SAS® Workflow Manager 2.3: Administrator's Guide

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Managing Workflow Instances

About Workflow Instances

Note: Workflow instances are started by the solution. Workflow tasks are managed by the solution while certain administrative activities are available on the **Instances** tab from within SAS Workflow Manager. The **Instances** view supports limited management of workflows at run time.

IMPORTANT Before an authenticated user can view workflow instances in SAS Workflow Manager, you must give that user the appropriate permissions. For more information, see "Granting Permission to Work with Instances" on page 5.

Click on the navigation bar to access the Instances view. All workflow instances are displayed in this view. Twenty instances are shown per page.

The Instances view contains a table that details the following:

- name of the workflow instances
- version of the workflow instances
- status of the workflow instances
- status date for the workflow instances
- the date on which the workflow instances were created
- the user that created the workflow instances

Each workflow instance displays a status in the Instances view.

Table 1.1 Statuses for Workflow Instances

Status	Description
In Progress	The workflow instance is currently running.
Completed	The workflow instance has completed and is no longer running.
Terminated	The workflow instance was terminated.
Suspended	The workflow instance was suspended. The workflow instance can be resumed or terminated from this state.

Note: Only workflow instances with an `In Progress` status can be terminated from the Instances view. In the Instances view, select the instance that you want to terminate and click **Terminate** to terminate the workflow instance.

View Workflow Instance Details

In the Instances view, you can access additional details about workflow instances. Click on the workflow instance name or select the workflow instance and click 🗀 in the upper right hand corner to open additional details about the selected workflow instance.

A tasks table displays the following details about each task in the workflow instance:

- the name of the task in the workflow instance
- the status of the task in the workflow instance
- the name of the user that has claimed the task in the workflow instance
- any prompts related to the task in the workflow instance
- the time at which the task was started in the workflow instance
- the time at which the task completed in the workflow instance
- the type of element n the workflow instance

Click on each individual element in the tasks table to highlight the element and view additional details. You can compress the tasks table by clicking ⌄ and expand it by clicking ▸ next to **Tasks**.

Each element displays a status in the tasks table.

Table 1.2 Element Statuses for Workflow Tasks

Status	Description
Not Started	The task has been identified by a definition, but not started.
Started	The task has been started.
Completed	The task has been completed and the underlying execution has moved to the next sequential task in the workflow instance.
Terminated	The task has been canceled. If a workflow instance is terminated, all active tasks are canceled.
Claimed	A user task has been updated and an owner value has been set, or the participants have been updated.
Released	A user task owner has been relinquished or participants have been removed.
Delegated	A user task has been delegated to another user by the task owner.
Transferred	A user task has been transferred to another user by the task owner.
Failed	The task could not be completed..

You can also click through the workflow diagram to access and view additional details. Workflow element statuses are indicated by color highlighting.

Table 1.3 Corresponding Colors for Element Statuses in Workflow Diagrams

Status	Corresponding Color
Started	Brown
Completed	Green
Terminated	Blue
Claimed	Red
Canceled	Yellow

Status	Corresponding Color
Not Started	No Color
Failed	

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Managing Permissions

Granting Permission to Work with Definitions

In order to start or administer workflow definitions in SAS Workflow Manager, your ID must be a member of the workflow administrators group. You can configure a custom administrators group or use the default Application Administrators group. For more information, see "Configure the Default Workflow Administrator Group" on page 17.

By default, the user who creates a workflow definition also has administrative permission on that definition. That user can modify, delete, and activate the workflow definition. That user can also give other users permission to work with the definition. For more information, see "Manage Permissions for a Definition" in *SAS Workflow Manager: User's Guide*.

Granting Permission to Work with Instances

In order to administer workflow instances in SAS Workflow Manager, your ID must be a member of the workflow administrators group. You can configure a custom administrators group or use the default Application Administrators group. For more information, see "Configure the Default Workflow Administrator Group" on page 17.

