Technosoft HR Recruitment Workflow

Developers Manual

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Abstract

This document outlines the technical aspects, deployment and customization of Technosoft HR BPM application.

Technosoft Technical Team

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1. System Requirement

Software required for Bonita Platform (Bonita Engine and Bonita Portal).

Resource	Description
Oracle Java SE Runtime Environment	8u112 (Also comes with the Bonita package)
OpenJDK	8u112
Apache Tomcat	8.5.x (x > 23)
MySQL	5.5.27 and higher in the 5.5.x
Email To SMS Gateway (Android App)	An android app to send SMS for some actions. It gets an email with the subject "ets:PHONE_NUMBER" and sends the SMS to the phone number. App Link: https://goo.gl/hLtW BM

Notes:

- Bonita can be executed on Java 8 and above. All development artifacts (connectors, REST API extensions, etc.) must be compiled with Java 8-byte code (target version).
- MySQL must be configured to use the UTF-8 character set with innoDB storage engine.

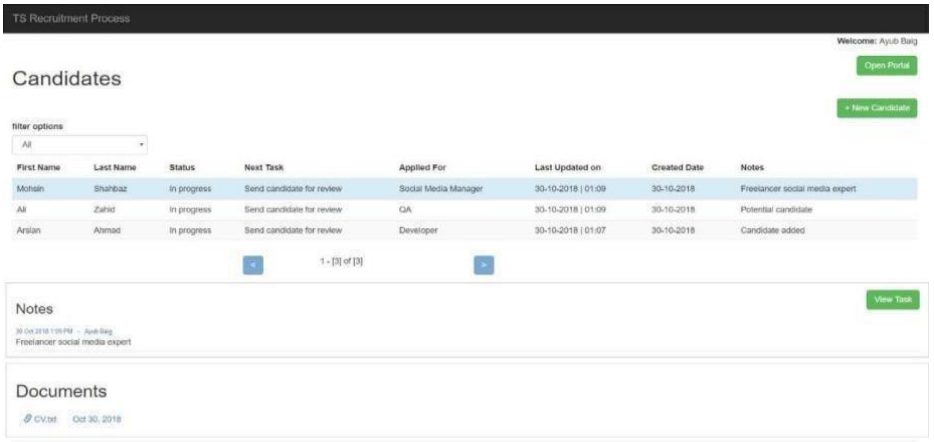
2. HR Recruitment Process Frontend Applications

There are following two front end views to the application:

a) Dashboard
b) Portal

2.1 Dashboard

It shows a dashboard to view all the candidates added. Filtering can be applied to the candidates. It also shows the notes history and documents attached to the selected candidate.



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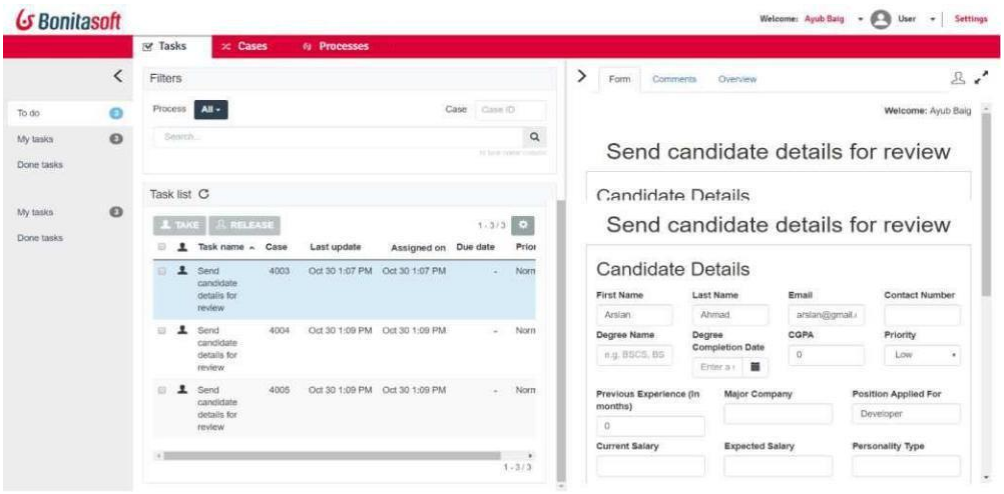
2.2 Portal

This shows currently assigned tasks to the logged in user. All the actions are performed via portal, while Dashboard is only read only view.



