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IBM SECURITY IDENTITY GOVERNANCE AND INTELLIGENCE

IGI Rule Management Lab (Lab06)

5.2.x

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Document Purpose

This document provides the instructions for running the IGI Rule Management Lab.

For any comments/corrections, please contact David Edwards (davidedw@au1.ibm.com).

Document Conventions

The following conventions are used in this document:

- ☐ A step to be performed by the student.
- A note, some special information or warning.

A piece of code

Normal paragraph font is used for general information.

The term “IGI” is used to refer to IBM Security Identity Governance and Intelligence.

Document Control

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8 Aug 2017	0.2	David Edwards	Check/update for 5.2.3 and Trg Env v4
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1 Introduction to the Lab

There are several points in the IGI product where custom Java Rules can be applied to change the data and perform custom operations. This lab demonstrates how to set the IGI Account expiration date for a user that is created as part of a Create User workflow. Something like this might be useful in a process to create a new contractor employee, where the access to IGI needs to be revoked after a specific time frame.

This lab also introduces the basics of the Task Planner, where scheduled background processes are configured and managed. The Task Planner manages the running of IGI Tasks. A Task is made up of one or more jobs. A job is a discrete piece of work to manage data, business logic, and external services. A job is reusable in multiple tasks. While a task is running, it cannot be changed. A task must be stopped, changed, and restarted to make changes to background processing.

The parts of the lab are:

1. Change the parameters of the RulesEngine Task to change the cache for development and testing
2. Create and new rule, compile it, and deploy it
3. Create and new user and demonstrate the rule execution setting the expiration value of the new user

2 Lab Pre-Requisites

This section defines the lab pre-requisites.

2.1 Expected Knowledge

This lab assumes the following knowledge has been acquired before attempting the labs:

- Familiarity with the IGI Administrative Console and Service Center
- Familiarity with applications, accounts, targets, attributes and permissions

This knowledge can be gained via the introductory (Foundation) training.

In addition, from the IGI Deployment Training, you should be familiar with

- Basic concepts of Rules and Rule Flows
- Ability to access and view to the IGI logs for debugging

2.2 Standard Lab Setup

This lab uses the standard IGI training lab. Setup for this lab is described in the document ***Lab00 - IGI Lab Environment Setup Guide***.

These documents describe the standard training environment used for the IGI labs and the steps to prepare for this lab.

2.3 Additional Lab Setup

No additional lab setup is required for this lab.

However, the third part of this lab relies on a new user flow that is shipped with the training image (v4). If you are using the training image and have run Lab 07 ("Lab07 - User Lifecycle Automation") you will have deleted the new user flow (that presents the "New Hire" tab for DFox). If this is the case, you can go and get a fresh image of the training VM (or restore a snapshot if you've taken it). If this is not feasible, you can repeat the steps in Part 02 of Lab 07 to recreate the user create flow. You may also need to enable the user events in the Required Data in the My Requests activity.

3 Lab Instructions

3.1 Part 1 – Change Parameters of a Task for Development and Test

This part of the lab will use the Task Planner to change the default cache setting of the **xxx** job of the RulesEngine Task to load and recompile rules every 1 minute, instead of the default two hours. This task will also enable monitoring of the RuleEngine Task.

Changing the cache setting for the RulesEngine will affect the performance of the system. Loading and compiling the rules every minute uses more IO and CPU. Once done with development and testing, the cache setting should be reset to a higher value.

The steps we will follow:

- Stop the RuleEngine task
- Change the RuleEngine Task Parameters
- Start the RuleEngine task

To support this section, you should review the section “Task Planner” in the IGI Knowledge Center (online documentation) at

https://www.ibm.com/support/knowledgecenter/en/SSGHJR_5.2.3/com.ibm.igi.doc/CrossIdeas_Topics/TSKP/manageTimer.html

3.1.1 Change Task and Job Parameters

This section will demonstrate how to change the cache parameters of a job. No changes can be done to a task, or the jobs included in a task, while the task is running. The task must be stopped to make changes. In addition to changing the cache time, the lab will also enable monitoring execution of the rules engine, which may help in debugging issues with rule configuration.

The steps are:

- ☐ Open the **IGI Administrative Console** (admin/admin)
- ☐ Open **Task Planner**
- ☐ Select the **RuleEngine Task**
- ☐ Select **Actions > Stop**. The green check next to the name will turn into a red X.

