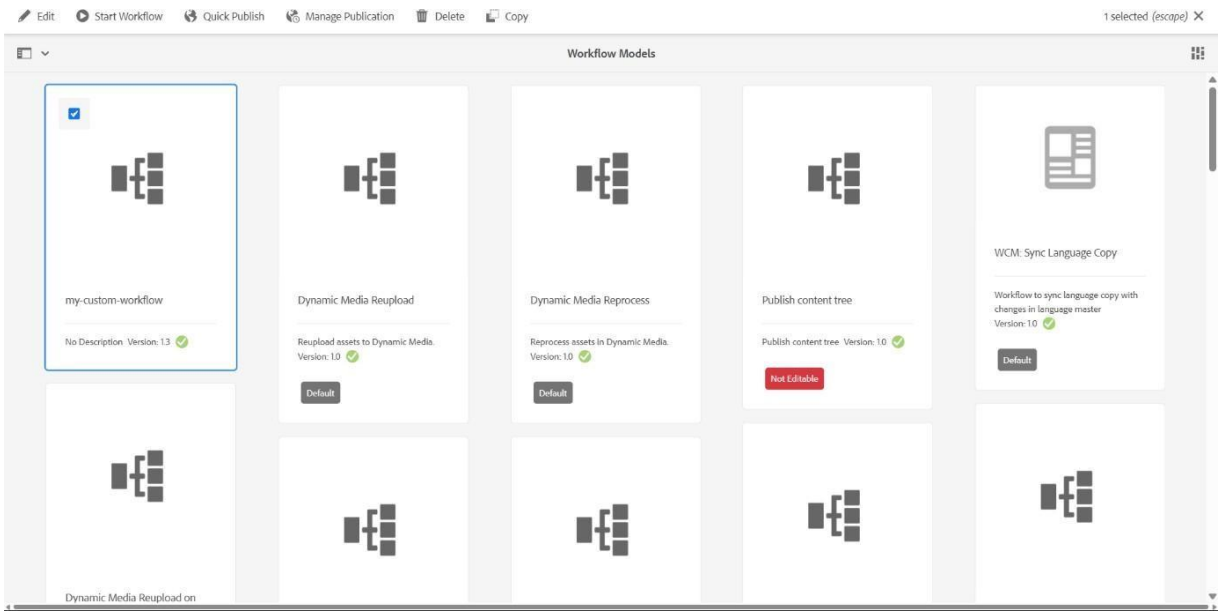
AEM – WorkFlow and Printing In Log File

Step 1: Create a Custom Workflow ("my custom workflow")

1. Go to AEM → Tools → Workflow → Models.
2. Click Create → Create Model, name it "my custom workflow".
3. Open the model editor and:
    - Drag the "Process Step" component onto the workflow.
    - Double-click it and set:
        - Process: Select "myCustomWorkflowProcess" (to be created in Step 2).
4. Save and activate the workflow



Step 2: Create a Custom Workflow Process to Print Page Title in Logs

1. Implement a Java class extending WorkflowProcess.
2. Print the page title in logs using workflowSession.getMetaDataMap()
3. Deploy the bundle and configure the process step in myCustomWorkflow.

