

IBM Business Automation Manager Open Editions

Demos and Labs 2025

IBM Business Automation Manager Open Editions
Canvas and Deployment on Kubernetes

V 1.0 (for IBM BAMOE 9.2)

Raul Mariano
raul.mariano@ibm.com

NOTICES

This information was developed for products and services offered in the USA.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
United States of America

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

TRADEMARKS

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

IT Infrastructure Library is a Registered Trade Mark of AXELOS Limited.

ITIL is a Registered Trade Mark of AXELOS Limited.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Linear Tape-Open, LTO, the LTO Logo, Ultrium, and the Ultrium logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

© Copyright International Business Machines Corporation 2024.

This document may not be reproduced in whole or in part without the prior written permission of IBM.

US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Table of Contents

1	Introduction.....	4
1.1	IBM Business Automation Manager Open Editions.....	4
2	Lab Setup Instructions	5
2.1	Access the environment.....	5
2.2	About the environment.....	5
2.3	Prerequisites.....	6
2.3.1	Podman Machine and .bat file:.....	6
2.3.2	Check Podman containers:	7
2.3.3	Useful links:	8
2.4	Exploring the Features of BAMOE Canvas	9
3	Exercise 1: Exploring Decisions with BAMOE Canvas	10
4	Exercise 2: Exploring Workflow with BAMOE Canvas	13
5	Exercise 3: Running on Minikube using Canvas Dev Deployment	19
5.1	Connect to an Minikube Cluster	19
5.2	Deploying Workflow Sample	21
6	Exercise 4: Example Workflow with the BAMOE Management Console	24
7	Consult Documentation and Communities	31

1 Introduction

This hands-on lab is designed to guide you through the essential aspects of process automation using BAMOE Canvas. Whether you are a developer or an architect, these labs will equip you with the skills needed to leverage BAMOE Canvas for modern, cloud-native business automation solutions effectively.

Includes four exercises. We recommend performing them sequentially.

Duration: Approximately 1,5 hours (each exercise lasts about 30 minutes).

Audience: Anyone who wants to learn how to use IBM Business Automation Manager Open Editions.

1.1 IBM Business Automation Manager Open Editions

IBM Business Automation Manager Open Editions (IBM BAMOE) is a powerful open-source solution that serves as a foundation platform for tailoring long-lasting business automation solutions for the hybrid cloud.

With a developer-centric approach, this comprehensive and flexible platform makes it easy for teams to collaborate through Open Standards and efficient development tools suited for different personas. Each automation solution can be shaped to perfectly address each scenario: business applications are flexible and can effortlessly integrate with external systems of your existing architecture.

Designed for the hybrid cloud, IBM Business Automation Manager Open Editions, accelerates the application modernization and cloud adoption journeys, as the lightweight design tools, business applications and other product components can be containerized and deployed with popular technologies such as Kubernetes and OpenShift.

For more information, see IBM documentation and other useful links:

- [IBM Business Automation Manager Open Editions Documentation](#)
- [Open Editions Community](#)
- [BAMOE University](#)

2 Lab Setup Instructions

2.1 Access the environment

You received this email with instructions on how to access the environment using your IBMID.

If necessary, this is the Windows credential:

```
User: techzone  
Password: IBMDem0s!
```

2.2 About the environment

This environment was built based on the [official product documentation](#), so be sure to check it out for more information about the new BAMOE Version 9.2.

We will be updating this environment with new materials and resources as often as possible.

IBM BAMOE was installed and configured locally, using Podman and Minikube. The configurations were based on the official product documentation: [Running locally with Docker](#) or [Running locally with Docker Compose](#).



2.3 Prerequisites

Once your VM starts, wait a few minutes for the Podman Machine to start running, then a .bat file will be executed to start all the containers needed to use BAMOE. See the reference for each of them:

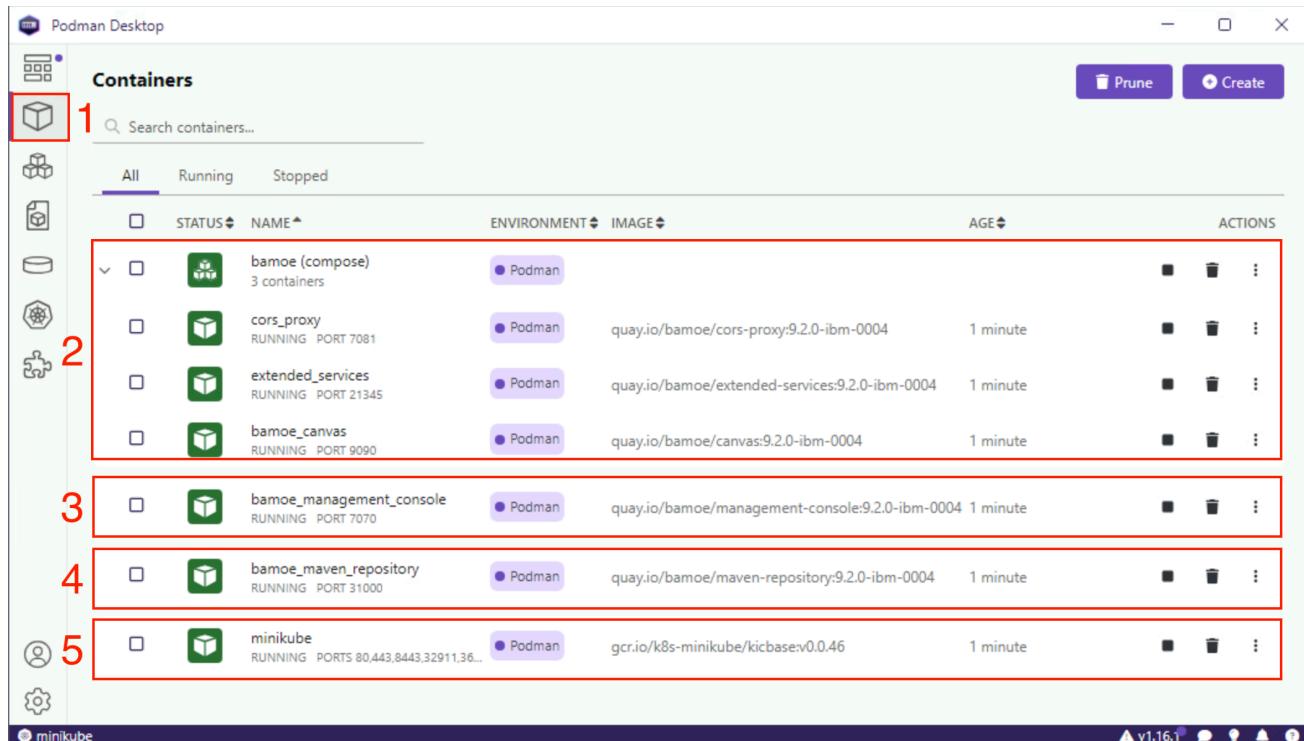
2.3.1 Podman Machine and .bat file:

```
C:\bamoe>timeout /t 50 /nobreak 1>nul
C:\bamoe>podman start cors_proxy
cors_proxy
C:\bamoe>podman start extended_services
extended_services
C:\bamoe>podman start kie_canvas
kie_canvas
C:\bamoe>podman start maven-repository
maven-repository
C:\bamoe>minikube start
* minikube v1.35.0 on Microsoft Windows 11 Pro 10.0.22621.4317 Build 22621.4317
* Using the podman (experimental) driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.46 ...
E0318 10:08:26.476527 10384 cache.go:22] Error downloading kic artifacts: not yet implemented, see issue #8426
* Restarting existing podman container for "minikube" ...
```

Item	Description
1	Icon shows that the podman machine is already running. For more details just open Podman Desktop.
2	This file " <i>start-bamoe.bat</i> " contains the commands to start all Podman containers. In the next step, you will see how to check the status of each one. Remember: if you reboot your VM, you must wait until all services are up and running.

