

z/OS 3.1 IBM Education Assistant

Solution Name: Policy Based Archived Workflow Management

Solution Element(s): z/OSMF Workflows

July 2023



Agenda

- Trademarks
- Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Upgrade & Coexistence Considerations
- Installation & Configuration
- Summary
- Appendix

Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
 - None.

Objectives

- This initiative allows clients to setup policy to automatically archive completed workflows to specified path so that workflows can be managed more efficiently with more discipline and flexibility.

Overview

- Who (Audience)
 - z/OSMF Workflows users
- What (Solution)
 - Workflow introduces a new attribute called "Archive SAF ID" when creating workflow, it indicates who can access the archived workflow. The "Archive SAF ID" can be specified as a RACF group ID which the workflow owner belongs to and all users under the RACF group ID are allowed to access this archived workflow, it will give workflow users more flexibility to grant archived workflow access to more users.
 - Workflow support to archive workflow to a user specified directory in manual or automatic way.
- Wow (Benefit / Value, Need Addressed)
 - Workflow user can archive and access archived workflows more flexibly.

Terminology

- Archive SAF ID: Owner of an archived workflow which was archived to a user specified directory, it can be set when created a workflow, default value is workflow owner. It can be a user ID equals with workflow owner or a group ID which the workflow owner belongs to.
- Archive Directory: The directory where the workflow will be archived/offloaded.
 - 1) A valid "Archive Directory" should be a z/OS UNIX directory on your system which begins with a single forward slash ('/'). Ensure that the z/OSMF server user ID (by default, IZUSVR) has read, write, and execute permission to the directory.
 - 2) A directory that is under z/OSMF data directory (/global/zosmf/data) or configuration directory (/global/zosmf/configuration) is not valid.
- Offload: The action to move an archived workflow which was stored on the default directory to a user specified directory
- Policy Based Archived Workflow: The archived workflows which were archived to user specified directories

Usage & Invocation

1. Create a workflow instance with the new attribute "Archive SAF ID"

- A new optional attribute "Archive SAF ID" can be specified when creating a workflow instance and the "Archive SAF ID" will be the owner of the archived workflow after the workflow is archived to a user specified directory.
- The workflow owner user ID is used as the default value for "Archive SAF ID".
- User can specify a SAF group ID as the value, but it should be the group ID which the workflow owner user ID belongs to.
- The attribute "Archive SAF ID" is also supported in "Create a workflow" REST API.

Create Workflow

IBM1.0Cannot be called by another workflow

* Workflow name:

Two Steps JCL. - Workflow_0

* Owner user ID:

zosmfad

Archive SAF ID: ?

IZUADMIN

* System (where workflow steps will be performed):

PLEX1.SY1

Comments:

* Access([Learn More](#)):

Public

☐ Save jobs output

☒ Open workflow on finish

☐ Assign all steps to owner user ID

☐ Delete workflow on completion

< Back

Next >

Finish

Cancel

Help

Usage & Invocation

2. Modify the "Archive SAF ID".

- Workflow owner or workflow admin can modify the "Archive SAF ID".
- The following are valid values for "Archive SAF ID":
 - 1) Workflow owner user ID. This value is the default.
 - 2) SAF group ID, which the workflow owner user ID belongs to.

Modify Workflow

Vendor:
IBM

Version:
1.0

* Workflow name:

sample_substeps

* Owner user ID:

zosmfad

Archive SAF ID: ?

ZOSMFAD

System:

PLEX1.SY1

Comments:

* Access([Learn More](#)):