4. Apply the workflow to a page and observe logs in AEM.

Java code

- Java code for WorkflowProcess.
-

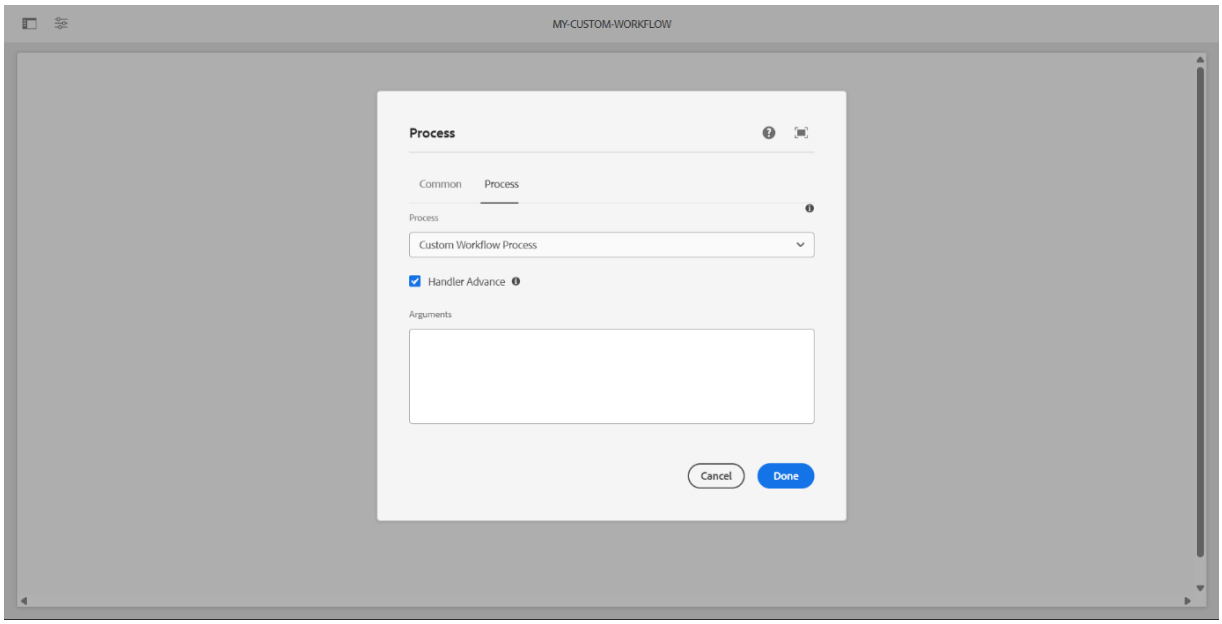
```
package com.myTraining.core.workflows;


import com.adobe.granite.workflow.WorkflowSession;
import com.adobe.granite.workflow.exec.WorkItem;
import com.adobe.granite.workflow.exec.WorkflowProcess;
import com.adobe.granite.workflow.metadata.MetaDataMap;
import com.day.cq.wcm.api.Page;
import com.day.cq.wcm.api.PageManager;
import org.apache.sling.api.resource.Resource;
import org.apache.sling.api.resource.ResourceResolver;
import org.osgi.service.component.annotations.Component;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;


@Component(
        service = WorkflowProcess.class,
        property = {
                "process.label=Custom Workflow Process"
        }
)
public class CustomWorkflowProcess implements WorkflowProcess {
    private static final Logger LOGGER =
LoggerFactory.getLogger(CustomWorkflowProcess.class);


    @Override
```

```
    public void execute(WorkItem workItem, WorkflowSession workflowSession, MetaDataMap
metaDataMap) {
        LOGGER.info("[Custom Workflow] Executing workflow process...");

        if (workItem == null || workItem.getWorkflowData() == null) {
            LOGGER.error("[Custom Workflow] WorkItem or WorkflowData is NULL!");
            return;
        }

        String payloadPath = workItem.getWorkflowData().getPayload().toString();
        LOGGER.info("[Custom Workflow] Payload Path: {}", payloadPath);

        // Get the Resource Resolver
        ResourceResolver resolver = workflowSession.adaptTo(ResourceResolver.class);
        if (resolver != null) {
            Resource resource = resolver.getResource(payloadPath);
            if (resource != null) {
                PageManager pageManager = resolver.adaptTo(PageManager.class);
                Page page = pageManager.getContainingPage(resource);

                if (page != null) {
                    LOGGER.info("[Custom Workflow] Page Title: {}", page.getTitle());
                    LOGGER.info("[Custom Workflow] Page Path: {}", page.getPath());
                } else {
                    LOGGER.warn("[Custom Workflow] No Page found for the given resource.");
                }
            } else {
                LOGGER.warn("[Custom Workflow] No Resource found at the given path.");
            }
        } else {
```

```
        LOGGER.error("[Custom Workflow] Resource Resolver is NULL.");
    }
}
```