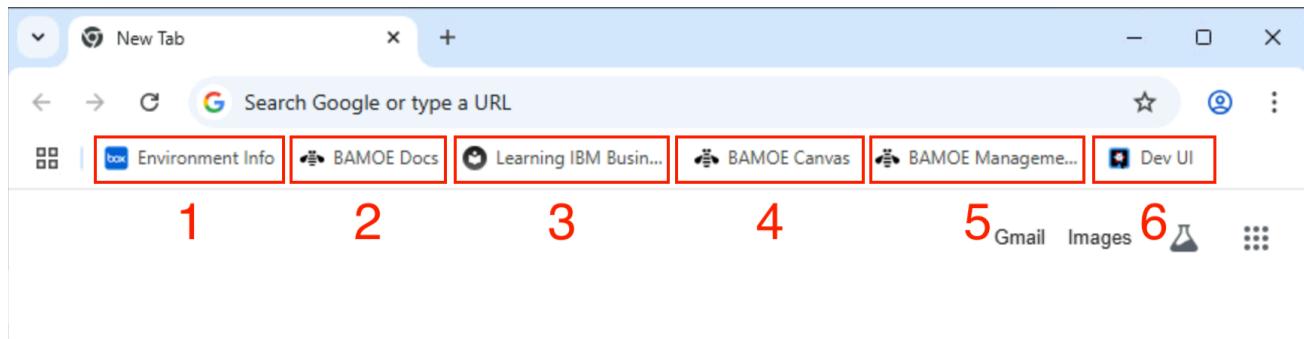
2.3.2 Check Podman containers:

Open Podman Desktop (available on your desktop) to check the important containers that are running:



Item	Description
1	In the side menu, select the 2nd button ("Containers")
2	Container Group "bamoe (compose)": This set of running containers are the 3 images required to run BAMOE Canvas. Reference: " Installing BAMOE Canvas "
3	Container "bamoe_management_console" BAMOE Management Console is an admin tool for managing Workflow applications. Reference: " Installing BAMOE Management Console "
4	Container "bamoe_maven_repository": Repository that stores Maven artifacts, which you can deploy to your infrastructure. Reference: " Intalling BAMOE Maven repository "
5	Container "minikube": To deploy your project via BAMOE Canvas, a Minikube cluster has been created and must also be running. Next, you will see how to connect your Canvas to the Minikube Cluster.
Recommendation	<i>Make sure the containers are running, if not, try starting them manually (by clicking on the "actions" menu or by command line).</i>

2.3.3 Useful links:



Item	Description
1	"Environment Info": Access this document available in Box.
2	"BAMOE Docs": Access the official product documentation.
3	"Learning IBM Business Automation Open Edition": A great guide for users who are trying IBAMOE for the first time. Recommended getting started guide.
4	"BAMOE Canvas": You can access BAMOE Canvas through the URL: http://localhost:9090
5	"BAMOE Management Console": You can access BAMOE Management Console through the URL: http://localhost:7070
6	"Dev UI": For projects run by VS Code, you can access the Dev UI via the URL: http://localhost:8080/q/dev-ui

2.4 Exploring the Features of BAMOE Canvas

IBM has been investing a lot of time and effort into improving Canvas into a full-featured authoring tool for decisions and processes. In this lab, we will use BAMOE Canvas in **Google Chrome**. You will explore examples of a DMN model and a BPMN model, as well as some of the features found in them, and then deploy it to a Minikube cluster.

- Open Google Chrome, and access BAMOE Canvas via the URL: <http://localhost:9090>

The screenshot shows the BAMOE Canvas interface. At the top right, there is a navigation bar with a dropdown menu labeled 'Dev Deployments' (boxed in red), a gear icon, and a user profile icon. Below the navigation bar, there are two main sections: 'Create' and 'Import'. The 'Create' section contains two boxes: 'Workflow' (boxed in red) and 'Decision' (boxed in red). The 'Workflow' box contains the text 'BPMN files are used to generate business workflows.' and a 'New Workflow' button. The 'Decision' box contains the text 'DMN files are used to generate decision models.' and a 'New Decision' button. The 'Import' section contains two boxes: 'From URL' (boxed in red) and 'Upload' (boxed in red). The 'From URL' box has a 'URL' input field and an 'Import' button. The 'Upload' box has a 'Select files...' and 'Select folder...' button. At the bottom left, there is a 'Recent models' sidebar (boxed in red) containing three items: 'Ephemeral' (6 files, 1 models), 'test' (Created: 18 days ago, Last updated: 18 days ago), and 'Sample' (Decision) (Created: 18 days ago, Last updated: 18 days ago). A red number '6' is placed next to the 'Recent models' sidebar.

Item	Description
1	<ul style="list-style-type: none">• Dev deployments – any deployment from this instance of Canvas to a connected Kubernetes or OpenShift cluster.• The radar logo is the connection to Extended Services which provides the DMN model runner for sample execution.• The gear 🌐 logo provides settings for your Canvas instance, including the version of DMN modeling (DMN 1.5 is the default for 9.1 forward). The location of the CORS proxy so that your Canvas instance can interact with your Git provider. Lastly, the location of the Extended Services service.• Lastly, the human logo is for configuring your connected profiles for the Canvas environment. This will be for Git and Kubernetes/OpenShift. We will explore this later.
2	Create a new BPMN 2.0 workflow from scratch or open the sample
3	Create a new DMN 1.5 model from scratch or open the sample
4	Import projects from remote git repositories
5	Upload a file or folder directly to work within the browser
6	Templates you imported or created in the provided browser. Unlike anyone else, everything is stored locally in your browser storage.

3 Exercise 1: Exploring Decisions with BAMOE Canvas

In this section, we are going to touch on some of the features of the Canvas editor. First, we're going to look at the DMN sample.

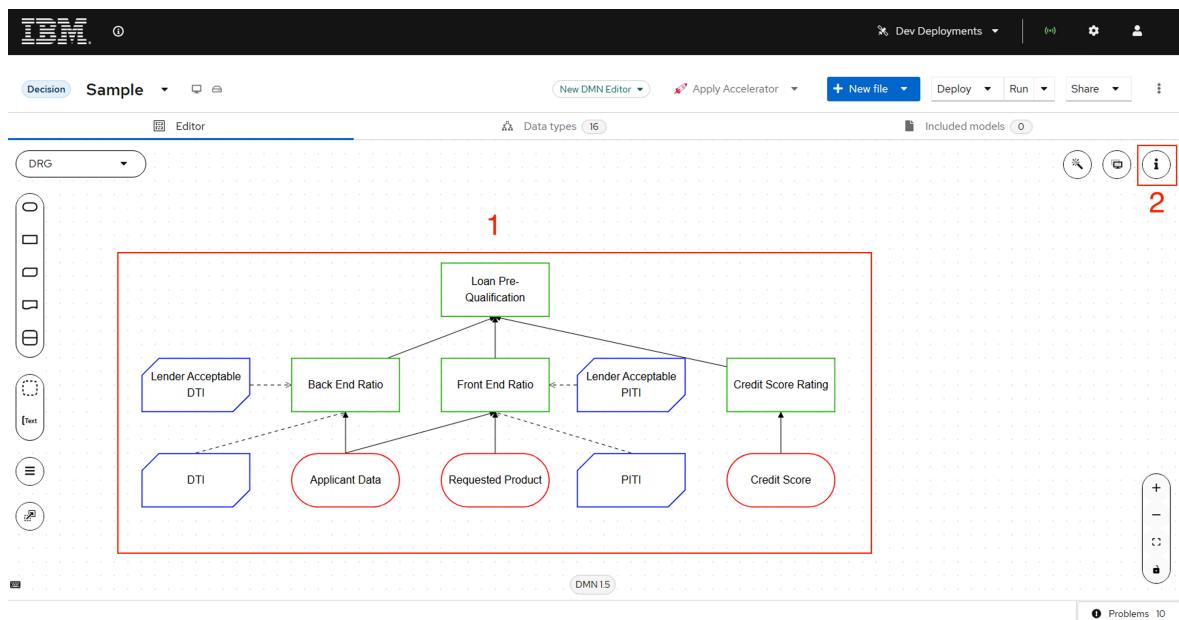
See some important links and learn more about DMN:

- [DMN in 15 minutes](#)
- [Manual DMN FEEL](#)

The screenshot shows the IBM BAMOE Canvas interface. On the left, under 'Create', there are two tabs: 'Workflow' (selected) and 'Decision'. Below them are buttons for 'New Workflow' and 'Try sample'. A red box labeled '1' highlights the 'Try sample' button. On the right, under 'Import', there are options for 'From URL' (with a 'New Editor available!' button), 'Upload' (with a 'Drag & drop files and folders here...' area), and file selection buttons ('Select files...', 'Select folder...').