3. Customization

To customize the portal color and logo do the following steps:

1. Go to TOMCAT {*CATALINA_HOME}*\server\conf\context.xml and add the following line of codes in the *Context* tag.

```
<Resources className="org.apache.catalina.webresources.StandardRoot">
      <PreResources
            className="org.apache.catalina.webresources.DirResourceSet"
            base="${catalina.base}/bonita"
            internalPath="/"
            webAppMount="/WEB-INF/classes"
      />
</Resources>
```

2. Add a new folder in {*CATALINA_HOME}\server* named “bonita”
3. Copy two files from *\server\webapps\bonita\WEB-INF\classes*
   - bonita-portal-theme-css.zip
   - bonita-portal-theme.zip
4. Paste and extract these two folders in a temporary folder
5. Change the logo files in *bonita-portal-theme\skin\images logo.png* and *login-logo.png*
6. Change the color in *bonita-portal-theme-css\bonita.css*
7. Again zip these two folders and place it in {*CATALINA_HOME}\server\bonita* folder
8. Access the **theme** table in **Bonita_Engine_DB** delete the table row
9. Restart the server. Congratulations!! Color and logo are now changed and look like below image.

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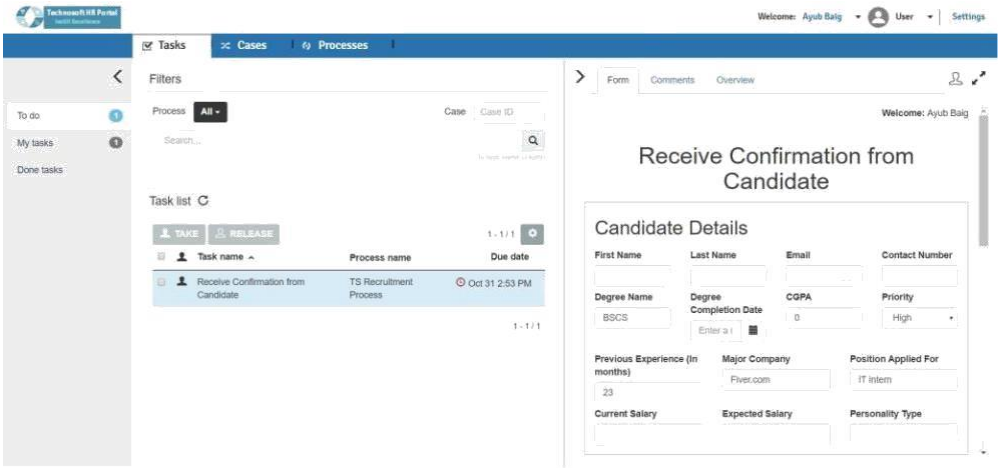

4. REST API

Bonita REST API documentation is available at https://goo.gl/7wySvh.

Some of the APIs used in our application to instantiate the process and add the candidate automatically through a standalone application are:

4.1 Login to portal

Request URL	`http://host:port/bonita/loginservice`
Request Method	POST
Content-Type	application/x-www-form-urlencoded
Form Data	username: {username} password: {password} redirect: false

The response header to this call contains X-Bonita-API-Token All the subsequence REST API calls using DELETE, POST, or PUT HTTP methods must contain this token in the **HTTP header** as X-Bonita-API-Token: some-token-value.

4.2 Get process id

Request URL	http://host:port/bonita/API/bpm/process
Request Method	GET
Params	p:0 c:100 f:version={version_of_process} f:name={name_of_process}

The response body contains an array containing objects with id parameter i.e. Process_ID. Save this parameter for later use.


```
[
    {
        "displayDescription": "",
        "deploymentDate": "2018-10-29 17:53:49.547",
        "displayName": "TS Recruitment Process",
        "name": "TS Recruitment Process",
        "description": "",
        "deployedBy": "34",
        "id": "9207458137052825482",
        "activationState": "ENABLED",
        "version": "2.2.1",
        "configurationState": "RESOLVED",
        "last_update_date": "2018-10-29 17:54:06.645",
        "actorinitiatorid": "410"
    }
]
```


4.3 Upload a file related to candidate

Request URL	`http://host:port/bonita/API/formFileUpload`
Request Method	POST
Content-Type	multipart/form-data
Form Data	name: {name_of_file} filename: {absolute_path_of_the_file_to_upload}

The response body will contain the following parameters:


```
{
    "filename": "transcript.txt",
    "tempPath": "tmp_6284325287093516857.txt",
    "contentType": "text/plain"
}
```