Members of this group can perform the following tasks:

- view and terminate workflow instances
- transfer tasks from one participant to another
- update data objects

You use SAS Environment Manager to manage identities and group membership for applications that run on SAS Viya. Information is available in the SAS Viya administration documentation:

- "Authorization in SAS Viya" in *SAS Viya Administration: Orientation to Authorization*

- "Identity Management: Overview" in *SAS Viya Administration: Identity Management*
- "Predefined Custom Groups" in *SAS Viya Administration: Identity Management*
- "Manage Custom Groups" in *SAS Viya Administration: Identity Management*

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Viewing and Managing Additional Details for Workflow Instances

Viewing Details

View Properties

1. Select an element in the elements table or the workflow definition diagram.
2. Click to access the **Properties** pane. The **Properties** pane is available for all elements in a workflow.

   The **Properties** pane displays the general property information for the selected element. You cannot make any modifications in this pane.

View the Sequence Flow Condition

1. Click to access the **Condition** pane. The **Condition** pane is available if a sequence flow element is present in the workflow.

   The **Condition** pane lists any condition that corresponds to the selected sequence flow in a workflow instance. You cannot make any modifications in this pane.

View Gateway Conditions

1. Click to access the **Condition** pane. When a gateway is present within the workflow, the **Condition** pane is available.

   The **Condition** pane lists all gateway conditions for a selected gateway within the workflow instance. You cannot make any modifications in this pane.

Managing Details

Manage Data Objects

1. Click to access the **Data Objects** pane.

   In the **Data Objects** pane, you can access data objects if a current process, subprocess, or call activity is present within a workflow task. If the task is `In Progress`, you can modify values in this pane.

2. Expand the specific **Data Objects** by clicking >, and compress it by clicking ∨ next to each data object.

Manage Participants

1. Click to access the **Participants** pane. The **Participants** pane is available when a user task element is present in the workflow.

   If a workflow instance is `In Progress`, you can add and remove participants from the **Participants** pane by selecting a user task in the workflow diagram or in the tasks table.

2. Click to add a participant, and then click . The Add Participant window appears.

3. In the **Workflow role** drop-down list, select the role that you want to assign.

4. Select either **User name** or **Group name**, and then click . The Select Identity window appears.

5. Select a user identity to add. Then, click **OK**.

> **TIP** You can use the search field to find and select the user, or scroll through the user or group name list.

6 Click on the participants name in the **Participants** pane, and click to remove the participant. Click **Yes** in the prompt window to remove the participant, or click **No** to cancel the removal.

7 If a workflow task is `In Progress`, you can transfer ownership in the **Participants** pane. Click **Transfer** to transfer the task to another user. Click to select a user from the user identity list. Click **Save**. Click **Yes** to transfer the task to the selected user or click **No** to cancel the transfer.

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Configuring the Workflow Client for Service Tasks

Configuring the Workflow Client

A user account must be configured for a workflow client in order to use service tasks within a definition. This account must be an LDAP account and must be configured by the solution at start-up, or by the system administrator before any instances that contain the following service task elements are created:

- Invoke REST Web Service
- Invoke Job Execution

Note: For job execution service tasks, the default service account should be a host account on the machine where the compute server is installed.

Use SAS Environment Manager to assign this account to the Workflow service after the deployment process has completed. You must also log on to one of the SAS Viya user interfaces in order to initialize a required OAuth token.

For more information, see "Configure the Workflow Client User" in *SAS Viya for Linux: Deployment Guide*.

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Managing Business Calendars

About Business Calendars

SAS workflow administrators can create and manage business calendars to exclude specific dates for timer events.