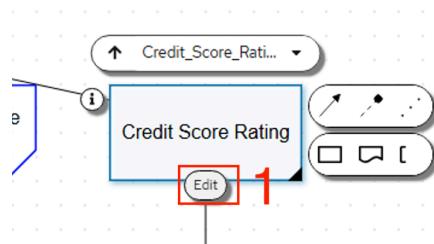
Item	Description
1	Let's use the example available in " Try sample ".

When you open the Sample, you will see a DMN 1.5 model for Loan Pre-qualification:



Item	Description
1	Explore the different elements of the DMN diagram: <ul style="list-style-type: none">• Input Nodes: "Applicant Data" and "Credit Score"• Decision Nodes: "Loan Pre-Qualification"• Business Knowledge Model Nodes (BKM)

2	The properties of each element can be accessed by clicking this button	
---	--	--



Item	Description
1	Click on the " Credit Score Rating " square and then click the " Edit " button to visualize the logic in the Credit Score Rating decision.

The screenshot shows the IBM Decision Modeler interface. The top navigation bar includes 'IBM', 'Decision', 'Sample', 'New DMN Editor', 'Apply Accelerator', 'New file', 'Deploy', 'Run' (which is highlighted with a red box), and 'Share'. The main workspace has sections for 'Editor', 'Data types (16)', 'Included models (0)', and 'Evaluation highlights: off'. On the left, a 'Decision Table' is shown with a red box around it (labeled 1). It contains a table with columns 'U', 'Credit Score_FICO (number)', and 'Credit Score Rating (Credit_Score_Rating)'. Rows represent ranges of FICO scores with corresponding ratings: 1 (>= 750) "Excellent", 2 (700..750) "Good", 3 (650..700) "Fair", 4 (600..650) "Poor", and 5 (< 600) "Bad". An 'Annotations' column is also present. To the right, there are 'Inputs' (3) and 'Outputs' (4) panels. The 'Inputs' panel lists 'Credit Score', 'FICO', 'Applicant Data' (Age, Marital Status, Employment Status), 'Existing Customer', and 'Monthly Income'. The 'Outputs' panel lists 'Front End Ratio', 'Back End Ratio', 'Credit Score Rating', and 'Loan Pre-Qualification'. The 'Credit Score Rating' output is highlighted with a red box (labeled 5) and has a red arrow pointing to its row in the decision table.

Item	Description
1	This decision node was defined as a " Decision Table ", where depending on the " FICO " value it will have its corresponding " Credit Score Rating ".
2	Click the " Run " button to simulate the model.
3	Here you can simulate your rules by informing the model inputs.
4	Instantly, you can see the result (output) of each decision node.
5	Look at the " Credit Score Rating " output, test some values and compare with the decision table.
6	During your simulations, you may have come across some validation, for example. This happens because the data type has a treatment, see below:

The screenshot shows the IBM Modeler interface with the following highlights:

- 1** Red box around the "Data types (16)" button in the top navigation bar.
- 2** Red box around the "Credit_Score" entry in the left sidebar under "Data types".
- 3** Red box around the "Range" tab in the "Constraints" section for the "FICO" property.

Item	Description
1	Navigate to the " Data types " tab, here all the data involved in the model are listed.
2	Select the " Credit Score "
3	Note that here you can configure some things for that data. In this case, a " Range " was configured, click to see more...
4	<p>Note how the range was configured, that is, this data accepts values from 300 to 850.</p> <p>The screenshot shows the "Constraints" section for the "FICO" property. It includes tabs for None, Expression, Enumeration, and Range (which is selected). Below the tabs, there are two input fields: "Start" with the value "300" and "End" with the value "850". A note states: "The starting value will be included in the range." Another note states: "The ending value will be included in the range." Below the range inputs, it says "Equivalent FEEL expression: [300..850]".</p>

Explore the model settings further and try to understand how the rules were created. To proceed to the next exercise, click on the IBM logo.



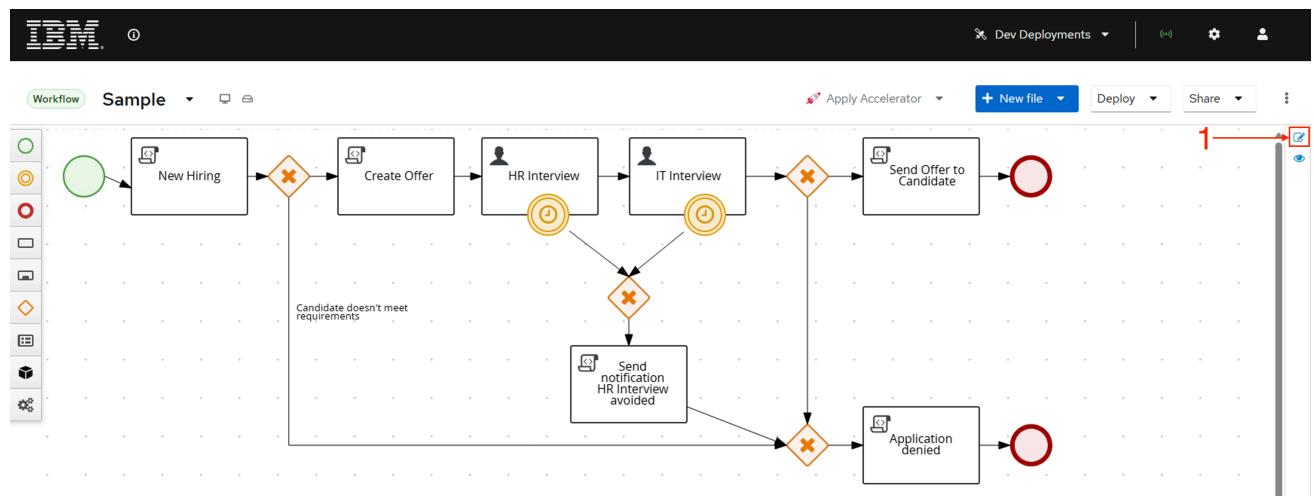
4 Exercise 2: Exploring Workflow with BAMOE Canvas

In this exercise, we will explore the BPMN example and then deploy the application to the Minikube cluster.

The screenshot shows the BAMOE Canvas interface. On the left, under 'Create', there are two tabs: 'Workflow' (selected) and 'Decision'. The 'Workflow' tab contains a brief description: 'BPMN files are used to generate business workflows.' Below it are buttons for 'New Workflow' and 'Try sample'. A red box labeled '1' highlights the 'Try sample' button. The 'Decision' tab has a similar layout. On the right, under 'Import', there are options to 'From URL' or 'Upload', with a 'URL' input field and a file selection area. A red box labeled '1' highlights the 'Import' button. Below these sections is a 'Recent models' list containing 'Sample' (a BPMN model created 16 hours ago), 'Ephemeral' (an empty folder with 6 files, 1 model), and 'test' (a BPMN model created 19 days ago).

Item	Description
1	Click on "Try sample".

The sample BPMN process goes through a simplified hiring process.