4.4 Instantiate the process

Request URL	`http://host:port/bonita/API/bpm/process/{Process_ID_from_step_2}/instantiation`
Request Method	POST
Content-Type	application/json
Request Payload	`{ "candidateInfoInput" : { "firstName" : "", "lastName" : "", "email" : "", "contactNumber" : "", "degreeName" : "", "degreeCompletionDate" : null, "cgpa" : 0, "experience" : 0,`

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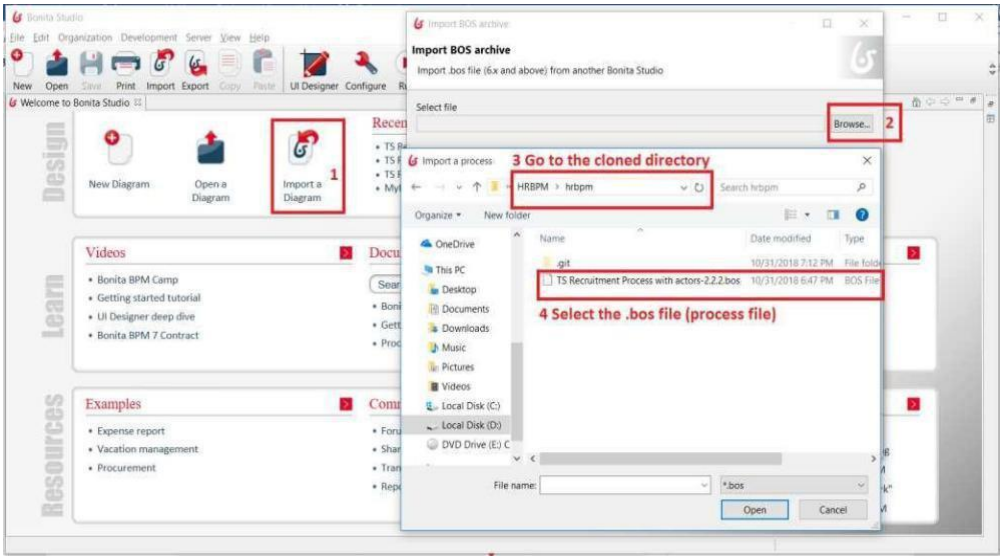
```
  "actionDetails" : {
    "notes" : "",
    "keyStrengths" : "",
    "keyWeaknesses" : ""
  },
  "currentSalary" : "",
  "expectedSalary" : "",
  "majorCompany" : "",
  "appliedFor" : "",
  "personalityType" : "",
  "priority" : "Low"
},
"candidateRemarksDocumentInput" : [
   {paste_response_body_from_step_3_here}
]
}
```

The response body will contain the caseId, if the process is initiated successfully.

```
1 {
2     "caseId": 4006
3 }
```

5. Development Environment Setup

1. Clone the project from https://bitbucket.org/TSSolutionsTeam/hrbpm/src/develop
2. Import the diagram from studio and select the .bos file from cloned directory described in the following image