Screenshot:

- AEM Workflow Model UI with the custom process step configured.




```
02.04.2025 16:57:40.072 *INFO* [[0:0:0:0:0:0:0:1] [1743593259999] GET /libs/wcm/core/content/components.1743593259807.json HTTP/1.1] com.day.cq.wcm.core.impl.components.ComponentServlet provided components.
02.04.2025 16:57:45.669 *INFO* [[0:0:0:0:0:0:0:1] [1743593265631] POST /var/workflow/instances HTTP/1.1] com.adobe.granite.workflow.core.advance.DynamicParticipantNodeHandler Activate
com.adobe.granite.workflow.core.advance.DynamicParticipantNodeHandler@7f534f56
02.04.2025 16:57:45.702 *INFO* [sling-oak-observation-9] org.apache.sling.event.impl.jobs.queues.JobQueueImpl.Granite Workflow Queue Starting job queue Granite Workflow Queue
02.04.2025 16:57:45.704 *INFO* [FelixLogListener] Events.Service.org.apache.sling.event Service [QueueMBean for queue Granite Workflow Queue,6549, [org.apache.sling.event.jobs.jmx.StatisticsMBean]] ServiceEvent
REGISTERED
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.adobe.granite.workflow.core.job.JobHandler Start of
Workflow Execution: Title=my-custom-workflow,  Process=com.myTraining.core.workflow.CustomWorkflowProcess, Workfront-object-type=null
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.myTraining.core.workflow.CustomWorkflowProcess [Custom
Workflow] Executing workflow process...
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.myTraining.core.workflow.CustomWorkflowProcess [Custom
Workflow] Payload Path: /content/myTraining/us/en/sample-page
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.myTraining.core.workflow.CustomWorkflowProcess [Custom
Workflow] Page Title: Sample Page
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.myTraining.core.workflow.CustomWorkflowProcess [Custom
Workflow] Page Path: /content/myTraining/us/en/sample-page
02.04.2025 16:57:45.713 *INFO* [JobHandler: /var/workflow/instances/server0/2025-04-02_1/my-custom-workflow_1:/content/myTraining/us/en/sample-page] com.adobe.granite.workflow.core.job.JobHandler End of
Workflow Execution - Title: my-custom-workflow, Process: com.myTraining.core.workflow.CustomWorkflowProcess
02.04.2025 16:57:45.716 *INFO* [[0:0:0:0:0:0:0:1] [1743593265712] GET /content/myTraining/us/en/sample-page.html HTTP/1.1] com.day.cq.wcm.core.impl.designer.SearchPathLimiter Search path limiter configured with
searchPathLimiterFeatureToggleOn: true and searchPathThreshold: true.
```

Step 3: Create an Event Handler to Print Resource Path in Logs

1. Create a Java class in the **core module**:

Java code

```
package com.myTraining.core.listeners;


import org.apache.sling.api.resource.observation.ResourceChange;
```

```
import org.apache.sling.api.resource.observation.ResourceChangeListener;
import org.osgi.service.component.annotations.Component;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import java.util.List;

@Component(
        service = ResourceChangeListener.class,
        property = {
                ResourceChangeListener.PATHS + "=/content/myTraining/us",
                ResourceChangeListener.CHANGES + "=ADDED",
                ResourceChangeListener.CHANGES + "=CHANGED",
                ResourceChangeListener.CHANGES + "=REMOVED"
        }
)
public class ResourceEventHandler implements ResourceChangeListener {
    private static final Logger LOGGER =
LoggerFactory.getLogger(ResourceEventHandler.class);

    @Override
    public void onChange(List<ResourceChange> changes) {
        for (ResourceChange change : changes) {
            LOGGER.info("[Resource Event] Type: {} | Path: {}", change.getType(),
change.getPath());
        }
    }
}
```

