Contents

What’s New in SAS Infrastructure for Risk Management ................................. v

Chapter 1 • Introduction .................................................................................. 1
  Product Overview ......................................................................................... 1
  Common SAS Infrastructure for Risk Management Web Application Functions ... 1
  Audience .................................................................................................... 2
  Recommended Reading ................................................................................. 3

Chapter 2 • Getting Started ............................................................................ 5
  Before You Begin ........................................................................................ 5
  Log On ........................................................................................................ 5
  Instance List View ...................................................................................... 6
  Instance Diagram View .............................................................................. 9

Chapter 3 • Working with Job Flow Instances ............................................... 13
  Create an Instance ..................................................................................... 13
  Open an Instance ....................................................................................... 15
  Execute an Instance .................................................................................. 16
  Cancel the Execution of an Instance ......................................................... 16
  Manual Execution ...................................................................................... 17
  Edit an Existing Instance ......................................................................... 17
  Clone an Instance ..................................................................................... 18
  Enable or Disable Debug Logging for an Instance .................................... 18
  Share an Instance ...................................................................................... 18
  Publish an Instance .................................................................................. 19
  View the Results of an Instance .............................................................. 19
  Filter Instances ......................................................................................... 19
  Search for Objects Used by an Instance ................................................... 20
  Delete an Instance .................................................................................... 20
  Change the Owner of an Instance ............................................................ 21

Chapter 4 • Working with Job Flow Tasks ..................................................... 23
  Task Input and Output Data Object Types ............................................... 23
  View Task Input or Output Data Objects ................................................ 25
  Edit an Input Data Object of a Task ........................................................ 26
  Configure a Task to Always Execute ....................................................... 26
  View a Task’s Log ..................................................................................... 26
  View Task-level Documentation .............................................................. 27

Appendix 1 • Elements of SAS Infrastructure for Risk Management ............... 29
What’s New in SAS Infrastructure for Risk Management

What’s New in SAS Infrastructure for Risk Management 3.6

The following new features and enhancements to the SAS Infrastructure for Risk Management web application are introduced in SAS Infrastructure for Risk Management 3.6:

• Ability to create job flow instances based on a federated area that is not at the top of the inheritance lineage. (See “Create an Instance”.)

• Automatic generation of job flow instance names on the Create Instance window. (See “Create an Instance”.)

• Ability to clone job flow instances. (See “Clone an Instance”.)

• Integrated table viewer that enables you to view output data in the user interface without having to download the data object. (See “View Task Input or Output Data Objects”.)

• Support for viewing the first partition of a partitioned data sets in Microsoft Excel and in the integrated table viewer.

• Support for viewing SAS data views in the integrated table viewer.

• Ability to configure a task to always execute when a job flow instance is run. (See “Configure a Task to Always Execute”.)

For information about administrative or programming new features and enhancements, see the what’s new information in the following documents:

• SAS Infrastructure for Risk Management: Administrator’s Guide

• SAS Infrastructure for Risk Management: Programmer’s Guide for Python

• SAS Infrastructure for Risk Management: Programmer’s Guide for SAS

What’s New in SAS Infrastructure for Risk Management 3.5

The following new features and enhancements to the SAS Infrastructure for Risk Management web application were introduced in SAS Infrastructure for Risk Management 3.5:
• Ability to delay the execution of a job flow instance. (See “Manual Execution”.)
• Ability to change the ownership of a single job flow instance or multiple job flow instances. (See “Change the Owner of an Instance”.)
• Improved debugging by stopping all tasks that are in progress when a running job flow instance is canceled.
• Support for a URL to be created by a task when the task executes. (See “View Task Input or Output Data Objects”.)
Chapter 1
Introduction

Product Overview

SAS Infrastructure for Risk Management is a high-performance job execution engine with a web-based user interface and a programming interface.

SAS Infrastructure for Risk Management solutions are delivered as industry-specific content releases that are downloaded and installed after SAS Infrastructure for Risk Management is installed. The calculations that make up the solution content packages are performed using job flows.

Alternatively, SAS Infrastructure for Risk Management can be ordered as a stand-alone product that programmers can use as a SAS programming interface or as a Python programming interface. The SAS Infrastructure for Risk Management programming interfaces enables programmers to easily create parallel programs that run on SAS Infrastructure for Risk Management.

The SAS Infrastructure for Risk Management platform is designed to be customizable and flexible. The architecture of SAS Infrastructure for Risk Management provides a simplified and efficient way to develop and run analytics.

Common SAS Infrastructure for Risk Management Web Application Functions

SAS Infrastructure for Risk Management solutions provide predefined job flow definitions that you can use to perform calculations. You use the SAS Infrastructure for Risk Management web application to create, manage, and execute job flow instances of job flow definitions.