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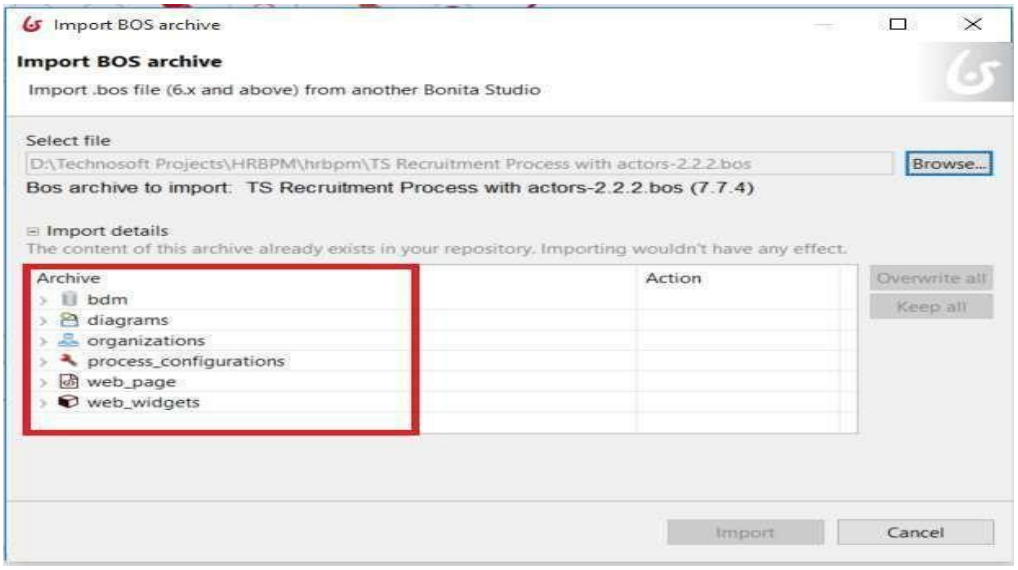
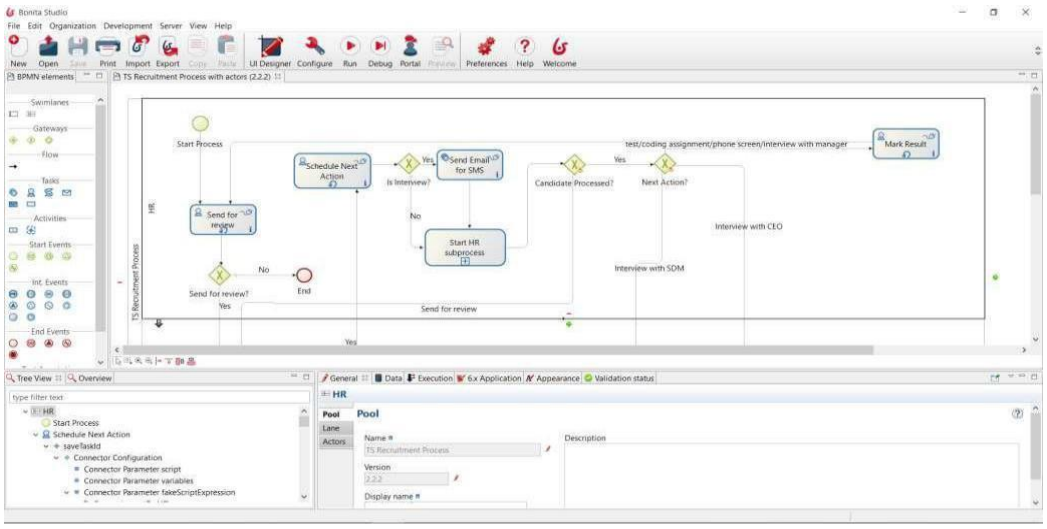
A wizard will open to import all the required things in the process then click on import



3. The process diagram will open in the studio



4. First things first, follow the steps shown in the picture below for the purpose of deployment of imported organization (with the process) for current environment.

