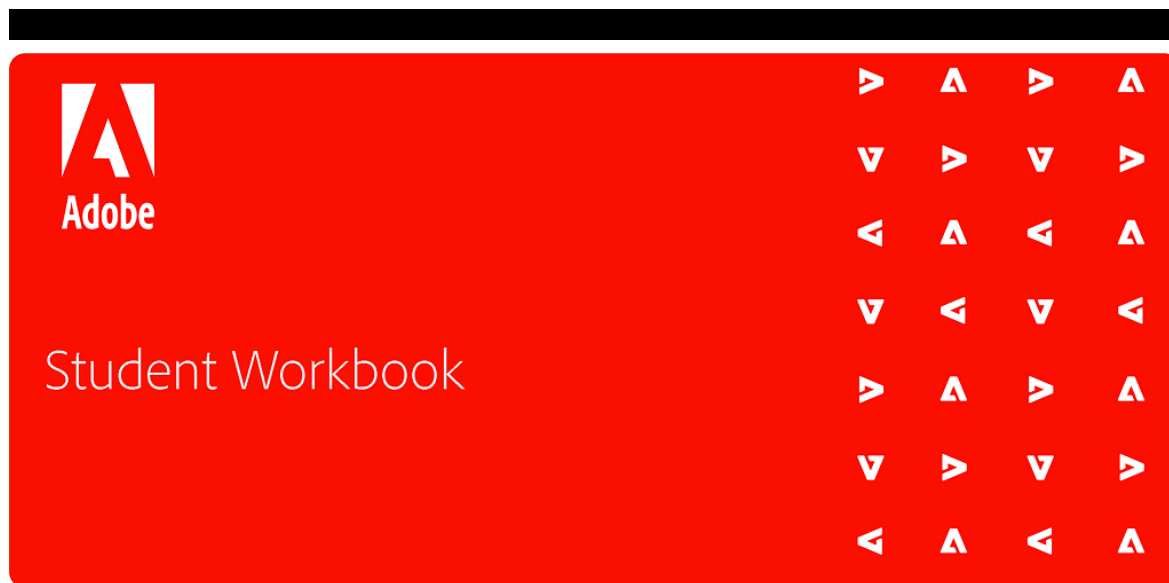


Configure Maintenance Tasks



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DevOps for AEM as a Cloud Service

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10-14-2020

Introduction

With Adobe Experience Manager (AEM) as a Cloud Service, organization's effort is minimized when configuring the operational properties of maintenance tasks. Adobe handles all infrastructure operations to help organizations focus on the resources required for application-level concerns.

Objectives

After completing this module, you will be able to:

- Describe maintenance tasks
- Explain the different maintenance windows
- Run a weekly purge task
- Describe the workflow purge task
- Configure a purge task
- Create a monthly maintenance window
- Sync the configurations with your Maven project

Maintenance Tasks: An Overview

Maintenance tasks¹ are processes that run on a schedule to optimize the repository. These tasks enable you to control the repository size. Some tasks are owned by Adobe with the cloud infrastructure and others are owned by customers to adhere to business requirements.

The following table describes different maintenance tasks, their owners, and how to configure them in AEM:

Task	Owner	Configuration
Datastore garbage collection	Adobe	Not applicable - Owned by Adobe completely
Version Purge	Adobe	Window owned by Adobe and OSGi configuration owned by customer
Audit Log Purge	Adobe	Window owned by Adobe and OSGi configuration owned by customer
Ad-hoc Task Purge	Customer	Maintenance Window and OSGi Configuration
Workflow Purge	Customer	Maintenance Window and OSGi Configuration
Project Purge	Customer	Maintenance Window and OSGi Configuration

Configure Maintenance Tasks

To configure maintenance tasks specific to business requirements for purging content, you can use:

- Version Purge Configuration²
- Audit Log Configuration³
- Ad-hoc Task Purge Configuration⁴
- Workflow Purge Configuration⁵
- Project Purge Configuration⁶

Maintenance Windows

You can schedule the Workflow Purge, Ad-hoc Task Purge and Project Purge Maintenance tasks to be executed during the daily, weekly, or monthly maintenance windows. These configurations should be added directly in source control.

Daily Configuration: An Example

The following code snippet is an example of daily configuration:

```
<?xml version="1.0" encoding="UTF-8"?>
<jcr:root xmlns:sling="http://sling.apache.org/jcr/sling/1.0"
  xmlns:jcr="http://www.jcp.org/jcr/1.0"
  jcr:primaryType="sling:Folder"
  sling:configCollectionInherit="true"
  sling:configPropertyInherit="true"
  windowSchedule="daily"
  windowStartTime="03:00"
  windowEndTime="05:00"
/>
```

Weekly Configuration: An Example

The following code snippet is an example of weekly configuration:

```
<?xml version="1.0" encoding="UTF-8"?>
<jcr:root xmlns:sling="http://sling.apache.org/jcr/sling/1.0"
  xmlns:jcr="http://www.jcp.org/jcr/1.0"
  jcr:primaryType="sling:Folder"
  sling:configCollectionInherit="true"
  sling:configPropertyInherit="true"
  windowEndTime="15:30"
  windowSchedule="weekly"
  windowScheduleWeekdays="[5,5]"
  windowStartTime="14:30"/>
```

Monthly Configuration: An Example

The following code snippet is an example of monthly configuration:

```
<?xml version="1.0" encoding="UTF-8"?>
<jcr:root xmlns:sling="http://sling.apache.org/jcr/sling/1.0"
  xmlns:jcr="http://www.jcp.org/jcr/1.0"
  jcr:primaryType="sling:Folder"
  sling:configCollectionInherit="true"
  sling:configPropertyInherit="true"
  windowEndTime="15:30"
  windowSchedule="monthly"
  windowFirstLastStartDay=0
  windowScheduleWeekdays="[5,5]"
  windowStartTime="14:30"/>
```

You can use the Maintenance UI ⁷ to easily configure the windows on a local AEM instance, synchronize them back to the AEM project, and check them to the source control. Alternatively, you can add and edit the Extensible Markup Language (XML) files directly.

