit denial that you add for the PUBLIC group blocks access for all restricted users, unless there are also explicit (or direct ACT) grants. You must offset a broad explicit denial with explicit (or direct ACT) grants for any restricted identities whose access you want to preserve.

5. In the toolbar at the top of the tab, click .

TIP It is easy to add explicit grants and denials on each object that you want to protect or make available. However, adding a large number of individual access controls can make access control management unnecessarily cumbersome.

Adding a Row-Level Permission Condition


What is a Permission Condition?

A permission condition limits an explicit grant of the Read permission so that different users access different subsets of data.

Instructions



To limit Read access to rows in a LASR table:


1. Access the **Authorization** ⇒ **Basic** tab for a LASR table.
2. In the **Read** column, click the cell for the identity that you want to assign the condition to.

Note: If the identity is not already listed, click  at the right edge of the table to add the identity.

3. From the cell's drop-down list, select **Conditional grant**.

Note: If **Conditional grant** is already selected, a condition already exists (and selecting **Conditional grant** enables you to view or update the condition).

4. In the New Permission Condition window, create a condition that specifies which rows the identity can see.
5. Click **OK**. Notice that the cell contains the conditional grant icon  with an explicit control indicator .

6. If you set a permission for a group, review the impact on the other listed identities. Constraints that you add for a group can affect access for all members of that group.
7. In the toolbar at the top of the tab, click .

Providing Fine-Grained Access Using Permission Conditions


Overview

Starting with the first maintenance release for SAS 9.4, you can use permission conditions to give users access to some but not all of the data within a physical table and parent library. For more information about fine-grained controls for data, see *SAS Intelligence Platform: Security Administration Guide*.

Use the following approach:

1. If the physical table and its parent library are not already bound to metadata, bind them.
2. Set metadata-layer permissions to control who can access each table.
3. Use SAS Environment Manager to specify permission conditions.




Instructions

1. Access the **Authorization** ⇒ **Basic** tab for the secured table object that corresponds to the metadata-bound library whose data sets you want to protect.
2. In the **Select** column, click the cell for the identity whose access you want to limit.
Note: If the identity is not already listed, click  at the right edge of the table to add the identity.
3. From the cell's drop-down list, select **Conditional grant** to add an explicit grant of the Select permission for the selected identity.
Note: If **Conditional grant** is already selected, a condition already exists (and selecting **Conditional grant** enables you to view or update the condition).
4. In the New Permission Condition window, enter the WHERE clause for an SQL query that filters the data as appropriate for the selected identity. Do not include the WHERE key word in your entry.

TIP To make dynamic, per-person access distinctions, you can use identity-driven properties as the values against which target data values are compared. Use the following syntax when specifying one of these properties:
SUB: :property-name (for example, **SUB: :SAS.UserId**). For a list of available identity-driven properties, see *SAS Intelligence Platform: Security Administration Guide*.

CAUTION:

The syntax that you enter and save in the New Permission Condition window is not checked for validity. Make sure that the syntax that you have entered is correct.

5. Click **OK**. Notice that the cell contains the conditional grant icon  with an explicit control indicator .
6. In the toolbar at the top of the tab, click .

Chapter 8

Controlling Access to SAS Environment Manager

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Controlling Access to SAS Environment Manager

About Native Roles and Users

SAS Environment Manager controls access and permissions within the application with its own registry of users and its own system of roles and permissions. In order to distinguish between the SAS Environment Manager access features and those in SAS metadata, this document and the SAS Environment Manager online Help refers to features internal to SAS Environment Manager as native features (such as native users or native roles). However, the SAS Environment Manager interface does not use the native terminology.

Although native user definitions are internal to SAS Environment Manager, they are mapped to user definitions created in SAS metadata. Native users are created by first creating the user definition in metadata and then synchronizing the user information with SAS Environment Manager. You cannot create native user definitions in SAS Environment Manager directly.

Native roles enable you to grant capabilities and permissions for actions in SAS Environment Manager to selected users. For example, an administrator role could be granted full permissions for all resource types and the ability to acknowledge and fix alerts, and a guest role could be denied the ability to fix or acknowledge alerts and have only Read permission for resources. Assigning a native role to a native user determines the actions that the user can perform in SAS Environment Manager.

Each native role also has its own unique Dashboard page, which you can customize to match the native role's tasks. Each user has access to their own personal Dashboard page and the Dashboard pages of all native roles of which they are a member.

SAS Environment Manager and SAS Metadata Users

Users in SAS Environment Manager are mapped to users created in SAS metadata. During installation, three user groups are created in SAS metadata to contain SAS Environment Manager users. Users and subgroups that are members of these groups are mapped to user definitions in SAS Environment Manager with corresponding roles. The user groups and their corresponding roles are as follows:

Group name in SAS metadata	Role in SAS Environment Manager
SAS_EV_Super_User	Super User role
SAS_EV_Guest	Guest role
SAS_EV_AppServer_Tier	SAS App Tier role

For example, users that are members of the group SAS_EV_Guest in metadata are created as users in SAS Environment Manager and are assigned to the Guest role when the users are synchronized.

When you install SAS Environment Manager, all existing SAS Environment Manager user definitions are automatically added to the SAS_EV_Guest group in metadata. After the existing users have been added to the SAS_EV_Guest group, use SAS Management Console to modify the user definitions or assign the users to other SAS_EV groups in metadata.

After you have defined new users in SAS metadata, sign on to SAS Environment Manager, and select **Manage** ⇒ **Synchronize Users**. User definitions are created for all users that are defined in the three SAS_EV groups in metadata. Any SAS Environment Manager users that are not associated with user definitions in metadata are deleted.

If you sign on to SAS Environment Manager using a user ID that is defined in metadata, is a member of one of the SAS_EV groups, but is not defined in SAS Environment Manager, then a user definition is automatically created in SAS Environment Manager and assigned to the correct role.

The mapping between user information in metadata and in a SAS Environment Manager user definition is as follows:

Metadata field	SAS Environment Manager field
Display Name	First Name and Last Name
Name	First Name if the Display Name is not specified
Account	Username
Email	Email
Phone	Phone

To create a new SAS Environment Manager user, use an application such as SAS Management Console to define the user and assign it to the appropriate SAS_EV user group, and then select **Manage** ⇒ **Synchronize Users** to create the user in SAS Environment Manager and assign the user to the proper role.

The users in the SAS App Tier role are automatically granted access to the resources in these resource groups:

- SAS App Tier group
- SAS App Tier Server group
- SAS App Tier Services group

An internal account, sasevs (sasevs@saspw), is also created during installation. This account is assigned to the SAS_EV_Guest group. The account is used for communications between the SAS Environment Manager agent and server and enables plugins to access the SAS Metadata Server. The internal account sasadm@saspw is the default account for signing on to SAS Environment Manager.

The SAS Logon Manager is used to control the process of logging on to SAS Environment Manager. The application uses the same authentication process and authentication provider as the other SAS web applications.

Updating Passwords for SAS Environment Manager Metadata Identities

To update the password for the saseve@saspw account, follow these steps:

1. Stop all SAS Environment Manager agents on the system.
2. On the middle-tier machine, use the SAS Deployment Manager to change the password for the sasevs account.
3. Use the SAS Deployment Manager to update the sasevs password on the machines in the other tiers in the system.
4. Restart the SAS Environment Manager agents.

Creating a Native Role

To create a native role, follow these steps:

1. On the Manage page, select **New Role**.
2. On the New Role page, specify a name for the role and select the native permissions and capabilities for each resource type. If you grant the **Read Only** permission for a resource type, you can also select the native capabilities for the resource type. For all other permissions, the capabilities are automatically selected or disabled and cannot be changed.
3. Use these guidelines to determine the native permissions to set:

Adding resource to the inventory and creating alert definitions

Select **Full** or **Read / Write** permissions. Users can also respond to alerts and control resources.

Monitoring resources, responding to alerts, controlling resources

Select the **Read Only** permission and grant the capability to acknowledge and fix alerts and to control resources. Users can respond to alerts and control resources but cannot create or modify alerts or resources.

Monitoring resources

Select the **Read Only** permission, but do not grant capabilities for alerts resource control. Users can view and monitor only resources.

- When you click **OK**, the role and associated Dashboard page are created, and the Role Properties page is displayed. Use this page to select native users and resource groups that should be associated with the role and to create an alert calendar.
- To create an alert calendar, select the days and times during which the roles' users will be notified of alerts. Make sure that at least one role is available during every time period.