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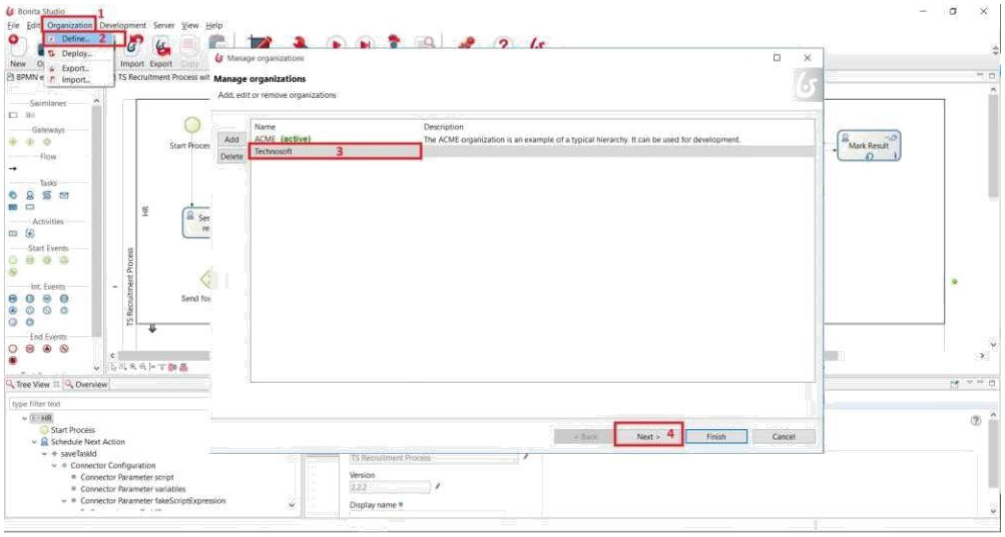
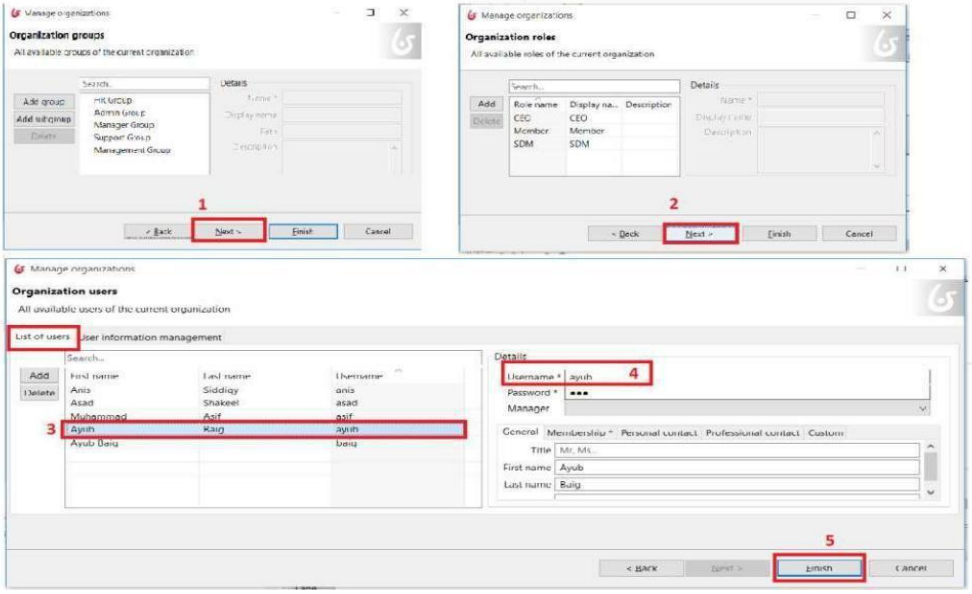
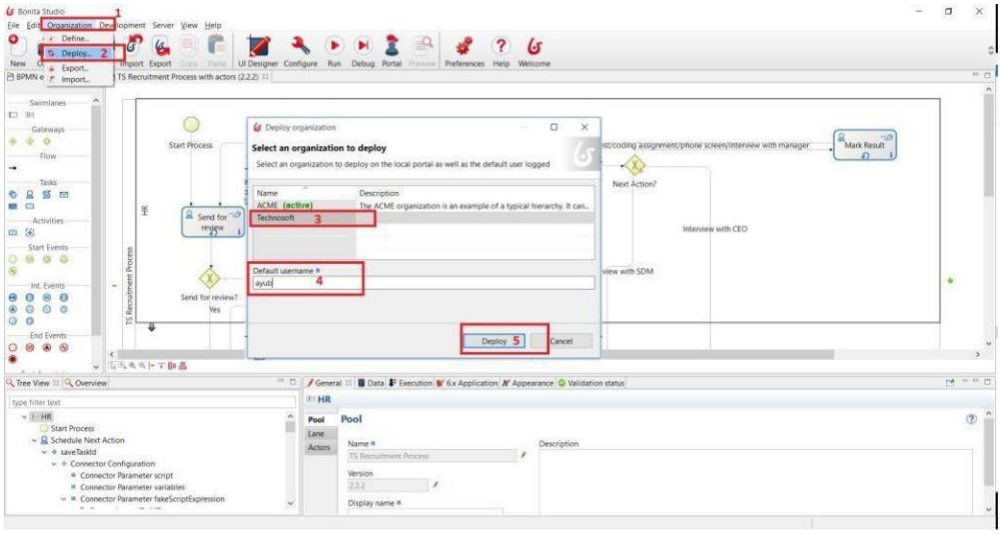