Restricted

☐ Save jobs output

OK

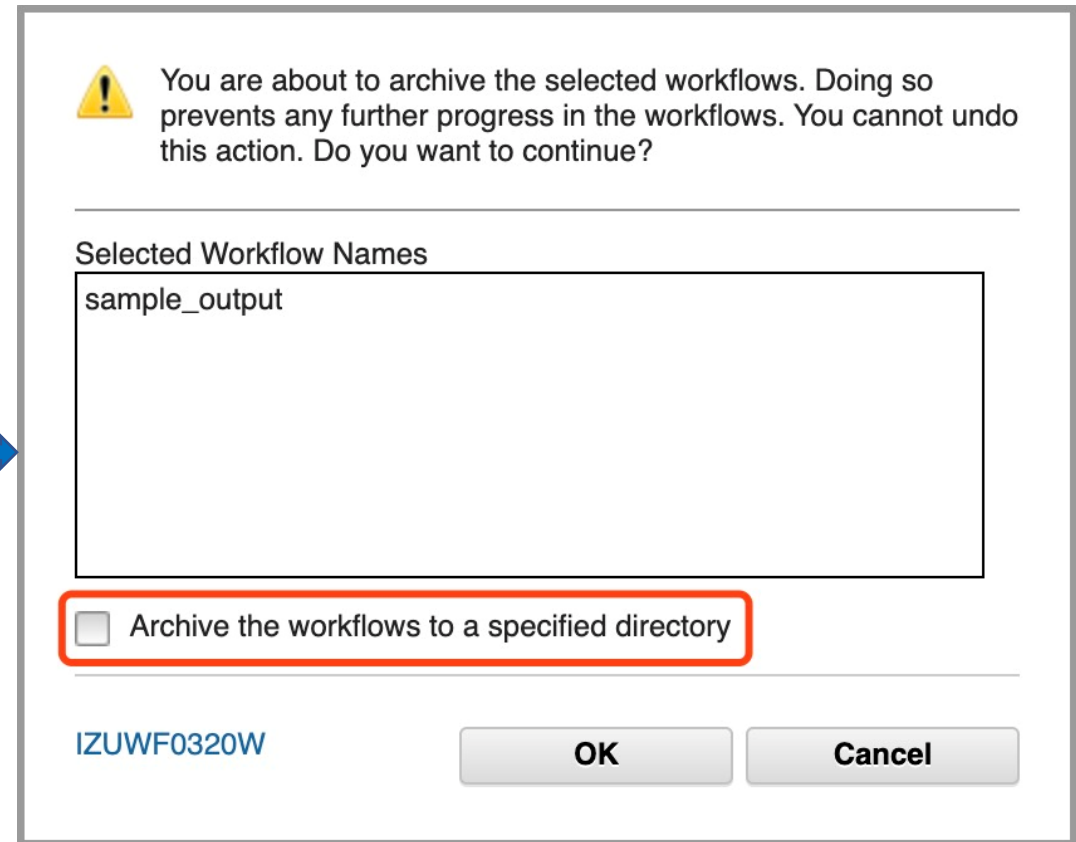
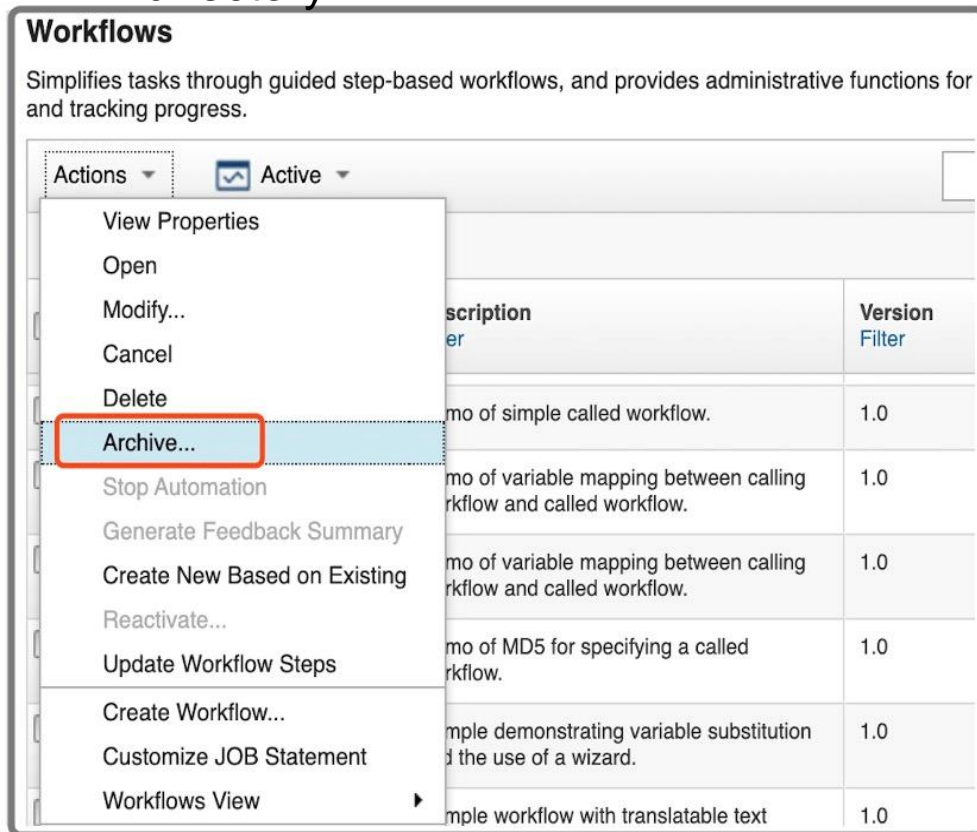
Cancel

Help

Usage & Invocation


3. Archive one or more workflows to a user specified directory manually

- 1) New checkbox "Archive the workflow to a specified directory" is added in the Archive Workflow dialog, and it is unchecked by default.
- 2) If the user doesn't check the box and click OK button, the workflow is archived to the default directory.



Usage & Invocation



3. Archive one or more workflows to a user specified directory manually (cont.)


 You are about to archive the selected workflows. Doing so prevents any further progress in the workflows. You cannot undo this action. Do you want to continue?

Selected Workflow Names

sample_output

☒ Archive the workflows to a specified directory

* Archive SAF ID:  * Archive Directory: 