2. **Deploy the code and publish a page** to see logs like:

```
Page Event Triggered for Path: /content/us/en/news/news-1
```

Step 4: Create a Sling Job to Print "Hello World" in Logs

1. Create a Java class in the **core module**:

Java code

HelloWorldJob.java

```
package com.myTraining.core.schedulers;


import org.apache.sling.event.jobs.Job;
import  org.apache.sling.event.jobs.consumer.JobConsumer;
import   org.osgi.service.component.annotations.Component;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;


@Component(
        service = JobConsumer.class,
        property = {
                JobConsumer.PROPERTY_TOPICS + "=myTraining/job/helloWorld"
        }
)
public class HelloWorldJob implements JobConsumer {

    private static final Logger LOGGER = LoggerFactory.getLogger(HelloWorldJob.class);


    @Override
    public JobResult process(Job job) {
```

```
        LOGGER.info("[Sling Job] Executing Hello World Job...");
        LOGGER.info("[Sling Job] Hello World!");
        return JobResult.OK;
    }
}
```

2. Run the job using **Sling JobManager**:

Java Code

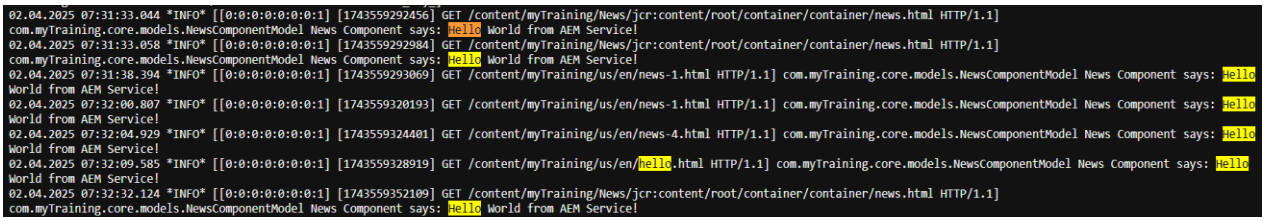
JobTrigger.java

```
package com.myTraining.core.schedulers;

import org.apache.sling.event.jobs.JobManager;
import org.osgi.service.component.annotations.Activate;
import org.osgi.service.component.annotations.Component;
import org.osgi.service.component.annotations.Reference;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import java.util.HashMap;
import java.util.Map;

@Component(service = JobTrigger.class, immediate = true)
public class JobTrigger {

    private static final Logger LOGGER = LoggerFactory.getLogger(JobTrigger.class);

    @Reference
    private JobManager jobManager;

    @Activate
```

```
protected void activate() {
    LOGGER.info("Activating JobTrigger - Automatically Triggering Sling Job...");
    triggerJob();
}

private void triggerJob() {
    if (jobManager != null) {
        Map<String, Object> jobProps = new HashMap<>();
        jobProps.put("message", "Triggered Hello World Job!");
        jobManager.addJob("myTraining/job/helloWorld", jobProps);
        LOGGER.info("Sling Job Triggered Successfully!");
    } else {
        LOGGER.error("JobManager is null. Cannot trigger the job!");
    }
}
```

3. **Deploy and check logs** for "Sling Job Executed: Hello World" message.

Screeenshot



Step 5: Create a Scheduler to Print "Yellow World" Every 5 Minutes Using Cron Expression

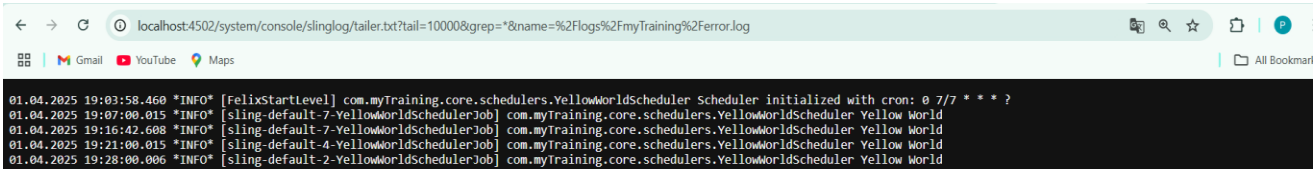
1. Create a new Java class:

Java code

```
package com.myTraining.core.schedulers;


import org.apache.sling.commons.scheduler.Scheduler;
import org.osgi.service.component.annotations.Activate;
import org.osgi.service.component.annotations.Component;
import org.osgi.service.component.annotations.Modified;
import org.osgi.service.metatype.annotations.AttributeDefinition;
import org.osgi.service.metatype.annotations.ObjectClassDefinition;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

import java.util.concurrent.atomic.AtomicBoolean;

@Component(service = Runnable.class, immediate = true, configurationPid =
"com.myproject.core.schedulers.YellowWorldScheduler")
public class YellowWorldScheduler implements Runnable {

   private static final Logger LOG = LoggerFactory.getLogger(YellowWorldScheduler.class);

   @ObjectClassDefinition(name = "Yellow World Scheduler Configuration", description =
"Scheduler to log 'Yellow World' every 5 minutes")
   public @interface Config {
      @AttributeDefinition(name = "Cron Expression", description = "Cron expression for
scheduling")
      String scheduler_expression() default "0 */5 * * * ?";
   }

   private final AtomicBoolean running = new AtomicBoolean(false);

   @Activate
   @Modified
   protected void activate(final Config config) {
      LOG.info("YellowWorldScheduler activated with cron expression: {}",
config.scheduler_expression());
   }

   @Override
   public void run() {
      if (running.compareAndSet(false, true)) {
         try {
            LOG.info("Yellow World");
         } finally {
            running.set(false);
```

```
        }
    }
  }
}
```

