

Kie Work Bench

This document provides detailed information for rule base service implementation

Introduction

Drools is a Business Rules Management System (BRMS) solution. It provides a core Business Rules Engine (BRE), a web authoring and rules management application (Drools Workbench), full runtime support for [Decision Model and Notation \(DMN\)](#) models at Conformance level 3, and an Eclipse IDE plugin for core development.

Drools is open source software, released under the **Apache License 2.0**. It is written in 100% pure Java™, runs on any JVM and is available in the Maven Central repository too.

More information can be found on the following links:

-  Drools Workbench (web UI for authoring and management)

Design details

https://docs.jboss.org/drools/release/7.49.0.Final/drools-docs/html_single/index.html#decision-engine-con_decision-engine

https://docs.jboss.org/drools/release/7.49.0.Final/drools-docs/html_single/index.html#_ch.kie.server

<http://www.mastertheboss.com/jboss-jbpm/drools/jboss-drools-tutorial>

Installation

1. Setup K8 service for Drools workbench - (DevOps team.)

Refer base image

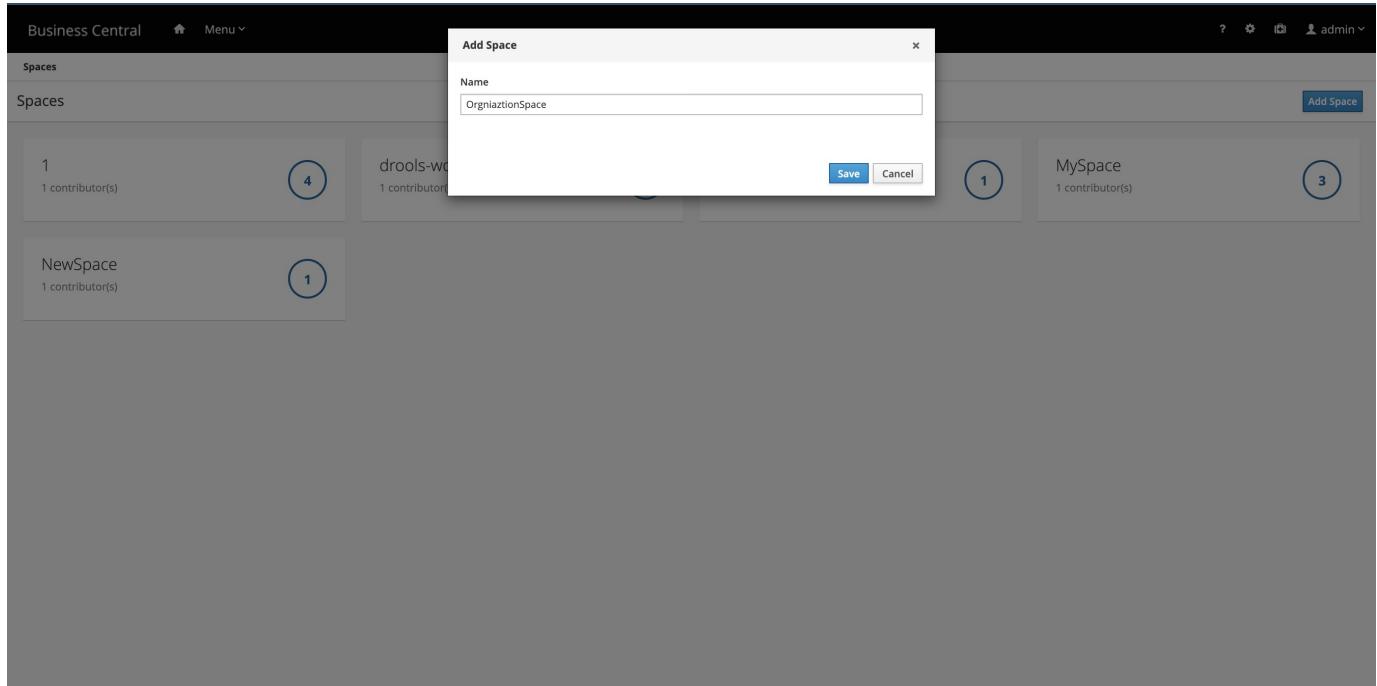
<https://registry.hub.docker.com/u/jboss/drools-workbench/>