Some of the common actions that you perform when working with job flows in the SAS Infrastructure for Risk Management web application include the following:
Create an instance of a job flow that you want to run for a specific entity, base date, or configuration set. An instance consists of underlying flows (subflows). To view the underlying flows that are a part of an instance, double-click the instance in the instance list view. Each flow consists of one or more tasks. A task is a pre-constructed analytical or reporting-oriented element of processing that must have a defined input or output data object, or both.

Enable debug logging for an instance to obtain more information about the execution of the tasks in an instance.

Edit the values of data object variables as needed when creating or editing a job flow instance.

Edit the properties of an existing job flow instance.

Share and publish instances to enable other users to view the instances that you create.

Filter the list of instances by specific attributes and values.

Customize the instance list view by adding or removing columns, sorting columns, and sizing columns. Your customized views can be saved for future use.

View the tasks that are a part of an instance, view the input and output data objects of a specific task.

Access task-level documentation.

**Note:** The SAS Infrastructure for Risk Management web user interface is self-explanatory. This document provides a high-level overview of the interface and how to use it to complete common actions.

For information about the concepts and elements of the actions that are documented in this user guide, see “Elements of SAS Infrastructure for Risk Management”.

---

**Audience**

SAS Infrastructure for Risk Management is designed for the following users:

- the power user or administrator who is responsible for processing and modeling data marts and developing base analysis configurations and reports
- the analyst who is responsible for configuring analyses and developing reports
- the business user who needs to generate and access regulatory reports
- the executive who is charged with oversight of regulatory compliance
- programmers who are responsible for the content development or are responsible for creating parallel programs

The scope of this guide is limited to tasks that analysts and business users are likely to perform through the web-based user interface.

For administrative-level tasks, see *SAS Infrastructure for Risk Management: Administrator’s Guide*.

Recommended Reading

- *SAS Infrastructure for Risk Management: Administrator’s Guide*—Provides information about administrative tasks such as product installation, customization, configuration, assignment of roles and permissions to users, and data management.


Before You Begin

Before you begin using the SAS Infrastructure for Risk Management web application, note the following:

- The sections in this chapter provide a high-level overview about the end-user actions that you can perform from the SAS Infrastructure for Risk Management web application.
- Typically, one method of performing an action is documented in this user guide. However, you can perform many actions from multiple locations in the web application.
- The actions that are documented in this user’s guide begin at the instance list view. The instance list view is the SAS Infrastructure for Risk Management web application home page.
- For information about the concepts and elements of the actions that are documented in this user guide, see “Elements of SAS Infrastructure for Risk Management”.

Log On

1. Enter the URL for SAS Infrastructure for Risk Management in a web browser.

   Here is an example:
http://middle-tier_host:port/SASIRM

By default, SAS Infrastructure for Risk Management is configured to run on port 7980 on Linux systems and on port 80 for Microsoft Windows.

If necessary, contact your administrator to obtain this URL.

2. Log on to SAS Infrastructure for Risk Management.

When you log on, the instance list view page is displayed. The instance list view is the SAS Infrastructure for Risk Management home page.

---

### Instance List View

The instance list view is the SAS Infrastructure for Risk Management home page.

### Navigating the Instance List View

From the instance list view, you can perform many actions such as the following:

- view a list of job flow instances that you have created or job flow instances that have been shared with you
- create job flow instances
- search job flow instances
- open job flow instances

**Figure 2.1 Example of the Instance List View**

The preceding example shows the following aspects of the instance list view:

1. List of job flow instances.
2. Search field in which you can type the name or part of the name of an instance and press Enter to display the instances that match what you entered.
3. Filter the list of instances (🔍).
4. Buttons for quick access to actions that you can perform with job flow instances:
   - Create a new instance (➕).
   - View the results of an instance (🔄).
• Edit an instance (🔗).
• Refresh the instance list view to ensure that you have the most recent updates from the SAS Infrastructure for Risk Management server (🔄).
• Manage saved views (🔍).
• Display a list of actions that you can perform on a selected instance or instances (⋯).

### Table 2.1 Manage Instance Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share</td>
<td>Shares the instance with users of the same entity.</td>
</tr>
<tr>
<td>Unshare</td>
<td>Unshares the instance.</td>
</tr>
<tr>
<td></td>
<td>(Active only when you are the owner of the instance.)</td>
</tr>
<tr>
<td>Publish</td>
<td>Publishes the instance.</td>
</tr>
<tr>
<td></td>
<td>When an instance is published, other users can see it, but they cannot run or modify the instance. (Depending on the roles and capabilities that are assigned to you by your administrator, this option might not be active.)</td>
</tr>
<tr>
<td>Open</td>
<td>Opens the instance.</td>
</tr>
<tr>
<td>Run</td>
<td>Executes the instance.</td>
</tr>
<tr>
<td></td>
<td>(Active only when you are the owner of the instance.)</td>
</tr>
<tr>
<td>Cancel execution</td>
<td>Cancels the execution of the instance.</td>
</tr>
<tr>
<td></td>
<td>(Active only when you are the owner of the instance and the instance is running.)</td>
</tr>
<tr>
<td>Clone</td>
<td>Creates an instance that is a clone of an existing instance.</td>
</tr>
<tr>
<td></td>
<td>When you clone an instance, any data object that is uploaded for the instance is cloned as well.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes the instance.</td>
</tr>
<tr>
<td></td>
<td>(Active only when you are the owner of the instance.)</td>
</tr>
<tr>
<td>Change owner</td>
<td>Changes the owner of the instance.</td>
</tr>
<tr>
<td></td>
<td>(This option appears only when you are assigned the IRM: Change Owner role by your system administrator and if the instance has not been published.)</td>
</tr>
</tbody>
</table>