You can perform the following management tasks:

- retrieve a list of business calendars
- create a business calendar
- retrieve information for a specific business calendar
- delete a specific business calendar

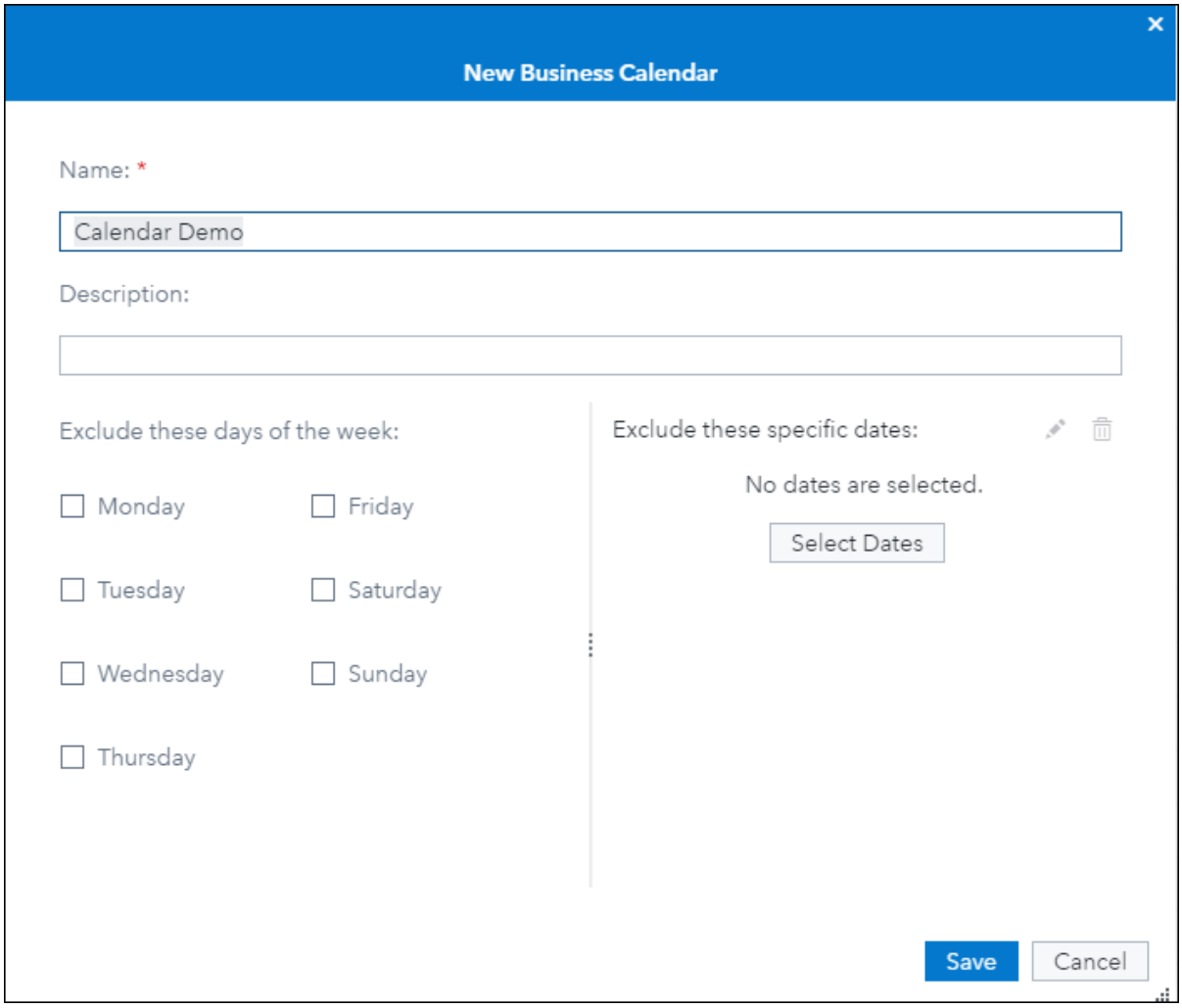
Once a SAS Workflow Administrator has created a business calendar, users can then add the business calendar to recurring boundary timers. For more information, see "Add a Boundary Timer" in *SAS Workflow Manager: User's Guide*.

Note: If a date value occurs within the exclusion dates, the workflow service attempts to find the next available valid date. If no valid date is found within the next 31 attempts, the 31st value is used and a failure notification is sent to the workflow administrator group.For more information, see "Administrative Notification Subscription" on page 18.

Create a New Business Calendar

1 In the Definitions view, click ⋮, and then select **Manage business calendars**. The Manage Business Calendars window appears.