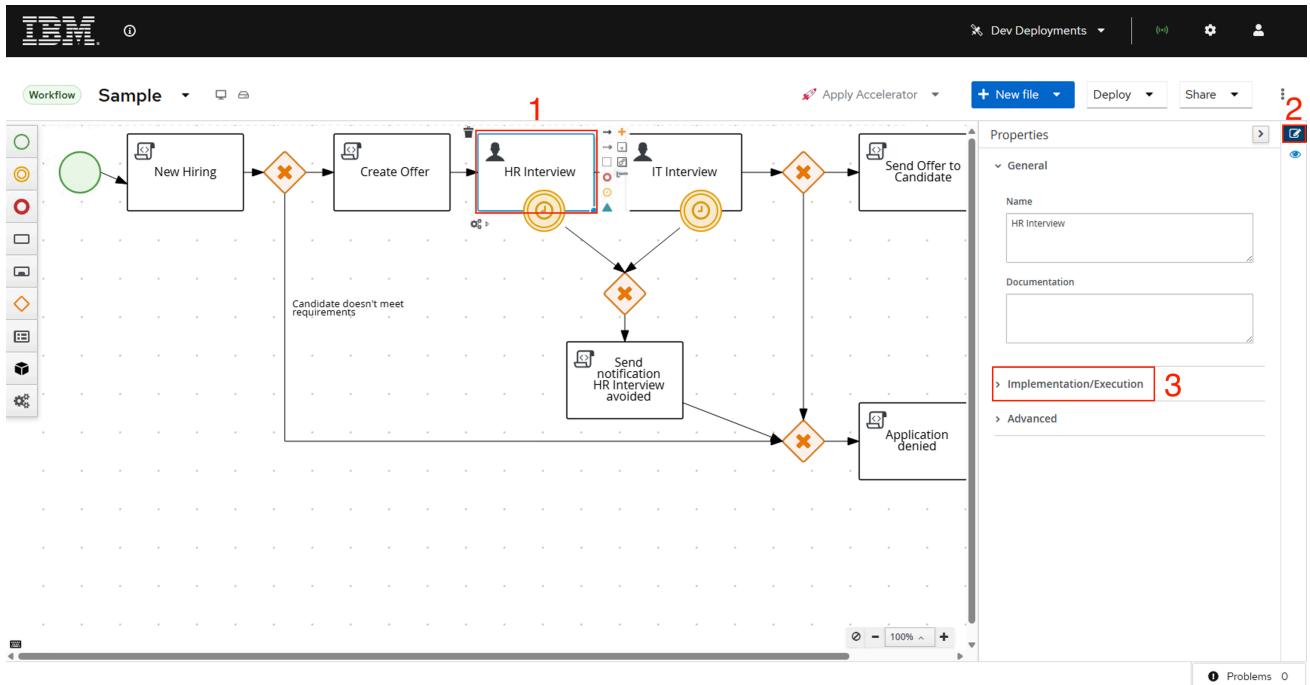
Item	Description
1	Click this button to see the properties of each element.

Explore the actions to understand more about the process:

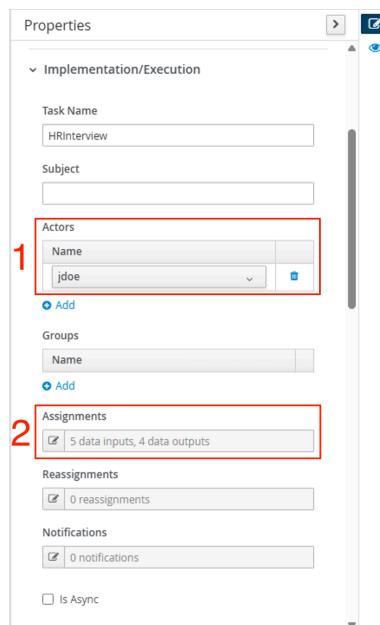
Item	Description
 New Hiring	At the beginning, an automated assessment of the candidate (in this case, via a scripted task) immediately determines whether they are eligible.
 Create Offer	Later, a base offer is created based on the information provided and the candidate's history. At this point, the offer is internal to the process and not visible to the candidate.
 HR Interview  IT Interview	Next, there are two user tasks: an HR interview and an IT interview. Both have timeout events that add an SLA to automatically deny hiring due to avoided interviews.
	In addition to the Activities that represent the work to be carried out, Gateways act as decision and flow control points in the process.

The other activities not mentioned act based on the result of the previous flow.

Explore the various nodes and their settings by clicking on a node and using the properties panel. For example:

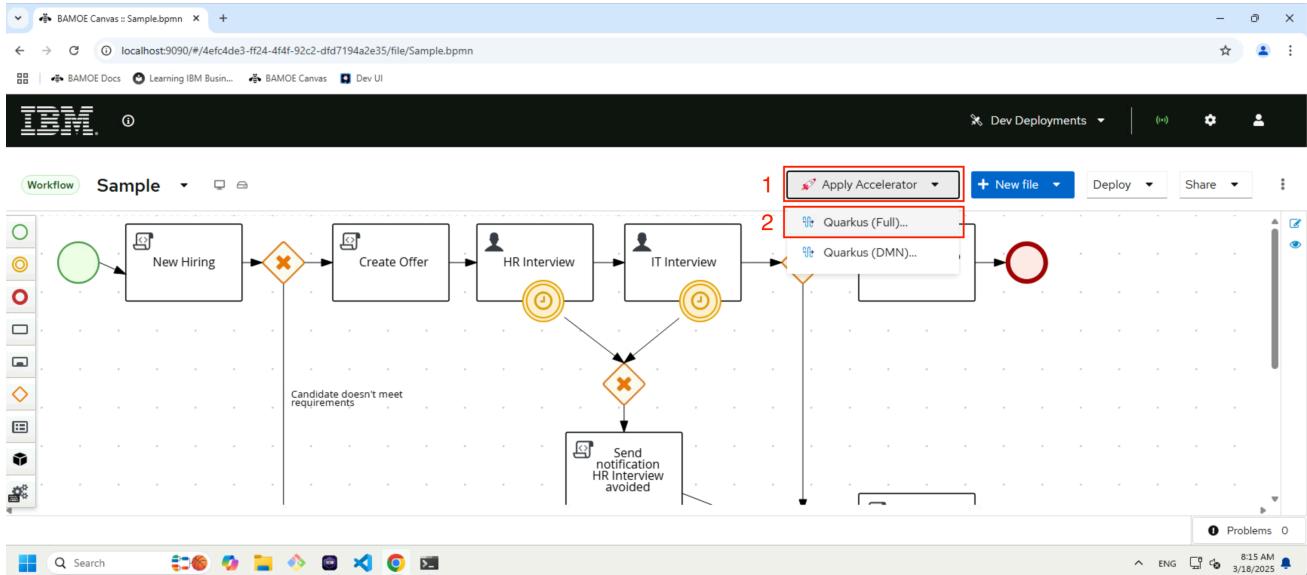


Item	Description
1	Select the "HR Interview" activity
2	Open the element properties
3	Open the "Implementation/Execution" tab



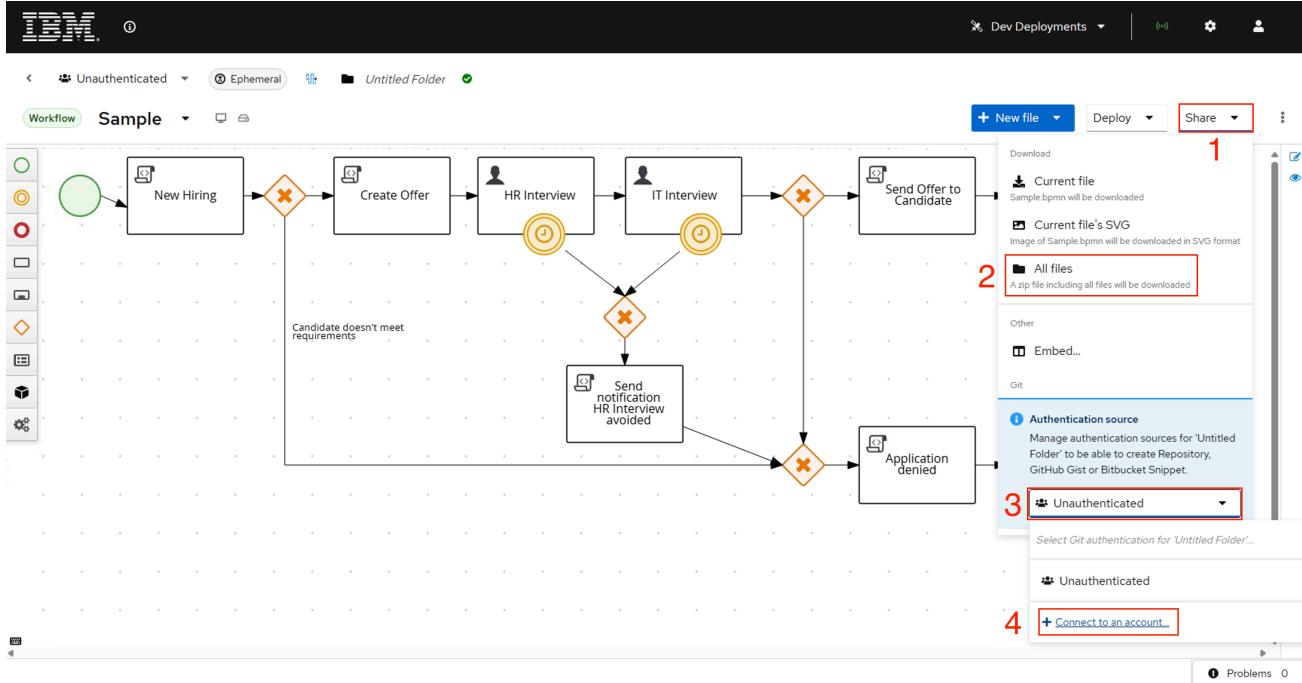
Item	Description
1	This task is assigned to the actor "jdoe"
2	In "Assignments" are the input and output data.