Day	From	To	Except	From	To
<input checked="" type="checkbox"/> Monday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Tuesday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Wednesday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Thursday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Friday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Saturday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM
<input checked="" type="checkbox"/> Sunday	12 AM	12 AM	<input type="checkbox"/>	1 AM	2 AM

Creating SAS Middle-Tier Administrator IDs

Administrators for SAS middle-tier servers must be defined in SAS metadata as well as in SAS Environment Manager. To create a middle-tier administrator user ID, follow these steps:

- Use the User Manager plug-in in SAS Management Console to create a user definition for a middle-tier administrator.
- Assign the user to the SAS_EV_AppServer_Tier user group. This group is created during the installation and configuration process.
- Sign in to SAS Environment Manager using the sasevs@saspw credentials, which is the default administrative identity.
- Click **Manage** ⇒ **Synchronize Users** to synchronize the SAS Environment Manager users with the SAS metadata users..
- Click **List Users** to view the list of all users.
- Locate the entry in the user table for the new user and click the user name entry to display the Properties page.
- In the Roles Assigned To section, verify that the user is assigned to the **SAS App Tier** role.

Chapter 9

Setting up SAS Environment Manager — Examples

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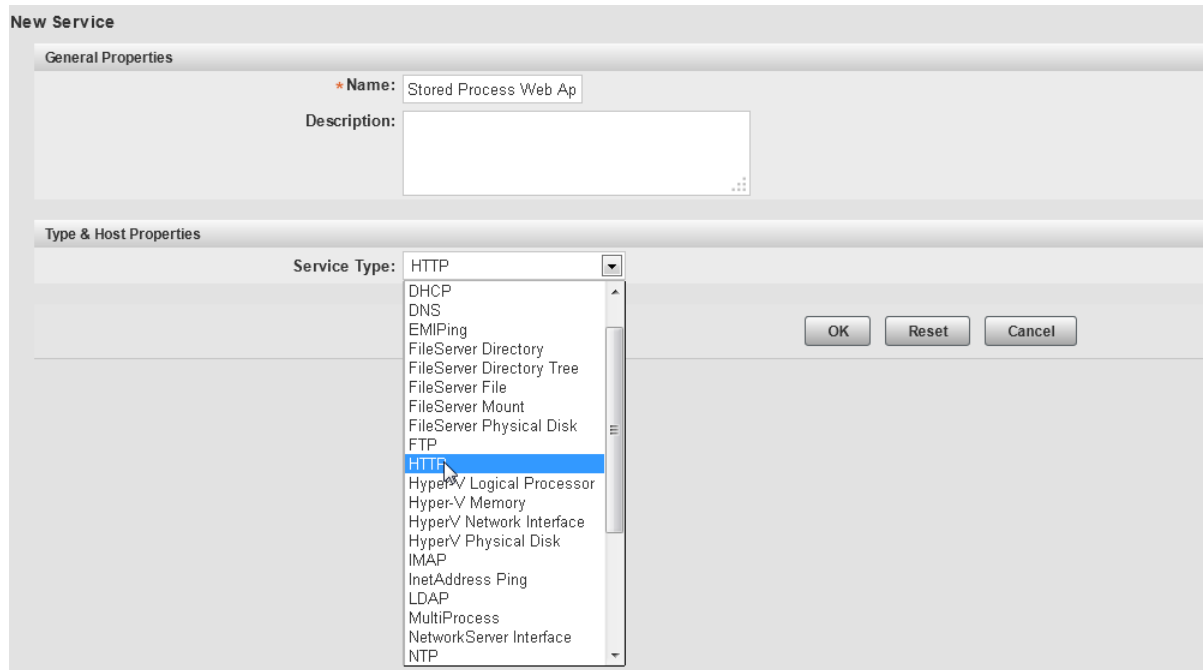
Configuring HTTP Components and Applications

Creating a Platform Service

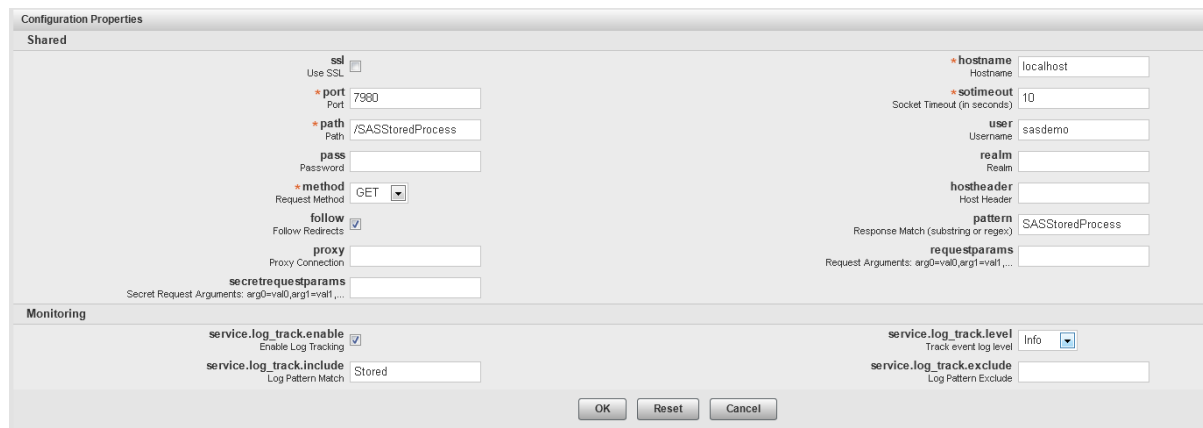
You must create several platform services in order to monitor access to SAS web applications. This is the basic procedure for creating and configuring a platform service.

1. Select **Resources** ⇒ **Browse**
2. Select **Platforms**.

3. Select the entry in the **Platform** table for your server.
4. On the Details page for the selected platform, select **Tools Menu** ⇒ **New Platform Service**. The New Service window appears.
5. Specify a name for the service and select HTTP in the **Service Type** field. Click **OK**.



6. The **Details** page for the new service page appears. A message is displayed that the resource has not been configured. Click the **Configuration Properties** link to configure the service.
7. On the Configuration Properties page, specify the information required for the service. Values for each service are provided in the following sections.



8. Click **OK** to complete the configuration process.

Configuring a Platform Service for SAS Stored Process Web Application

Follow the steps in “Creating a Platform Service” on page 53 to create the service. Specify the following information on the Configuration Properties page.

port
specify 7980

path
specify /SASStoredProcess

user
specify a username (such as sasdemo)

pass
specify the password for the specified user

method
select GET

follow
select this check box

pattern
specify SASStoredProcess

service.log.track.enable
select this check box

service.log.track.level
select Info

service.log.track.include
specify Stored

Configuring a Platform Service for SAS Content Server

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

port
specify 7980

path
specify /SASContentServer

user
specify sasadm@saspw

pass
specify the password for the user

method
select GET

follow
select this check box

pattern
specify SASContentServer

service.log.track.enable
select this check box

service.log.track.level
select Info

service.log.track.include
specify Content

Configuring a Platform Service for SAS Web Report Studio

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

port
specify 7980

path
specify /SASWebReportStudio

user
specify a username (such as sasdemo)

pass
specify the password for the user

method
select GET

follow
select this check box

pattern
specify SASWebReportStudio

service.log.track.enable
select this check box

service.log.track.level
select Info

service.log.track.include
specify Report

Configuring a Platform Service for SAS BI Dashboard

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

port
specify 7980

path
specify /SASBIDashboard

user
specify a username (such as sasdemo)

pass
specify the password for the user

method
select GET

follow
select this check box

pattern
specify SASBIDashboard

service.log.track.enable

select this check box

service.log.track.levelselect **Info****service.log.track.include**specify **Dashboard**

Configuring a Platform Service for SAS Help Viewer for Middle-Tier Applications

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

portspecify **7980****path**specify **/SASWebDoc****method**select **GET****follow**

select this check box

patternspecify **SASWebDoc****service.log.track.enable**

select this check box

service.log.track.levelselect **Info****service.log.track.include**specify **Documentation**

Configuring a Platform Service for SAS Information Delivery Portal

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

portspecify **7980****path**specify **/SASPortal****user**

specify a username (such as sasdemo)

pass

specify the password for the user

methodselect **GET****follow**

select this check box

pattern
specify `SASPortal`

service.log.track.enable
select this check box

service.log.track.level
select **Info**

service.log.track.include
specify `Portal`

Configuring a Platform Service for SAS Web Administration Console

Follow the steps in “[Creating a Platform Service](#)” on page 53 to create the service. Specify the following information on the Configuration Properties page.

port
specify `7980`

path
specify `/SASAdmin`

user
specify `sasadm@saspw`

pass
specify the password for the user

method
select **GET**

follow
select this check box

pattern
specify `SASAdmin`

service.log.track.enable
select this check box


service.log.track.level
select **Info**

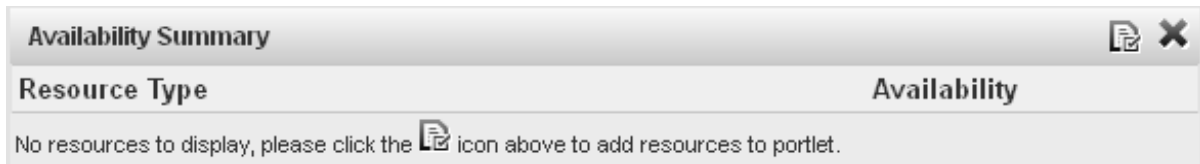
service.log.track.include
specify `Administration`