<https://hub.docker.com/r/jboss/drools-workbench/dockerfile>

<https://github.com/soltean/drools-workbench>

Or use existing project guidelines to set up this service and configure below some objects in this service

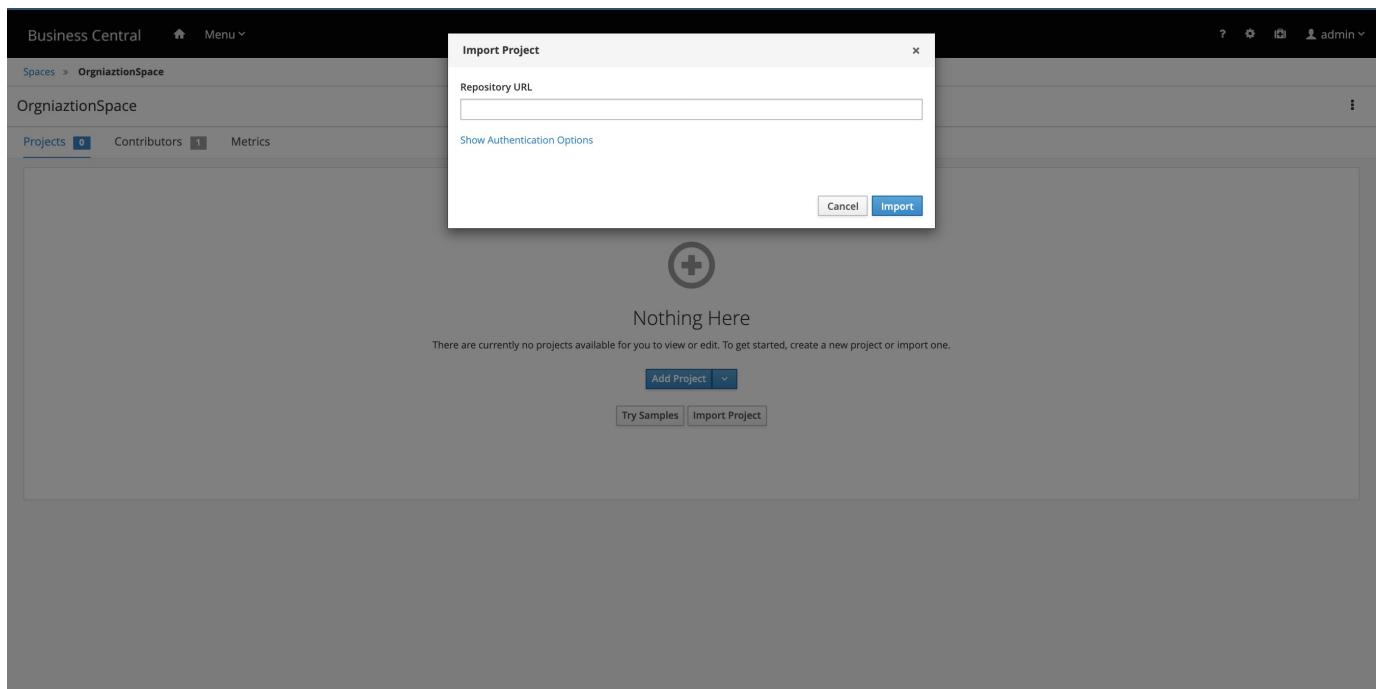
1. Create space



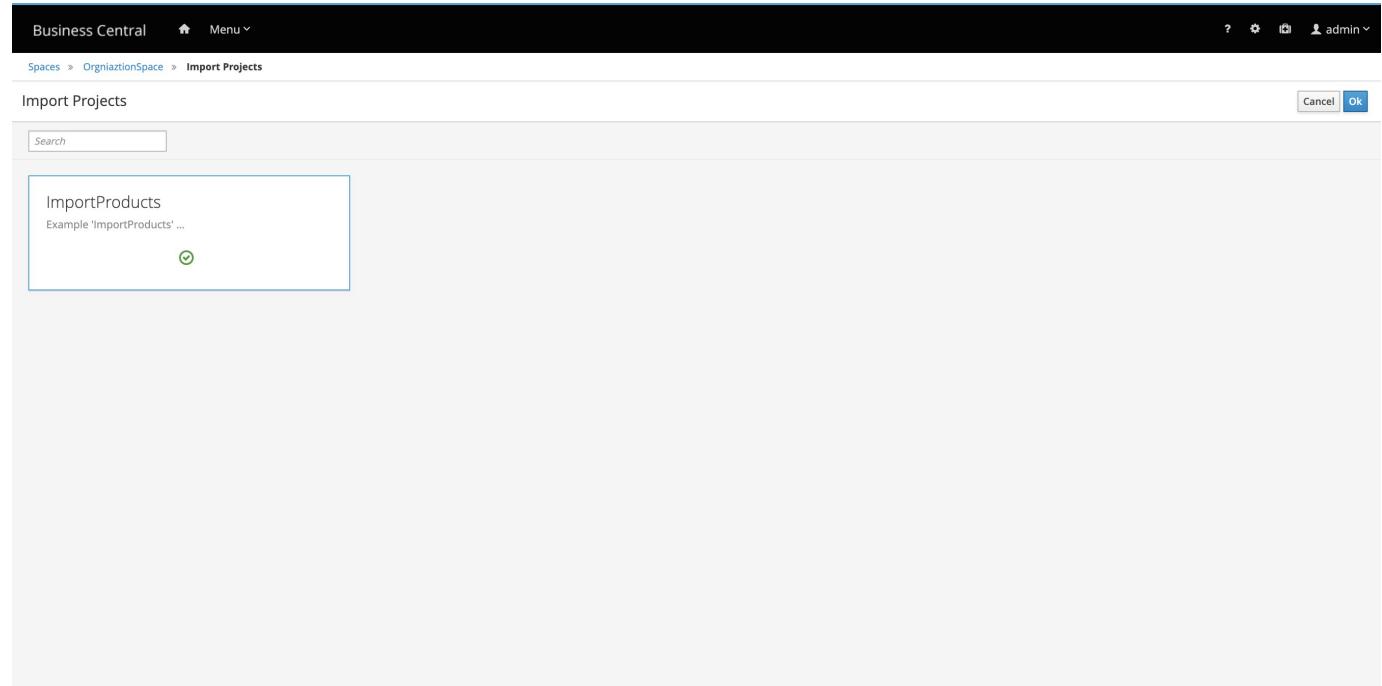
2 Import project using GIT

Sample URL

<https://github.com/soltean/ImportProducts>



Select the
project and click ok



Setup project configuration using the settings option

The screenshot shows the 'ImportProducts' settings screen in Business Central. At the top, there's a navigation bar with 'Business Central', a home icon, 'Menu', and user information for 'admin'. Below the navigation is a breadcrumb trail: 'Spaces > OrgnizationSpace > ImportProducts > master'. On the right side of the header are buttons for 'Build', 'Deploy', 'View Alerts', and more. The main content area has tabs for 'Assets' (4), 'Contributors' (1), 'Metrics', and 'Settings'. The 'Settings' tab is selected and highlighted in blue. On the left, a sidebar lists project settings: General Settings, Dependencies, KIE bases, External Data Objects, Validation, Service Tasks, Deployments, and Persistence. The 'General Settings' section contains fields for 'Name' (set to 'ImportProducts'), 'Description' (empty), 'URL' (set to 'ssh://0.0.0.0:8001/OrgnizationSpace/ImportProducts'), and checkboxes for 'Disable GAV conflict check' and 'Allow child GAV edition'. It also includes 'Group ID' (set to 'com.test'), 'Artifact ID' (set to 'importProducts'), and 'Version' (set to '1.0.0'). A note says 'Example: com.myspace.myprojects'. To the right of the artifact ID is a 'Development Mode' switch set to 'ON'. At the bottom left of the settings section are 'Save' and 'Reset' buttons.