Identity Governance and Intelligence Task Planner

Manage Monitor Settings

Tasks Jobs

Task

Filter

Active	Name	Context	Scheduler
	AccessRiskControls4SAP	Ideas	
	AccessRiskControls4SAPSync	Ideas	
	Advanced Rules [Set Default Password]	Ideas	CustomTas
	ARMExternalAuthorization	Ideas	Singleton
	Connectors	Ideas	Connectors
	EmailService	Ideas	Singleton
	Feedback	Ideas	System
	Hierarchies and Reviewers Refresh [Demo]	Ideas	CustomTas
	Hierarchies Refresh	Ideas	CustomTas
	Housekeeping	Ideas	System
	HousekeepingAccessRiskControls4SAP	Ideas	System
	HousekeepingOptimizer	Ideas	RoleMining
	NightShift	Ideas	System
	ReportsSpooler	Ideas	Reports
	RoleMining	Ideas	RoleMining
	RuleEngine	Ideas	System
	Wolf [do not use]	Ideas	CustomTas

Actions: Monitor, Start, Stop, Add, Remove

Details Jobs Scheduling History

Name: RuleEngine

Scheduler: System

Context: Ideas

Enable history: ☐

Description:

Save Cancel

- ☐ Highlight the RuleEngine Task
- ☐ On the **Details** tab in the right panel, check “Enable history” and click **Save**

Tasks Jobs

Task

Name: Rule%

Context:

Scheduler:

Search Hide Filter Actions

Active	Name	Context	Scheduler
	RuleEngine	Ideas	System

Details Jobs Scheduling History

Name: RuleEngine

Scheduler: System

Context: Ideas

Enable history: ☒

Description:

Save Cancel

A Task is composed of one or more Jobs, usually related in some way. The RuleEngine task is comprised of four jobs, one job for each of the Event Queues, IN User/OU, TGT (Target), OUT, and INTERNAL. Each job has its own parameters. The Rule to be created in the lab will process on the Event IN Queue. By default, the cacheTime parameter is set to 120 minutes, which means that changes made to a rule will not be reloaded and compiled for up to 2 hours. For development and testing the cacheTime is set to 1 minute in order to pick up changes closer to real time.

- ☐ Highlight the RuleEngine Task
- ☐ Click the **Jobs** tab in the right panel
- ☐ Select the “Event IN Dispatcher” Job in the middle pain
- ☐ Change the **cacheTime** to “1” minute
- ☐ Click **Save** in the right panel

Task Configuration:

- Name: Rule%
- Context: Ideas
- Schedule: System
- Execution type: Start if parent OK

Mandatory	Name	Type	Value	Description
X	cacheTime	Long	1	Time before
X	isDeferred	Integer	0	0 = not defer
X	threadNumber	Integer	3	Number of th

For information, select the “Scheduling” tab and note that the RuleEngine will execute every 20 seconds. Also select the “History” tab and notice that there are no entries in the history table. Start the RuleEngine with the new parameters.

- ☐ Select the RuleEngine Task
- ☐ Select **Actions > Start** in the left pane. The red X next to the name will turn into a green check.

After 20 seconds, a refresh of the History tab will show an entry showing the success and/or failure of the jobs in the RoleEngine tasks.

The History feature of running tasks will have a slight impact on performance and will consume disk space over a long period time. Once development and debug is complete, it is advisable to disable the history recording of the task.

This completes the changes to the task. Next, we will create and deploy a new Rule.

3.2 Part 2 – Create, Compile, and Deploy a New Rule

This part of the lab focus on creating a new rule, verifying the rule, and deploying the rule into the rule flow to be executed as part of the RuleEngine scheduled task.

3.2.1 Creating a new rule as part of the Live Event rule flow of the In Event Queue

Steps:

- ☐ Log into the **IGI Administration Console, Access Governance Core**
- ☐ Go to **Configure > Rules**
- ☐ Select the following; **Rule Class** = Live Events, **Queue** = IN, **Rule Flow** = USER_ADD

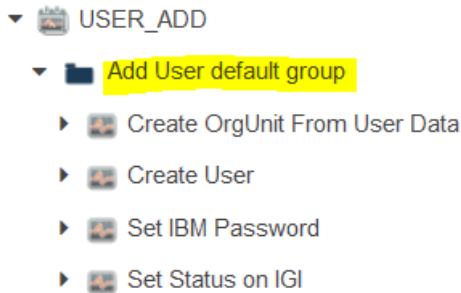
Rule Configuration:

- Rule Class: Live Events
- Queue: IN
- Rule Flow: USER_ADD


Rule Concept:

- Authorization Digest: Triggered by: User authorization changes
- Live events: Triggered by: Event Queues (In, Out, Target)

- Expand the twisty and view the rules currently deployed as part of the User_Add Rule Flow



Note there are 4 rules deployed.