ZOSMFAD /SY1/tmp/archivedWo 

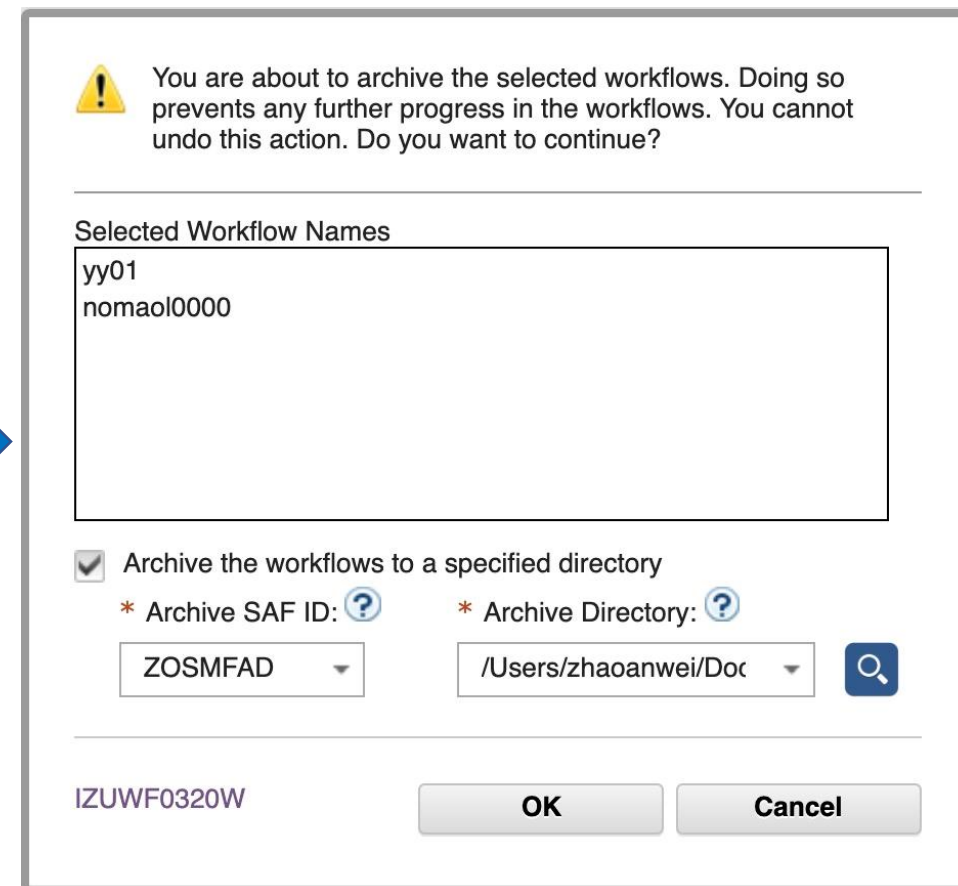
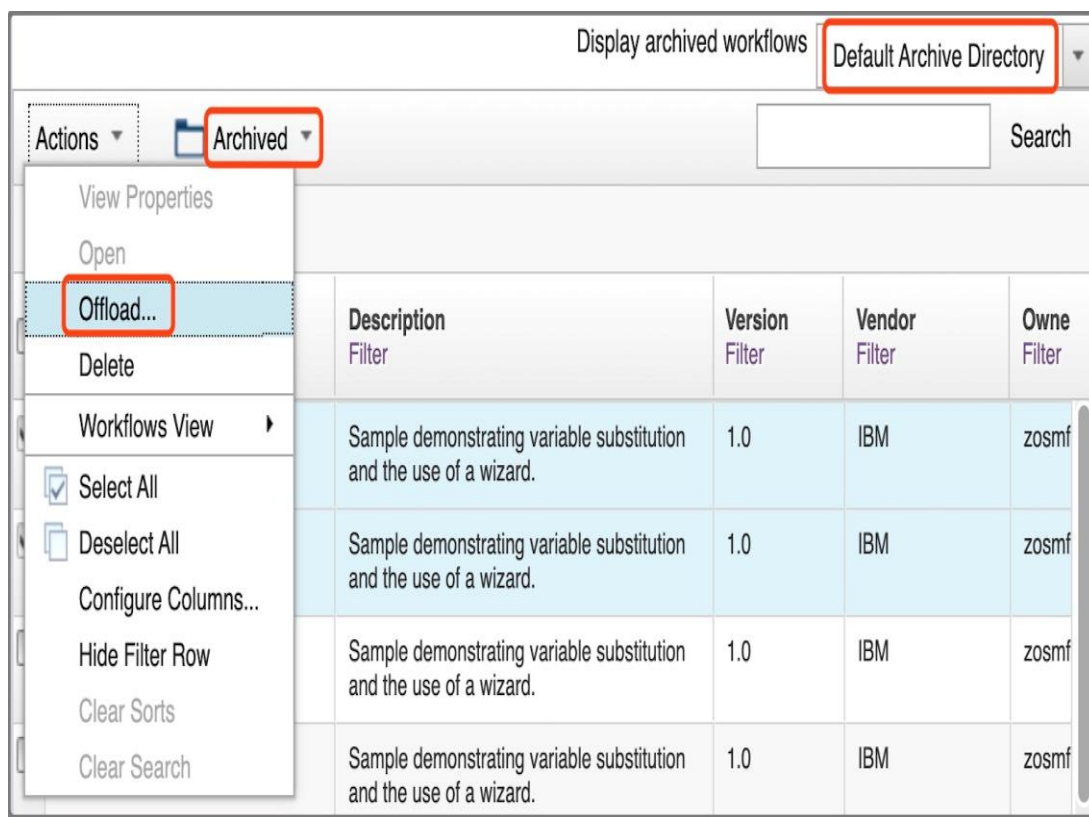
IZUWF0320W OK Cancel

- If user checks "Archive the workflow to a specified directory", Archive directory and Archive SAF ID are displayed.
- The default value of "Archive directory" is retrieved from the archive policy of the "Archive SAF ID".
- The value of "Archive Directory" and "Archive SAF ID" can be modified as needed.
- Once the workflow is archived successfully, the "Archive SAF ID" and "Archive Directory" are recorded in "Archive Directory History" in the "Workflow Settings" panel.