2 Click [*]. The New Business Calendar window appears.



3 Enter a name for the new business calendar.

4 (Optional) Enter a description for the new business calendar.

5 (Optional) Select the check box next to the days of the week that you want to exclude from the new business calendar.

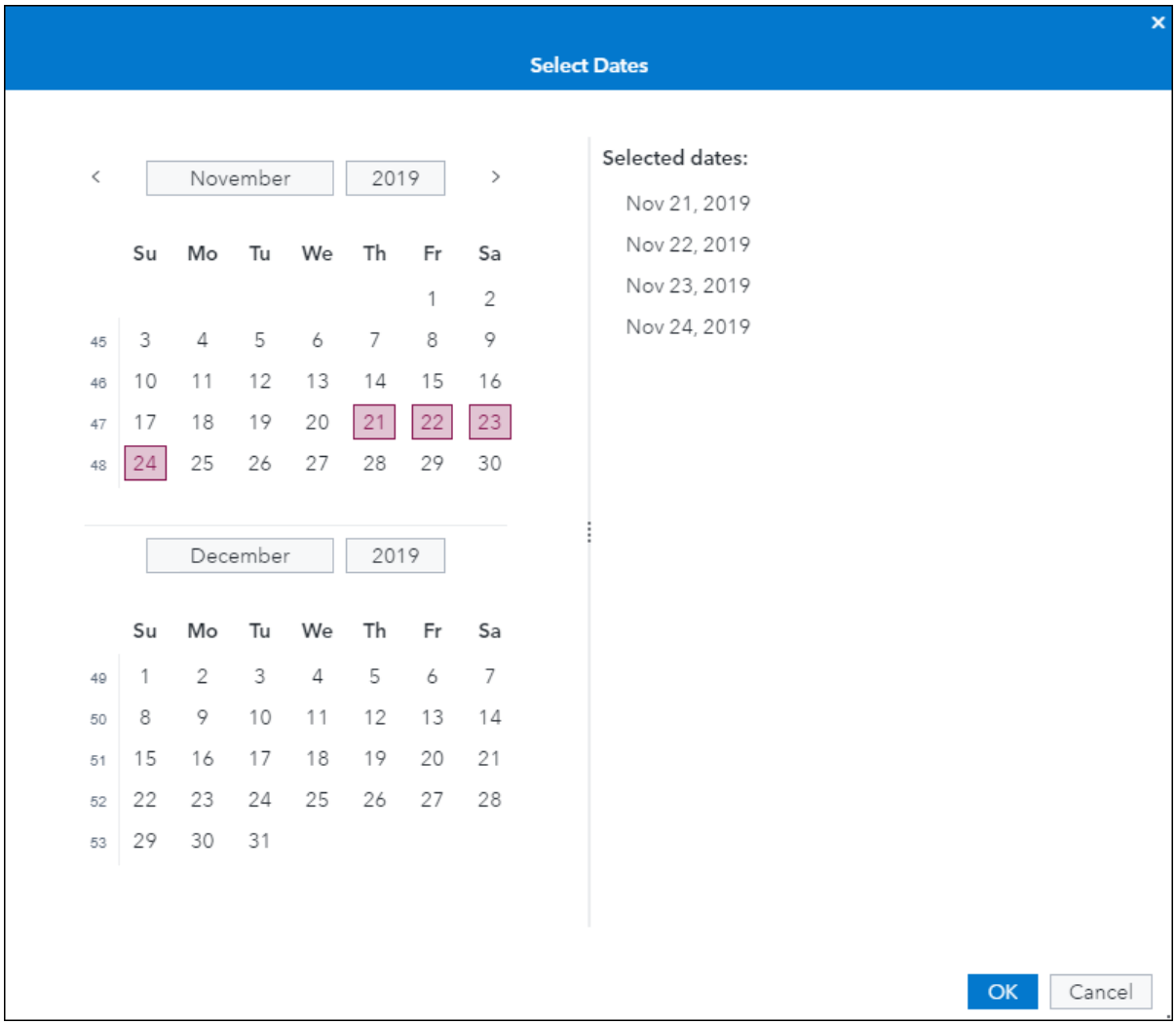
6 To exclude specific dates, click **Select Dates**. The Select Dates window appears.

a To change to a different calendar month, click the month. Select the month that you want to view.