and then

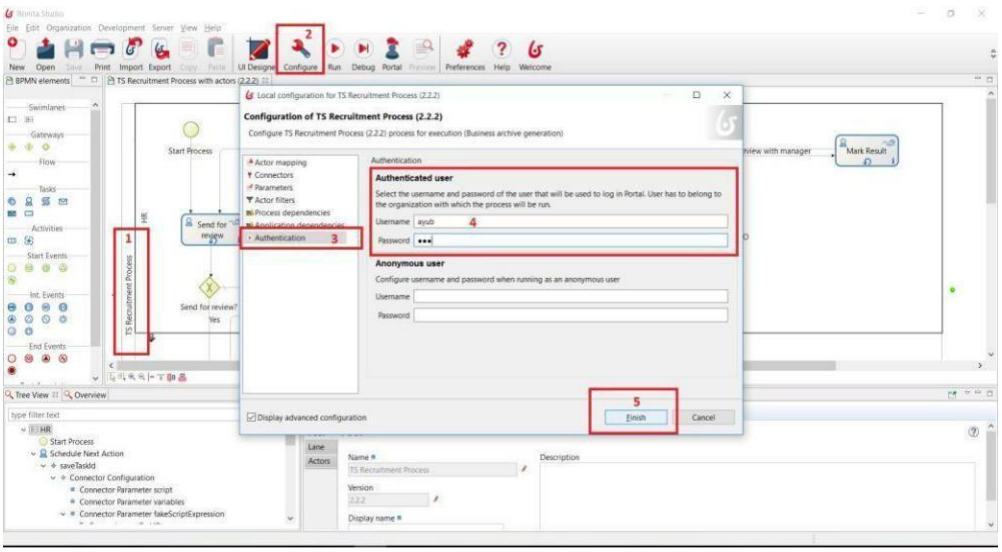
- click on next in same window
- again on next and then
- select a user from list of users **note down** its
- username and password (“123” in our case)
- click finish.



5. Now, follow the steps in the following picture to deploy the organization with the noted username from previous step

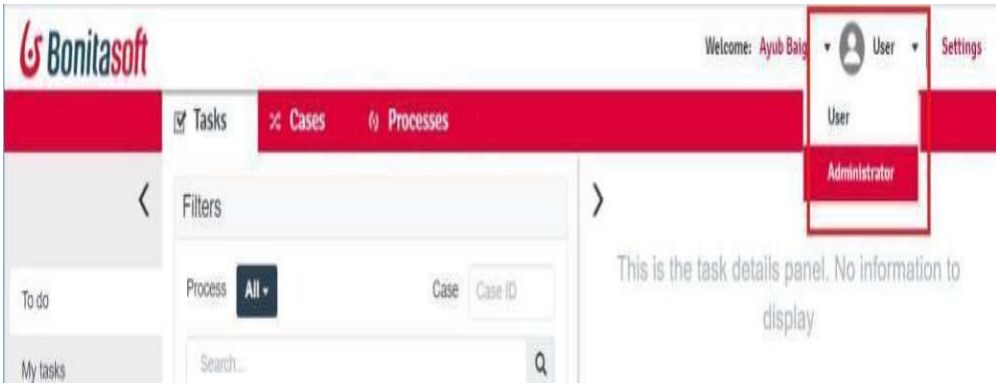


6. Check if the user is configured correctly, or configure it yourself, using following steps
   - click on process
   - click configure
   - select Authentication
   - set username and password (username and password can be noted by following step 4) in Authenticated user fields
   - click finish.

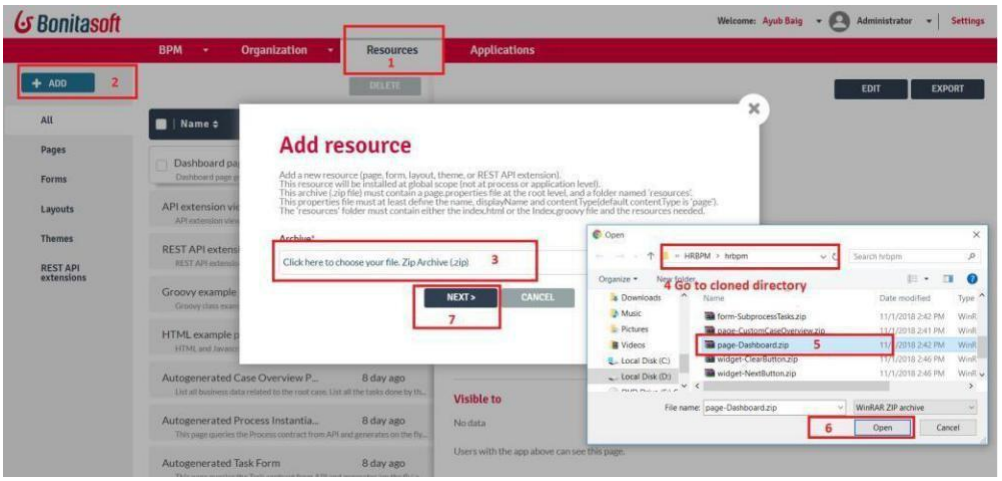


7. From Bonita studio open portal using following picture.

A browser window will open with the credentials given in configuration in previous step, switch to administrator mode