Usage & Invocation

4. Offload the archived workflows which were stored in the default directory to the user specified directory

- 1) The archived workflow in default directory can be offloaded to a user specified directory.
- 2) The checkbox "Archive the workflow to a specified directory" in offload dialog is checked by default.



Usage & Invocation

5. View and delete the archived workflows which were stored in the user specified directory

1) Workflow owner can view the archived workflows which were stored in the specified directory in the archive workflow main panel.

Workflows

Simplifies tasks through guided step-based workflows, and provides administrative functions for assigning workflow responsibilities and tracking progress.

Display archived workflows

Default Archive Directory

Actions

Archived

未应用过滤器

<input type="checkbox"/>	Workflow Name Filter	Description Filter			
<input checked="" type="checkbox"/>	yy01	Sample demonstrating variable substitution and the use of a wizard.	1.0	IBM	zosmf
<input checked="" type="checkbox"/>	nomaol0000	Sample demonstrating variable substitution and the use of a wizard.	1.0	IBM	zosmf
<input type="checkbox"/>	modify00	Sample demonstrating variable substitution and the use of a wizard.	1.0	IBM	zosmf
<input type="checkbox"/>	A01	Sample demonstrating variable substitution and the use of a wizard.	1.0	IBM	zosmf

Default Archive Directory

On Domain DOMAIN1

/Users/zhaoanwei...uno_workspace/path00

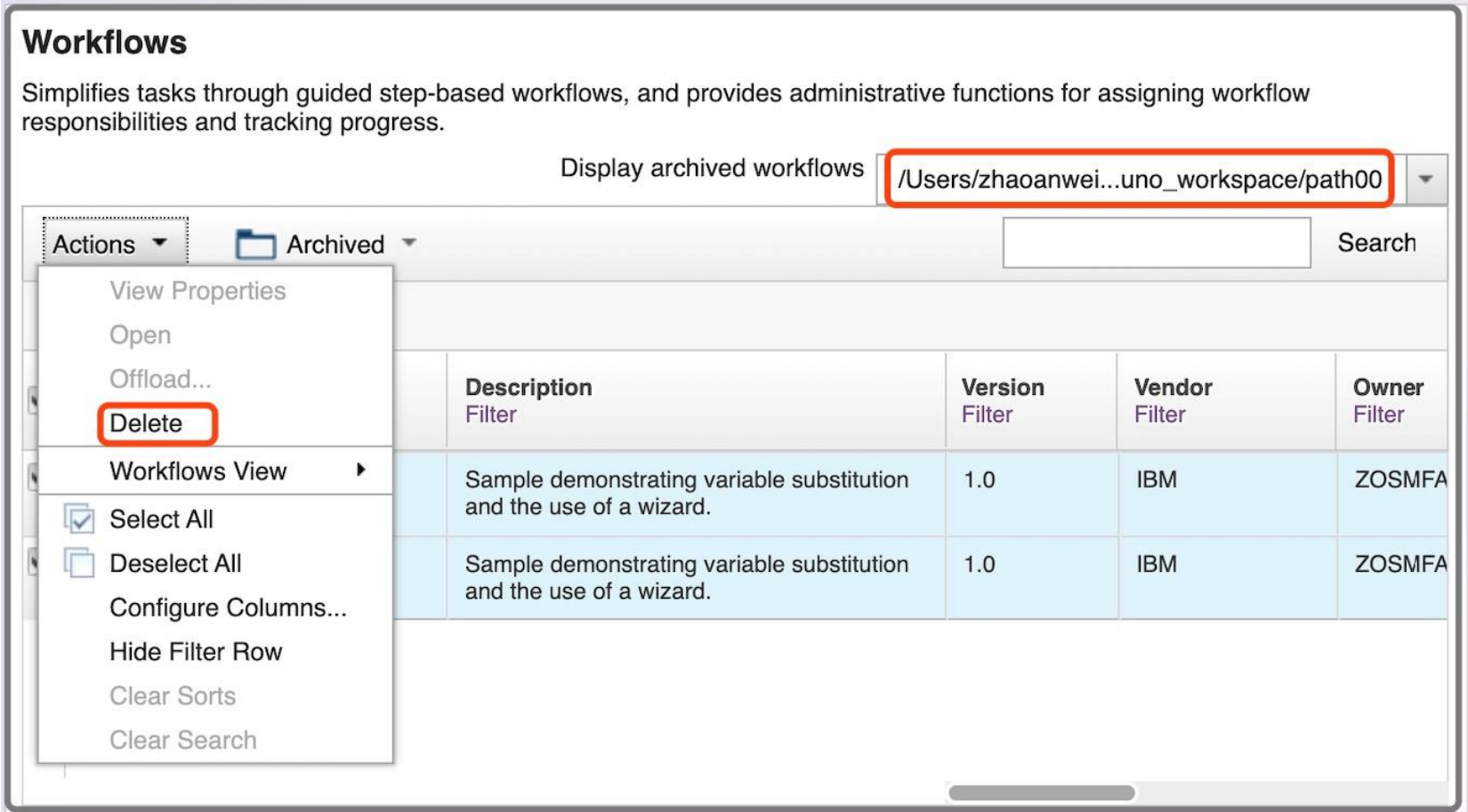
/Users/zhaoanwei...thub_workflow/path01

/Users/zhaoanwei...thub_workflow/path00

/Users/zhaoanwei...workflow/archivePath

Usage & Invocation

- 5. View and delete the archived workflows which were stored in the user specified directory (cont.)
 - 2) Workflow owner can delete the archived workflows which were stored in the specified directory in the archive workflow main panel.