Exercise 1: Run a weekly purge task

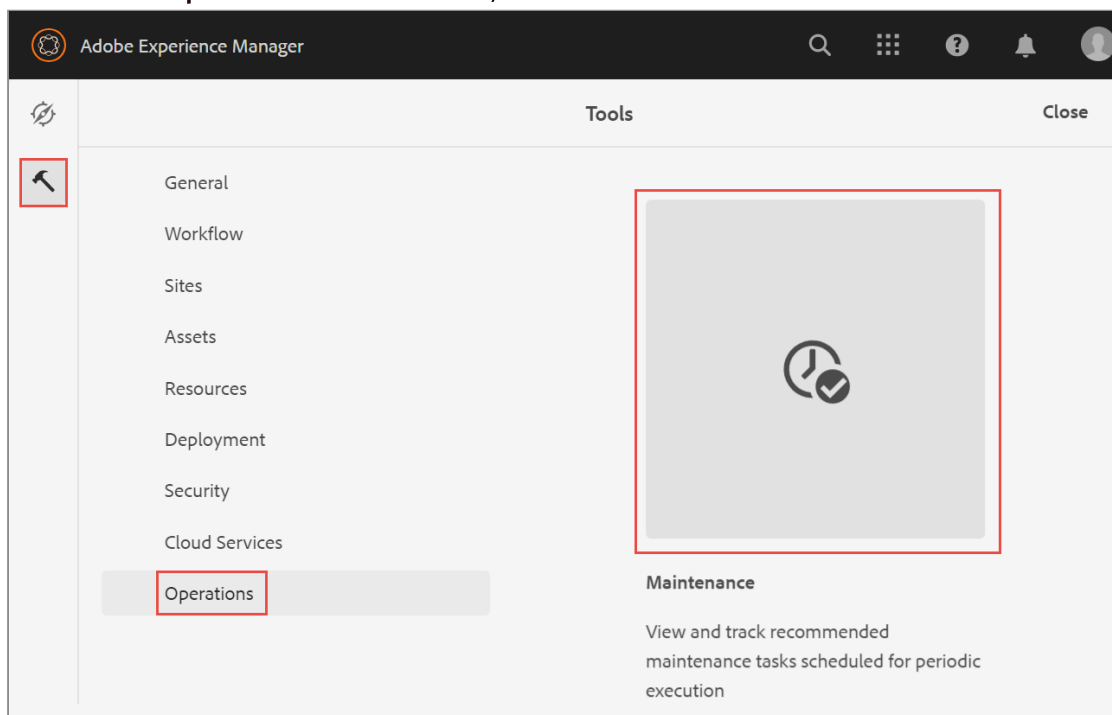
Scenario: Your organization is using AEM workflows to manage page publishing. AEM Workflows by default archive previously run workflows. This can be beneficial to go back and view the history of a workflow but over time workflow history becomes less important and can be removed to reduce congestion in the workflows console and maintain the repository node size. The AEM workflow maintenance task helps organizations to run a periodic task to remove a defined set of archived workflows based on age. In this exercise, you will manually run the weekly workflow purge task to test the purge task.

Prerequisites:

- A running AEM author service

To run a weekly purge task:

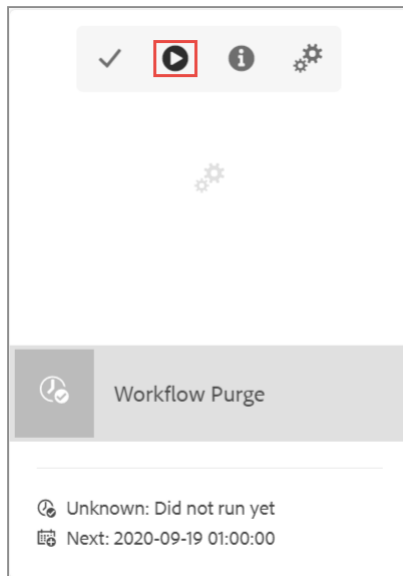
1. Click **Adobe Experience Manager** on the header bar. The **Navigation** pane opens.
2. Click **Tools > Operations > Maintenance**, as shown:



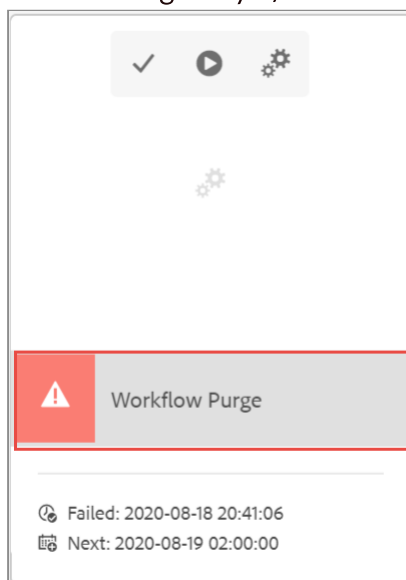
The **Maintenance** console opens.

3. Click the **Weekly Maintenance Window** card to open the console.
4. Notice that the **Workflow Purge** task is already added to this window. This console gives the option to add or remove tasks from this window depending on your maintenance requirements. A task can be added to exactly one maintenance window. If you want the Workflow Purge task to run daily rather than weekly, you need to remove it from this console and add it to the **Daily Maintenance Window**.

5. Hover over the **Workflow Purge** card and click the **Run** icon on the quick actions toolbar, as shown:



6. Notice that the Workflow Purge task fails and a red warning icon appears on the card because it is not configured yet, as shown:



Workflow Purge Task

You can minimize the number of workflow instances to increase the performance of the workflow engine by regularly purging completed or running workflow instances from the repository. You need to configure **Adobe Granite Workflow Purge Configuration** ⁵ to purge workflow instances according their age and status. You can purge workflow instances of all models or of a specific model.