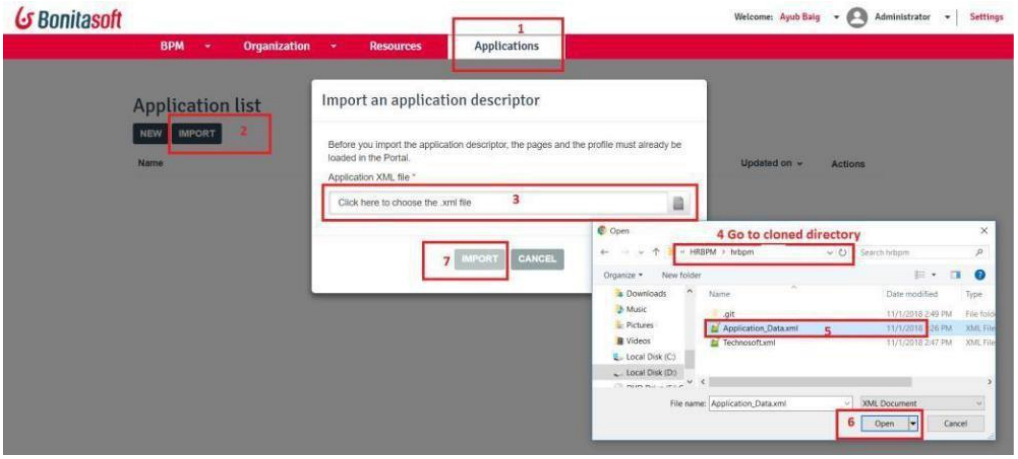
8. In Administrator mode, follow the steps mentioned in picture to import the resource page from cloned directory



Then click on confirm

The Dashboard is now added as a resource

9. Now, in Administrator mode, Import Application and set homepage a.
   Follow the step to import the application from cloned directory



b. Application is imported

- click on dots to edit it

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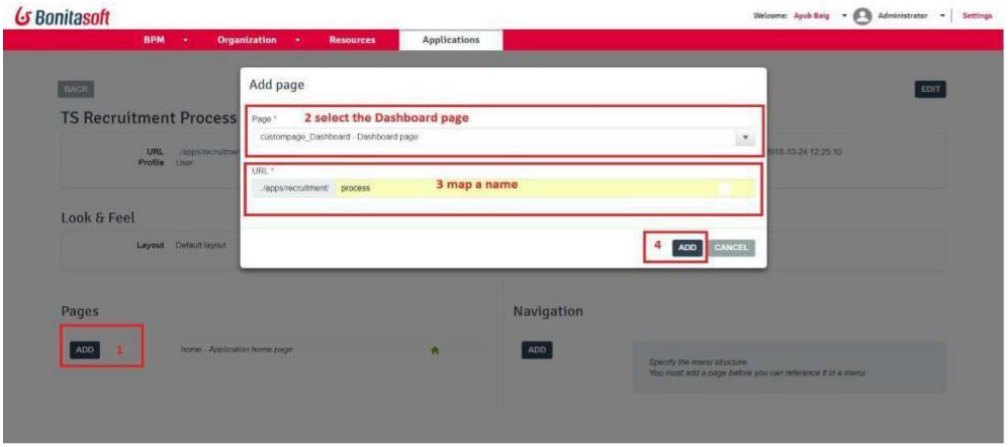
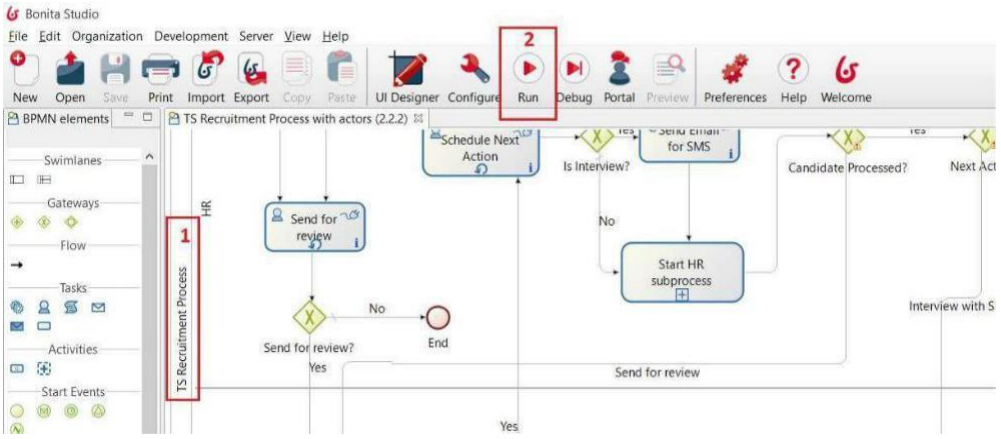
- Add a page
- select Dashboard, added as a resource in previous step
- Map a name
- click add