- Open the **Rules Package** slider in the right panel  and view all the available rules in the USER_ADD package that are able to be deployed.

The screenshot shows the IBM Identity Governance and Intelligence console. The top navigation bar includes 'Identity Governance and Intelligence', 'Access Governance Core', 'Ideas / admin', 'Help', and 'Logout'. Below this is a secondary navigation bar with 'Manage', 'Configure', 'Monitor', 'Tools', and 'Settings'. The main content area is titled 'Rules Sequence' and shows a list of rules under the 'USER_ADD' package. The rules are listed in a table with columns for 'Name' and 'Description'. The rules include: Add Entitlement To Created User, Create OrgUnit From User Data, Create User, Generate Unique UserID, Generate an Access Request, Lock Created User, Set IBM Password, Set Random Password, Set Simple Password, Set Status on IGI, Set UserID Password, [EXAMPLE] SET DEPARTMENT MANAGER, and [EXAMPLE] SET USER MANAGER. The 'Rules Package' slider is expanded, showing the list of rules.

Name	Description
Add Entitlement To Created User	[V1.1 - 2014-05-26] - Add a Entitlement to the Created User. Default entitlement = Em...
Create OrgUnit From User Data	[V1.4 - 2017-02-27] - Default Rule to create OU (if does not exists). The OU code is c...
Create User	[V1.1 - 2014-05-26] - Create a User using data from the external table
Generate Unique UserID	[V1.1 - 2014-05-26] - If UserID is not provided in User Data, generate a unique useri...
Generate an Access Request	
Lock Created User	[V1.1 - 2014-05-26] - Manage the disabled info to Lock IDEAS Master User Account
Set IBM Password	[V1.1 - 2015-07-15] - Set the current user password equals to Passw0rd
Set Random Password	[V1.1 - 2014-05-26] - Generate a random password according to the password polici...
Set Simple Password	[V1.1 - 2014-05-26]
Set Status on IGI	[V1.2 - 2016-05-16]
Set UserID Password	[V1.2 - 2016-02-29] - Set the current user password equals to the userid
[EXAMPLE] SET DEPARTMENT MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR2 = Y/N
[EXAMPLE] SET USER MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR1 = Manager UID

There are several rules in the package that can be added to the flow. These are supplied as examples of possible rule that can be deployed to react to a new user.

The rules in the configured rule flow execute in the descending order in which they are placed in the flow. The objects in memory are passed from rule to rule.

First, verify (compile) the rules in the package

- From the right panel, select **Actions > Verify**

View the results of the Verify

Information

- Add Entitlement To Created User - ok
- Create OrgUnit From User Data - ok
- Create User - ok
- [EXAMPLE] SET DEPARTMENT MANAGER - ok
- [EXAMPLE] SET USER MANAGER - ok
- Generate Unique UserID - ok
- Lock Created User - ok
- Set Random Password - ok
- Set Simple Password - ok
- Set UserID Password - ok
- Set IBM Password - ok
- Generate an Access Request - ok
- Set Status on IGI - ok

OK

Notice that all the rules in the package are compiled, not just the one that are deployed as part of the rule flow.

- ☐ Click **OK** to close the Information dialog

3.2.2 Creating a New Rule

This follow section creates a new rule for the package that sets a default expiration date for a new users IGI account. Through a workflow process initiated by a User Manager, it adds an Add_User event to the Event IN Queue, triggering the Live Events→In→Rule Flow. The following is the pseudo design for the rule

Create the rule under Live Events/IN/USER_ADD so include in the working memory (when clause) the objects needed in memory

The expiration date to set is for the IGI account (AccountBean) of the new hire, not in the user (UserBean)!

The IGI account of the new hire is the one having the Account Configuration «Pwdcfg» name «Ideas» or id «1». It's a technical entry not deletable (all the users in the system must have this account)

The UserAction.findAccount(Dao sql, UserBean yourNewHire, AccountBean accountFilterForIdeasAccountOnly) method returns a list (BeanList) of the accounts of a user (UserBean) filtered by account (AccountBean)

Set the property «Expire» of the account and then save the AccountBean with the method UserAction.updateAccount(Dao sql, AccountBean theIdeasAccountOfNewHire)

Use Java Calendar class to define the date. Note: this is a Java class, not an IGI class. Rules can leverage the full power of Java and any package imported into the Rules package.