You can create multiple configurations of the service to purge workflow instances that satisfy different criteria. For example, you can create a configuration that purges the instances of a particular workflow model when they are running for much longer than the expected time. You can create another configuration that purges all completed workflows after a certain number of days to minimize the size of the repository.

Exercise 2: Configure a purge task

Scenario: You are using AEM workflows to automate and coordinate different teams working on business processes. You will configure a workflow purge task ⁸ for the default Publish Example workflow to purge the completed workflows that are older than 30 days.

Prerequisites:

- A running AEM service
- Eclipse with a Maven Project imported

In this exercise, you will perform the following tasks:

1. Create a workflow Purge OSGi configuration
2. Install and verify the configuration

Task 1: Create a workflow purge OSGi configuration

1. Click **Adobe Experience Manager** on the header bar. The **Navigation** pane opens.
2. Click the Tools icon to open the console.
3. Click **Operations** > **Maintenance**. The **Maintenance** console opens.
4. Click **Weekly Maintenance Window** to open it.
5. Hover over the **Workflow Purge** card and click the Configure icon on the quick actions toolbar. The **Adobe Experience Manager Web Console Configuration** opens on the same browser tab.
6. Look for the **Adobe Granite Workflow Purge Configuration** factory.

Hint: To find the factory quickly, use the browser find feature (Ctrl+F).

Note: A factory configuration can have multiple instances of the configuration.

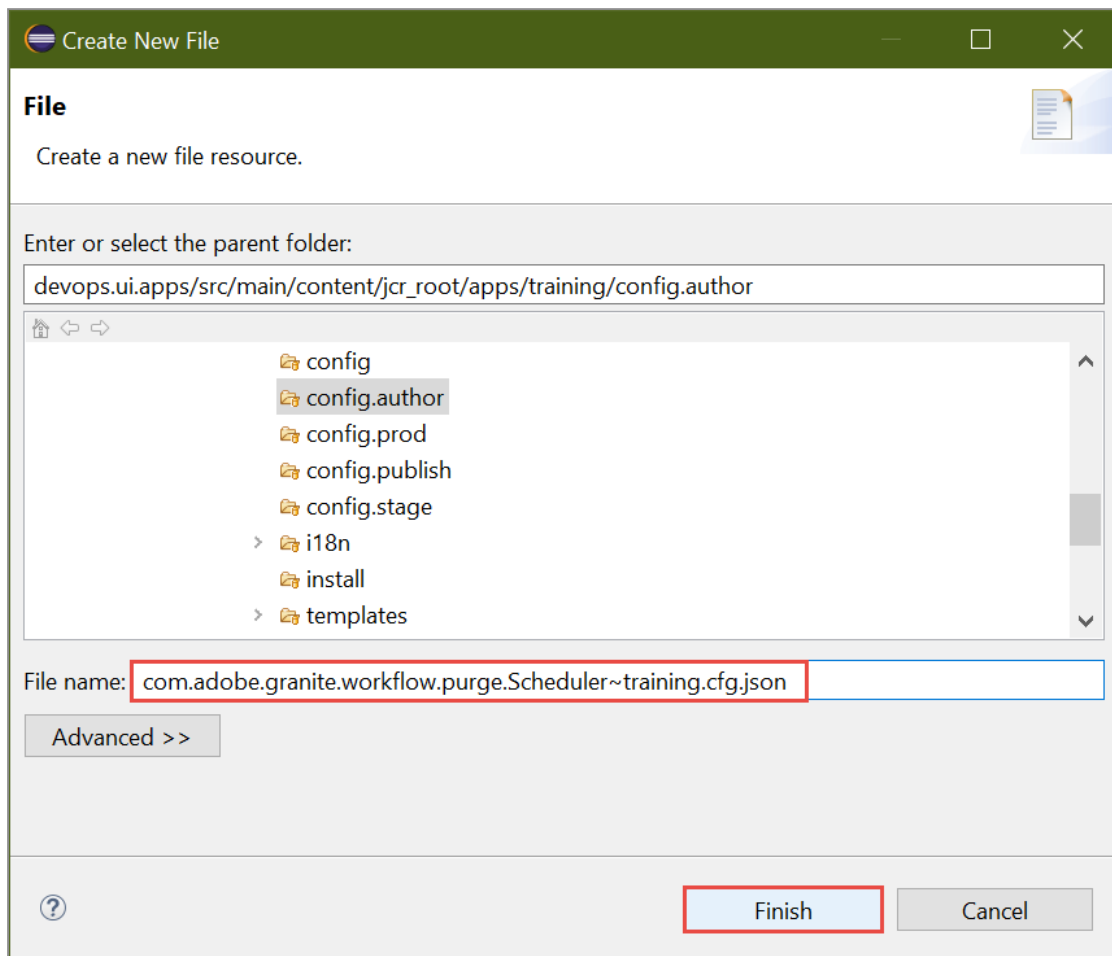
7. Click the configuration factory and observe different options of the configuration:

Field	Option	Description
Job Name	scheduledpurge.name	Is the name that appears in logs
Workflow Status	scheduledpurge.workflowStatus	Adds the completed or running workflows to be purged
Models To Purge	scheduledpurge.modelIds	Adds the list of models to purge
Workflow Age	scheduledpurge.daysold	Defines the age of models to purge

Note: The Factory Persistence Identity (PID) is needed to create the JavaScript Object Notation (json) config file.