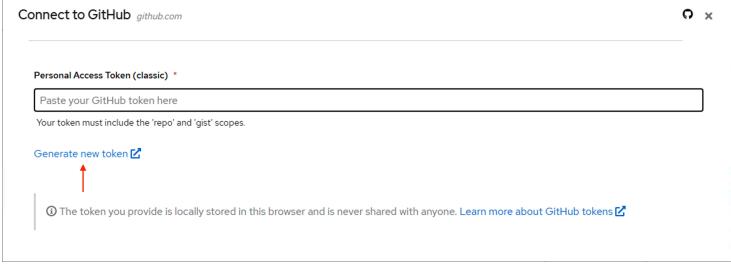
Before we move on to the next exercise, let's apply the Quarkus accelerator to create a browser storage project that can leverage the Kogito architecture.



Item	Description								
1	Access the "Apply Accelerator" menu								
2	And select the option "Quarkus (Full)..."								
3 - 1	<p>In the next box, just click "Apply"</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Quarkus (Full) Accelerator</p> <p>An Accelerator is a template. Applying it will move your current files according to the Accelerator specifications and create a new commit for it.</p> <p>This Accelerator is hosted at https://github.com/ibm/bamoe-canvas-quarkus-accelerator Git ref: @0.1.1-ibm-0003-quarkus-full</p> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 30%;">Decisions (.dmn) will be moved to:</td> <td style="vertical-align: top;">src/main/resources</td> </tr> <tr> <td>Score cards (.pmmi) will be moved to:</td> <td>src/main/resources</td> </tr> <tr> <td>Workflows (.bpmm, .bpmm2) will be moved to:</td> <td>src/main/resources</td> </tr> <tr> <td>Other files will be moved to:</td> <td>src/main/resources</td> </tr> </table> <p><i>This action is permanent. Any changes made after applying an Accelerator may result in your files being in different directories.</i></p> <p style="text-align: center;">1 Apply Cancel</p> </div> <p>Wait for the success message:</p> <div style="border: 1px solid green; padding: 5px; text-align: center; background-color: #e0f2e0;"> ✓ Successfully applied Quarkus (Full) Accelerator </div>	Decisions (.dmn) will be moved to:	src/main/resources	Score cards (.pmmi) will be moved to:	src/main/resources	Workflows (.bpmm, .bpmm2) will be moved to:	src/main/resources	Other files will be moved to:	src/main/resources
Decisions (.dmn) will be moved to:	src/main/resources								
Score cards (.pmmi) will be moved to:	src/main/resources								
Workflows (.bpmm, .bpmm2) will be moved to:	src/main/resources								
Other files will be moved to:	src/main/resources								

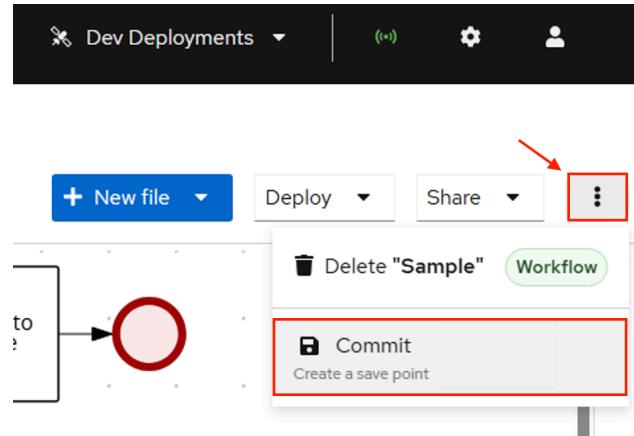
At this point, this Canvas project consists of just a BPMN file stored in the browser, which means that any changes will be lost if the browser's local storage is cleared. Therefore, it is important to work with projects and sync with GitHub.



Item	Description
1	You can click on "Share" and choose some options.
2	By clicking on "All files", you download the entire project. Then you can continue development in VS Code with the BAMOE Developer Tools extension.
3	To sync with GitHub, you must connect your account.
4	Click "Connect to an account..."
5	<p>Select option "GitHub"</p>  <p>For this Lab, you will not need to connect to your account, but if you wish, simply follow the instructions presented in the application itself.</p> 

Don't forget to create a save point after making changes to your model. This will also create an initial git commit within the filesystem, so it will prompt you for an initial commit message. Access it via the button  and click "Commit".

6



5 Exercise 3: Running on Minikube using Canvas Dev Deployment

Development Deployment is a Canvas feature that allows developers to share their decisions and processes with team members in OpenShift or Kubernetes. The benefits are:

- **Deploy with a click:** Easily deploy your business service to a local or remote Kubernetes or OpenShift environment directly from the Canvas web tool.
- **Real-time updates:** See changes to your project reflected immediately in the running application, for faster iteration and testing.
- **Simplified development:** Streamline your development process by eliminating the need for complex deployment procedures.

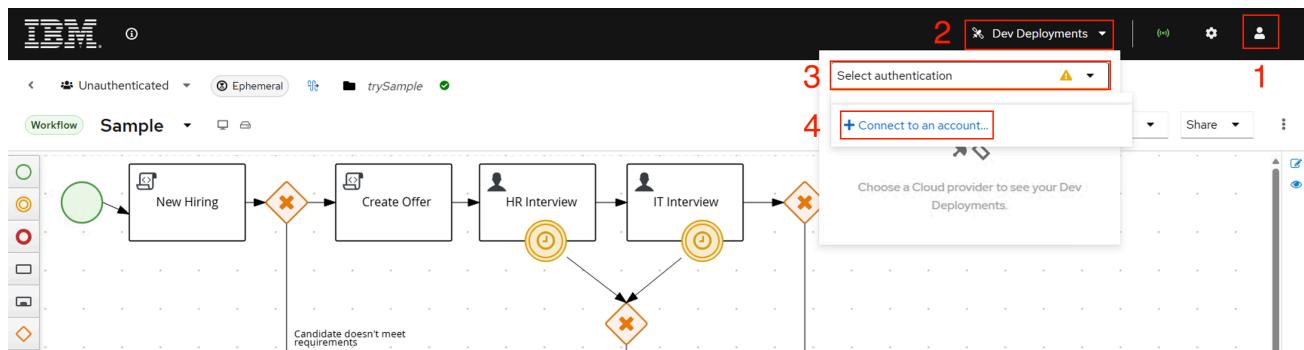
Have in mind that this capability is not intended for production. For production deployments, consider using proper deployment strategies for your Kubernetes / OpenShift environment.

By default, Canvas offers build templates. Templates allow you to create your own customized image and template projects.