The screenshot shows the Business Central interface with the following details:

- Top Bar:** Business Central, Menu, Spaces > OrgniaztionSpace > ImportProducts > master.
- ImportProducts Page:**
 - Assets:** average (DRL), delete (Guided Decision Tables), ImportProduct (Data Objects), not_ok (DRL).
 - Alerts:** Completed indexing of OrgniaztionSpace/importProducts/master (Level: Info, File: -, Column: 0, Line: 0).

4 Create Users and assign roles - dev role, admin project rule

The screenshot shows the Business Central Admin Security screen for user management:

- Left Sidebar:** Admin > Security, Roles, Groups, **Users**.
- Users List:** All users (New user, Refresh) - listing users: admin, jack, krisv, sales-rep, devone, john, katy, test. Total 8 users.
- Editing user test:**
 - Message:** No assignments present, the user could be not able to log into the application.
 - User Details:** test
 - Permissions Tab:** Groups, Roles, **Permissions** (selected).
 - Workbench:** Edit Source Code: deny, Resource Planner: deny, Download JAR: allow, Edit Global Preferences: deny, Edit Profile Preferences: allow, Edit Profile Preferences: deny
 - Pages:**
 - Editors:** Can read editors
 - Spaces:** Can't read spaces, Can't update spaces, Can't delete spaces, Can't create spaces
 - Projects:** Can't read projects, Can't update projects, Can't delete projects, Can't create projects, Can build projects
 - Buttons:** Save, Cancel.

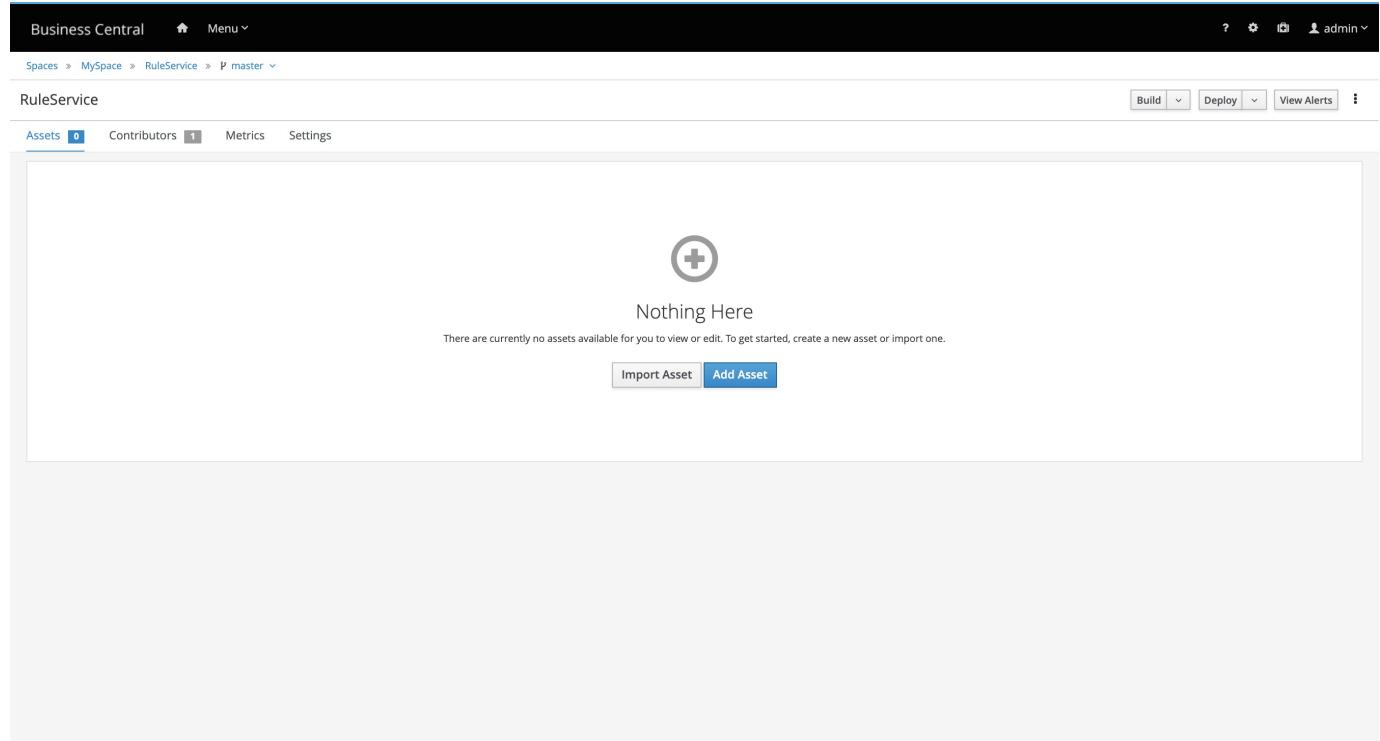
User and roles create using the below details -SRE team:

- Setup GIT internal repository access
- Setup Persistent configuration
- Setup usage and monitoring for this service at the project level

2. Service level Operation flow details

Below are the normal operation flow for Rule Engine service

Define rules or modify rules and create assets



The screenshot shows the Business Central interface with the following details:

- Header:** Business Central, Menu, admin.
- Breadcrumbs:** Spaces > MySpace > RuleService > master
- Page Title:** RuleService
- Navigation:** Assets (0), Contributors (1), Metrics, Settings
- Buttons:** Build, Deploy, View Alerts, More
- Content Area:** A large central area displays a "Nothing Here" message with a plus sign icon, indicating no assets are currently available. Below this message is a sub-instruction: "There are currently no assets available for you to view or edit. To get started, create a new asset or import one." At the bottom of this area are two buttons: "Import Asset" and "Add Asset".

Create data object as per bussiness requirement and validate it

Business Central Home Menu

Spaces > MySpace > Course_Scheduling > master > Minimum working days

Project Explorer

Minimum working days.drl - DRL

Model Overview

```

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3 * Licensed under the Apache License, Version 2.0 (the "License");
4 * you may not use this file except in compliance with the License.
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7 * http://www.apache.org/licenses/LICENSE-2.0
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9 * Unless required by applicable law or agreed to in writing, software
10 * distributed under the License is distributed on an "AS IS" BASIS,
11 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
12 * See the License for the specific language governing permissions and
13 * limitations under the License.
14 */
15 package curriculumcourse.curriculumcourse;
16
17 import java.lang.Number;
18
19 import curriculumcourse.curriculumcourse.Course;
20 import curriculumcourse.curriculumcourse.Day;
21 import curriculumcourse.curriculumcourse.Lecture;
22 import curriculumcourse.curriculumcourse.Period;
23
24 rule "minimumWorkingDays"
25 when
26   $course : Course($minWorkingDaySize : minWorkingDaySize)
27   accumulate(
28     $day : Day()
29     and exists Lecture(course == $course, period != null, period.day == $day);
30     $dayCount : count($day);
31     $dayCount < $minWorkingDaySize
32   )
33   exists Lecture(course == $course, period != null)
34   then
35     scoreHolder.addSoftConstraintMatch($context, ($dayCount.intValue() - $minWorkingDaySize) * 5));
36 end
37
38

```

Alerts

Level	Text	File	Column	Line
Info	Build of module 'Course_Scheduling' (requested by admin) completed. Build: SUCCESSFUL	-	0	0

Define a rule for business

Business Central Home Menu

Spaces > MySpace > RuleService > master > Add Asset

Add Asset

All

Create new DRL file

DRL file*

Name...

Package

<default>

Use Domain Specific Language (DSL)

Show declared DSL sentences

+ OK Cancel

Alerts

Level	Text	File	Column	Line
Info	Build of module 'RuleService' (requested by admin) completed. Build: SUCCESSFUL	-	0	0

The screenshot shows the Business Central interface with the following details:

- Header:** Business Central, Menu, admin
- Project Explorer:** Shows a file named "rule.java" under a "ruleservice" folder.
- Editor:** A code editor titled "drifile.dslr - DSLR". It contains the following code:


```
1 package com.ruleservice.ruleservice;
2
3
```
- Toolbars:** Save, Delete, Rename, Copy, Validate, Download, Latest Version, Hide Alerts.
- Alerts:** A table showing one alert: "Build of module 'RuleService' (requested by admin) completed. Build: SUCCESSFUL" at Level: Info, File: -, Column: 0, Line: 0.