> **TIP** To view two months at a time, click > to switch to the next two months in the calendar view. Click < to switch to the previous two months in the calendar view.

b To change to a different calendar year, click the year. Select the year that you want to view.

c Select the dates that you want to exclude from the calendar by clicking the dates on the calendar. A list appears with the dates that you have selected and the selected dates are highlighted in the calendar.



7 Click **OK** to close the Select Dates window.

> **TIP** You can edit or delete the excluded dates before you save the new business calendar. Click ✎ to reopen the Select Dates window and edit the excluded dates. If you want to delete a selected date, select the date in the list and click 🗑.

8 Click **Save** to save the new business calendar.

9 Click **Close** to exit the Manage Business Calendars window.

Edit Business Calendars

1. In the Definitions view, click ⋮, and then select **Manage business calendars**. The Manage Business Calendars window appears.
2. Select the calendar that you want to edit, and click ✎. The Edit Business Calendar window appears.
3. Edit the description, the excluded days of the week, and the excluded dates.

   Note: You cannot edit the business calendar name after it has been created.

4. Click **Save**.
5. Click **Close** to exit the Manage Business Calendars window.

Delete Business Calendars

1. In the Definitions view, click ⋮, and then select **Manage business calendars**. The Manage Business Calendars window appears.
2. Select the calendar that you want to delete, and click 🗑.
3. Click **Yes** in the confirmation message to delete the calendar, or click **No** to return to the Manage Business Calendars window.
4. Click **Close** to exit the Manage Business Calendars window.

IMPORTANT You cannot delete a business calendar if it is referenced by a versioned workflow definition.

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Managing the Default Workflow Administrator Group

Configure the Default Workflow Administrator Group

SAS Workflow Manager supports customizable role-based access management for definitions. Members of the workflow administration group have full access to all definitions. By default, any authenticated user or group can create and activate a new definition. Therefore, initial access for new definitions includes members of the workflow administrator identity group and the definition creator.

To configure the default workflow administrator group:

1 Click ☰, and select **Administration** ⇨ **Manage Environment**.

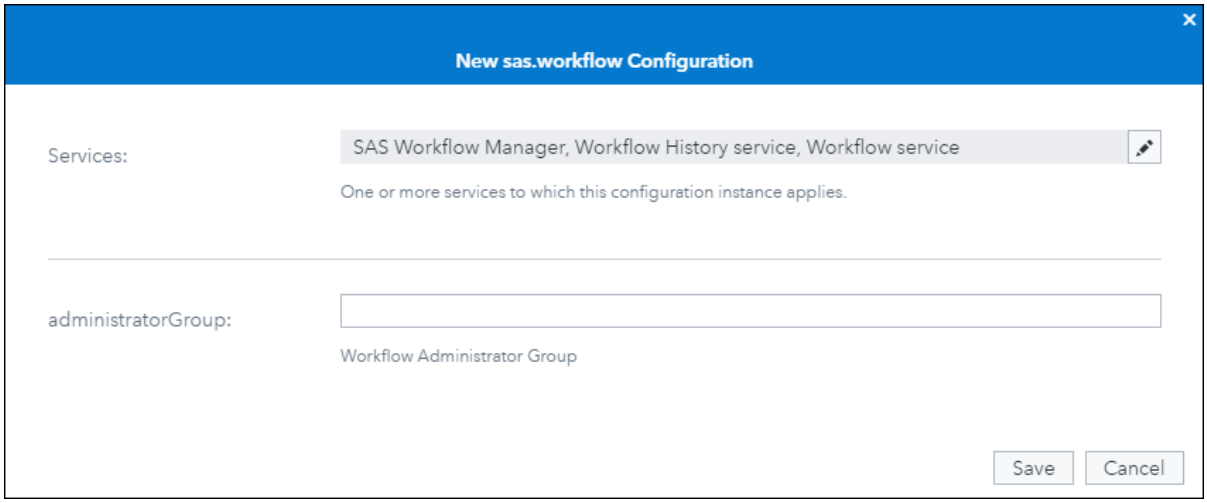
2 In the navigation bar, click 🔧.