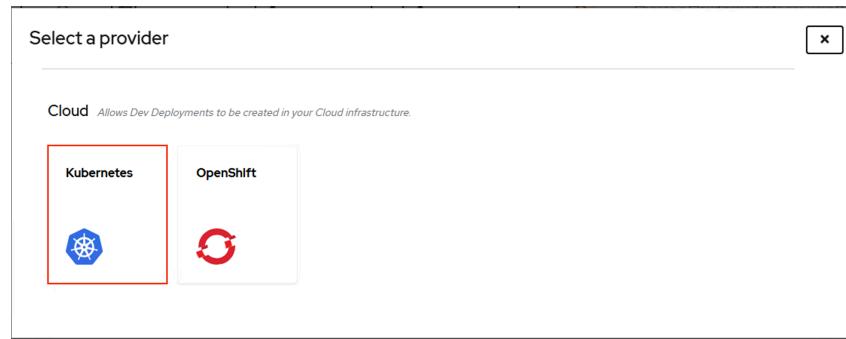
5.1 Connect to an Minikube Cluster

For this Lab, we will use a locally deployed Minikube cluster. In this chapter, you will see how to connect your Canvas to the cluster. Note that the configuration screens themselves provide instructions on how to perform the process.

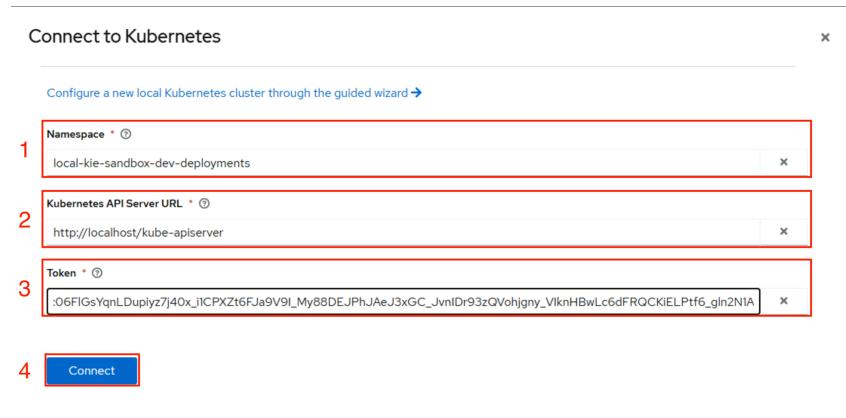
Let's continue with our Workflow example, worked on in [Exercise 2](#).

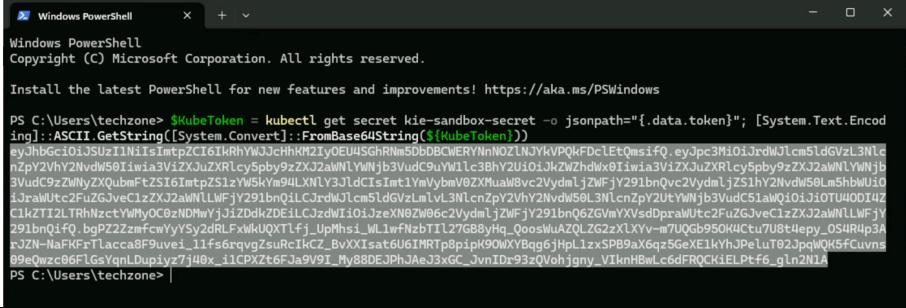


Item	Description
1	You can connect and see all connected accounts.
2	Or, you can click on " Dev Deployments "
3	Click on "Select authentication"
4	And select " Connect to an account... "

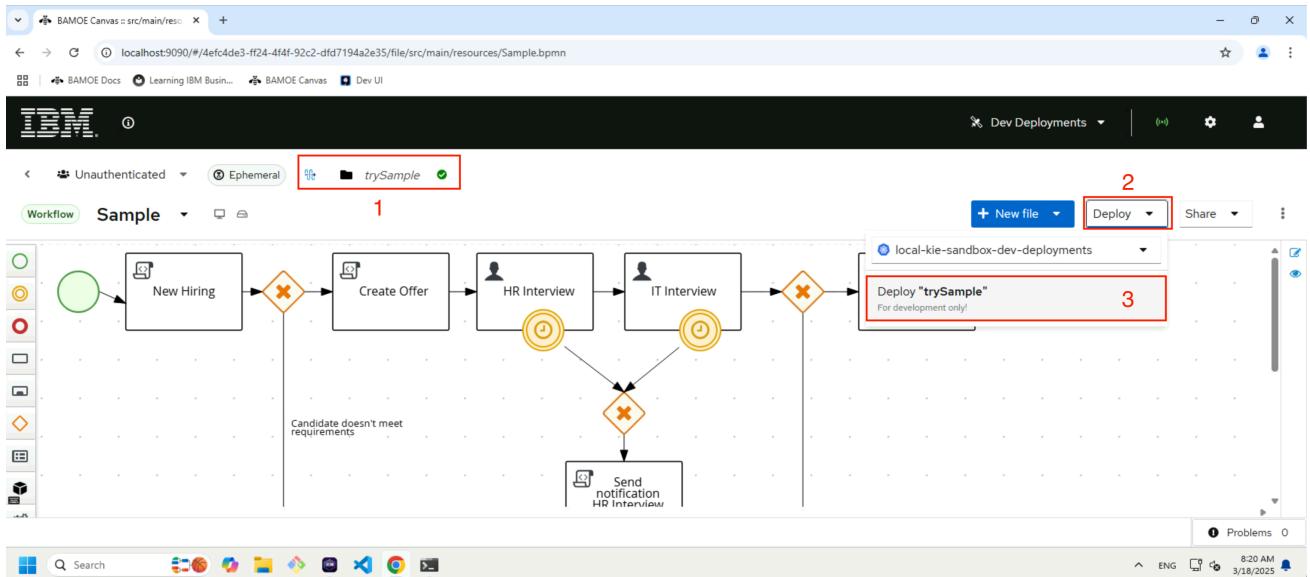


Item	Description
1	Select the " Kubernetes " option



Item	Description
1	In the " Namespace " field, enter: local-kie-sandbox-dev-deployments
2	In the " Kubernetes API Server URL " field, enter: http://localhost/kube-apiserver
3	To get the " Token ", open a terminal and run this command, then copy and paste the result. \$KubeToken = kubectl get secret kie-sandbox-secret -o jsonpath="{.data.token}"; [System.Text.Encoding]::ASCII.GetString([System.Convert]::FromBase64String(\$KubeToken)) 
4	Click " Connect " and check the return successful message.

5.2 Deploying Workflow Sample



Item	Description
1	Enter a name for your project
2	Select the option “ Deploy ”
3	Then select the “ Deploy [your project name] ” button.
4 - 1	In the next box, just leave the remaining information and click “ Confirm ”.
5	Wait a few minutes until the deployment is complete. It is important to note that in some cases a red alert may be displayed. In this case, wait for a new “Refresh” to obtain the new status.

Deploy

This action can take a few minutes to be completed and you will need to create a new deployment if you update your model, as Dev Deployments are immutable.

Choose your deployment option:

Kogito Quarkus Blank App

Include DMN Form Webapp
Whether to deploy the DMN Form Webapp as a sidecar container or not

This Dev Deployment will be created at the 'local-kie-sandbox-dev-deployments' namespace.