Usage & Invocation

6. Workflow Settings

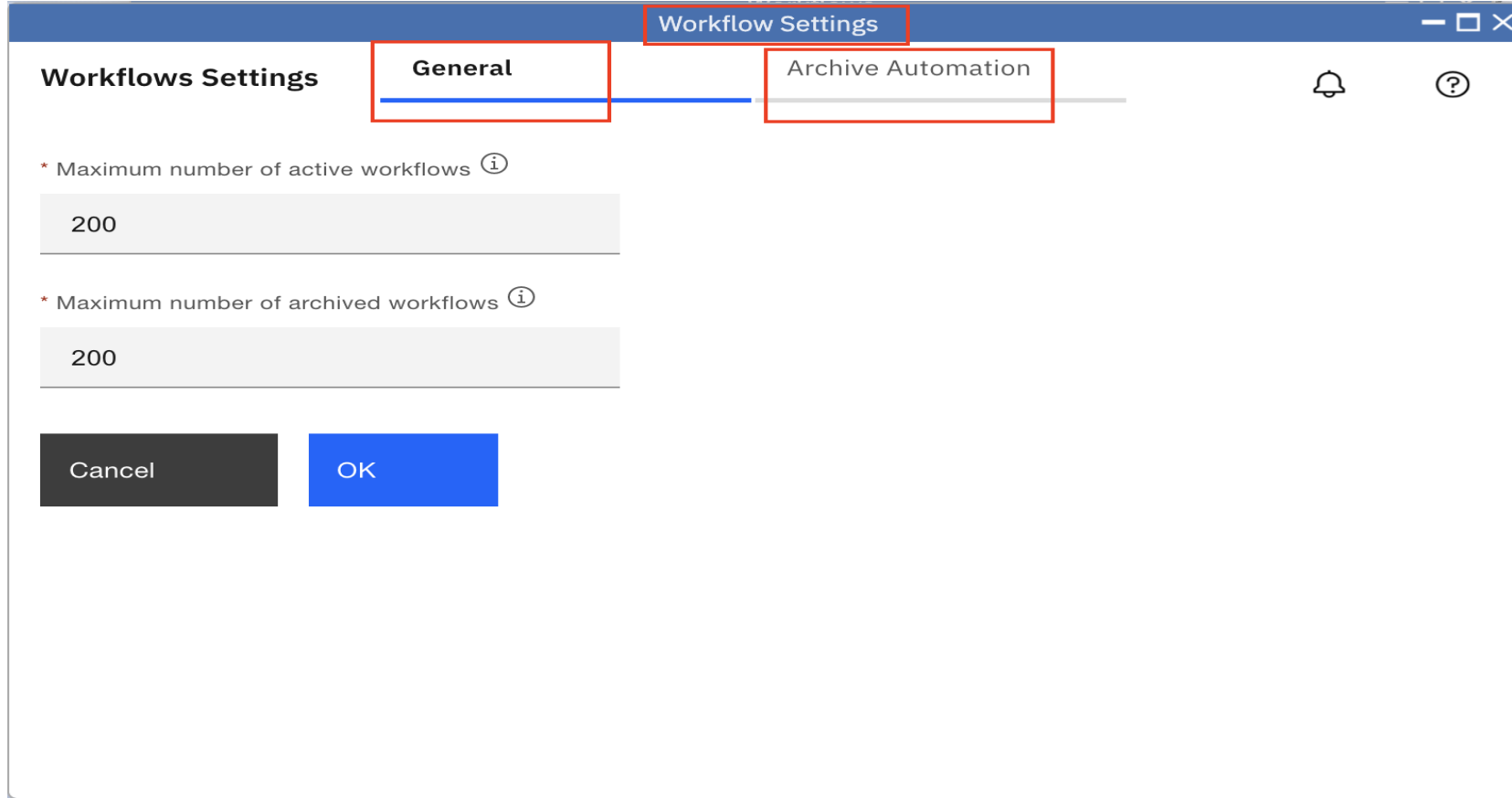
- A "Settings" link is added in the header of Workflows main panel. Only Workflow Admin can see this Settings link. If the user is not a Workflow Admin, this link will not be displayed. The user can click this link to open the "Workflow Settings" panel.