Summary Portlet Examples

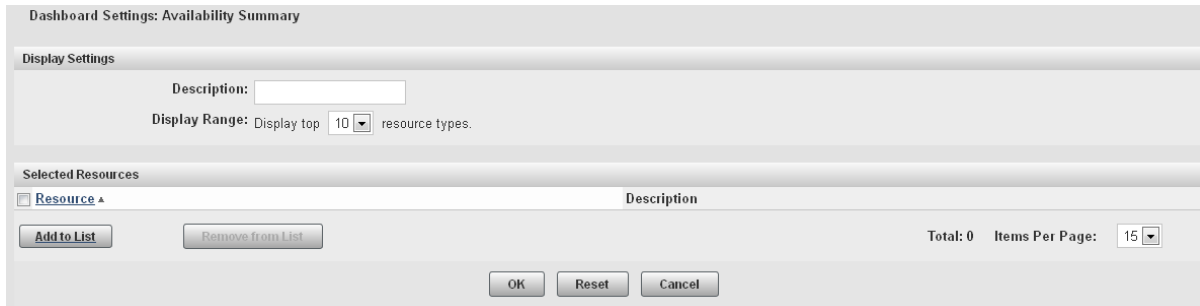
Adding Summary Portlets

Here are the basic steps for adding a summary portlet to your Dashboard page.

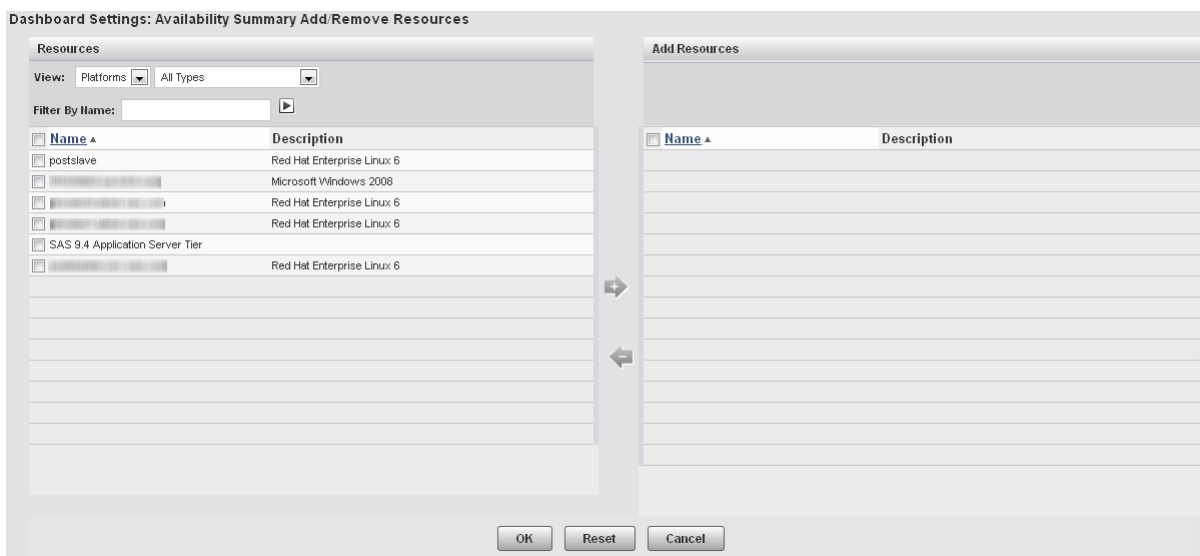
1. On the left side of the Dashboard page, select **Availability Summary** in the **Add Content to this column** field and click the Add icon . A blank **Availability Summary** portlet is added to your Dashboard.





- Click the Configuration icon  to display the Dashboard Settings page for the portlet.




- Specify a name for the portlet in the **Description** field. This name will appear in the header for the portlet, after the portlet type.
- In the **Selected Resources** area, click **Add to List** to display the Add/Remove Resources page.

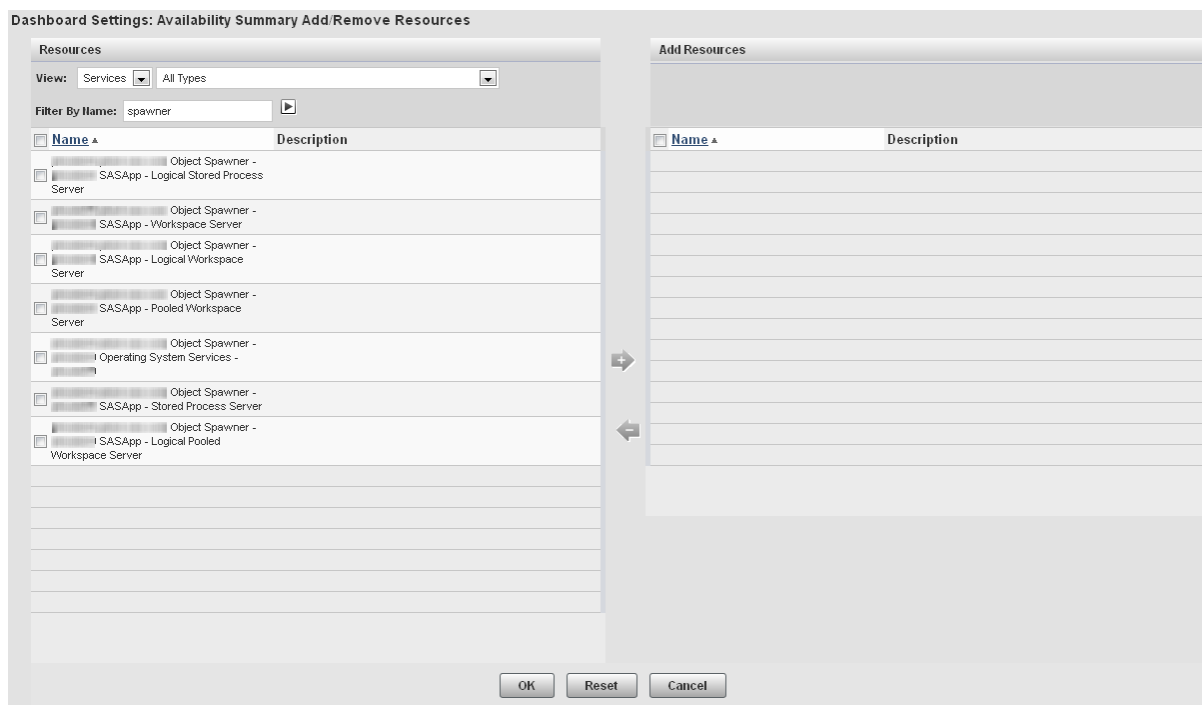


- To display the resources that you want to use for the summary, specify values in the **View** and **Filter By Name** fields. If you specify a value in the **Filter By Name** field, click  to filter the table contents.
- In the Resources table, select the check boxes for the resources that you want to use in the summary. Click  to move the resources to the **Add Resources** list.
- After you select the resources that you want to use in the Add/Remove Resources window, click **OK** to return to the Availability Summary window. Click **OK** to create the portlet and add it to your Dashboard page.

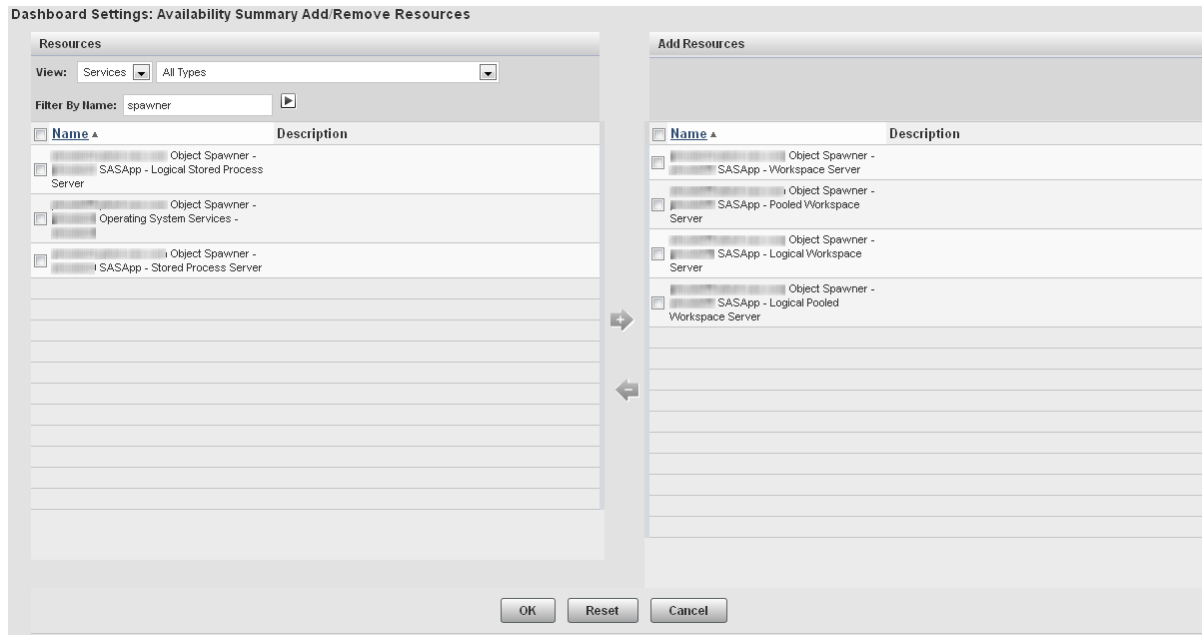
Example: Adding a Summary Portlet for SAS Servers That Can Be Spawned

This example explains how to add a portlet to your Dashboard page that monitors the availability of SAS Workspace Servers that are running under a SAS Object Spawner.