Note: The **Configuration** page is an advanced interface. It is available to only to SAS Administrators.

3 In the configuration drop-down list, select **Definitions**.

4 Highlight the **sas.workflow** definition, and click **New Configuration**.

5 Specify the value for the administratorGroup parameter.



For more information, see "Configuration Properties: How to Configure Services" in *SAS Viya Administration: Configuration Properties*.

Note: By default, the ApplicationAdministrators group is assigned as the workflow administrator group. You must configure a custom workflow administration group if you do not want to use the default.

6 Click **Save**.

Administrative Notification Subscription

A default subscription configuration is created when the workflow service starts. The service sends an email to the members of the default workflow administrative group. This email is in addition to the operational notification support for business users as participants. Ensure that the user members for this group have a valid email address and that other notification preferences are set.

```
"notificationType": "workflowFailureNotification",
  "notificationCategory": "application",
  "subscriberId": "ApplicationAdministrators",
  "subscriberType": "group",
  "channels": [
      "mail"
  ]
```

The default subscription delivery channel is mail. You can view notification subscriptions in the notification center.

1 Click ☰, and select **Administration** ⇨ **Manage Environment**.

2 On the navigation bar, click 🔧.

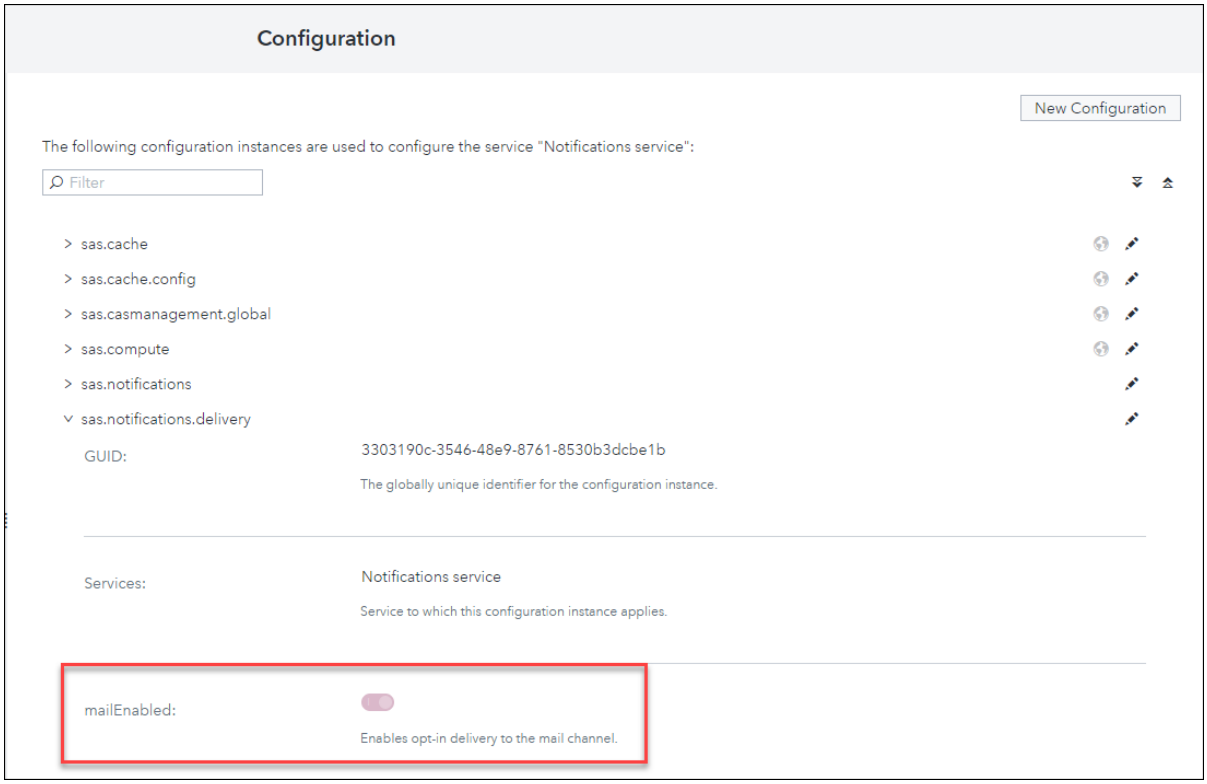
Note: The **Configuration** page is an advanced interface. It is available to only SAS Administrators.