For test purpose set expiration date only 5 minutes after creation

Verify the new Rule

To meet this requirement, you could design the Java code from scratch, or used the supplied example shown below (cut and paste)

```

when
    userBean : UserBean( )                // Get the user of the Add_User
    orgUnitBean : OrgUnitBean( )          // Get the org unit of the user
    externalInfo : ExternalInfo( )
    userErcBean : UserErcBean( )
then
    logger.info("User to process : " + userBean.getCode()); // Log the user to be processed

    AccountBean userAccount = new AccountBean();
    userAccount.setPwdcfg_id(1L);          // IDEAS cfg, ID=1

    // Search the users accounts and filter for the IGI account

    BeanList accounts = UserAction.findAccount(sql, userBean, userAccount);
    userAccount = (AccountBean) accounts.get(0);

    // Expiration IGI account after 5 minutes

    Calendar currentTime = Calendar.getInstance(); //Get the Current Time
    currentTime.add(Calendar.MINUTE, 5);           // Add 5 minute
    Date newEntDate = currentTime.getTime();       //Set the new time

    logger.info("Exp Date: " + newEntDate);        // Log the expiration date/time

    userAccount.setExpire(newEntDate);            // Set the account expiration attribute
    logger.info("Expiration Date set!!!!");        // Log that it set
    UserAction.updateAccount(sql, userAccount );  // Update the users IGI account

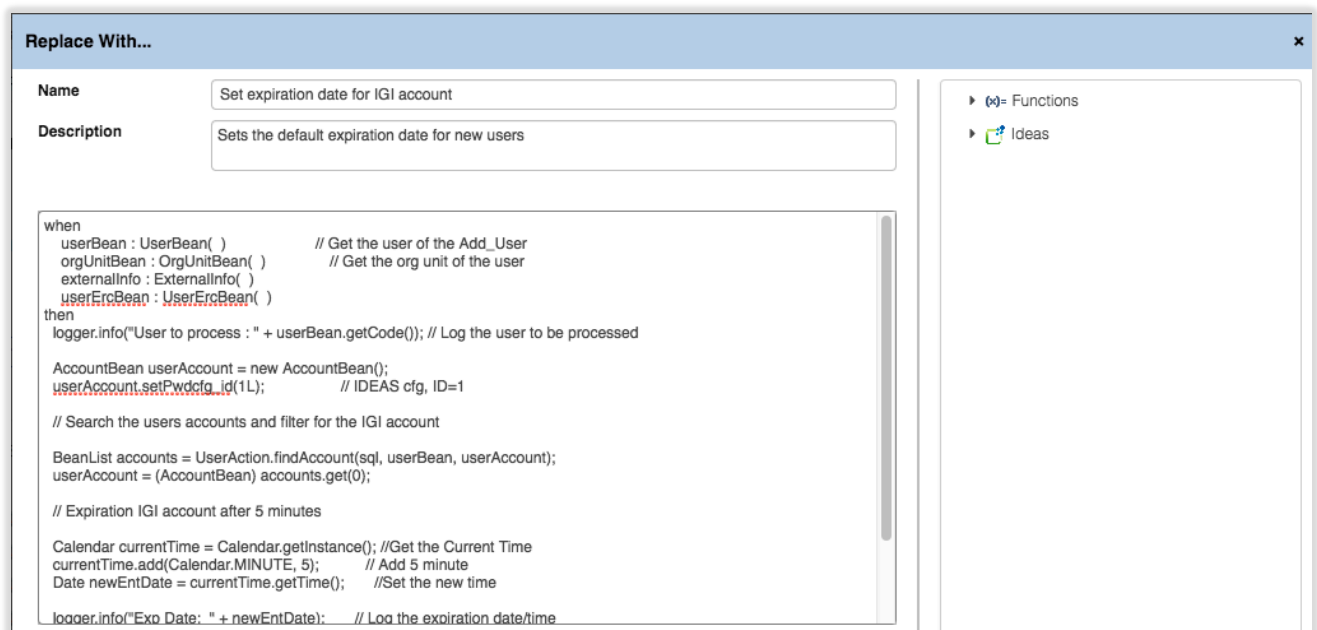
```

To create the new rule:

- ☐ From the right panel, in the Rules Package section, select **Actions > Create**

A new rule editing session pops up.