1. Follow the basic procedure for creating an availability summary portlet in “Adding Summary Portlets” on page 58. Follow the basic procedure for creating an availability
2. On the Add/Remove Resources window, in the **View** field, select **Services**. Logical SAS servers are listed as services in SAS Environment Manager.
3. In the **Filter By Name** field, enter **spawner** and click . The **Resources** list displays the services running under the SAS Object Spawner.



4. Select the resources **Workspace Server** and **Pooled Workspace Server** and move them to the Add Resources table.



5. Finish the procedure for creating the portlet. The portlet displays the availability information for the servers that can be spawned.

Availability Summary	
Resource Type	Availability
SAS Object Spawner 9.4 SAS Logical Pooled Workspace Server	✔ 1
SAS Object Spawner 9.4 SAS Logical Workspace Server	✔ 1
SAS Object Spawner 9.4 SAS Pooled Workspace Server	✔ 1
Updated: 2:24 PM	

Example: Adding a Platform Availability Summary Portlet

To add a portlet to monitor the availability of all of the platforms in the environment, follow these steps:

1. Follow the basic procedure for creating an availability summary portlet in [“Adding Summary Portlets”](#) on page 58.
2. In the Add/Remove Resources page, select **Platforms** in the **View** field and select the check box beside the **Name** column in the **Resources** table. This selects all of the listed platforms.

Dashboard Settings: Availability Summary Add/Remove Resources

Resources

View: Platforms All Types

Filter By Name:


<input checked="" type="checkbox"/> Name ▲	Description
<input checked="" type="checkbox"/> SAS 9.4 Application Server Tier	
<input checked="" type="checkbox"/> ptnode23.ptest.sas.com	HTTP SAS BI Dashboard
<input checked="" type="checkbox"/> ptnode22.ptest.sas.com	[Auto-Generated] Linux Platform rmb
<input checked="" type="checkbox"/> TrapProxyRNB	


3. Complete portlet creation process to add the portlet to your dashboard.


Metric Viewer Portlet Examples


Adding Metric Viewer Portlets

Here are the basic steps for adding a metric viewer portlet to your Dashboard page.

1. On the right side of the Dashboard page, select **Metric Viewer** in the **Add Content to this column** field and click the Add icon . A blank **Metric Viewer** portlet is added to your Dashboard.

Metric Viewer  

No resources to display, please click the  icon above to add resources to portlet.

2. Click the Configuration icon  to display the Dashboard Settings page for the portlet.

Dashboard Settings: Metric Viewer

Display Settings

Description:

Display Range: Display top resources.

Resource Type:

Metric:

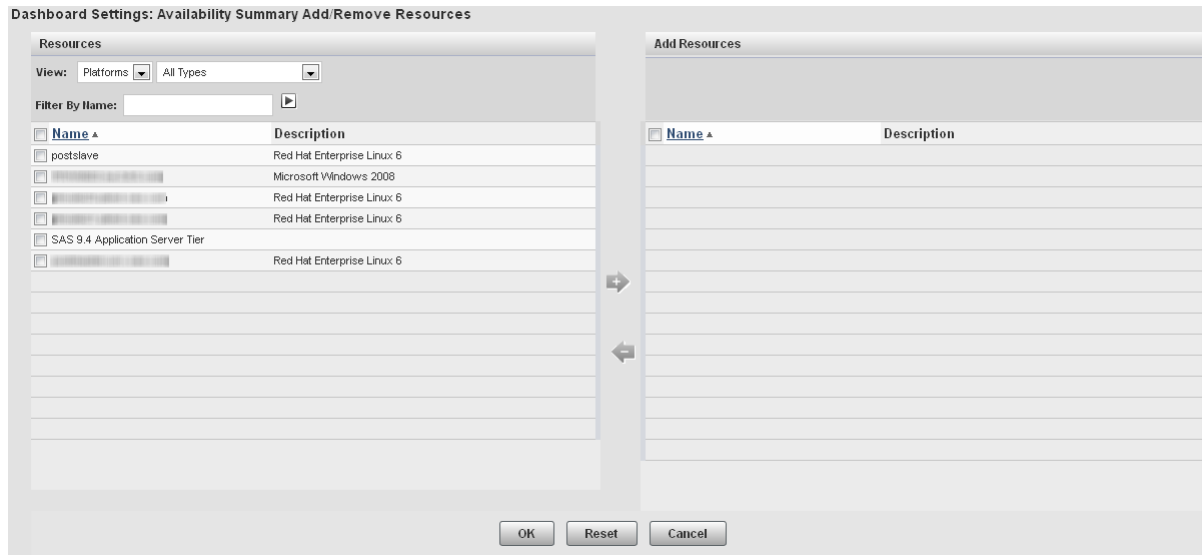
Sort Order:



Selected Resources

<input type="checkbox"/> Resource +	Description
<input type="button" value="Add to List"/>	<input type="button" value="Remove from List"/>

Total: 0 Items Per Page:

- On the Dashboard Settings page, specify a name for the portlet in the **Description** field. Select the type of resource that you want to monitor in the **Resource Type** field and the information that you want to display in the **Metric** field. The values available in the **Metric** field change depending on what you select in the **Resource Type** field.
- In the **Selected Resources** area, click **Add to List** to display the Add/Remove Resources page.



- To display the resources that you want to use for the metric, specify values in the **View** and **Filter By Name** fields. If you specify a value in the **Filter By Name** field, click  to filter the table contents.
- In the **Resources** table, select the check boxes for the resources that you want to use in the metric. Click  to move the resources to the **Add Resources** list.
- After you select the resources that you want to use in the Add/Remove Resources window, click **OK** to return to the Dashboard Settings page. Click **OK** to create the portlet and add it to your Dashboard page.

Example: Adding a SASWork Disk Space Metric Viewer

To add a portlet for viewing the usage of the SASWork directory, follow these steps.

- Follow the basic procedure for creating a metric viewer portlet at [“Adding Metric Viewer Portlets” on page 62](#).
- On the Dashboard Settings page, specify the following information:

Description

specify a name for the portlet

Resource Type

select **SAS Home Directory 9.4 SAS Directory**

Metric

select **Use Percent**

Dashboard Settings: Metric Viewer

Display Settings

Description: SASWork Disk Space

Display Range: Display top 10 resources.

Resource Type: - SAS Home Directory 9.4 SAS Directory

Metric: - Use Percent

Sort Order: Highest Values First

3. In the Add Resources window, select all resources in the **Resources** table, click the **Add** icon to move them to the **Add Resources** table, and click **OK**.
4. Complete the procedure to add the portlet to your **Dashboard** page.

Example: Adding a WebApp Login Response Time Metric Viewer

To add a portlet for viewing the response time for all web applications, follow these steps.

1. Follow the basic procedure for creating a metric viewer portlet at “[Adding Metric Viewer Portlets](#)” on page 62.
2. On the Dashboard Settings page, specify the following information:

Description

specify a name for the portlet

Resource Type

select **HTTP**

Metric

select **Response Time**

Dashboard Settings: Metric Viewer

Display Settings

Description: WebApp Login Respons

Display Range: Display top 10 resources.

Resource Type: - HTTP

Metric: - Response Time

Sort Order: Highest Values First

3. In the Add Resources window, select all resources in the **Resources** table, click the **Add** icon to move them to the **Add Resources** table, and click **OK**.
4. Complete the procedure to add the portlet to your **Dashboard** page.

Example: Adding a PostgreSQL Data Volume Metric Viewer

To add a portlet for viewing the volume of data in all PostgreSQL databases, follow these steps.