The screenshot shows a web application window titled "Workflows". In the top right corner, there are two links: "Settings" (highlighted with a red box) and "Help". Below the header, the main content area is titled "Workflows" and contains a description: "Simplifies tasks through guided step-based workflows, and provides administrative functions for assigning workflow responsibilities and tracking progress." Below this, there is a filter bar with "Actions" and "Active" dropdowns, a search box, and a "Search" button. A message "No filter applied" is displayed. Below the filter bar is a table with the following columns: "Workflow Name", "Description", "Version", "Vendor", and "Access". The table contains one row with the following data: "Default Workflow Name 1", "A simple workflow with only one step", "1.0", "IBM", and "Publ". At the bottom of the table, there is a status bar that says "Total: 1 Selected: 0" and a "Refresh" button. To the right of the "Refresh" button, it says "Last refresh: Dec 9, 2021, 2:10:51 PM local time (Dec 9, 2021, 6:10:51 AM GMT)".

Workflow Name	Description	Version	Vendor	Access
Default Workflow Name 1	A simple workflow with only one step	1.0	IBM	Publ

Usage & Invocation

- Once the user clicks the "Settings" link, the "Workflow Settings" panel will be opened. Two tabs are available in the new Workflow Settings panel: "General" and "Archive Automation".



The screenshot displays a "Workflow Settings" dialog box. The title bar at the top is blue and contains the text "Workflow Settings" along with standard window control icons (minimize, maximize, close). Below the title bar, there are two tabs: "General" and "Archive Automation". The "General" tab is currently selected, indicated by a blue underline and a red rectangular highlight. The "Archive Automation" tab is also highlighted with a red rectangle. The main content area of the "General" tab contains two settings, each with an asterisk and an information icon (i):

- * Maximum number of active workflows (i): A text input field containing the value "200".
- * Maximum number of archived workflows (i): A text input field containing the value "200".

At the bottom of the dialog, there are two buttons: a dark gray "Cancel" button and a blue "OK" button.

Usage & Invocation

- 1) The "General" tab is used to do some general Workflow settings. Now it contains the maximum number of active workflows can be created and maximum number of archived workflows can be displayed.
- The minimum value that can be set is 200, and the maximum value can be set is 1000. Default value is 200.

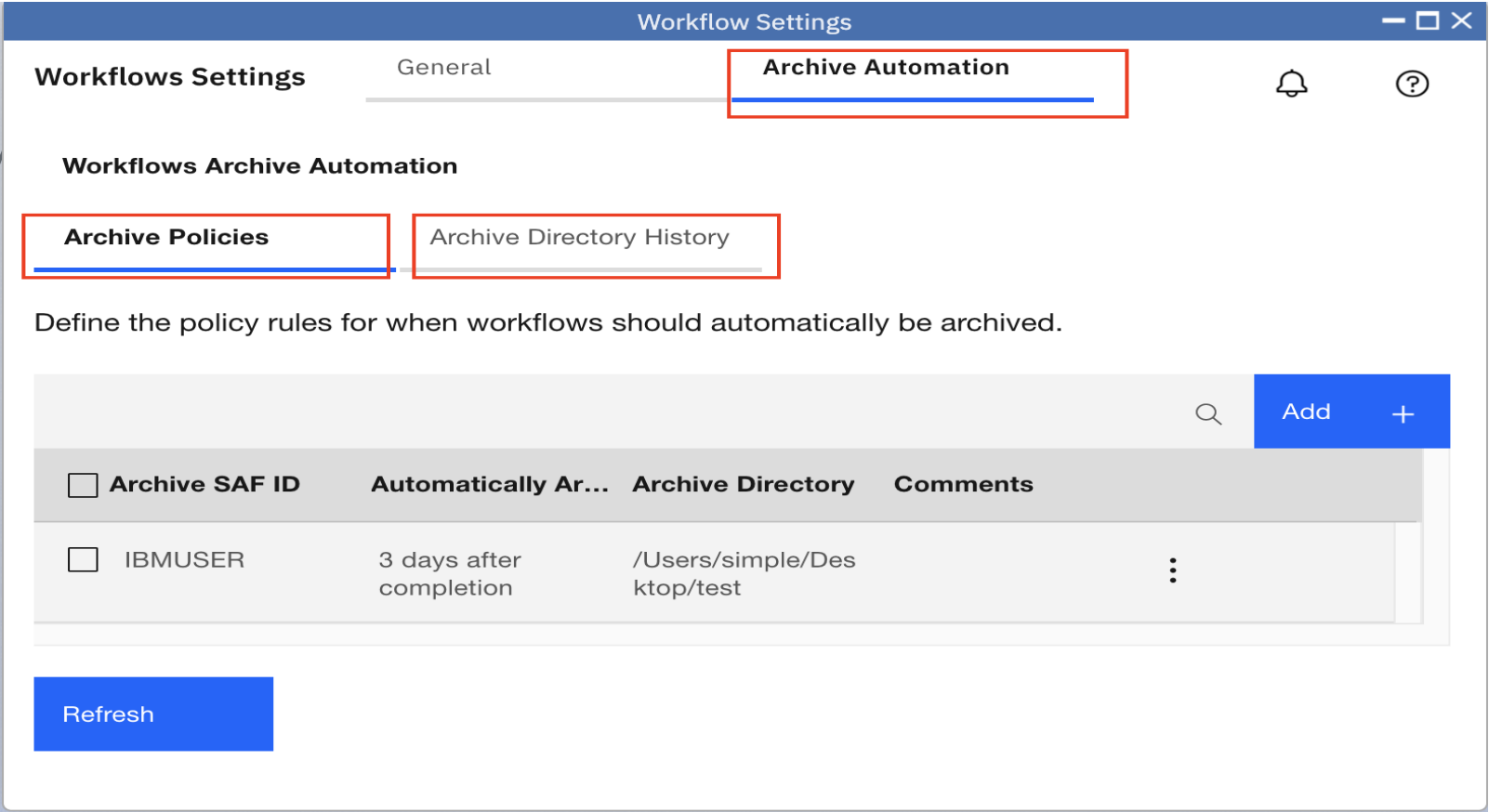
The screenshot shows a 'Workflow Settings' dialog box with a blue header bar containing the title 'Workflow Settings' and window control icons. Below the header, there are two tabs: 'Workflows Settings' and 'General'. The 'General' tab is selected and highlighted with a red box. To the right of the tabs is a section titled 'Archive Automation' with a bell icon and a help icon. The main content area of the 'General' tab contains two settings, both highlighted with a red box:

- * Maximum number of active workflows ⓘ
200
- * Maximum number of archived workflows ⓘ
200

At the bottom of the dialog are two buttons: 'Cancel' (dark gray) and 'OK' (blue).

Usage & Invocation

- 2) The "Archive Automation" tab is used to do settings about the Policy based archived workflow management. Two tabs are available in the "Archive Automation" panel: "Archive Policies" and "Archive Directory History".



Usage & Invocation

- **"Archive Policies" tab:**

Workflow Admin can click the "Add" button to add the policy rules for which workflows should automatically be archived.

Workflow Settings

Workflows Settings General Archive Automation

Workflows Archive Automation

Archive Policies Archive Directory History

Define the policy rules for when workflows should automatically be archived.

<input type="checkbox"/> Archive SAF ID	Automatically Ar...	Archive Directory	Comments
<input type="checkbox"/> IBMUSER	3 days after completion	/Users/simple/Desktop/test	⋮

Refresh



Workflow Settings

Workflows Settings General Archive Automation

Add Archive Policy

Specify which workflows are to be archived automatically.

Automatically Archive

* Wait Period ① 3 Days

* Condition Completed

* Archive SAF ID ①

* Archive Directory ①

Comments

Specify a text string up to 1000 characters.

Cancel OK

Wait Period: After how long to automatically archive workflow. Only Hours and Days are supported now.

Condition: Workflow status. Only "Completed" is allowed in the Condition now.

Archive SAF ID: Specify the owner of the archived workflow (a z/OS user ID or group). The owner can view the workflow after it is archived.

Archive Directory: Specify a z/OS UNIX directory on your system for archiving the workflow, beginning with a single forward slash ("/).

Workflow Admin can "Modify" or "Delete" an existing policy rule in this tab.

Usage & Invocation

Automatically archive workflow(s)

- The interval time for policy checking.

For automatically archive workflow, the current interval time for policy checking is 30 minutes, which means workflow engine will launch a thread after Liberty started to check all active workflows by every 30 minutes, and to determine if each active workflow satisfy the requirement for automatically archiving.

- How workflow engine determines whether an active workflow need to be automatically archived according to polices

When it's time for policy checking, workflow engine will first map each active workflow with the corresponding policy in Archive Policies by mapping workflow SAF ID with "Archive SAF ID" field, then it will check whether this workflow satisfy the "Automatically Archive" field requirement, if so, finally workflow engine will automatically archive this workflow to the directory which is specified in "Archive Directory" field.

Usage & Invocation

Automatically archive workflow(s)

Take the below screenshot as example, when it's time for policy check, workflow engine will first map active workflow with policy by comparing SAF ID, if an active workflow's SAF ID is "IBMUSER", then the policy which Archive SAF ID is IBMUSER will apply for it. Then workflow engine will check if the workflow status satisfy the requirement that is 3 hours after completion, if so, this workflow will be archived to the specified path that is "/SY1/tmp/dir"

Workflow Settings

Workflows Settings

General

Archive Automation

Workflows Archive Automation

Archive Policies

Archive Directory History

Define the policy rules for when workflows should automatically be archived.

Search

Add

+

<input type="checkbox"/> Archive SAF ID	Automatically Archive	Archive Directory	Comments	
<input type="checkbox"/> IBMUSER	3 hours after completion	/SY1/tmp/dir	automatically archiving	⋮

Refresh

Usage & Invocation

- **"Archive Directory History" tab:**
 - 1) The archive directory history is recorded in the table.
 - 2) Workflow Admin can view all the archive directories defined by all different users.