**Note:** The ability to perform certain actions (for example, publish an instance, delete a published instance, or change the owner of an instance) are determined by the roles and capabilities that are assigned to you by your administrator. For more information, see *SAS Infrastructure for Risk Management: Administrator’s Guide.*

5. Button to access product documentation (Help Center), product-level settings, accessibility, language, and theme settings, and the option to sign out.
6. Displays the Manage Columns window ( wang ) from which you can choose and rearrange columns that you want to display or hide on the instance list view. For more information, see “Customize the Instance List View”.

**Instance List View Status Icons**

The **Status** column reports the execution-related status of an instance.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>The instance completed successfully.</td>
</tr>
<tr>
<td>☠</td>
<td>The instance completed with errors. To see the tasks that generated errors when executed, open the instance and click <strong>Task Errors</strong> on the right side of the window.</td>
</tr>
<tr>
<td>⚡</td>
<td>The instance is currently running.</td>
</tr>
<tr>
<td>⚪</td>
<td>The instance was canceled while it was executing.</td>
</tr>
<tr>
<td>☤</td>
<td>The inputs that are used by the instance have changed since the instance was last executed. The instance is out of date.</td>
</tr>
<tr>
<td></td>
<td>The instance has not been executed.</td>
</tr>
<tr>
<td>☢</td>
<td>The instance is being deleted.</td>
</tr>
</tbody>
</table>

**Instance List View State Icons**

The icons that appear in the **State** column indicate the current state of a job flow instance.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>👤</td>
<td>The instance is published for others to view. A published instance cannot be modified or run by other users.</td>
</tr>
<tr>
<td>⤶</td>
<td>The instance is shared with other users.</td>
</tr>
<tr>
<td>☇</td>
<td>The instance is shared with you by another user, but you cannot run or modify it. In addition, this icon appears when you change the owner of an instance that you own.</td>
</tr>
</tbody>
</table>
Customize the Instance List View

- To reorder columns, click the column title and drag and drop it in the preferred column position.
- To resize a column, right-click the column title and select Resize. The Resize arrow appears on the right-side of the column heading that you use to resize the column.
- To manage the columns that are displayed:
  1. Click ‼️ to the right of the column headings.
  2. In the Manage Columns window, you can move columns between the Hidden columns list and the Displayed columns list. In addition, you can reorder the columns as appropriate using the up and down arrows on the far right.
  3. Click OK.
- To sort the list of instances by a specific column, right-click a column title.
  1. Select Sort (ascending ) or Sort (descending ).
  2. To create a secondary sort column, right-click a different column and select Sort ⇒ Add to sort (ascending) or Sort ⇒ Add to sort (descending).
  3. To remove sorting, right-click the sorted column title and select Sort ⇒ Remove sort.

  Note: Selecting a new column on which to sort removes all previous sorting selections.

Save the Current Instance List View

1. Click ‬ on the toolbar and select Save current view. The Save View window is displayed.
2. Enter a unique name for the view and click Save.

  Note: When you save a custom instance list view, it becomes the default initial view.

Manage Instance List Views

To manage saved views, click ‬ on the toolbar. The Views window is displayed.

- The current default initial instance list view is denoted by a circle to the left of its name.
- To use a view, select it.
- To delete a view, click ‬ to the right of the view.
- To display a view that contains all available columns, click Full View. To display only the columns that you selected in the Columns window, click Compact View.

Instance Diagram View

The instance diagram view provides a visual of the job flow instance.
From the instance diagram view, you can perform actions such as the following:

- view the tasks and subflows in the job flow instance
- view the input and output data objects of the tasks in the job flow instance
- view detailed information about the instance such as its status, configuration details, results from the last time that it was executed, and any errors generated by a task
- access task-level documentation
- search for objects in the job flow instance

**Figure 2.2  Parts of the Instance Diagram View**

Figure 2.2 shows the following parts of the instance diagram view:

1. Name of the job flow definition.

2. A diagram of the job flow instance presented in diagram format that enables you to view the tasks in the instance and the inputs and outputs for a task. Click on a task to highlight the task or subflow path.

3. Buttons that enable you to perform the following actions:
   - Display the inputs and outputs for all tasks in the job flow instance (  ).
   - Hide the inputs and outputs for all tasks in the job flow instance (  ).
   - Display the instance diagram view (  ).
   - Search for objects used by an instance (  ).