1. Follow the basic procedure for creating a metric viewer portlet at [“Adding Metric Viewer Portlets” on page 62](#).
2. On the Dashboard Settings page, specify the following information:

Description

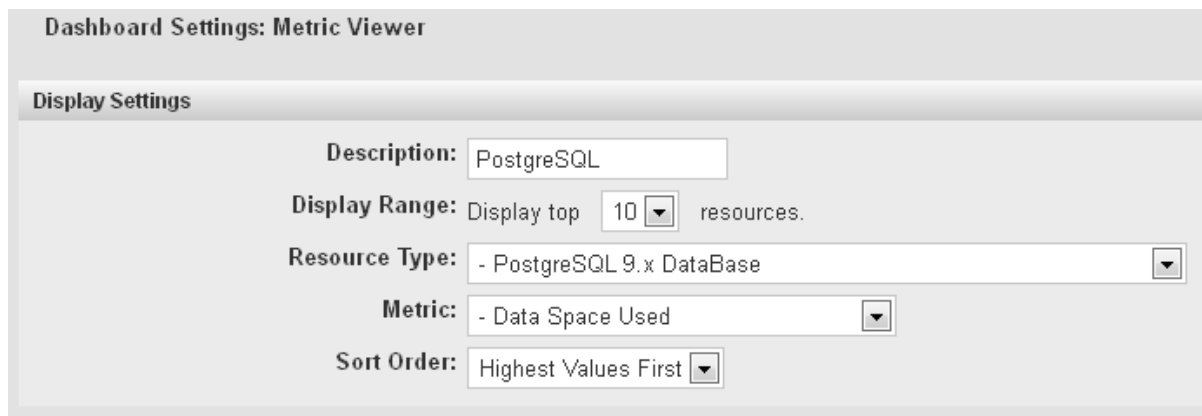
specify a name for the portlet

Resource Type

select **PostgreSQL 9.x DataBase**

Metric

select **Data Space Used**



Dashboard Settings: Metric Viewer

Display Settings

Description: PostgreSQL

Display Range: Display top 10 resources.

Resource Type: - PostgreSQL 9.x DataBase

Metric: - Data Space Used

Sort Order: Highest Values First

3. In the Add Resources window, select all resources in the **Resources** table, click the **Add** icon to move them to the **Add Resources** table, and click **OK**.
4. Complete the procedure to add the portlet to your **Dashboard** page.

Example: Adding a tc Runtime Manager Active Sessions Metric Viewer

To add a portlet for viewing the number of active sessions for all web applications, follow these steps.

1. Follow the basic procedure for creating a metric viewer portlet at [“Adding Metric Viewer Portlets” on page 62](#).
2. On the Dashboard Settings page, specify the following information:

Description

specify a name for the portlet

Resource Type

select **SpringSource tc Runtime 7.0 Manager**

Metric

select **Active Sessions**

Dashboard Settings: Metric Viewer

Display Settings

Description: tc Runtime Manager Act

Display Range: Display top 10 resources.

Resource Type: - SpringSource tc Runtime 7.0 Manager

Metric: - Active Sessions

Sort Order: Highest Values First


- On the Add/Remove Resources page, in the **View** field, select **Servers**. In the **Resources** table, select these servers:
 - <server_name> tc Runtime SAServer1_1/SASWebReportStudio localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASAdmin localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASContentServer localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASBIDashboard localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASWebDoc localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASPortal localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASLogon localhost Manager
 - <server_name> tc Runtime SAServer1_1/SASStoredProcess localhost Manager

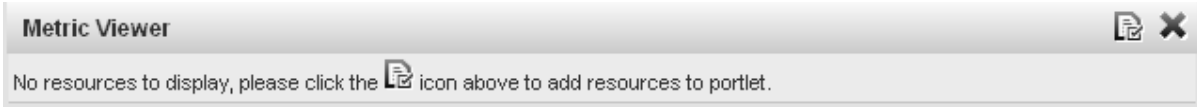
Some of these servers might be on the second page of the list (click the page number at the bottom of the list to navigate between pages). Click the **Add** icon to move the selected servers on one page before moving to another page.
- Complete the procedure to add the portlet to your **Dashboard** page.


Metric Chart Examples

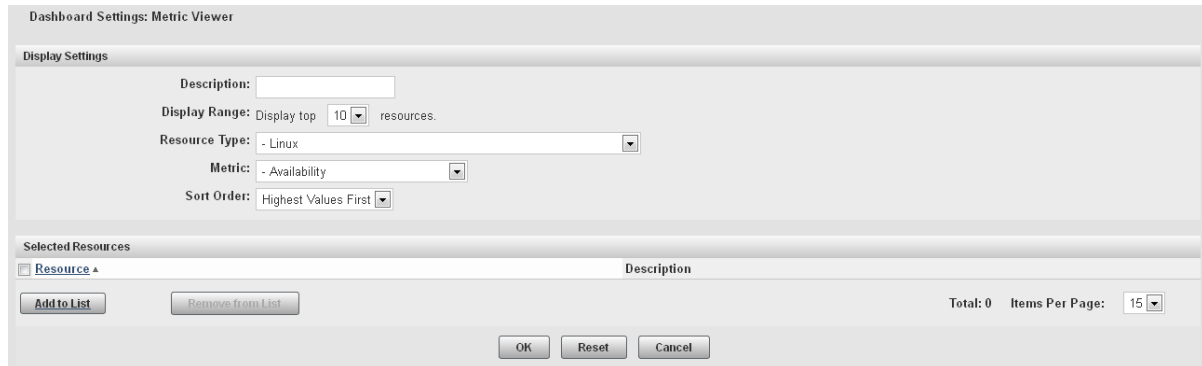
Adding a Saved Chart Portlet

The Saved Chart portlet displays a rotation of all of the resource metric charts that you have saved. The process of creating this type of portlet consists of navigating to the resources that you want to chart, finding the metric charts that you want to display, and saving them to your dashboard. When you create the portlet, all of your saved charts automatically appear. Here are the basic steps for adding a metric viewer portlet to your Dashboard page.

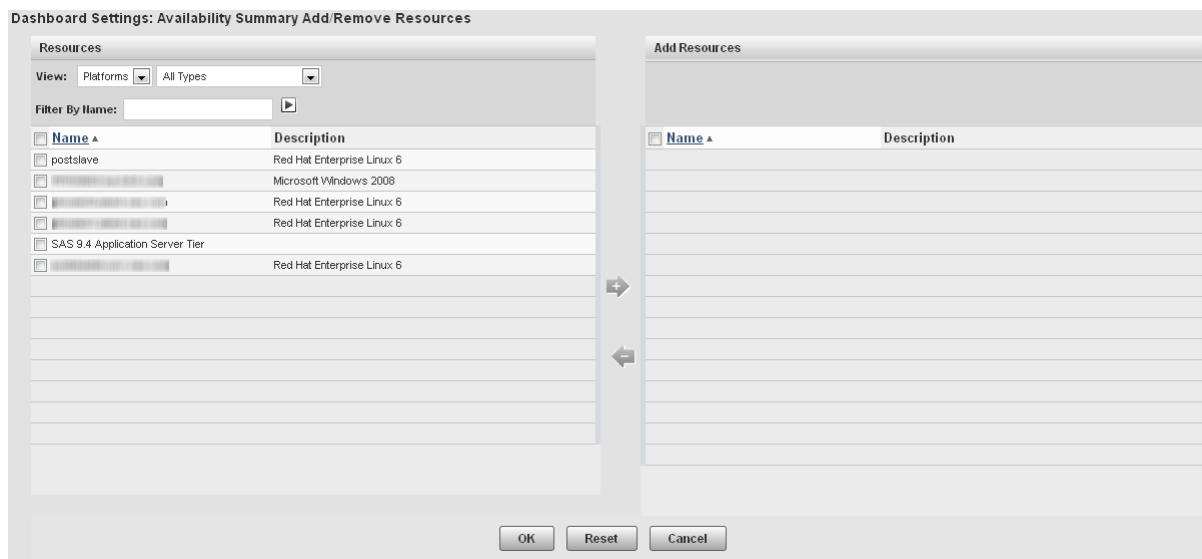
- On the right side of the Dashboard page, select **Metric Viewer** in the **Add Content to this column** field and click the Add icon . A blank **Metric Viewer** portlet is added to your Dashboard.





2. Click the Configuration icon  to display the Dashboard Settings page for the portlet.



3. On the Dashboard Settings page, specify a name for the portlet in the **Description** field. Select the type of resource that you want to monitor in the **Resource Type** field and the information that you want to display in the **Metric** field. The values available in the **Metric** field change depending on what you select in the **Resource Type** field.
4. In the **Selected Resources** area, click **Add to List** to display the Add/Remove Resources page.