- ☐ On the Replace With... dialog, enter the following values:
 - ✓ **Name** = "Set expiration date for IGI account"
 - ✓ **Description** = "Sets the default expiration date for new users"
- ☐ Add the Java Code – either copy your own code in or copy'n'paste the code above into the field that currently has "when then"



Replace With...

Name Set expiration date for IGI account

Description Sets the default expiration date for new users

```

when
    userBean : UserBean( )                // Get the user of the Add_User
    orgUnitBean : OrgUnitBean( )          // Get the org unit of the user
    externalInfo : ExternalInfo( )
    userErcBean : UserErcBean( )
then
    logger.info("User to process : " + userBean.getCode()); // Log the user to be processed

    AccountBean userAccount = new AccountBean();
    userAccount.setPwdcfg_id(1L);          // IDEAS cfg, ID=1

    // Search the users accounts and filter for the IGI account

    BeanList accounts = UserAction.findAccount(sql, userBean, userAccount);
    userAccount = (AccountBean) accounts.get(0);

    // Expiration IGI account after 5 minutes

    Calendar currentTime = Calendar.getInstance(); //Get the Current Time
    currentTime.add(Calendar.MINUTE, 5);           // Add 5 minute
    Date newEntDate = currentTime.getTime();       //Set the new time

    logger.info("Exp Date: " + newEntDate);        // Log the expiration date/time

```

Functions

Ideas

- ☐ Click **Save** to save the rule and close the Replace With... dialog

Certification Campaigns | Certification Datasets | Admin Roles | **Rules** | Notifications | Rights Lookup | Hierarchy

Rules Rules Sequence

Rule Class: Live Events
 Queue: IN
 Rule Flow: USER_ADD

Hide Filter Actions

Before Run After

USER_ADD
 Add User default group
 Create OrgUnit From User Data
 Create User
 Set IBM Password
 Set Status on IGI

Name	Description
Add Entitlement To Created User	[V1.1 - 2014-05-26] - Add a Entitlement to the Created User. Default entitlement = Em...
Create OrgUnit From User Data	[V1.4 - 2017-02-27] - Default Rule to create OU (if does not exists). The OU code is c...
Create User	[V1.1 - 2014-05-26] - Create a User using data from the external table
Generate Unique UserID	[V1.1 - 2014-05-26] - If UserID is not provided in User Data, generate a unique useri...
Generate an Access Request	
Lock Created User	[V1.1 - 2014-05-26] - Manage the disabled info to Lock IDEAS Master User Account
Set IBM Password	[V1.1 - 2015-07-15] - Set the current user password equals to PasswOrd
Set Random Password	[V1.1 - 2014-05-26] - Generate a random password according to the password polici...
Set Simple Password	[V1.1 - 2014-05-26]
Set Status on IGI	[V1.2 - 2016-05-16]
Set UserID Password	[V1.2 - 2016-02-29] - Set the current user password equals to the userid
Set expiration date for IGI account	Sets the default expiration date for new users
[EXAMPLE] SET DEPARTMENT MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR2 = Y/N
[EXAMPLE] SET USER MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR1 = Manager UID

You may notice that the supplied rules include some version control in the description. This is purely arbitrary and not enforced or visible to the application. It would make sense to apply naming standards and version control to production deployments, particularly if multiple people are developing rules.

- ☐ From the right panel, select **Actions > Verify**
- ☐ View the results of the Verify

Information

- Set Random Password - ok
- Set Simple Password - ok
- Set UserID Password - ok
- Set Expiration date for IGI Account
- Error:**
- line: 33 - Rule Compilation error Calendar cannot be resolved to a type
- Calendar cannot be resolved
- Calendar.MINUTE cannot be resolved to a type
- Date cannot be resolved to a type
- Set IBM Password - ok
- Generate an Access Request - ok
- Set Status on IGI - ok

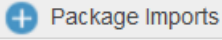
OK

The verify for the new rule fails.