Workflow Settings

Workflows Settings General **Archive Automation**

Workflows Archive Automation

Archive Policies **Archive Directory History**

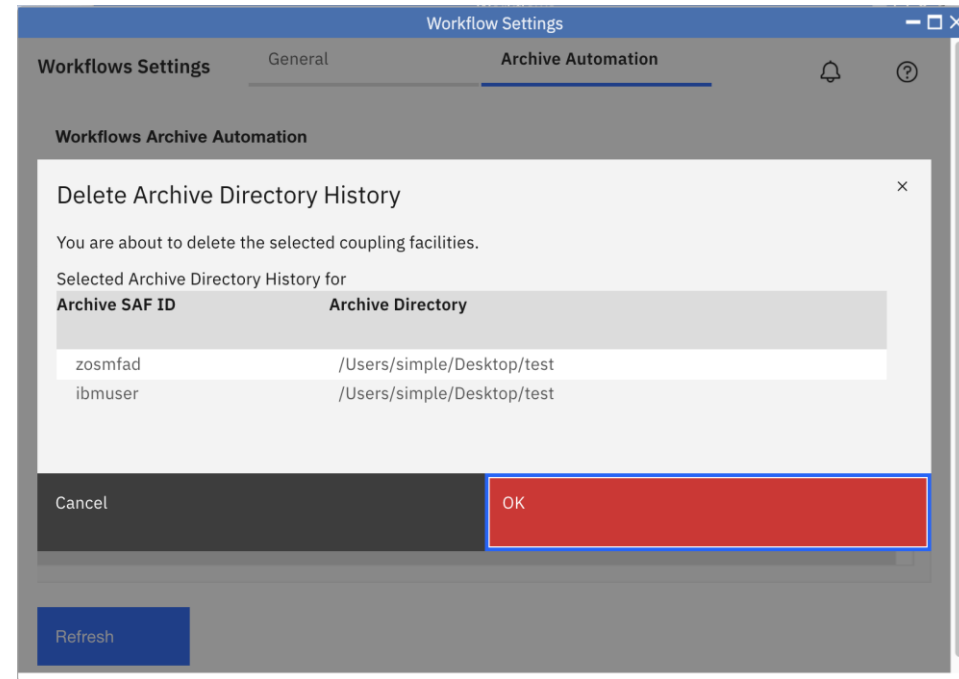
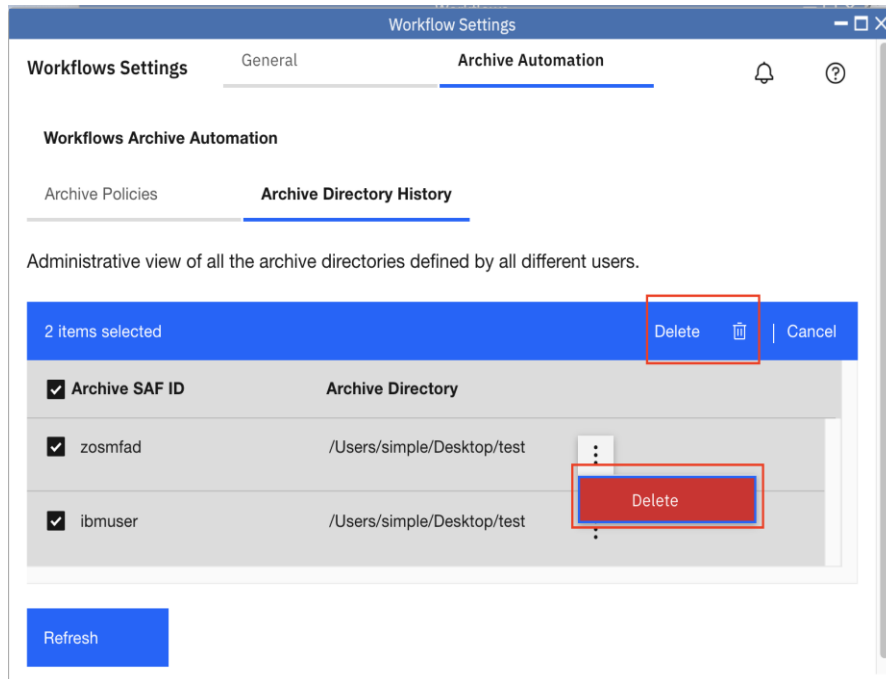
Administrative view of all the archive directories defined by all different users.

<input type="checkbox"/> Archive SAF ID	Archive Directory	
<input type="checkbox"/> zosmfad	/Users/simple/Desktop/test	⋮
<input type="checkbox"/> ibmuser	/Users/simple/Desktop/test	⋮

Refresh

Usage & Invocation

- **"Archive Directory History" tab:**
 - 1) Workflow Admin can "View" the Archive directory history.
 - 2) Workflow Admin can "Export" the Archive directory history.
 - 3) Workflow Admin can "Delete" the Archive directory history.



Usage & Invocation

- Workflow Rest services are enhanced to support "Archive SAF ID"

1) Create a workflow

Add a new parameter named "workflowArchiveSAFID" in the request, it is optional. Indicates who can access the archived workflow, which is archived from the current workflow to a user specified directory.

The default value is the current user ID of the workflow owner. This value can only be specified as the workflow owner user ID or a SAF group ID the workflow owner belongs to. All users under the SAF group ID have access to this archived workflow.

2) Get the properties of a workflow

Add the new property "workflowArchiveSAFID" in the response body, for the previous workflow which were created before this new feature, the value of "workflowArchiveSAFID" is null.

Interactions & Dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - z/OSMF Workflow users who need to manage a large number of workflows

Upgrade & Coexistence Considerations

- If clients change z/OS 3.1 back to older z/OS releases (z/OS 2.4 or 2.5), to view the archived workflows stored in the user specified directories, please install APAR PH39153

Installation & Configuration

- None.

Summary

- The following z/OS V3R1 z/OSMF Workflow Initiative has been explained.

Appendix

- Book updates
 - IBM z/OS Management Facility Programming Guide
 - IBM z/OS Management Facility Online Help