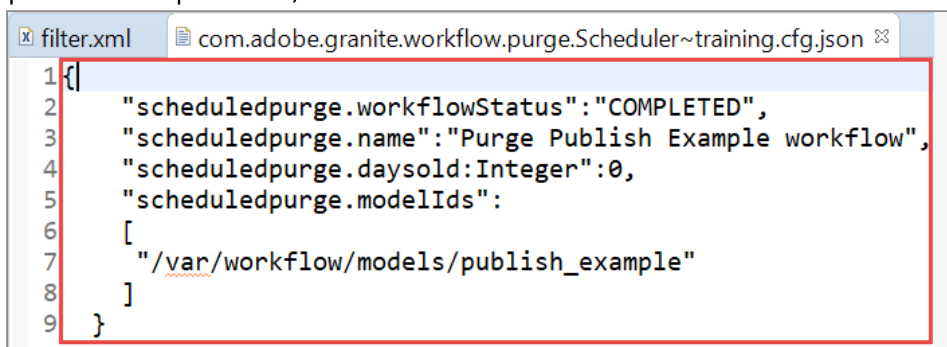
8. Open your project in Eclipse.
9. Navigate to **devops.ui.apps > src/main/content/jcr_root > apps > training** folder. This folder stores the configurations and are considered as immutable content.
10. Right click the **config.author**, click **New** on the actions bar and select **File** from the drop-down menu. The **Create New File** dialog box opens.

11. Type **com.adobe.granite.workflow.purge.Scheduler~training.cfg.json** in the **File Name** box and click **Finish**, as shown:



The file will open in the editor.

12. In the **Exercise_Files** folder, navigate to **training-files/Maintenance**, copy the contents of **com.adobe.granite.workflow.purge.Scheduler~training.cfg.json** file and paste it to the file open in the Eclipse editor, as shown:



Note: In the purge task, the **daysold** is set to 0 to show the task is running successfully in the next task.

13. Verify the file contents with the configuration in the web console in the browser.

14. Press Ctrl + S to save the changes in the Eclipse editor.

Task 2: Install and verify the purge configuration

1. If you do not already have a command line window open in your < AEM Project > directory, open one now.

2. Enter the following command to deploy your changes to the local AEM author instance:

```
$ mvn clean install -P adobe-public -P autoInstallSinglePackage
```

3. Verify that the build is completed successfully, as shown:

```
[INFO] Reactor Summary for devops 1.0-SNAPSHOT:
[INFO] devops ..... SUCCESS [ 0.313 s]
[INFO] DevOps Project - Core ..... SUCCESS [ 7.499 s]
[INFO] DevOps Project - Repository Structure Package ..... SUCCESS [ 0.736 s]
[INFO] DevOps Project - UI apps ..... SUCCESS [ 9.348 s]
[INFO] DevOps Project - UI content ..... SUCCESS [ 3.703 s]
[INFO] DevOps Project - All ..... SUCCESS [ 7.862 s]
[INFO] DevOps Project - Integration Tests Bundles ..... SUCCESS [ 1.137 s]
[INFO] DevOps Project - Integration Tests Launcher ..... SUCCESS [ 2.129 s]
[INFO] DevOps Project - Dispatcher ..... SUCCESS [ 0.456 s]
[INFO] BUILD SUCCESS
[INFO] Total time: 34.655 s
[INFO] Finished at: 2020-06-03T13:59:44-07:00
[INFO]
```

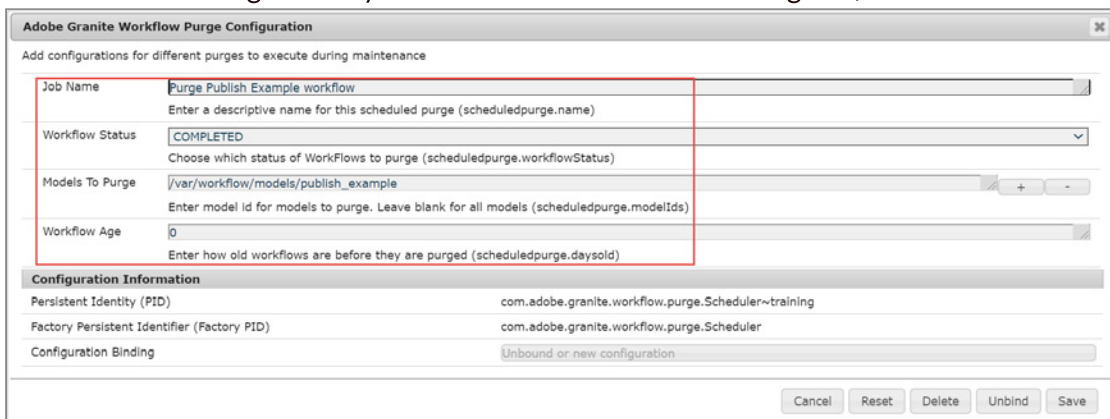
4. In AEM, navigate to **Tools > Operations > Web Console**.

5. On the **Adobe Experience Manager Web Console Configuration** page, find the **Adobe Granite Workflow Purge Configuration** factory. There is an instance of the factory named **com.adobe.granite.workflow.purge.Scheduler~training**, as shown:



6. Click **com.adobe.granite.workflow.purge.Scheduler~training** to open it. The **Adobe Granite Workflow Purge Configuration** dialog box opens.

7. Notice that the configurations you added to the JSON file are configured, as shown:

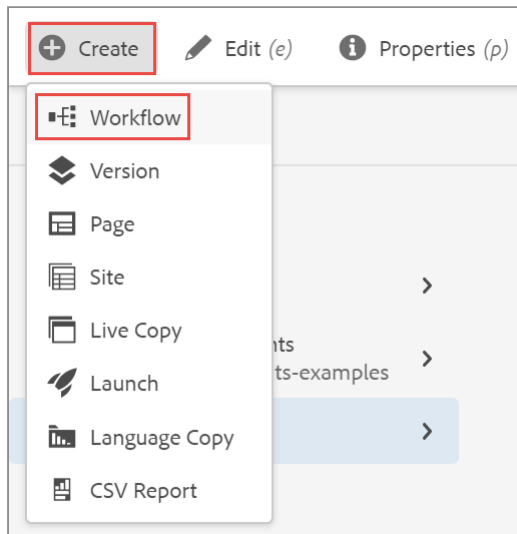


8. Click **Cancel** to close the dialog box.

To test if the purge task is running successfully, you need to complete a Publish Example workflow:

9. Open the **Sites** Console from <http://localhost:4502/sites.html/content>

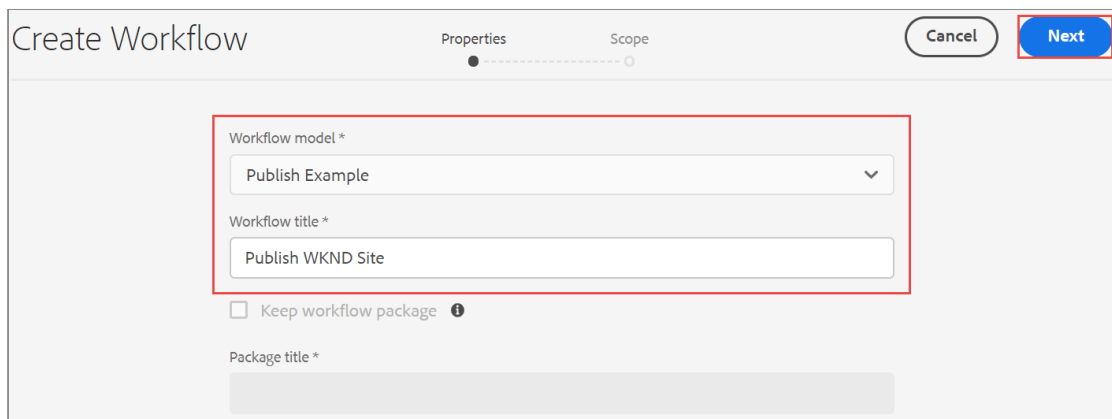
10. Select the **WKND Site**, click **Create** on the actions bar and select **Workflow** from the drop-down menu, as shown:



The **Create Workflow** wizard opens.

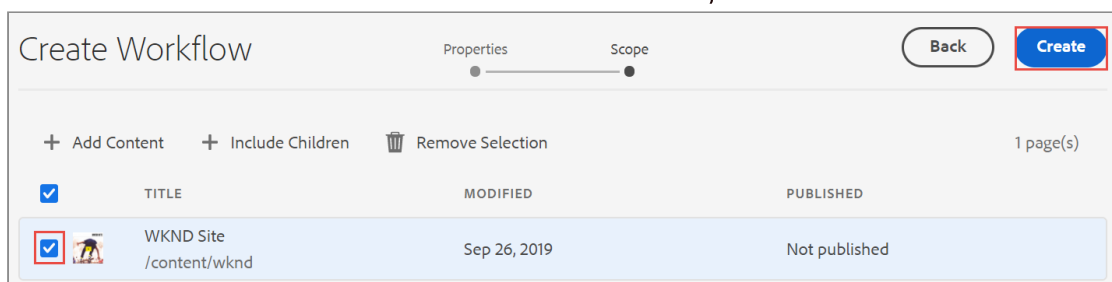
11. In the **Properties** section, perform the following, as shown:

- Select **Publish Example** from the **Workflow model** drop-down menu.
- Type **Publish WKND Site** in the **Workflow title** box.
- Click **Next**.



The **Scope** section of the wizard opens.

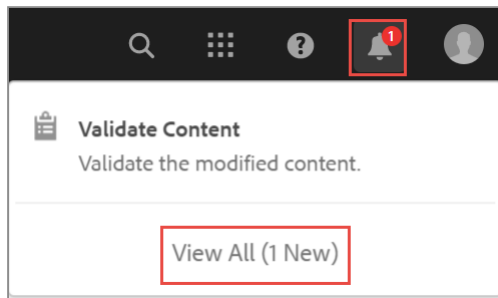
12. Select the checkbox beside the WKND Site and click **Create**, as shown:



The **Workflows have been created for selected resources** success message appears at the bottom of the **Sites** console.

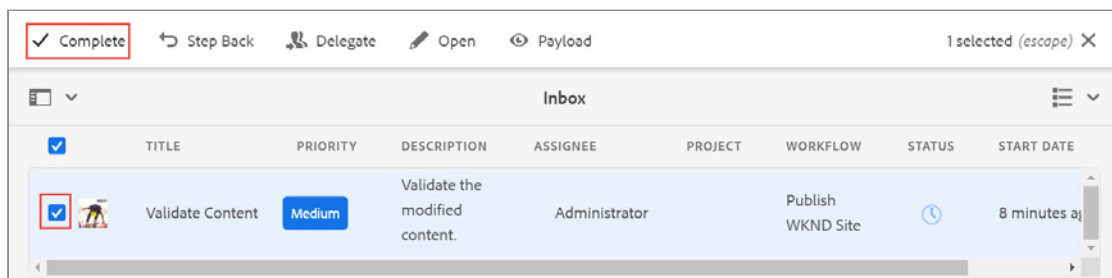
To complete the workflow:

- Click the Inbox (bell) icon at the top right corner of the header bar and click **View all**, as shown:



The **Inbox** opens.

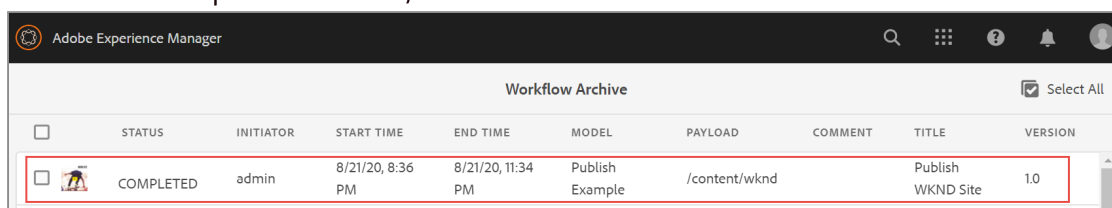
- Select the checkbox beside the, **Validate Content** task and click **Complete** on the actions bar, as shown:



The **Complete Work Item** dialog box opens.