You can use tokens with pre-computed values for your resources and parameters. Check a list of the available tokens below:

> Tokens List

1

Confirm **Cancel**

Refreshing in 25 seconds... **Refresh**

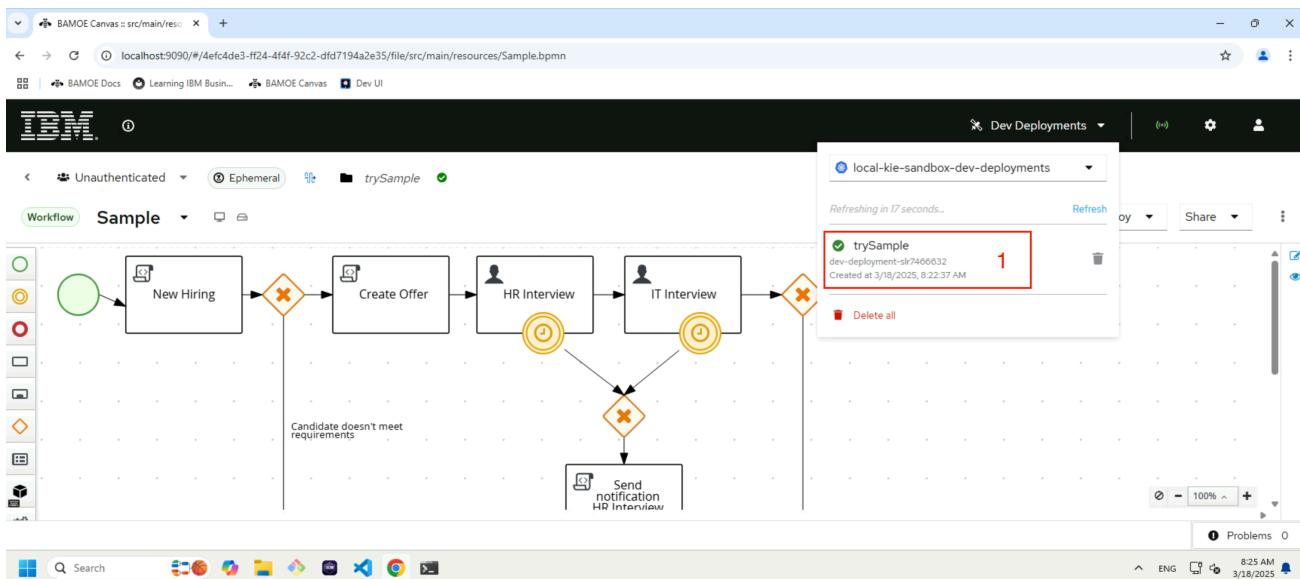
trySample
dev-deployment-slr7466632
Created at 3/18/2025, 8:22:37 AM

Delete all

Refreshing in 25 seconds... **Refresh**

trySample
dev-deployment-slr7466632
Created at 3/18/2025, 8:22:37 AM

Delete all



Item	Description
1	Once the deployment is complete, click on the project to access the Swagger UI.

Item	Description
1 and 2	In this interface you can test the methods by clicking on " Try it out "
Request body	For this use case, enter the following data to get the DMN result "Hiring", then click "Execute": <pre>{ "skills": "Java", "candidate": "Raul", "experience": 2 }</pre>

The screenshot shows the OpenAPI UI interface. At the top, there are tabs for 'BAMOE Canvas :: src/main/resources' and 'OpenAPI UI (Powered by Quarkus)'. Below the tabs, the 'Request URL' is set to 'http://localhost/dev-deployment-slr7466632/hiring'. Under 'Server response', the status code '201' is listed under 'Code' with the description 'Undocumented'. The 'Details' section shows the 'Response body' which is a JSON object containing fields like 'id', 'offer', 'name', 'bonus', 'category', and 'salary'. A red box highlights this JSON block. To the right of the JSON, there are 'Copy' and 'Download' buttons. Below the response body, the 'Response headers' section lists standard HTTP headers such as 'access-control-allow-credentials', 'access-control-allow-origin', 'connection', 'content-length', 'content-type', 'date', and 'location'. Under 'Responses', a single entry for '200 OK' is shown with 'No links' available. The bottom of the window shows a Windows taskbar with icons for search, file explorer, and other applications.

Item	Description
1	See if the response was successful (Code 200).

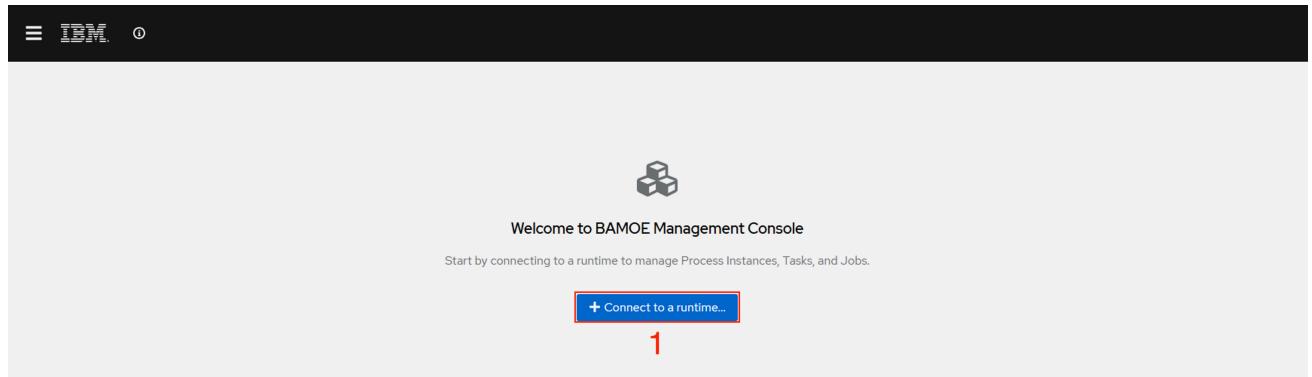
Since we have just implemented a Workflow example, in the next chapter we will use the BAMOE Management Console, which is an administration tool for managing Workflow applications.

6 Exercise 4: Example Workflow with the BAMOE Management Console

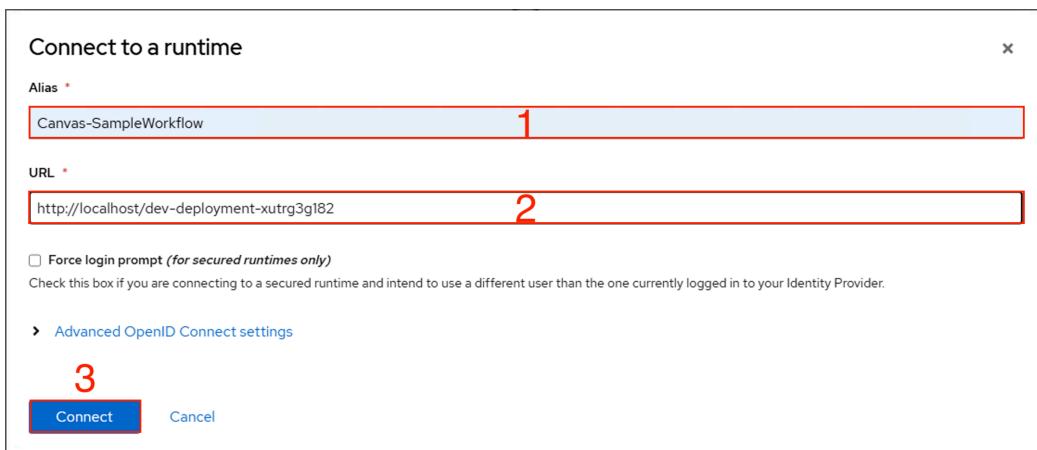
The BAMOE Management Console is a web application for viewing the status of all available business services and managing and interacting with process instances. We will now use it to manage and interact with process instances, complete user tasks.

Like Canvas, it is a container application and is already deployed in Podman.

- Go to <http://localhost:7070>



Item	Description
1	Click the button to connect to the runtime. To perform this exercise, you need to perform Exercise 3 , where we deployed a sample workflow.



Item	Description
1	Enter an alias of your preference
2	To get the URL more easily, go back to the Swagger UI and get the root:  A red arrow points from the text "get the URL more easily" to the URL field in the Swagger UI screenshot.
3	Click " Connect "

Now that you are connected to the runtime, let's view the entire instance history. Update the filter to include all status options.

The screenshot shows the 'Process Instances' page. On the left, there is a sidebar with 'Process Instances', 'Jobs', and 'Tasks'. The main area has a title 'Process Instances' and a breadcrumb path 'Home > Canvas-SampleWorkflow (Unknown user @ http://localhost/dev-deployment-xutrg3gl82) > Process Instances'. Below the title is a search bar with placeholder 'Filter by business key' and an 'Apply filter' button. To the left of the search bar is a dropdown menu labeled 'Status' with the value '5' selected. A red box highlights this dropdown, and a red number '1' is placed above it. Another red box highlights the 'Apply filter' button, and a red number '2' is placed to its right. Below the search bar is a table header with columns 'Id', 'Status', 'Created', and 'Last update'. The table body contains a single row with a magnifying glass icon and the message 'No results found'. Below the table, a link says 'Try using different filters'.