4. Buttons that enable you to perform the following actions with the instance:
   - Toggle between manual execution of an instance or automatic execution when changes are made (  ).
   - Run the job flow instance (  ).
   - Refresh the instance to ensure that you have the latest updates from the SAS Infrastructure for Risk Management server (  ).
   - Display a list of additional actions that you can perform on the instance (  ).
Table 2.4  More Menu Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable debug</td>
<td>Enables or disables debug logging for the instance.</td>
</tr>
<tr>
<td>Disable debug</td>
<td></td>
</tr>
<tr>
<td>Share</td>
<td>Shares the instance with users of the same entity.</td>
</tr>
<tr>
<td>Unshare</td>
<td>Unshares the instance. (Active only when you are the owner of the instance.)</td>
</tr>
<tr>
<td>Publish instance</td>
<td>Publishes the instance. When an instance is published, other users can see it, but they cannot run or modify the instance. (Depending on the roles and capabilities that are assigned to you by your administrator, this option might not be active.)</td>
</tr>
<tr>
<td>Cancel execution</td>
<td>Cancels the execution of the instance. (Active only when you are the owner of the instance and the instance is running.)</td>
</tr>
</tbody>
</table>

Note: The ability to perform certain actions (for example, publish an instance, delete a published instance, or change the owner of an instance) are determined by the roles and capabilities that are assigned to you by your administrator. For more information, see *SAS Infrastructure for Risk Management: Administrator’s Guide*.

5. Stationary view of the job flow instance that enables you to see your location in the job flow instance as you navigate the instance.

6. Detailed information about the instance.
   - **Status**—current status of the instance, when it was last executed, debug configuration, and whether the instance is configured to automatically execute or manually execute
   - **Details**—configuration details such as name, flow definition, base date, and so on
   - **Results**—output data objects created when the instance was run
   - **Task Errors**—errors generated by tasks when the instance was run

7. Input data objects. For information about the types of input data objects, see “Task Input and Output Data Object Types”.

8. Output data objects. For information about the types of input data objects, see “Task Input and Output Data Object Types”.

9. Icon that indicates a subflow. At minimum, a subflow contains one task. Double-click to drill down into the subflow.
Create an Instance

1. Click 
2. (Optional) In the Instance field, enter a unique name (across all instances and users) for your job flow instance.

By default, the name of a new instance is automatically generated (and the job flow defaults are set) based on the job flow name of the last instance that was created and successfully executed within the web session.

To ensure that each automatically generated name is unique, a number is appended to the instance name each time an instance is created. For example, if the instance that was created was named Market Instrument Valuation, the name of the second instance created is Market Instrument Valuation 2, the name of the third instance created is Market Instrument Valuation 3, and so on.
If desired, you can enter a custom name instead of using the automatically generated name. A custom name is not preserved for the next new instance.

3. (Optional) Enter a description of the instance in the **Description** field.

4. (Optional) To enable debug logging, select **Debug logging**.

   Debug logging delivers a detailed level of logging about the execution of the tasks of an instance to the task logs. You can use this information for troubleshooting issues.

5. (Optional) To disable the automatic execution of job flow instance after you create it, select **Manual execution**. When manual execution is enabled, the instance will not run until you manually run it or deselect **Manual execution**.

   This option enables you to create a job flow instance and make changes to it without automatically executing it (the default).

6. In the **Base date** field use the drop-down menu to select a base date for which to perform the calculation.

   To filter the base dates, click **Select** to filter dates. On the Select Base Date dialog box, you can perform the following actions:

   **Table 3.1 Select Base Date Dialog Box**

<table>
<thead>
<tr>
<th>Click</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Display the values for all of the base date attributes. Click the box next to a value to select or deselected a value.</td>
</tr>
<tr>
<td>⬆️</td>
<td>Hide the values for all of the base date attributes.</td>
</tr>
<tr>
<td>⬇️</td>
<td>Display the values for a specific base date attribute (year, month, or day). Click to select or deselect a value.</td>
</tr>
<tr>
<td>⬇️</td>
<td>Hide the values for a specific base date attribute (year, month, or day).</td>
</tr>
<tr>
<td><strong>Reset</strong></td>
<td>Clear all of the values that you selected for a specific base date attribute.</td>
</tr>
<tr>
<td>⬇️</td>
<td>Clear all of the values that you selected for all of the base date attributes.</td>
</tr>
</tbody>
</table>

   All base dates that match the attribute values that you select appear on the right side of the dialog box. Click the box next to a value to select or deselect it. The number of base dates that exist within that year, month, or day display to the right of each value in parenthesis.

   **Note:** If you select a base date for which there is no input available, an error message is generated and SAS Infrastructure for Risk Management cannot create the instance.

7. Select an entity from the **Entity** drop-down menu. Alternatively, you can click **Select** to the right of the **Entity** field to display a hierarchical list of entities from which you can search for and select an entity.