2. Deploy and check logs for "Scheduled Job Executed: Yellow World" every 5 minutes.

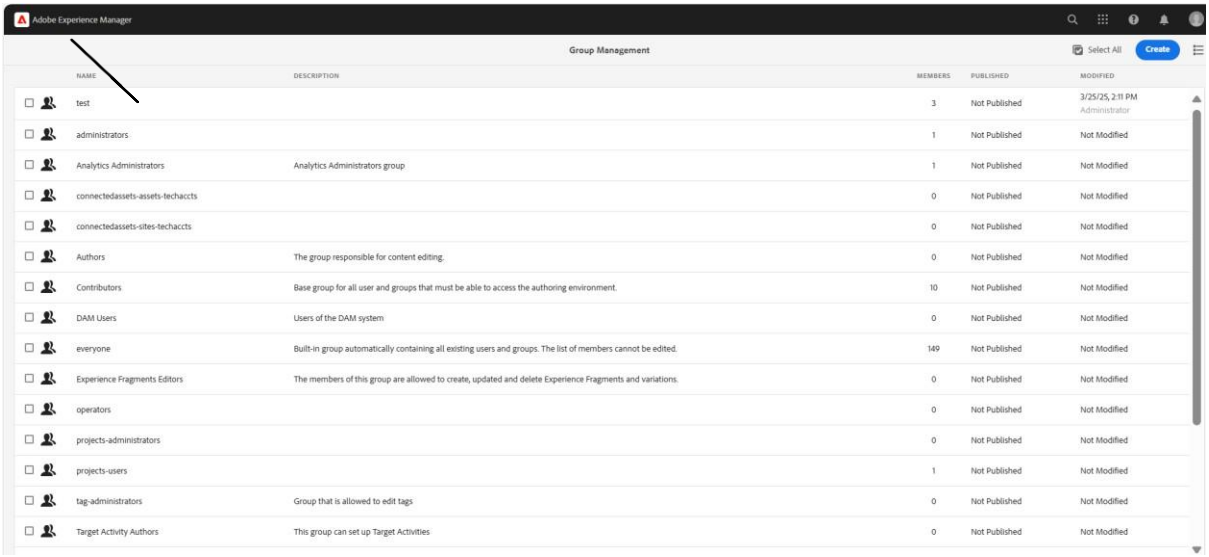


Step 6: Create 3 Users, Assign Them to a Group, and Set Permissions

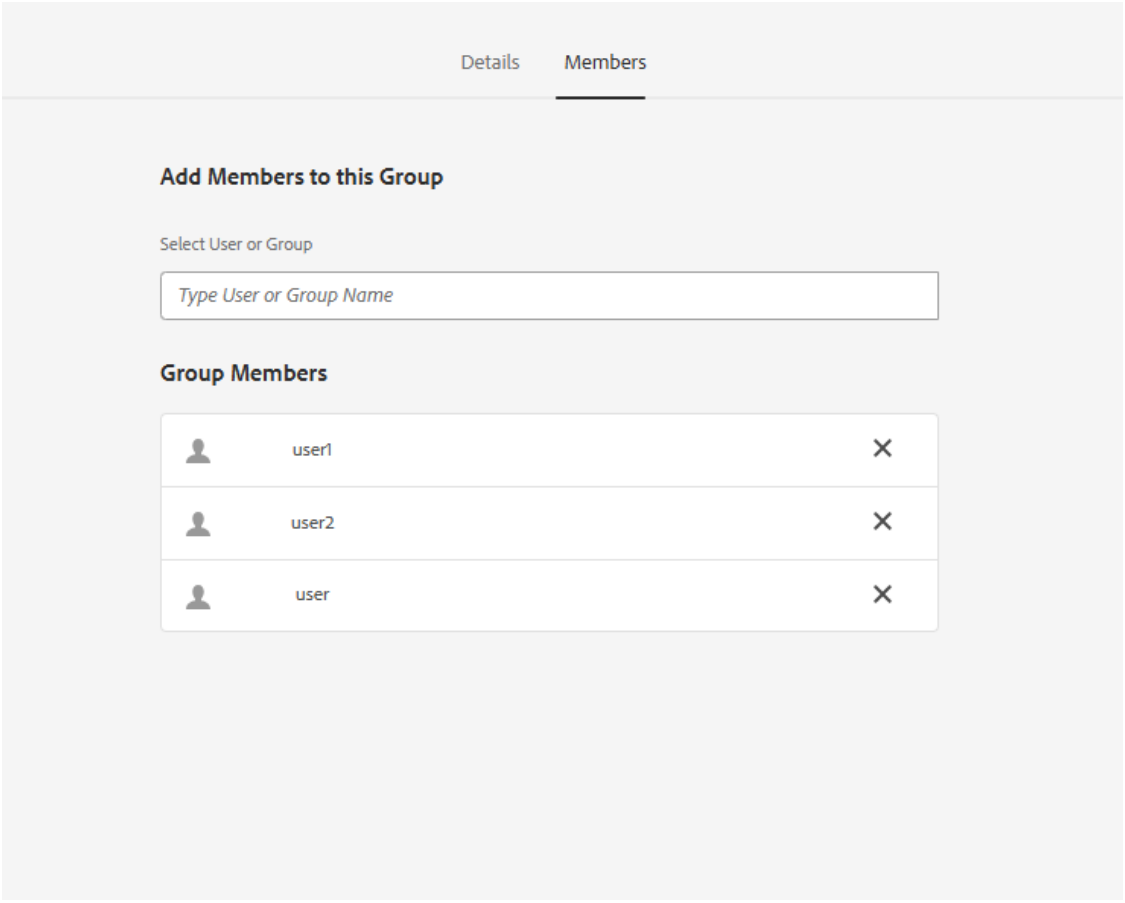
1. Navigate to **AEM → Tools → Security → Users**.
2. Click **Create User** and add:
    - **User1:** author1
    - **User2:** author2
    - **User3:** author3
3. Navigate to **AEM → Tools → Security → Groups**, create a new group:
    - **Group Name:** Dev Authors
4. Add the **3 users to the "Dev Authors" group**.
5. Set permissions:
    - Go to **/content** and **/dam** folders in **User Permissions**.
    - Set **Read-Only** access.
    - Grant **Replication** permission.
6. Save and verify that these users **cannot edit but can replicate content**.