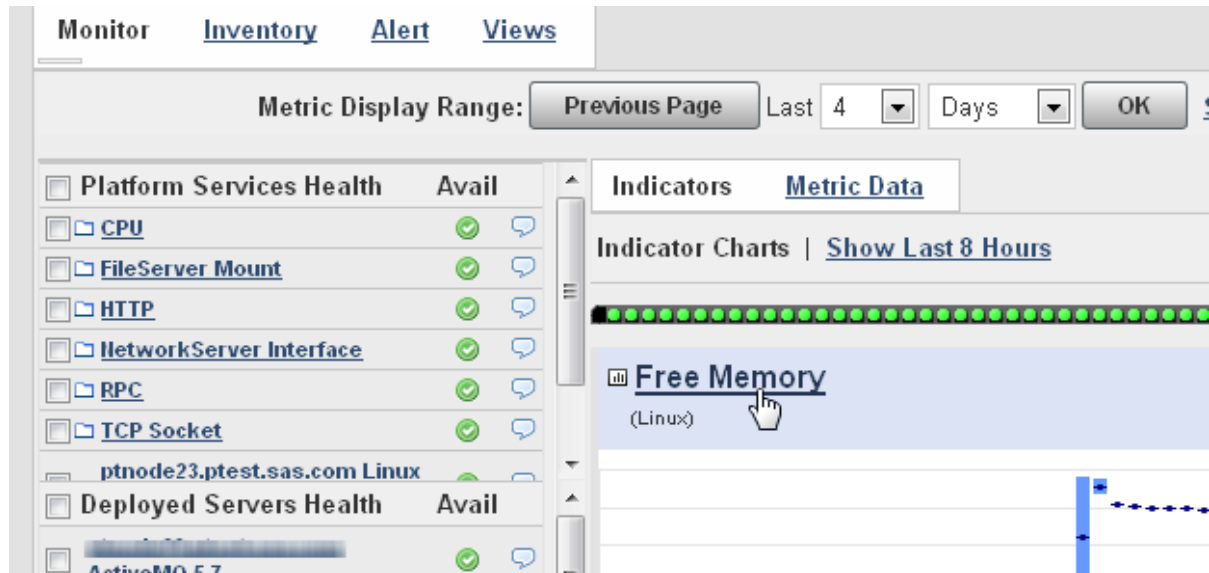


5. To display the resources that you want to use for the metric, specify values in the **View** and **Filter By Name** fields. If you specify a value in the **Filter By Name** field, click  to filter the table contents.
6. In the **Resources** table, select the check boxes for the resources that you want to use in the metric. Click  to move the resources to the **Add Resources** list.
7. After you select the resources that you want to use in the Add/Remove Resources window, click **OK** to return to the Dashboard Settings page. Click **OK** to create the portlet and add it to your Dashboard page.

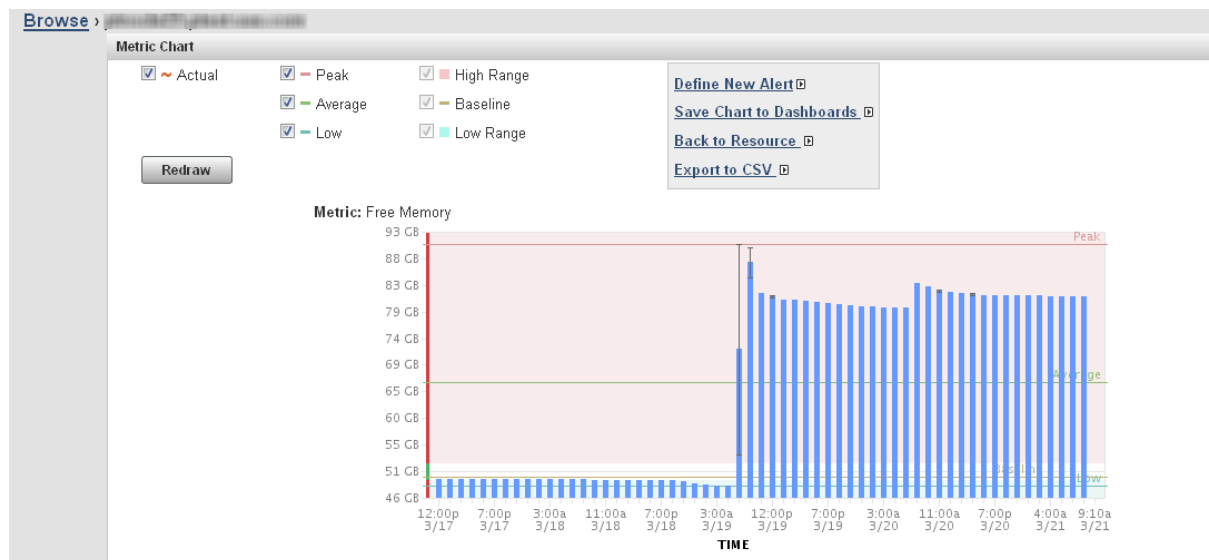
Creating a Free Memory Chart

To create a chart of the free memory on a server and save that chart to your dashboard, follow these steps.

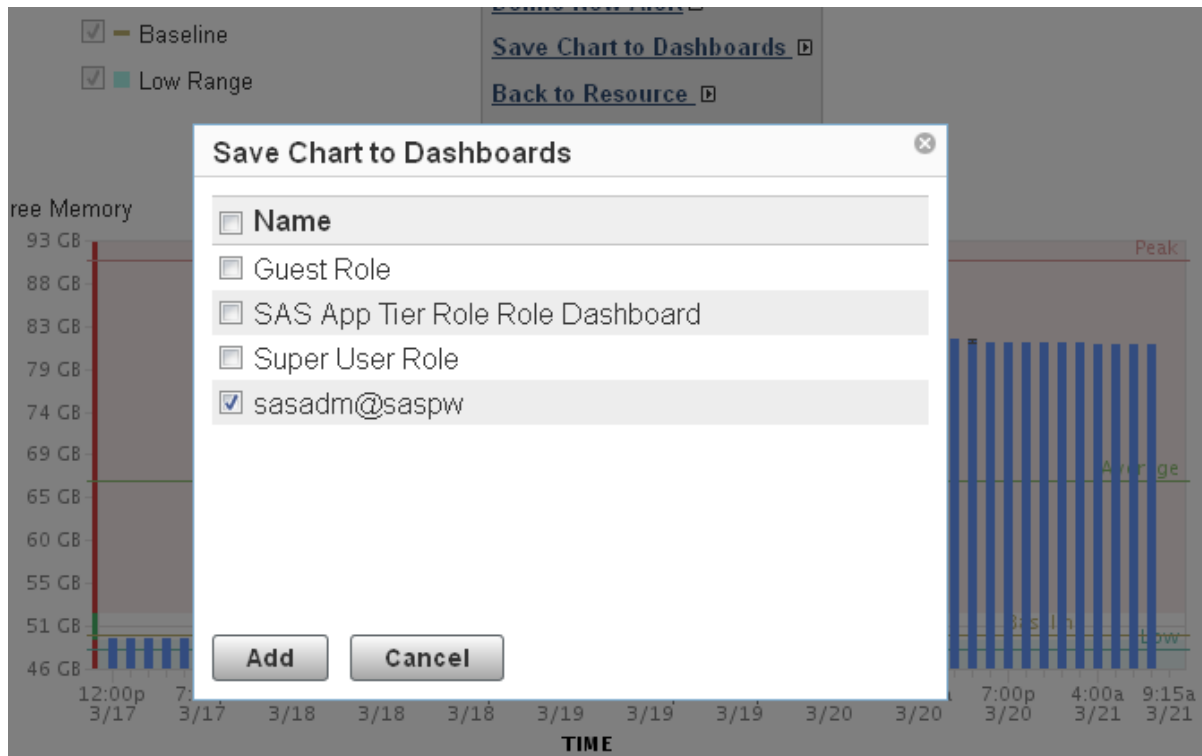
1. On the SAS Environment Manager menu bar, select **Resources** ⇒ **Browse**.
2. On the Resources page, select **Platforms**.
3. In the table of resources, click on the name of your server to display the resource detail page.
4. On the resource detail page, one of the displayed metric charts is **Free Memory**. Click on the name of the chart to display the Metric Chart page.