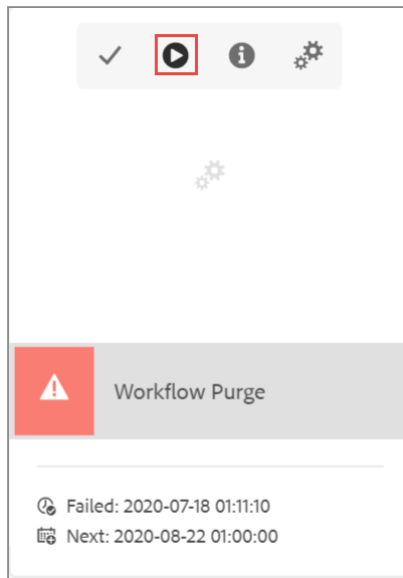
- Type comment in the **Comment** box and click **Ok** . The page is published and the workflow is complete.
- To verify the completed workflow, navigate to **Tools > Workflow > Archive**. The **Workflow Archive** console opens.

- Observe the completed workflow, as shown:

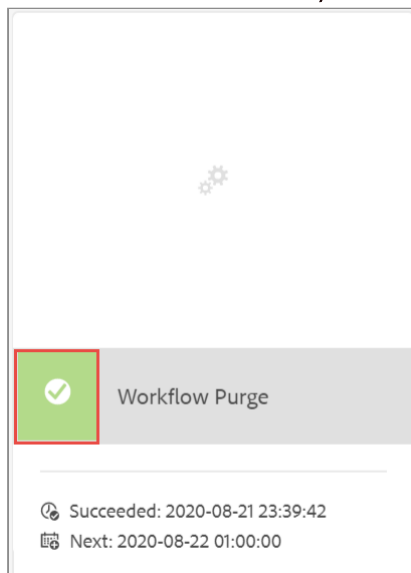


- Click **Adobe Experience Manager** on the header bar. The **Tools** pane opens.
- Click **Operations > Maintenance**. The **Maintenance** console opens.
- Click the **Weekly Maintenance Window**.

21. Hover over the **Workflow Purge** card, click the Run icon on the quick actions toolbar, as shown:



22. Notice that the card turns yellow to green after the task is complete, as shown:



23. To verify the purge is successful, click **Adobe Experience Manager** on the header bar. The **Tools** pane opens.
24. Click **Workflow > Archive**. The **Workflow Archive** console opens.
25. Notice the archived Publish Example workflow instance no longer exists, as shown:

Workflow Archive								
STATUS	INITIATOR	START TIME	END TIME	MODEL	PAYLOAD	COMMENT	TITLE	VERSION
There is no item.								

Exercise 3: Create a monthly maintenance window

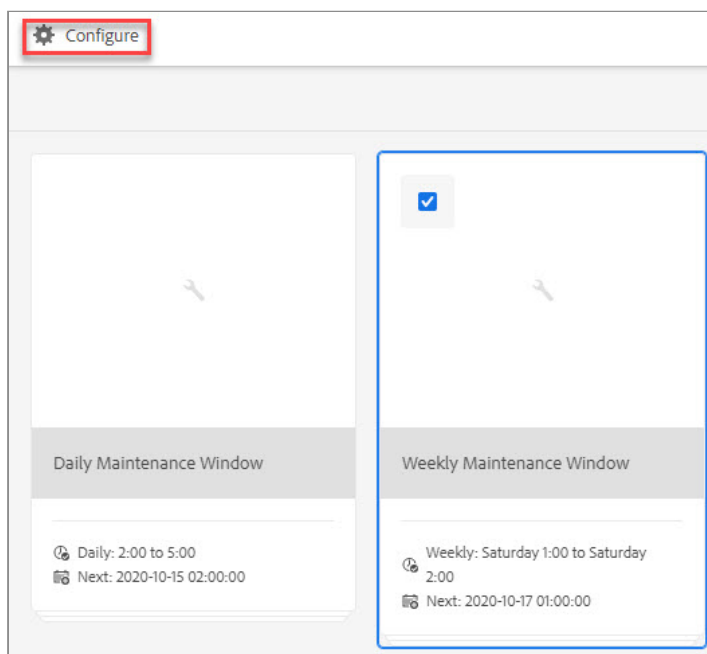
Scenario: Your organization is using ad-hoc tasks ⁴. To ensure older tasks are removed from the system, you want to create a monthly maintenance window to purge the tasks that are out of compliance by using the out-of-the-box ad-hoc task purge configuration. This configuration purges the completed tasks that are older than 30 days and active tasks that are older than 90 days.

Prerequisites:

- A running AEM author service

To create a monthly window:

1. Click **Adobe Experience Manager** on the header bar. The **Navigation** pane opens.
2. Click **Operations > Maintenance**. The **Maintenance** console opens.
3. Click the **Weekly Maintenance Window** and click the **Configure** icon on the quick actions toolbar, as shown:



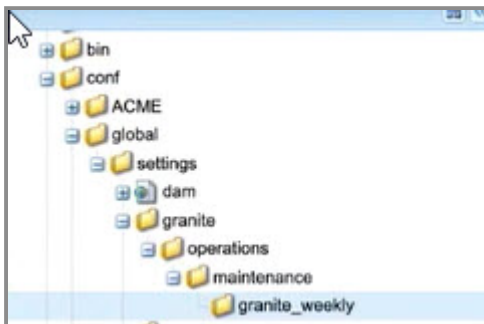
The **Configure Maintenance Window** dialog box opens.

4. Change the **Name** to **Monthly Maintenance Window**, **Recurrence** to **Monthly**, **Start** and **End** day to **Sunday** and click **Save**, as shown:

The screenshot shows the 'Configure Maintenance Window' dialog box. The 'Name' field contains 'Monthly Maintenance Window'. Under 'Recurrence', the 'Monthly' radio button is selected. The 'Start' section has a dropdown set to 'First', a day dropdown set to 'Sunday', and a time field set to '01:00'. The 'End' section has a day dropdown set to 'Sunday' and a time field set to '02:00'. At the bottom right, there are 'Save' and 'Cancel' buttons, with the 'Save' button highlighted by a red box.