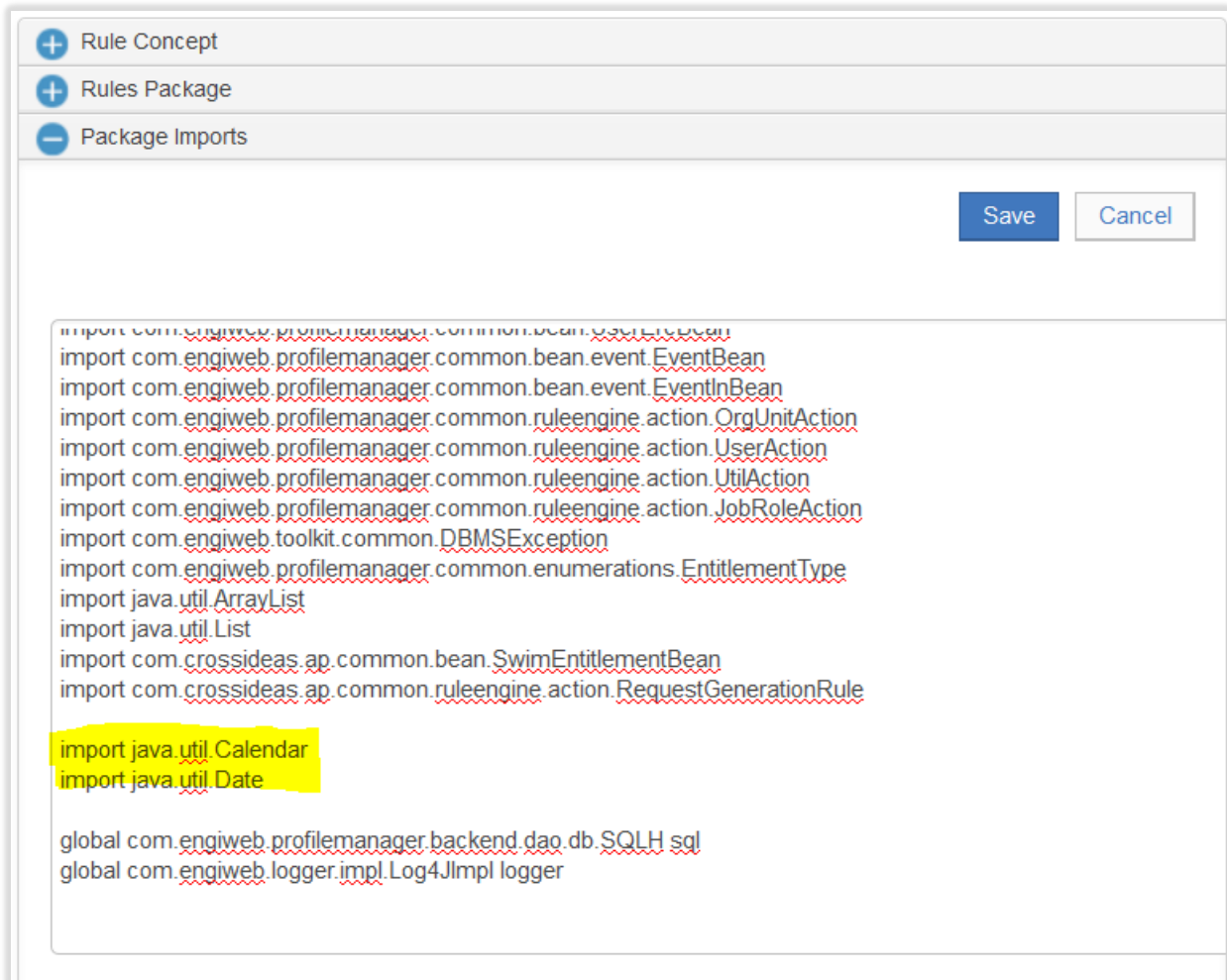
```

Error:
line: 33 - Rule Compilation error Calendar cannot be resolved to a type
Calendar cannot be resolved
Calendar.MINUTE cannot be resolved to a type
Date cannot be resolved to a type
  
```

The Java code uses two new classes to calculate the date and time of the account expiration. However, these classes were not in the list of packages imported for use by the rules in the rule flow. To correct this error, add the Java packages `java.util.Calendar` and `java.util.Date` to the package imports for the rule flow.