5. On the Metric Chart page, select **Save Chart to Dashboards**.




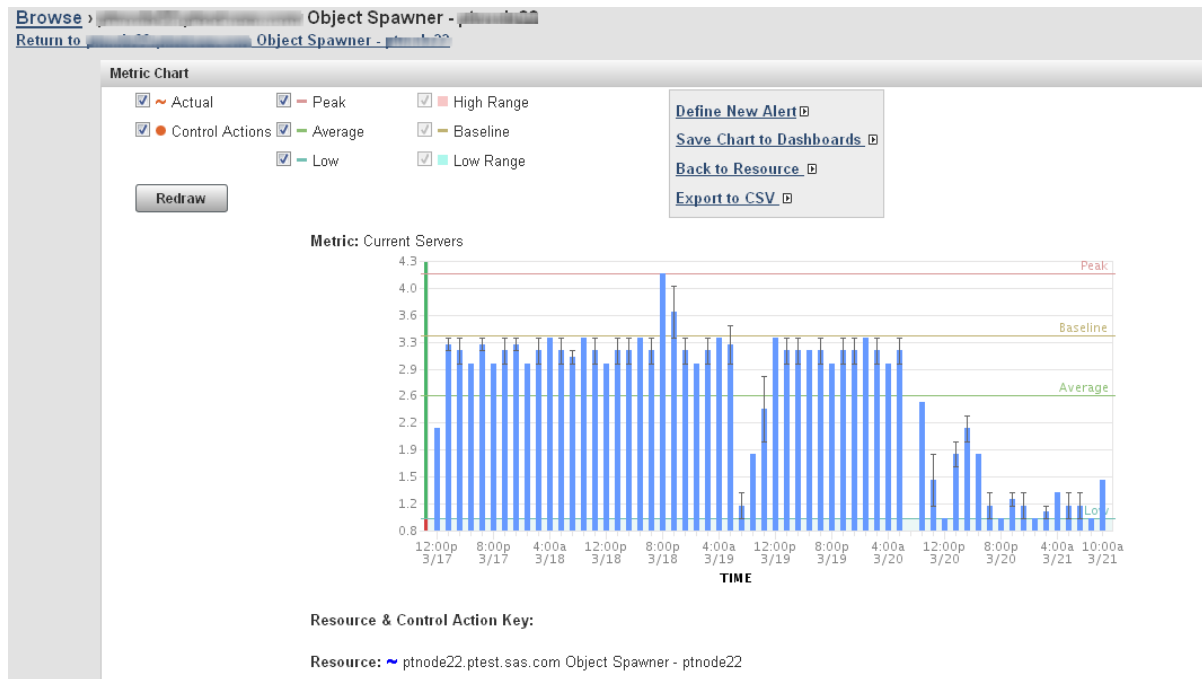
6. The Save Chart to Dashboards dialog box appears. Select the dashboards on which the saved chart should appear. Click **Add** to save the chart.



Creating a Number of Spawned Servers Chart

To create a chart of the current number of spawned servers and save that chart to your dashboard, follow these steps.


1. On the SAS Environment Manager menu bar, select **Resources** ⇒ **Browse**.
2. On the Resources page, in the **All Server Types** field, select **SAS Object Spawner 9.4** and then click on the arrow  at the right of the filter fields.
3. In the table of resources, click on the name of the object spawner to display the resource detail page.
4. On the resource detail page, one of the displayed metric charts is **Current Servers**. Click on the name of the chart to display the Metric Chart page.




5. On the Metric Chart page, select **Save Chart to Dashboards**.
6. The Save Chart to Dashboards dialog box appears. Select the dashboards on which the saved chart should appear. Click **Add** to save the chart.

Creating a Metadata Users Chart















To create a chart of the current number of users per minute of the SAS Metadata Server and save that chart to your dashboard, follow these steps.

1. On the SAS Environment Manager menu bar, select **Resources** ⇒ **Browse**.
2. On the Resources page, in the **All Server Types** field, select **SAS Metadata Server 9.4** and then click on the arrow  at the right of the filter fields.
3. In the table of resources, click on the name of the metadata server to display the resource detail page.
4. On the left side of the resource detail page, select All Metrics from the menu.

The screenshot shows the SAS Monitoring console interface. At the top, there are navigation tabs: Monitor, Inventory, Alert, Control, and Views. Below this is a 'Metric Display Range' section with a 'Previous Page' button, a dropdown for 'Last 4' days, and an 'OK' button. The main content area is divided into two columns. The left column contains a 'Services' section with a message 'No health data is available for this resource.' Below that is a 'Host Platform' section with a 'View Metrics' button. A 'Problem Metrics' dropdown menu is open, showing 'Problem Metrics' and 'All Metrics' (highlighted). Below the dropdown is a table with columns 'OOB' and 'Alerts'. The right column contains an 'Indicator Charts' section with a 'Show Last 8 Hours' link. Below this is a chart titled 'Current Clients' for '(SAS Metadata Server 9.4)'. At the bottom of the right column is a 'Health' section.

5. In the table of metrics, find **Total Clients per Minute** and position your mouse cursor over the information icon . The metric information tooltip appears.


The screenshot shows a tooltip for the 'Total Clients per Minute' metric. The tooltip is a table with the following data:

Process Resident Memory Size	0	0		
Resource: SAS Metadata Server 9.4				
Time In Calls	0	0		
Chart Metric in Indicators	0	71		
View Full Chart	0	0		
Metric Data	0	0		
Total Clients per Minute	0	0		
Availability	0	0		

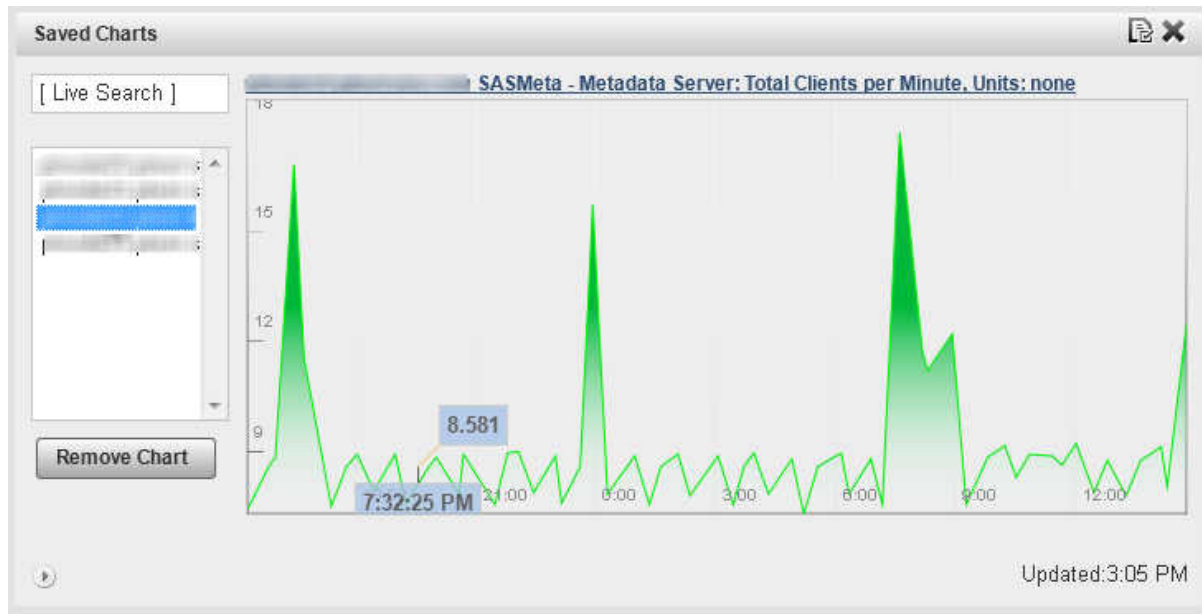
6. On the tooltip, select **View Full Chart**. The Metric Chart page appears.
7. On the Metric Chart page, select **Save Chart to Dashboards**.
8. The Save Chart to Dashboards dialog box appears. Select the dashboards on which the saved chart should appear. Click **Add** to save the chart.

Adding a Saved Charts Portlet

Follow these steps to add a portlet that displays the charts that you have saved.

1. Click **Dashboard** on the menu bar.
2. On the left side of the Dashboard page, select **Saved Charts** in the **Add Content to this column** field and click the Add icon .

A **Saved Charts** portlet is added to your Dashboard and automatically displays a slideshow of the charts that you previously saved.



3. To change how long each chart is displayed or the time period displayed on the chart, click the Configuration icon .

The screenshot shows the 'Configuration' dialog box for the 'Saved Charts' window. The dialog has a title bar with a configuration icon and a close button. The main area is titled 'Configuration' and contains three settings: 'Chart Rotation' with a checked checkbox, 'Rotation Interval' with a dropdown menu set to '10 second(s)', and 'Time Range' with a dropdown menu set to '1 day(s)'. At the bottom right, there are two buttons: 'Save' and 'Cancel'.