Note: At this point, you have modified the Weekly Maintenance window and all tasks in the window to occur on a monthly schedule. In the next few steps, you will remove those tasks and make the underlying node unique, so that it does not overlay the standard weekly window.

5. To verify the node, click **Adobe Experience Manager** on the header bar. The **Tools** pane opens.
6. Click the **Tools** icon on the pane to open the console.
7. Click **CRXDE Lite**. The **CRXDE Lite** page opens.
8. Navigate to **/conf/global/settings/granite/operations/maintenance** node.

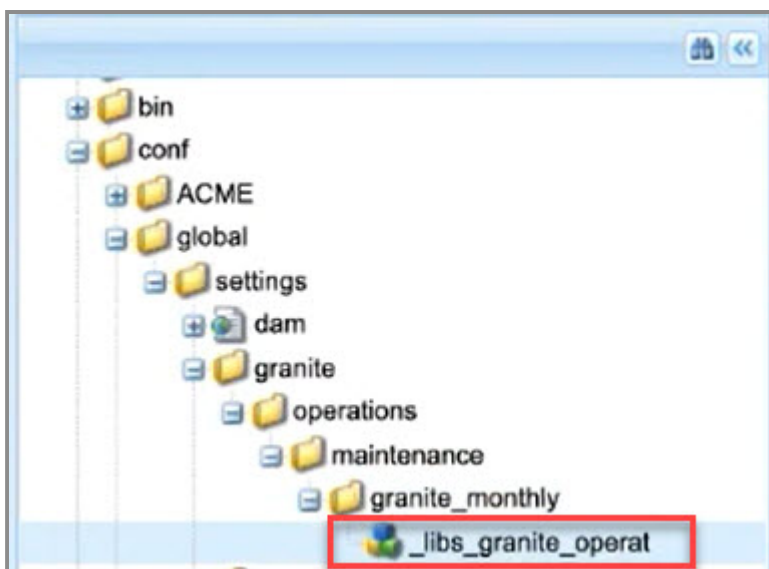


9. Right click the **granite_weekly** node and select rename.
10. Change the name to **granite_monthly**, and press Ctrl+ S to save the changes.

Note: Maintenance tasks inherit maintenance window configurations from /apps and /libs with the property sling:configPropertyInherit. This is the reason that the granite_weekly node needed to be renamed to create a unique window and not merge with the /libs/settings/granite/operations/maintenance/granite_weekly window.

Now, you will use the Maintenance console to complete the window.

13. Click **CRXDE Lite** (Back Home) on the page.
14. Click **Tools** icon to open the console.
15. Click **Operations > Maintenance** to open the console.
16. Click the **Monthly Maintenance Window** to open it.
17. Click **Add** on the actions bar. The **Add New Task** dialog box opens.
18. Ensure **Purge of ad-hoc tasks** is selected from the drop-down menu and click **Save**. The **Purge of ad-hoc tasks** card is added to the window.
19. Run the **Purge of ad-hoc tasks** and verify it completes successfully.
20. To observe the nodes created by the UI, navigate to **CRXDE Lite**. The **CRXDE Lite** page opens.
21. Navigate to **/conf/global/settings/granite/operations/maintenance/granite_monthly** node and verify the new node, as shown:



You have successfully created a monthly maintenance window.

Exercise 4: Sync maintenance windows to your maven project

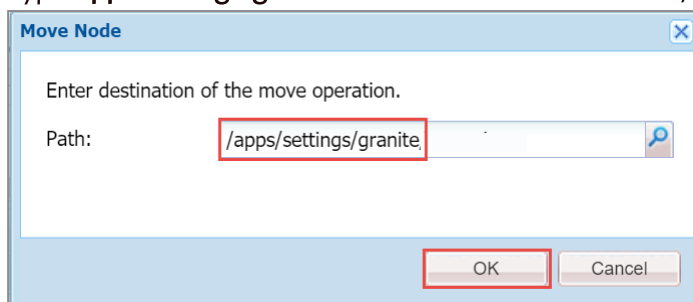
Scenario: You have successfully configured the maintenance tasks locally using the **Maintenance** console. You now need to move these configurations into source control. This will require the configurations to be moved to `/apps`, imported into the maven project, and then checked into source control.

Prerequisites:

- A running AEM author service
- Eclipse with a Maven Project imported

To sync the configurations:

1. Click **Adobe Experience Manager** on the header bar. The **Navigation** pane opens.
2. Click the **Tools** icon on the pane to open the console.
3. Click **CRXDE Lite**. The **CRXDE Lite** page opens.
4. Navigate to `/apps/settings/granite`, right-click the **operations** node, and select **Delete** from the drop-down menu. The node is deleted.
5. Navigate to `/conf/global/settings/granite`, right click the **operations** node, and select **Move** from the drop-down menu. The **Move Node** dialog box opens.
6. Type `/apps/settings/granite` in the Path box and click OK, as shown:



The node is moved under the selected path.

7. Press Ctrl + S to save the changes.

Now that the maintenance windows are in `/apps/setting/granite`, you will import this location to your Maven project.

8. Open the Eclipse application and verify that the AEM server connection is running
9. Navigate to `devops.ui.apps > /src/main/content/META-INF`, open `filter.xml`, and add the following line of code, as shown:

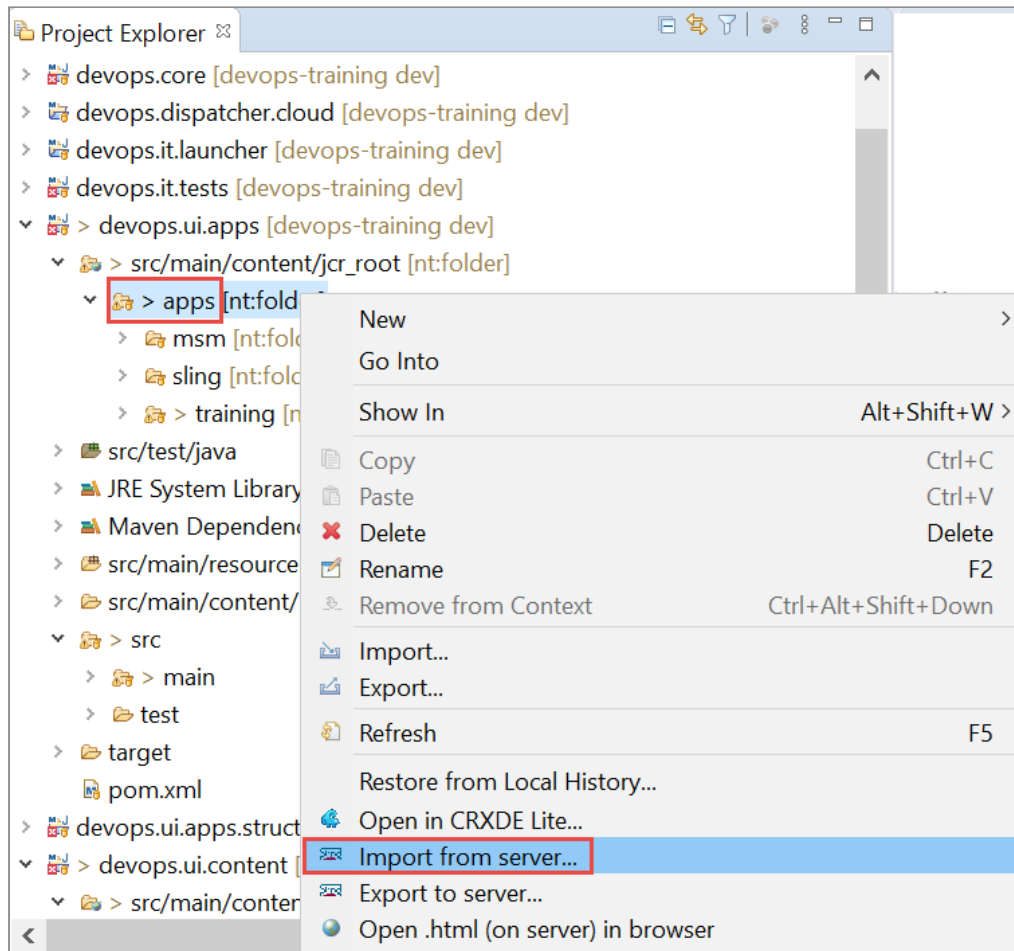
```
<filter root="/apps/settings/granite" mode="merge"/>
```

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <workspaceFilter version="1.0">
3   <filter root="/apps/training"/>
4   <filter root="/apps/sling" />
5   <filter root="/apps/msm/training_blueprint" mode="merge"/>
6   <filter root="/apps/settings/granite" mode="merge"/>
7 </workspaceFilter>

```

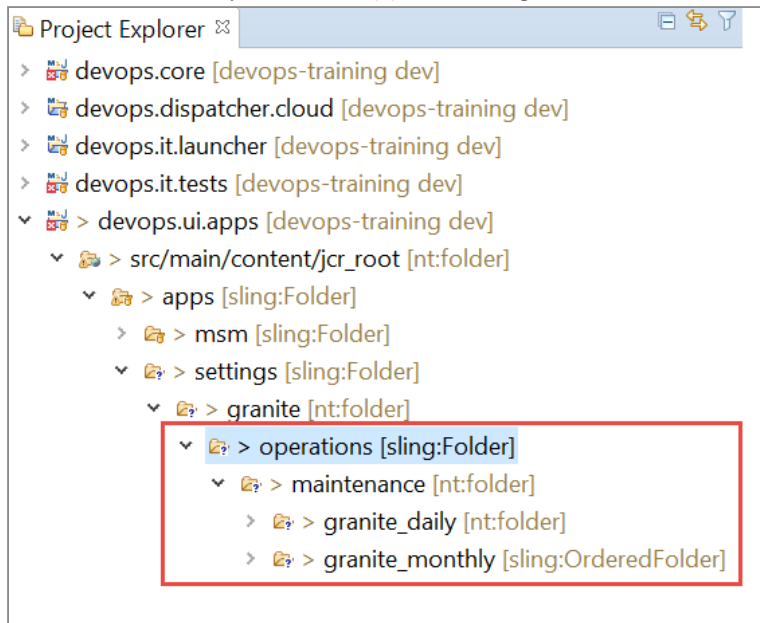
11. Under **devops.ui.apps**, right click the **src/main/content/jcr_root > apps** and select **Import from server**, as shown:



The **Repository Import** dialog box opens.

12. Click **Finish**.

13. Notice that the Maintenance windows are now successfully imported into your project under **src/main/content/jcr_root > apps > settings**, as shown:



Note: Any changes you sync back to your maven project should be committed into the source control by executing the following command:

```
git commit -a -m "added new files"
```

References

1. Maintenance Tasks <https://helpx.adobe.com/experience-manager/kb/AEM6-Maintenance-Guide.html> ↩
2. Version Purge Configuration <https://docs.adobe.com/content/help/en/experience-manager-65/deploying/configuring/version-purging.html> ↩
3. Audit Log Configuration <https://docs.adobe.com/content/help/en/experience-manager-65/administering/operations/operations-audit-log.html> ↩
4. Ad-hoc Task Purge Configuration <https://docs.adobe.com/content/help/en/experience-manager-learn/foundation/workflow/use-the-inbox.html> ↩ ↩
5. Workflow Purge Configuration <https://docs.adobe.com/content/help/en/experience-manager-65/administering/operations/workflows-administering.html#regular-purging-of-workflow-instances> ↩ ↩
6. Project Purge Configuration <https://helpx.adobe.com/experience-manager/kb/AEM6-Maintenance-Guide.html> ↩
7. Maintenance UI <https://docs.adobe.com/content/help/en/experience-manager-65/administering/operations/operations-dashboard.html#automated-maintenance-tasks> ↩
8. Workflow Purge Task <https://helpx.adobe.com/experience-manager/kb/AEM6-Maintenance-Guide.html#workflowpurge> ↩