- ☐ Click **OK** to close the Information dialog
- ☐ Select the slider **Package Imports** 
- ☐ Add the following import statements

```
import java.util.Calendar
import java.util.Date
```



- ☐ Click **Save** to save the changes
- ☐ Verify the rules again. Note that all the rules compile “ok”

3.2.3 Deploying the new rule as part of the rule flow

The new rule is ready for deployment into the rule flow

- ☐ In the right panel, expand the **Rules Package**
- ☐ Select the rule, “Set expiration date for IGI account”
- ☐ In left panel, highlight the group “Add User default group”
- ☐ In the right panel execute **Actions > Add**

The rule “Set expiration date for IGI account” is added to the end of the rule flow.

Before...

Identity Governance and Intelligence Access Governance Core Ideas / admin Help Logout IBM

Manage Configure Monitor Tools Settings

Certification Campaigns Certification Datasets Admin Roles Rules Notifications Rights Lookup Hierarchy

Rules Rules Sequence

Rule Class: Live Events Queue: IN Rule Flow: USER_ADD

Hide Filter Actions

Before Run After

USER_ADD

- Add User default group
 - Create OrgUnit From User Data
 - Create User
 - Set IBM Password
 - Set Status on IGI

Name	Description
Add Entitlement To Created User	[V1.1 - 2014-05-26] - Add a Entitlement to the Created User. Default entitl
Create OrgUnit From User Data	[V1.4 - 2017-02-27] - Default Rule to create OU (if does not exists). The C
Create User	[V1.1 - 2014-05-26] - Create a User using data from the external table
Generate Unique UserID	[V1.1 - 2014-05-26] - If UserID is not provided in User Data, generate a unique useri...
Generate an Access Request	
Lock Created User	[V1.1 - 2014-05-26] - Manage the disabled info to Lock IDEAS Master User Account
Set IBM Password	[V1.1 - 2015-07-15] - Set the current user password equals to PasswOrd
Set Random Password	[V1.1 - 2014-05-26] - Generate a random password according to the password polici...
Set Simple Password	[V1.1 - 2014-05-26]
Set Status on IGI	[V1.2 - 2016-05-16]
Set UserID Password	[V1.2 - 2016-02-29] - Set the current user password equals to the userid
<input checked="" type="checkbox"/> Set expiration date for IGI account	Sets the default expiration date for new users
[EXAMPLE] SET DEPARTMENT MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR2 = Y/N
[EXAMPLE] SET USER MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR1 = Manager UID

Actions: Verify, Modify, Delete, Create, Add

After...

Before Run After

USER_ADD

- Add User default group
 - Create OrgUnit From User Data
 - Create User
 - Set IBM Password
 - Set Status on IGI
 - Set expiration date for IGI account

<input checked="" type="checkbox"/> Set expiration date for IGI account	Sets the default expiration date for new users
[EXAMPLE] SET DEPARTMENT MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR2 = Y/N
[EXAMPLE] SET USER MANAGER	[V1.1 - 2014-05-26] - USER_ERC.ATTR1 = Manager UID

The new rule will now execute when new users are created via a Service Center Process

3.3 Create a new user using the “New Hire” process

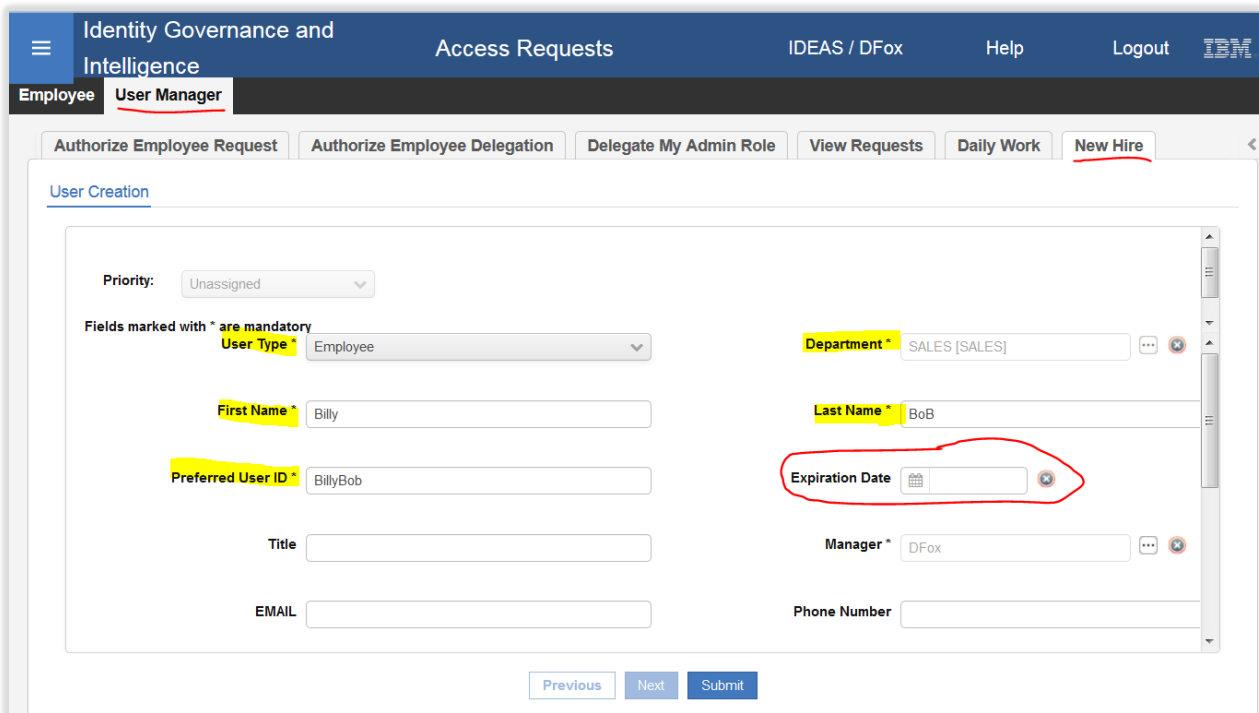
Test the new rule by creating a new user using the Service Center and verifying the Expiration date in the Admin Console.