Appendix 1

Troubleshooting

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Resolving Problems with SAS Environment Manager

Cannot Add Discovered Resources into Inventory

When you add auto-discovered resources into the inventory, you might see the following error message

```
Unable to import platform :
org.hyperic.hq.common.SystemException:
org.hibernate.ObjectNotFoundException:No row the the given
identifier exists: [org.hyperic.hq.autoinventory.Allp#10001]
```

Purge the AIQ data in the SAS Environment Monitor database. Follow these steps:

1. Select **Administration** ⇒ **HQ Health** ⇒ **Database tab**
2. Select **Purge AIQ Data** from the **Action** menu.

These messages appear:

- DELETE FROM EAM_AIQ_IP: 0 rows
- DELETE FROM EAM_AIQ_SERVICE: 0 rows
- DELETE FROM EAM_AIQ_SERVER: 0 rows
- DELETE FROM EAM_AIQ_PLATFORM: 0 rows

3. Restart the agents.

Resource in Availability Portlet with No Availability Information

If you add a resource that has been discovered but does not have any availability information to an Availability Summary portlet, the portlet will never display any information for the resource. The server log contains this information:

1. On the **Resources** tab, delete the platform that contains the resource.

2. Stop the agent.
3. Delete the `tokendata`, `keystore`, and `keyvals` files from the directory `<SAS-configuration-directory>/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE/data`.
4. Issue the command `hq-agnet.bat/sh restart` from the command console.

New Folders Are Not Displayed

If you are using Microsoft Internet Explorer, newly created folders might not show up in the folder tree.

To ensure that new folders appear, from the Internet Explorer menu, select **Tools** ⇒ **F12 Developer Tools**. From the Internet Explorer Developer Tools menu, select **Cache** ⇒ **Always refresh from server**.

Validate Result Dialog Box Appears When Renaming a Folder

If you cause an error when you rename a folder (because, for example, you used invalid characters in the name or specified a blank name), the folder is not saved and the **Validate Result** dialog box appears.

To view details about the error, click the text **Basic Properties page failed** in the dialog box.

Resolving Problems with SAS Environment Manager Agents

Agent Fails to Start

When you try to configure the SAS Environment Manager Agent, it does not start and you receive the error message `No token file found, waiting for Agent to initialize`

1. Stop the SAS Environment Manager agent.
2. Verify that the agent wrapper processes and the agent Java processes have stopped.
3. On the W6X platform, verify that the directory `%SystemRoot%\TEMP` exists. Remove the file `%SystemRoot%\TEMP\agent.encrypt.lock`.

On all other UNIX platforms, search for the `java.io.tmpdir` environment variable in the agent wrapper process and the agent Java process. By default, the value of the variable will be set to the `\tmp` or `\var\tmp` directory. If the variable exists, remove the file `agent.encrypt.lock` under the specified directory.

Agent Receives the Error “OutOfMemory GC Overhead Limit Exceeded”

The `agent.log` file contains the message `java.lang.OutOfMemoryError: GC overhead limit exceeded`

Include these JVM options in the startup script for each agent:

```
-XX:NewRatio=8
-XX:+CMSClassUnloadingEnabled
```

```
-XX:+UseTLAB
-XX:+UseCompressedOops
```

Modify the file `SAS-configuration_directory/LevX/Web/SASEnvironmentManager/agent-5.8.0-EE/bundles/agent-5.8.0/bin/hq-agent.sh` or `hq-agent.bat` and add these JVM options to the `CLIENT_CMD` variable:

```
CLIENT_CMD="{HQ_JAVA} \
-D${AGENT_INSTALL_HOME_PROP}=${AGENT_INSTALL_HOME} \
-D${AGENT_BUNDLE_HOME_PROP}=${AGENT_BUNDLE_HOME} \
-XX:NewRatio=8 \
-XX:+CMSClassUnloadingEnabled \
-XX:+UseTLAB \
-XX:+UseCompressedOops \
-cp ${CLIENT_CLASSPATH} ${CLIENT_CLASS}"
```

EncryptionOperationNotPossibleException Error Message

After the agent successfully starts, some agent properties might get encrypted. If the agent cannot read the `agent.scu` file (which contains the encryption keys), it cannot decrypt the properties. The agent will not start and the `agent.log` or the `wrapper.log` file contains the error

```
org.jasypt.exceptions.EncryptionOperationNotPossibleException.
```

1. Stop the SAS Environment Manager agent.
2. In the directory `SAS-configuration/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE`, delete the `/data` directory.
3. In the directory `SAS-configuration/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE/conf`, delete the `agent.scu` file.
4. Modify the encrypted property to a plain text value. In the file `SAS-configuration/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE/agent.properties`, set the property `agent.setup.camPword` to a plain text value (if it is encrypted, it will appear as `ENC(XXXXXXXXXXXX)`).
5. In the file `SAS-configuration/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE/auto-approve.properties`, change all values to `True`.
6. Restart the agent.

Cannot Stop EAgent Service Using Windows Services

On Windows, if you use Windows Services to stop the Hyperic Agent service, you will receive the error message `Windows could not stop the SAS[SAS94-Lev1] SAS Environment Manager Agent on Local Computer. Clicking OK in the error message dialog box seems to stop the service, but the System Event Log contains the error The SAS [SAS94-Lev1] SAS Environment Manager Agent service terminated with service-specific error Incorrect function..`

Use the command line, rather than Windows Services, to stop the agent. The command to stop the agent is `<sas_configuration_directory>/Lev2/Web/SASEnvironmentManager/agent-5.8.0-EE/bin/hq-agent.bat stop`.

Resolving Problems with SAS Environment Manager Plugins

PostgreSQL Resources Not Configured Properly

After a PostgreSQL server is added into inventory, the Dashboard page indicates that the resource is not configured properly

On the Configuration Properties page for the server, specify this information:

```
postgresql.user
    specify the Web Infrastructure Platform Data Server database user name. The default
    value is dbmsowner

postgresql.pass
    specify the password for the user name

postgresql.program
    specify the path to the postgres.bat or postgres.sh file (on UNIX); or postgres.exe or
    postgres.bat (on Windows). On UNIX, the path is /opt/sas/Lev1/
    SASWebInfrastructurePlatformDataServer/webinfdsvrc.sh. On
    W6X, the path is <SAS_Configuration_Directory>
    \Lev1\SASWebInfrastructurePlatformDataServer
    \webinfdsvrc.bat.
```

Tomcat Resources Not Configured Properly

On the AIX platform, the Apache Tomcat 6.0 server Resource page displays the error This resource is turned off or has not been configured properly. The problem is: Invalid configuration: Error contacting resource: Can't connect to MBeanServer url.

1. Open the file `SAS_configuration_directory/Lev1/Web/SASEnvironmentManager/server-5.8.0-EE/hq-engine/hq-server/conf/hq-catalina.properties` and find the `jmx.url` port number. The default value is 1099.
2. On the Configuration Properties page for the server, specify the following property:

```
jmx.url
    service:jmx.rmi:///jndi/rmi://localhost:port_number
```

Cannot Discover tcServer Instances

On the H6I platform, no tcServer instances can be discovered.

HPUX has a limit of 1020 characters on command line queries. The parameters that the tcServer plugin uses to identify the tcServer process are not seen by the agent because they fall after the 1020 character limit has been reached. Edit the startup script so that the parameters that the plugin needs are seen before the 1020 character limit.

Edit the `catalina.sh` script. Change this section of the script:

```
eval \"$_RUNJAVA\" \"$_LOGGING_CONFIG\" $JAVA_OPTS $CATALINA_OPTS \
-Djava.endorsed.dirs=\"$_JAVA_ENDORSED_DIRS\" -classpath \"$_CLASSPATH\" \
-Dcatalina.base=\"$_CATALINA_BASE\" \
-Dcatalina.home=\"$_CATALINA_HOME\" \
```

```
-Djava.io.tmpdir="\$CATALINA_TMPDIR\" \
org.apache.catalina.startup.Bootstrap "$@" start \
>> "$CATALINA_OUT" 2>&1 "&"
```

Change the script to this:

```
eval \"$_RUNJAVA\" \"\$LOGGING_CONFIG\" \
-Dcatalina.base=\"\$CATALINA_BASE\" \
-Dcatalina.home=\"\$CATALINA_HOME\" \
$JAVA_OPTS \
$CATALINA_OPTS \
-Djava.endorsed.dirs=\"\$JAVA_ENDORSED_DIRS\" -classpath \"\$CLASSPATH\" \
-Djava.io.tmpdir=\"\$CATALINA_TMPDIR\" \
org.apache.catalina.startup.Bootstrap "$@" start \
>> "$CATALINA_OUT" 2>&1 "&"
```

SAS Environment Manager Agent Will Not Start

Cannot start the SAS Environment Manager Agent by using the start script \$SAS-configuration_directory/LevX/Web/SASEnvironmentManager/agent-5.8.0-EE/bin/hq-agent.sh start.

The console displays this message:

```
Starting HQ Agent.....Removed stale pid file:
/local/install/cfgsas1/config/Lev1/Web/SASEnvironmentManager/agent-5.8.0-EE/wrapper/sbin/.
WARNING: HQ Agent may have failed to start.
```

Use the unset command to remove the COLUMNS environment variable.

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