8. To specify whether to treat the entity as a solo entity or as a group entity, click **Solo** or **Group**.

   **Note:** The **Solo** or **Group** entity configuration option applies only to specific SAS Infrastructure for Risk Management federated content.
9. In the **Federated Area** field, use the drop-down menu to select the federated area on which you want to base your instance.

By default, the target federated area is the newest federated area (or the top of the inheritance lineage of federated areas). However, you can override the default by selecting a different federated area when you create an instance. SAS Infrastructure for Risk Management treats the federated area that you select as the target federated area for that instance.

*Note:* The ability to select a federated area that is not at the top of inheritance lineage of federated areas is referred to as the *time machine*, because it enables you to create job flow instances based on previous configurations of a federated area.

10. To display documentation for the federated area, click **Show Help** to the right of the federated area.

11. (Optional) By default, the following settings are based on the job flow name of the last instance that was created and successfully executed within the web session. Modifying these settings will change the job flow name.

   - **Configuration**—Sets parameters and settings for your job flow instance calculation. Your administrator provides you with one or more configuration sets.

   - **Category**—Assigns a job flow to a category. Categories simplify the management of job flows.

   - **Flow**—Specifies the job flow definition on which you want to base the instance.

12. To edit input data, click **Show Inputs** → **Load Data Sets**. Select the data input that you want to edit from the list of the data sets that are displayed under **Data Sets**.

13. Click **Create**.

14. (Optional) To create multiple new instances in a row without having to repopulate all of the fields in the New Instance window, select **Create another**, and click **Create**. When you create your last new instance, deselect **Create another** and click **Create**.

---

**Open an Instance**

1. Double-click the instance. The job flow instance is displayed.

   *Note:* If you are viewing an instance that a user has shared with you, click  
   (top right) after opening the instance to ensure that you are viewing the most current version of that instance.

2. In the instance diagram view, you can perform the following actions:

   - To facilitate navigating large job flow instances, you can zoom in to an area of an instance. To zoom in to an area of an instance, press Shift and click and drag to box in the area in that you want to view closer. To toggle between the views, press Shift + Z.

   - To display information about a task in an instance, place the cursor on the task. The following information is displayed:

      - name of the task
      - a brief description of the task’s functionality
      - the federated area in which the tasks is located
Note: A job flow can contain tasks that are located in different federated areas. Therefore, the ability to view the federated area in which the task is located is helpful troubleshooting information.

- To view the file name of input or output data object, place the cursor on the data object.
- To search for an object in the job flow instance (for example, subflow, input, output, and so on), click \( \text{Search} \). To return to the job flow instance diagram, click \( \text{Back} \).

For more information about searching for objects, see “Search for Objects Used by an Instance”.

- Using the toolbar of the open job flow instance, you can perform the following functions:

<table>
<thead>
<tr>
<th>Click</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚛</td>
<td>Refresh the job flow instance.</td>
</tr>
<tr>
<td>▶</td>
<td>Run the job flow instance.</td>
</tr>
<tr>
<td>⏹</td>
<td>Toggle between manual execution of an instance or automatic execution when changes are made.</td>
</tr>
<tr>
<td>⚙</td>
<td>Display a menu from which you can choose additional options to perform on the open instance.</td>
</tr>
</tbody>
</table>

- On the right side of the window, there is additional information about the instance, including its status, configuration (details), results, and errors.

### Execute an Instance

By default, SAS Infrastructure for Risk Management automatically executes an instance when you create an instance or modify an existing instance.

To manually execute an existing instance:

1. Select the check box to the left of the instance.
2. Click \( \text{Run} \) on the toolbar and select Run.

### Cancel the Execution of an Instance

To cancel the execution of a job flow instance while it is running:

1. Select the check box to the left of the instance.
2. Click \( \text{Stop} \) on the toolbar and select Cancel execution.
**Note:** When you cancel the execution of a job flow instance, SAS Infrastructure for Risk Management immediately stops any tasks that are in the process of being executed.

---

### Manual Execution

By default, SAS Infrastructure for Risk Management automatically executes an instance when you create or modify it.

To create or modify existing job flow instances without SAS Infrastructure for Risk Management automatically executing the instance, select **Manual execution** on the New Instance window or the Edit instance window.

When manual execution is enabled, the execution of the job flow instance is delayed until you manually run it or you disable manual execution.

To enable manual execution of an existing job flow instance:

1. Select the check box to the left of the instance.
2. Click 'on the toolbar.
3. In the Edit instance window (see “Edit an Existing Instance”), select **Manual execution** and click **Save**.

To enable manual execution when you create a job flow instance:

1. Click ' on the toolbar.
2. As you create the job flow instance (see “Create an Instance”), select **Manual execution**.

**Note:** You can also toggle between manual execution or automatic execution of an instance by clicking ' in the instance diagram view.