Build and install project

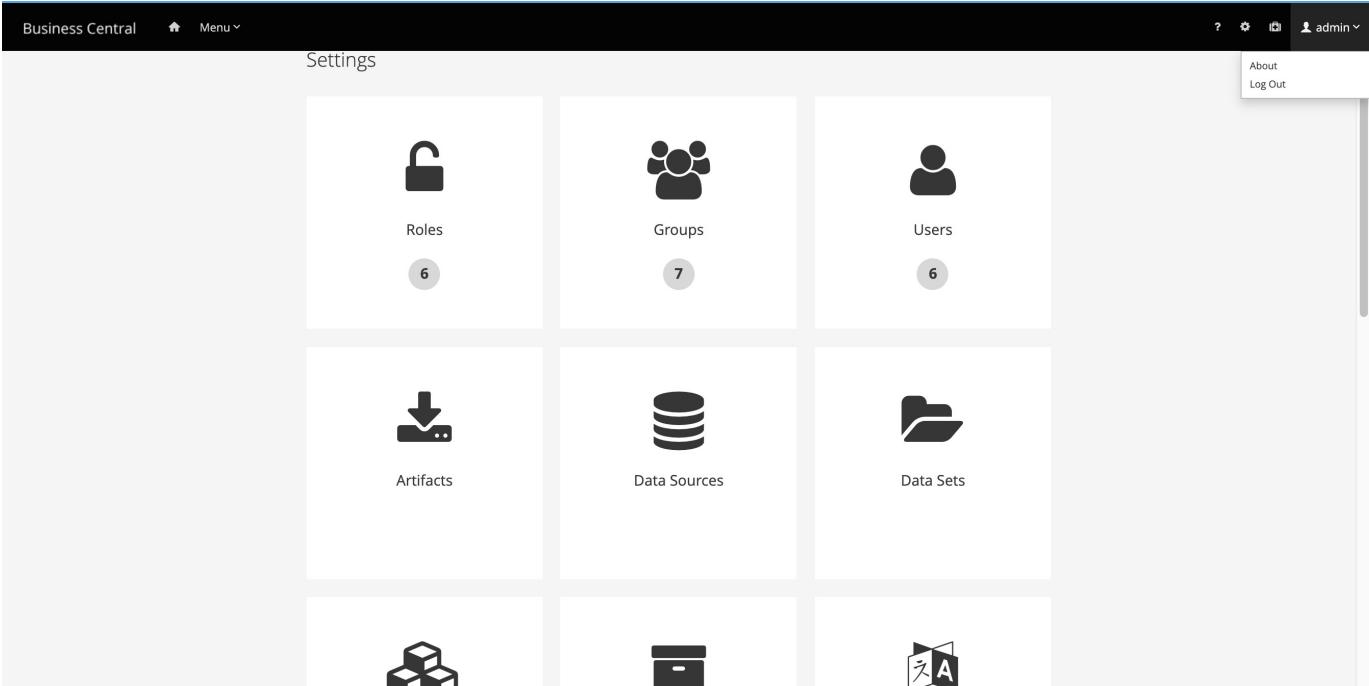
The screenshot shows the Business Central interface with the following details:

- Header:** Business Central, Menu, admin
- Space:** Spaces > OrgnizationSpace > ImportProducts > master
- Project:** ImportProducts
- Status Bar:** Build Successful
- Assets:** Assets (4), Contributors (1), Metrics, Settings
- Table:** A list of assets:

	Name	Type	Last modified	Created
	average	DRL	11 weeks ago	17 weeks ago
	delete	Guided Decision Tables	11 weeks ago	17 weeks ago
	ImportProduct	Data Objects	11 weeks ago	17 weeks ago
	not_ok	DRL	11 weeks ago	17 weeks ago
- Alerts:** A table showing one alert: "Build of module 'ImportProducts' (requested by admin) completed. Build: SUCCESSFUL" at Level: Info, File: -, Column: 0, Line: 0.