Screenshot

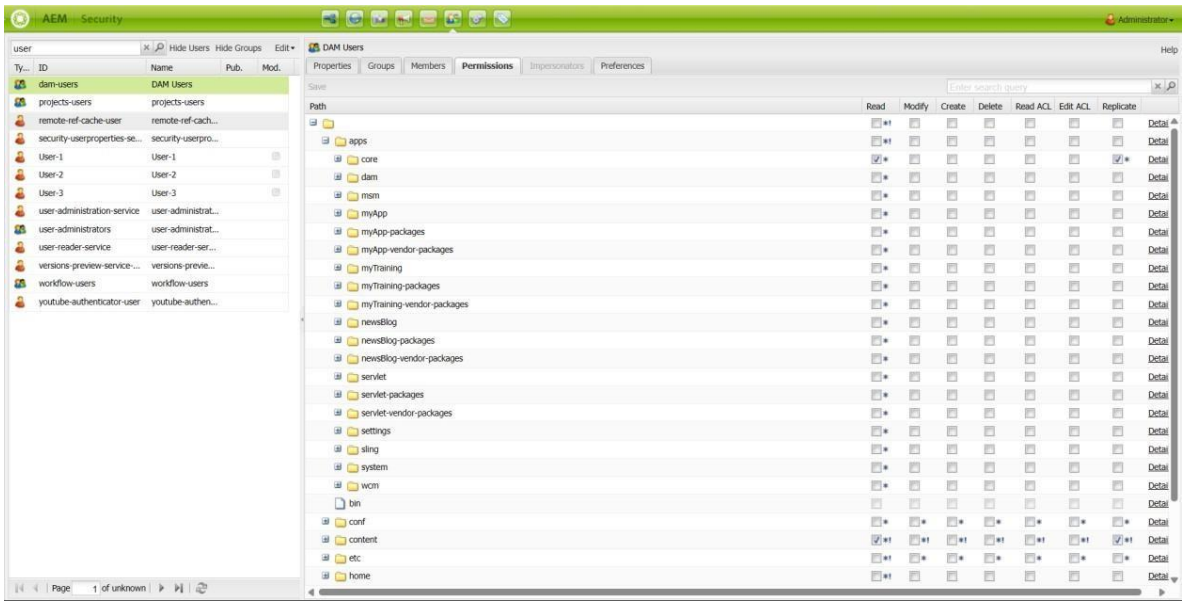
- **Group ui**



- **User ui**



- **Permissions UI showing read-only access and replication privileges.**


AEM Security
Administrator
user
Hide Users
Hide Groups
Edit
Ty...
ID
Name
Pub.
Mod.
dam-users
DAM Users
projects-users
projects-users
remote-ref-cache-user
remote-ref-cach...
security-userproperties-se...
security-userpro...
User-1
User-1
User-2
User-2
User-3
User-3
user-administration-service
user-administrat...
user-administrators
user-administrat...
user-reader-service
user-reader-ser...
versions-preview-service-...
versions-previe...
workflow-users
workflow-users
youtube-authenticator-user
youtube-authen...
Page 1 of unknown
DAM Users
Help
Properties
Groups
Members
Permissions
Impersonators
Preferences
Save
Enter search query
Path
Read
Modify
Create
Delete
Read ACL
Edit ACL
Replicate
apps
core
dam
msm
myApp
myApp-packages
myApp-vendor-packages
myTraining
myTraining-packages
myTraining-vendor-packages
newsBlog
newsBlog-packages
newsBlog-vendor-packages
servlet
servlet-packages
servlet-vendor-packages
settings
sling
system
wcm
bin
conf
content
etc
home