---

### Edit an Existing Instance

1. Select the check box to the left of the instance and click ' . The Edit instance window is displayed.
2. You can edit the following elements of an existing instance:
   - Enter a new name and a new description in the **Instance** field and the **Description** field.
   - Edit the variable values of input data sets. To modify a data set:
     1. Click **Show Inputs**.
     2. Under **Data Sets**, click **Load Data Sets** and select the data set for which you want to edit values. The variable names, current values, and descriptions are displayed in table format to the right.
     3. As necessary, modify the value of the data set variables.
3. Click **Save**.
Note: Renaming an instance or changing its description does not trigger the instance to rerun.

Clone an Instance

To create an instance that is a clone of an existing instance (including any data sets uploaded for the instance):

1. Select the check box to the left of the instance.
2. Click  on the toolbar and select Clone.

A new instance, named instance name clone, is created and added to the list of instances. For example, if you clone an instance that is named Simple Calculation Flow, the name of the cloned instance is Simple Calculation Flow clone.

For each additional cloning of the same instance, the number of times that the instance has been cloned is added to the instance name. For example, if you clone the Simple Calculation Flow instance a second time, the name of the cloned instance is Simple Calculation Flow clone 2.

Enable or Disable Debug Logging for an Instance

1. Open the instance.
2. Click  on the toolbar.
3. To turn on debug logging, select Enable debug. To turn off debug logging, select Disable debug.
4. To view any errors generated by tasks when the instance was executed, click Task Errors.

Note: Alternatively, you can enable debug logging when you create an instance. By default, debug logging is disabled.

Share an Instance

1. Select one or more instances.
2. Click  on the toolbar and select Share to share one or more instances with other users of the same entity.

Note: The actions that you can perform (for example, publish an instance, delete a published instance, or change the owner of an instance) are determined by the roles and capabilities that are assigned to you by your administrator. For more information about capabilities, see SAS Infrastructure for Risk Management: Administrator’s Guide.
**Publish an Instance**

1. Select one or more instances.
2. Click on the toolbar and select **Publish** to enable other users to see, but not to run or modify an instance.

*Note:* The actions that you can perform (for example, publish an instance, delete a published instance, or change the owner of an instance) are determined by the roles and capabilities that are assigned to you by your administrator. For more information about capabilities, see *SAS Infrastructure for Risk Management: Administrator’s Guide*.

**View the Results of an Instance**

1. Select the instance.
2. On the toolbar, click **Results**.
3. In the instance **Results** dialog box, click on the name of the report that you want to download and view.

*Note:* Alternatively, you can view the results for an opened instance by selecting **Results** on the right side of the instance view.

**Filter Instances**

1. Click ☑ on the main banner.
2. The Filters pane lists the values for one or more attribute names on which you can filter the list of job flow instances.
   - Click ☊ to expand the list of values for all attribute names. Click ☉ to collapse the list of values for all attribute names.
   - Beside each value for an attribute, the number of instances that have that value is displayed in parentheses.
   - Use the scroll bar on the right of the Filters pane to scroll through the list of attributes and the values for each attribute.
3. Select the attribute values that you want to use to filter the list of instances.
   
   As you select attributes, the list of instances in the table on the right side of the window displays only the instances that match the filter.

   The attributes of the filter are displayed as facets on the toolbar at the top of the instance list view.
4. To clear the values that you selected for an attribute, click **Reset** to the right of the attribute name.
To clear all of the values that you selected for all attribute names, click ▼.

5. Click ✓ to return to the instance list view.

---

**Search for Objects Used by an Instance**

You can search for tasks, subflows, and input and output data objects that a job flow instance uses.

1. Open the instance.
2. Click ✓.
3. In the Search field, enter the name of the object that you want to search for. To search within folders, select Search within folders.
4. Alternatively, you can select a value or values for an attribute name in the Filter Nodes pane.
   The Filters Nodes pane lists the values for one or more attributes on which you can filter the list of objects used in a job flow instance.
   • Click ✔ to expand the list of values for all attribute names.
   • Click ▲ to collapse the list of values for all attribute names.
5. Select the attribute values that you want to use to filter the list objects.
   As you select objects, the list of objects in the table on the right side of the window displays those objects in the instance.
6. As you select objects in the Filter Nodes pane, a table in the center pane lists where the object is used.
   • To expand or collapse an object in the table, click the arrow to the left of its name. You can drill down to view the inputs and outputs for a task within a subflow.
   • To filter the tasks, select an attribute from the Filter Nodes pane and click ▼.
     You can filter by execution status or type of object (for example, input file, modified input files, output file, tasks, and so on).
   • The facets of your filter are included on the toolbar. To remove a facet from your filter, click x in the facet.
   • To return to the hierarchy view, click ▼.
   • To expand the list of subflows and tasks in the table, click ✔. To collapse the list of tasks, click ▲.

---

**Delete an Instance**

1. Select one or more instances.
2. Click Delete on the toolbar and select Delete.
When changing the owner of a single instance or multiple instances, note the following requirements:

- You must be assigned the IRM: Change Owner role by your system administrator. For information about roles and capabilities, see *SAS Infrastructure for Risk Management: Administrator's Guide*.