3.3.1 Manager creates and new user using the Service Center

A manager logs in to the Service Center and acting as a User Manager completes the New Hire form to create a new user.

Follow the following steps:

- ☐ Open the **IGI Service Center** (Dfox/Passw0rd)
- ☐ Use the main menu (“hamburger icon”) to go to **Access Requests**
- ☐ Choose the **User Manager** tab
- ☐ Choose the **New Hire** tab
- ☐ Fill out the following fields (most of the values are not important)
 - ✓ Choose **User Type** = Employee
 - ✓ Choose **Department** = Sales
 - ✓ Enter any **First Name**
 - ✓ Enter any **Last Name**
 - ✓ Set any **Preferred User ID**
 - ✓ Leave the **Expiration Date** empty
 - ✓ Choose **Manager** = Dfox
- ☐ Click **Submit**



The screenshot shows the 'User Creation' form in the IBM Identity Governance and Intelligence interface. The form is titled 'User Creation' and is part of the 'New Hire' process. It contains several fields: Priority (Unassigned), User Type (Employee), Department (SALES [SALES]), First Name (Billy), Last Name (BoB), Preferred User ID (BillyBob), Title, EMAIL, Expiration Date (empty, circled in red), Manager (Dfox), and Phone Number. The form has 'Previous', 'Next', and 'Submit' buttons at the bottom.

- ☐ Click **OK** on the Request Submitted dialog
- ☐ Log out of the **Service Center**
- ☐ Open the **IGI Administrative Console** (admin/admin) and go to **Access Governance Core**
- ☐ Go to **Manage > Users** and **Filter** for the user just created (e.g.Billy)
- ☐ View the new users details. Notice the Account Expiration has a date of today, as determined by the new rule in the rule flow

The screenshot displays the IBM Identity Governance and Intelligence Access Governance Core interface. The left pane shows the 'Users' tab with a search for 'Billy' and a list of users. The right pane shows the 'Details' view for a user, with the 'Account Expiration' field highlighted in red, showing the date '9 Aug 2017'.

	Risk	First Name	Last Name	Master UID	Org.Unit
<input type="checkbox"/>		Billy	Norton	AIMM408	COUNTRY M.
<input checked="" type="checkbox"/>		Billy	Bob	BillyBob	SALES

System Data

User Type: Employee

OU Master: SALES [SALES]

Master UID: BillyBob

System UID: 3469

Identity UID:

Account Expiration: 9 Aug 2017

First Name: Billy

Last Name: Bob

Personal Data

The screenshot was captured on 9 Aug 2017, and the expiration date has been set to that date. This custom code has worked as expected.

This completes this lab.

Care should be taken with choosing the settings for the attribute-permissions. Of note:

- Setting an attribute-permission a not required will mean the entire account attribute can be removed. If you need to have a default setting, you should make the attribute required.
- Once an attribute-permission has been marked as required and the permission is assigned to a user, the permission cannot be removed from the user.

End of Document

Notices

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