3 In the configuration drop-down list, select **All services**.

4 Click **Notifcations service**.

5 Navigate to the **sas.notifications.delivery** configuration instance.

> **TIP** You can scroll or use the filter box to navigate to the configuration instance.



Note: The **mailEnabled** option is enabled by default.

6 (Optional) To disable the notification configuration instance:

a Click ✎ beside the subscription. The edit window appears for the notification instance.

b Move the slider next to **mailEnabled** to disable delivery to the mail channel.

c Click **Save**.

Note: You cannot selectively opt-in for a specific subscription based on the recipient.

Failure notifications are sent for timer evaluation failures for business calendars, job execution, and other service task exceptions.

For more information, see "Configuration Properties: How to Configure Services" in *SAS Viya Administration: Configuration Properties*.

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Managing Workflow Performance

Configure Workflow Performance Parameters

1 Click ☰, and select **Administration** ⇨ **Manage Environment**.

2 On the navigation bar, click 🔧.

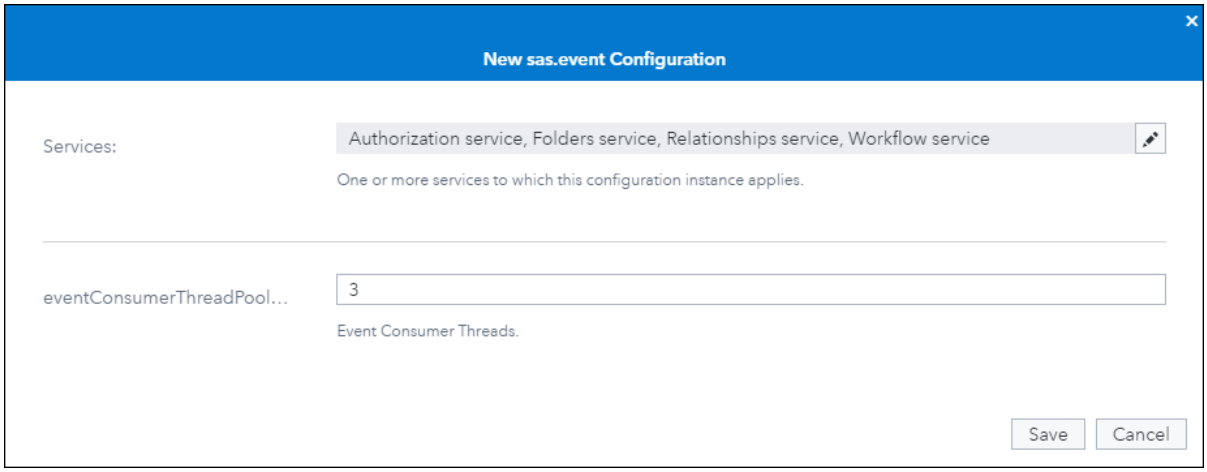
Note: The Configuration page is an advanced interface. It is available to only SAS Administrators.

3 In the configuration drop-down list, select **Definitions**.

4 Select the **sas.event** definition, and then click **New Configuration**.

5 Specify the value for the **eventConsumerThreadPoolSize** parameter.

For more information, see Table 7.1 on page 22.