- You cannot change the owner of a published job flow instance.

- The owner of an instance might not change for several reasons. The owner of an instance might not change because the user that you selected already owns the instance. The owner of an instance might not change because the instance was deleted while you were in the process of changing its ownership.

If you do not have the correct permissions (IRM: Change Owner), the **Change Owner** option does not appear on the menu. If you have selected a published job flow instance, the **Change Owner** appears on the menu, but it is not active.

To change the owner of one or more instances:

1. Select the check box to the left of the instance or instances.

2. Click **on the toolbar and select Change Owner**. The Change Owner dialog box is displayed with a list of users.

3. Select the user to whom you want to change the ownership.

4. Click **OK**.
Chapter 4
Working with Job Flow Tasks

Task Input and Output Data Object Types

Tasks must have a defined input data object, output data object, or both. SAS Infrastructure for Risk Management recognizes the following types of input and output data objects for a task:

Table 4.1 Recognized Data Objects

<table>
<thead>
<tr>
<th>Icon</th>
<th>Data Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon 1]</td>
<td>a SAS data set</td>
</tr>
<tr>
<td>![Icon 2]</td>
<td>You can open a SAS data set in SAS Studio, download it to Microsoft Excel, and view and download it in the web application integrated table viewer.</td>
</tr>
<tr>
<td>![Icon 3]</td>
<td>a SAS data set that you can edit</td>
</tr>
<tr>
<td>![Icon 4]</td>
<td>You can open this type of SAS data set in SAS Studio and view and download it in the integrated table viewer. You can also download this type of SAS data set, make changes, and upload the modified data set.</td>
</tr>
<tr>
<td>![Icon 5]</td>
<td>a modified SAS data set</td>
</tr>
<tr>
<td>![Icon 6]</td>
<td>You can open this type of SAS data set in SAS Studio and view and download it in the integrated table viewer. You can also download this type of SAS data set, make changes, and upload the modified data set.</td>
</tr>
</tbody>
</table>
When working with data objects, note the following considerations:

- A PDF
  You can download PDF files.

- an XML file
  You can download XML files.

- a CSV file
  You can download CSV files.

- a Microsoft Excel file
  You can download Microsoft Excel files.

- a folder of files
  You cannot download folders. To view a list of the files in the folder, double-click the folder.

- an XBRL file
  You can download XBRL files.

- a generic file type
  Here are typical generic file types and whether they can be downloaded, uploaded, or modified.
  - If the file is a SAS data view, you can view it in the integrated table viewer. You cannot download SAS data views.
  - If the file is a generic libref, you can download, modify, and upload it.
  - If the file is an unknown file type, you can download only the file.

When working with data objects, note the following considerations:

- • in the top left corner of an input data object icon indicates that you can download, modify, and upload the data object.

- • in the top left corner of an input data object icon indicates that the data object has been modified.

- • A URL can be created by a task when the task is executed. To access a URL (if it exists), right-click the data object and select Open URL.
View Task Input or Output Data Objects

1. Open the instance.

2. Right-click the input or output of a task and select the way that you want to view the data object.

   Note: The options that are available to view a data object vary depending on the type of data object.

   Input options:
   - **Open in SAS Studio**
     Opens the data object in SAS Studio.
   - **Show Data Object Table**
     Opens all or part of a data object in the user interface (integrated table viewer).
   - **Download**
     Downloads the data object to Microsoft Excel.

   Output options:
   - **Open in SAS Studio**
     Opens the data object in SAS Studio.
   - **Show Data Object Table**
     Opens all or part of a data object in the user interface (the integrated table viewer).
   - **Download**
     Downloads the data object to Microsoft Excel.
   - **Open URL**
     Opens an instance of another job flow that was created by the task.

When viewing the inputs and outputs of a task, note the following considerations:

- The **Open in SAS Studio** option appears only when your password is stored in your user account properties metadata and your browser is configured to allow pop-up windows. For more information, contact your system administrator.

- The **Show Data Object Table** option (the integrated table viewer) is a read-only view that might not show all the data that is contained in the file. If viewing a partitioned data set, you can view the first partition only.

  This option is available for SAS data sets, partitioned SAS data sets, and SAS data views. In addition, you can download SAS data sets from the integrated table viewer.

  Note: The number of cells and rows that you can view is configured by your system administrator.

- If no input or output data objects appear to be associated with the tasks in an instance, ensure that the files are not hidden. To display the inputs and outputs, click ☰ in the instance diagram view.
When you select **Download** for a partitioned data set, the first partition is downloaded.

For a list of the types of input and output data objects that are recognized by SAS Infrastructure for Risk Management, see “Task Input and Output Data Object Types”.

---

**Edit an Input Data Object of a Task**

![Icon](image)

represents an input data object that you can edit.