Since you already made a request in [Exercise 3](#), then an instance should be found.

The screenshot shows the same 'Process Instances' page after applying the filter. The status dropdown now shows 'ACTIVE X', 'COMPLETED X', 'ERROR X', and '2 more'. A red box highlights the '2 more' link, and a red number '1' is placed above it. The table below shows one row of data. The first column has a red box highlighting the 'hiring7343c' link, and a red number '1' is placed above it. The row contains the following data: 'hiring7343c' (link), 'Completed' (status), '17 minutes ago' (created), and 'Updated 14 minutes ago' (last update).

Item	Description
1	Click for more details of the instantiated process

The screenshot shows the IBM BPM Management Console interface. On the left, there's a sidebar with 'Process Instances', 'Jobs', and 'Tasks'. The main area displays a process instance named 'hiring' (ID: 7343c). The 'Details' section includes fields like Name (hiring), State (Completed), Id (7343c8e4-2d76-476d-b858-189cfefcc711), Endpoint (http://localhost:dev-deployment-xutrg3g182), Start (20 minutes ago), Last Updated (17 minutes ago), and End (17 minutes ago). The 'Variables' section shows a JSON object with fields: skills (Java), candidate (Raul), experience (2), category (Software Engineer), salary (30000), and bonus (150). The 'Timeline' section lists events: Start, New Hiring, Create Offer, Split, HR Interview (highlighted with a red box and labeled '1'), Join, Send notification HR Interview avoided, Join again, Application denied, End, and BoundaryEvent. The 'HR Interview' event is marked as Active.

Item	Description
1	Note that this instance was not attended to by the human in time, in the " HR Interview " task.

Now that we have the BAMOE Management Console configured, let's return to the Swagger UI to make another new POST call, then return to the Console to perform the user action.

The screenshot shows the Swagger UI for a POST request to '/dev-deployment-xutrg3g182/hiring'. The 'Parameters' section has a 'businessKey' parameter. The 'Request body' section (labeled '1') contains a JSON object with skills (Java), candidate (Peter), and experience (3). The 'Execute' button (labeled '2') is highlighted with a red box.

Item	Description
Request body	<pre>{ "skills": "Java", "candidate": "Peter", "experience": 3 }</pre>
1 and 2	Enter the new Json data, and click " Execute "

Returning to the BAMOE Management Console, we will see the new instance with the status "**Active**"

Id	Status	Created	Last update
hiring 2ae4c Endpoint	Active	a few seconds ago	Updated a few seconds ago
hiring eb0f8 Endpoint	Completed	13 minutes ago	Updated 10 minutes ago

Now we will assume the role of "Jdoe", an actor configured in the human activities of the Workflow, to respond to your tasks.

Name	Process	Priority	Status	Started	Last update
HR Interview 4fd13	hiring	N/A	Reserved	a minute ago	a minute ago

Item	Description
1	From the Hamburger Menu, go to the " Tasks " screen
2	Click on the " Impersonate "

The screenshot shows the IBM BPM interface. On the left, there's a sidebar with 'Process Instances', 'Jobs', and 'Tasks' selected. The main area shows a 'Tasks' page with a header 'Home > Canvas-SampleWorkflow (Unknown user @ http://localhost/dev-deployment-xutrg3gl82) > Tasks'. A sub-header 'Tasks' is present. Below it is a 'Impersonate' section with a dropdown menu. A red box labeled '1' highlights the 'User' field containing 'jdoe'. Another red box labeled '2' highlights the 'Apply' button. A third red box labeled '3' highlights the 'HR Interview' task in the list.

Item	Description
1	Enter the user " jdoe "
2	Click " Apply "
3	Click on the " HR Interview " task

This screenshot shows the 'HR Interview' task form. The top navigation bar includes 'Process Instances', 'Jobs', and 'Tasks'. The main content area has a sub-header 'HR Interview' with a status of 'Reserved'. A red box labeled '1' highlights the 'Approve' checkbox. A red box labeled '2' highlights a large text area containing suggested values: 'Base salary: 30000', 'Bonus: 150', 'Candidate: Peter', and 'Category: Software Engineer'. A third red box labeled '3' highlights the 'Complete' button.

Item	Description
1	Now assuming the role of the HR user, click on " Approve "
2	According to the rule registered in the Workflow, the values and position were suggested according to the input data. However, at this stage, HR can change them before sending them to the IT department.
3	Click " Complete " to finish analyzing this task.

Item	Description
1	Now assuming the role of the HR user, click on " Approve "
2	According to the rule registered in the Workflow, the values and position were suggested according to the input data. However, at this stage, HR can change them before sending them to the IT department.
3	Click " Complete " to finish analyzing this task.

Since the same user "**jdoe**" was assigned to both human activities in the workflow, then we will repeat the steps for the IT department's action.

IBM

Unknown user @ Canvas-SampleWorkflow

Process Instances

Jobs

Tasks 1

Home > Canvas-SampleWorkflow (Unknown user @ http://localhost/dev-deployment-xutrg3gl82) > Tasks

Tasks

2 > **Impersonating 'jdoe'**
Viewing and completing Tasks as 'jdoe'

Status	Filter by Task name	Apply Filter	Reset to default		
Status	Ready X	Reserved X	Reset to default		
Name	Process	Priority	Status	Started	Last update
IT Interview 8f750	hiring	N/A	① Reserved	a few seconds ago	a few seconds ago

Item	Description
1	Return to the " Tasks " screen
2	Check if the user " jdoe " was selected
3	Click on the " IT Interview " task

IBM

Unknown user @ Canvas-SampleWorkflow

Process Instances

Jobs

Tasks

Home > Canvas-SampleWorkflow (Unknown user @ http://localhost/dev-deployment-xutrg3gl82) > Tasks > 8f750f40-25be-4398-8cef-9413fed50bc5

> **Impersonating 'jdoe'**
Viewing and completing Tasks as 'jdoe'

IT Interview ① Reserved

1 Approve
Base salary
30000
Bonus
150
Candidate
Peter
Category
Software Engineer

2 **Complete** Release Skip View details

Item	Description
1	Let's approve this step as well so that we can have a happy path in this process.
2	Click " Complete "

Now that all the human activities of the process have been answered, let's return to "Process Instances" to analyze the results.

Process Instances 1

Process Instances

Id	Status	Created	Last update
hiring eb0f8 Endpoint ↗ 2	Completed	3 minutes ago	Updated a few seconds ago

Item	Description
1	Return to the " Process Instances " screen
2	Click on the instance

Process Instance

hiring 43651

Details

Name: hiring

State: Completed

Id: 436517b5-7a34-4a50-a911-f5e9e88a292f

Endpoint: <http://localhost/dev-deployment-xutrg3gl82> ↗

Start: 4 minutes ago

Last Updated: 2 minutes ago

End: 2 minutes ago

Variables

```
{
  "skills": "Java",
  "candidate": "Peter",
  "experience": 3,
  "category": "Software Engineer",
  "salary": 30000,
  "bonus": 150
}
```

Timeline

- Start 4 minutes ago
- New Hiring 4 minutes ago
- Split 4 minutes ago
- Create Offer 4 minutes ago
- HR Interview ↗ 2 minutes ago
- IT Interview ↗ 2 minutes ago
- Split 2 minutes ago
- Send Offer to Candidate 2 minutes ago
- End 2 minutes ago

Now all the steps of the "happy path" have been executed, observe the result in the central "Variables" frame and the Timeline that this instance traveled.

Congratulations! You have completed this Lab, where we explored the practical features and functionality of BAMOE Canvas, Management Console, and Dev Deployment in Minikube.

I hope you had a good learning experience. Thank you for participating!

Find more information about the BAMOE Management Console in the official [IBM documentation](#).

7 Consult Documentation and Communities

- [IBM BAMOE Official Documentation 9.2.x](#)
- [IBM Business Automation Community: Open Editions](#)
- [BAMOE University](#)