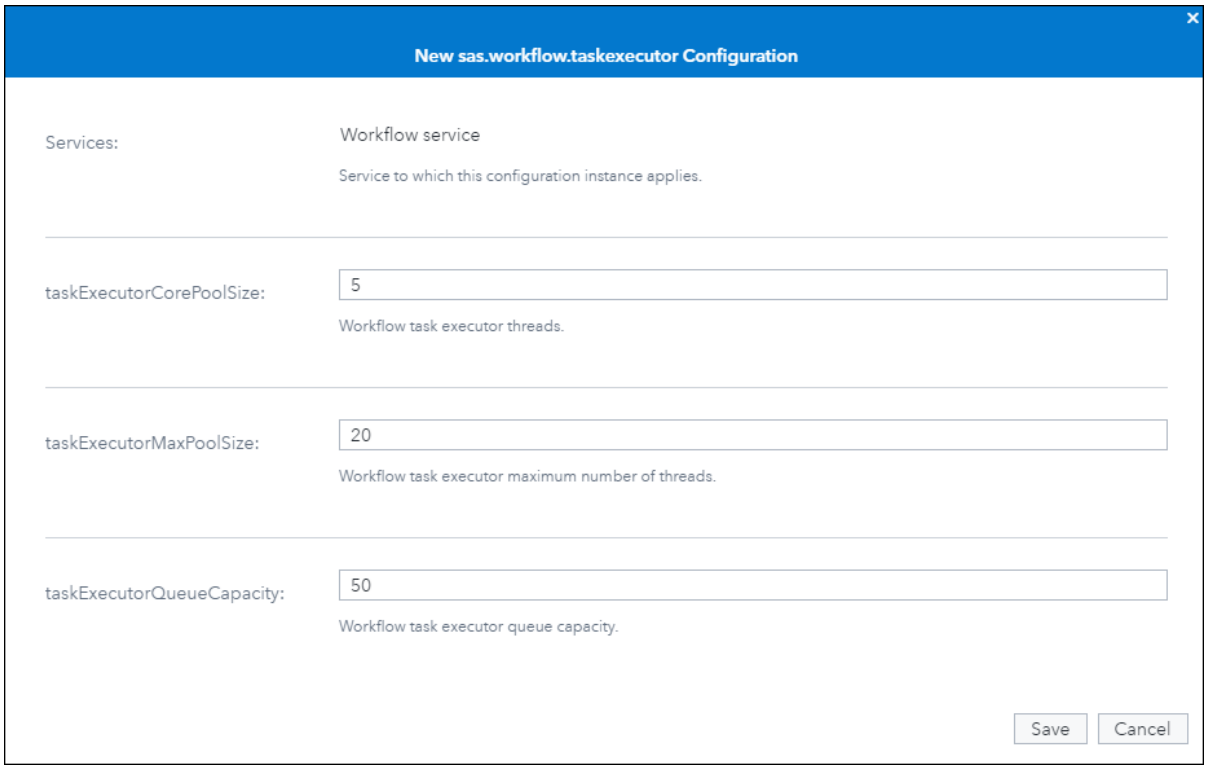
6 Click **Save**.

7 Select the **sas.workflow.taskexecutor** definition, and then click **New Configuration**.

8 Specify the values for the following parameters.

For more information, see Table 7.1 on page 22.

- **taskExecutorCorePoolSize**
- **taskExecutorMaxPoolSize**
- **taskExecutorQueueCapacity**



9 Click **Save**.

Table 7.1 Configurable Performance Parameters

Parameter Name	Description	Default	Definition
eventConsumerThreadPoolSize	Specifies the number of threads that are available to the workflow service event listener.	5	sas.event
taskExecutorCorePoolSize	Specifies the service task execution pool size.	5	sas.workflow.taskexecutor
taskExecutorMaxPoolSize	Specifies the service task execution pool size.	20	sas.workflow.taskexecutor

Parameter Name	Description	Default	Definition
taskExecutorQueueCapacity	Specifies the service task execution queue capacity.	50	sas.workflow.taskexecutor

For more information, see "Configuration Properties: How to Configure Services" in *SAS Viya Administration: Configuration Properties*.