1. Open the instance.
2. Right-click the input and select **Download**. Make changes as necessary.
3. When you have completed and saved your changes, right-click the filename of the input and select **Upload**. Click **Browse** to navigate to the edited data object on your system.
4. Select the file and click **Upload**.

A job flow instance flow that contains input that has been edited is denoted with in the **Modified** column in the instance list view. In the instance diagram view, represents an input data object that has been modified.

**Note:** When you modify a data object, the change applies to each task that uses the object as input. Meaning, if you change a value in Table A for Task 1, and Table A is also used as input for Task 2, the change applies to both tasks. The most recent uploaded table takes precedence over previous versions of the table.

---

**Configure a Task to Always Execute**

By default, SAS Infrastructure for Risk Management performance is optimized by executing job flow tasks only when the input data object for a task has been modified.

To configure a job flow task to always execute when the job flow instance is run:

1. In the job flow instance diagram view, locate the task.
2. Right-click on the task and select **Always Execute**.

A task for which the **Always Execute** setting has been enabled follows the same path as if the task is being executed for the first time. It triggers the execution of subsequent dependent tasks and also generates execution logs and produces new output (if the task generates output).

---

**View a Task’s Log**

Logs contain information about the execution of the task.

1. Open the instance for which you want to view the log of a task.
2. Locate the task for which you want to view the log.

3. Right-click on the task and select **Show Log**.

Alternatively, you can double-click the task to display the log.

*Note:* If a show log option is not available, click ‣ to run the job flow instance. In addition, if you cannot view the task log, ensure that your browser is configured to enable pops-ups.

---

**View Task-level Documentation**

You can view a detailed description of the function that a task performs, macros used, and view the source code of a task.

1. In the instance diagram view, right-click the task.

2. Select **Show Help**.
Appendix 1

Elements of SAS Infrastructure for Risk Management

Base Dates
The list of base dates identifies the dates for which data has been provided. Base dates are used as a basis for the calculations. When you create a job flow instance, you can select only specific base dates.

Categories
Categories are groups to which flows are assigned. SAS Infrastructure for Risk Management solution content provides flows that are designed to produce quantitative reports for regulatory requirements. To simplify management of these flows, each flow is assigned to a category. The categories that are available vary depending on the details of your solution content.

Configuration Sets
Configuration sets are collections of data objects that are used when running instances. Note: The creation and management of configuration sets is an administrative function.

Debug Logging
Debug logging enables you to view information about the execution of the tasks of an instance. You can enable debug logging when you create an instance or you can enable or disable logging for an existing instance. (see “Enable or Disable Debug Logging for an Instance”.)

Entities
Entities are logical groupings of your corporate structure. An entity can be the entire company, one or more subsidiaries, a geographical region, a specific business unit, and so on. The analyses that you perform are associated with an entity. Note: Entity creation and management is an administrative function.

Flows
Flows are programs that contain two or more tasks. Instances are flows with a specific set of inputs. Some of the flows contain tasks that are also flows. These are called subflows. This facilitates reuse of common flows.
Job Flow Definitions

A job flow definition is the specification of the tasks and subflows that make up the job flow.

Job Flow Instances

A job flow instance is a single occurrence of a job flow definition. An instance is associated with an entity, has a specified base date, and contains defined input data from a configuration set. By default, all job flow instances are private until shared or published.

Subflows

A subflow is a job flow definition that is contained within another job flow definition. These job flows are denoted by a \( \downarrow \). To view the contents of the subflow, double-click \( \downarrow \).

Tasks

Tasks are the basic building blocks of SAS Infrastructure for Risk Management. They are pre-constructed analytical or reporting-oriented elements of processing that have a defined input or output data objects, or both.

When working with tasks, note the following:

- To view the log file or help for a task, right-click the task and select an option from the pop-up menu. The log file opens in a new browser window. The log file reports the name of the instance and the name of the associated task.
  
  Note: Log files are created only when the instance is run.

- Tasks can have input and output data objects. Input data objects are displayed above the task, and are connected with an arrow pointing to the task. Output data objects are displayed below the task with arrows leading from the task. A task requires either a defined input or a defined output object, but not both.

- Some tasks can have some input and output data objects that are partitioned. Partition tasks enable large amounts of data to be partitioned into smaller units of data and calculated across multiple cores. The task recombines the results of the partitioned data.

- identifies input data set that you can edit.

- identifies a modified input data set.

When you modify an input data object, the change applies to each task that uses the object as input. For example, if you change a value in Table A for Task 1, and Table A is also an input file for Task 2, the change applies to both tasks. The most recent uploaded table takes precedence over previous versions of the table.

Some input data objects cannot be edited. In general, an input data object cannot be edited because it is an output from a subflow or another task. To explore data objects that are associated with a subflow, double-click the subflow.
Gain Greater Insight into Your SAS® Software with SAS Books.

Discover all that you need on your journey to knowledge and empowerment.

support.sas.com/bookstore
for additional books and resources.