Verify build created artifacts

Before build and deploy change below version



Verify version KieJar created

M2 Repository Content		Upload	Open	Download
drools-workbench-commons-1.0-20210612.1b3445-1.jar	com.cloudsherpas.drools-workbench-commons:1.0-SNAPSHOT		Open	Download
courseadvisor.commonss-1.0-20210612.164706-2.jar	com.cloudsherpas.courseadvisor.commonss:1.0-SNAPSHOT		Open	Download
courseadvisor.commonss-1.0-20210612.164503-1.jar	com.cloudsherpas.courseadvisor.commonss:1.0-SNAPSHOT		Open	Download
courseadvisor.commonss-1.0-20210612.164503-1.pom	com.cloudsherpas.courseadvisor.commonss:1.0-SNAPSHOT		Open	Download
courseadvisor.commonss-1.0-20210612.164706-2.pom	com.cloudsherpas.courseadvisor.commonss:1.0-SNAPSHOT		Open	Download
Test-1.0.0-20210612.134251-1.jar	com.myspace:Test:1.0.0-SNAPSHOT		Open	Download
Test-1.0.0-20210612.134251-1.pom	com.myspace:Test:1.0.0-SNAPSHOT		Open	Download
discount-1.0.0-20210612.135718-1.jar	com.rules.service:discount:1.0.0-SNAPSHOT		Open	Download
discount-1.0.0-20210612.135718-1.pom	com.rules.service:discount:1.0.0-SNAPSHOT		Open	Download
discount-2.2-20210612.142137-1.pom	com.rules.service:discount:2.2-SNAPSHOT		Open	Download
discount-2.2-20210612.142137-1.jar	com.rules.service:discount:2.2-SNAPSHOT		Open	Download
discount-2.3-20210612.142228-1.pom	com.rules.service:discount:2.3-SNAPSHOT		Open	Download
discount-2.3-20210612.142228-1.jar	com.rules.service:discount:2.3-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.091014-1.pom	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.091014-1.jar	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.092108-2.jar	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.092108-2.pom	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.092127-3.pom	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-1.0.0-20210613.092127-3.jar	com.test:ImportProducts:1.0.0-SNAPSHOT		Open	Download
ImportProducts-2.0-20210613.092517-1.pom	com.test:ImportProducts:2.0.0-SNAPSHOT		Open	Download
ImportProducts-2.0-20210613.092517-1.jar	com.test:ImportProducts:2.0.0-SNAPSHOT		Open	Download
ruleservice-1.0.0-20210612.131910-1.jar	com.service:ruleservice:1.0.0-SNAPSHOT		Open	Download
ruleservice-1.0.0-20210612.131910-1.pom	com.service:ruleservice:1.0.0-SNAPSHOT		Open	Download
ruleservice-1.0-20210612.131314-1.pom	com.service:ruleservice:1.0-SNAPSHOT		Open	Download
ruleservice-1.0-20210612.131314-1.jar	com.service:ruleservice:1.0-SNAPSHOT		Open	Download
curriculumcourse-1.0.0-20210612.124440-2.pom	curriculumcourse:curriculumcourse:1.0.0-SNAPSHOT		Open	Download
curriculumcourse-1.0.0-20210612.124440-2.jar	curriculumcourse:curriculumcourse:1.0.0-SNAPSHOT		Open	Download
curriculumcourse-1.0.0-20210612.124433-1.jar	curriculumcourse:curriculumcourse:1.0.0-SNAPSHOT		Open	Download
curriculumcourse-1.0.0-20210612.124433-1.pom	curriculumcourse:curriculumcourse:1.0.0-SNAPSHOT		Open	Download
curriculumcourse-2.0.0-20210612.134847-1.pom	curriculumcourse:curriculumcourse:2.0.0-SNAPSHOT		Open	Download

Deploy build jar into Nexus using maven command using a shell script or using CICD

Copy from KieWorkbench or manual copy into CICD project and push to nexus - Manual or automate by SRE

<https://maven.apache.org/guides/mini/guide-3rd-party-jars-remote.html>

- Use new rules in **Rule service** which has already facts jars

Rule service < provided> jar for facts - Need to check

OnStartup nexus file and load rule dynamically