d. Set newly added page as
   - homepage and
   - delete the old one

10. Go to Bonita studio,
    - select the process
    - Run the process, a bowser window
11. will open for process initiation

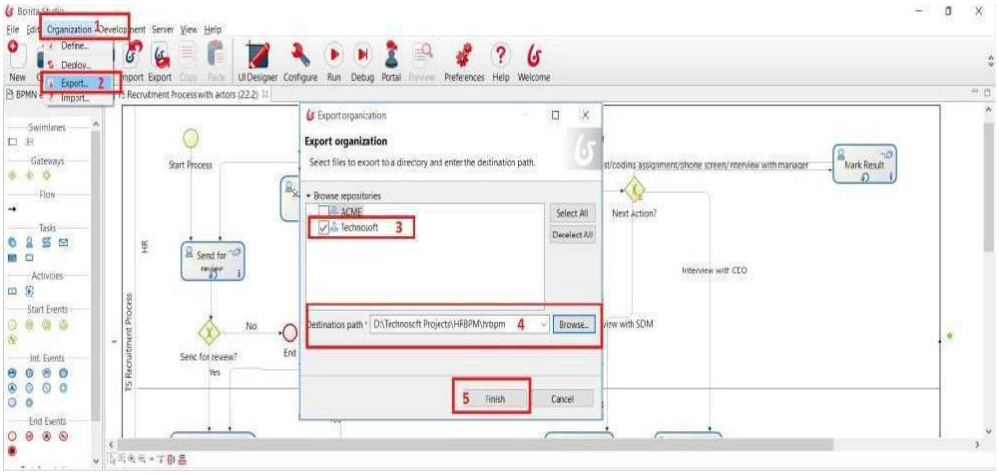


12. Congratulations!! Development environment is set successfully.

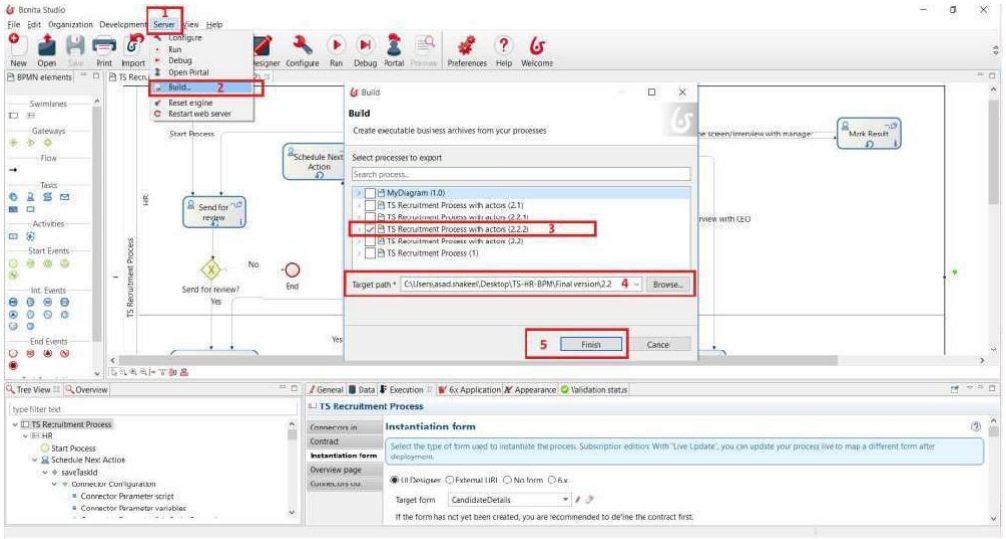
6. Deployment Procedure

Follow these steps to deploy the Bonita application:

1. Export the organization from Bonita Studio, go to Organization -> Export to export on common place.



2. Export the process from Bonita Studio, go to Server -> Build to save the .bar (process) file on common place.



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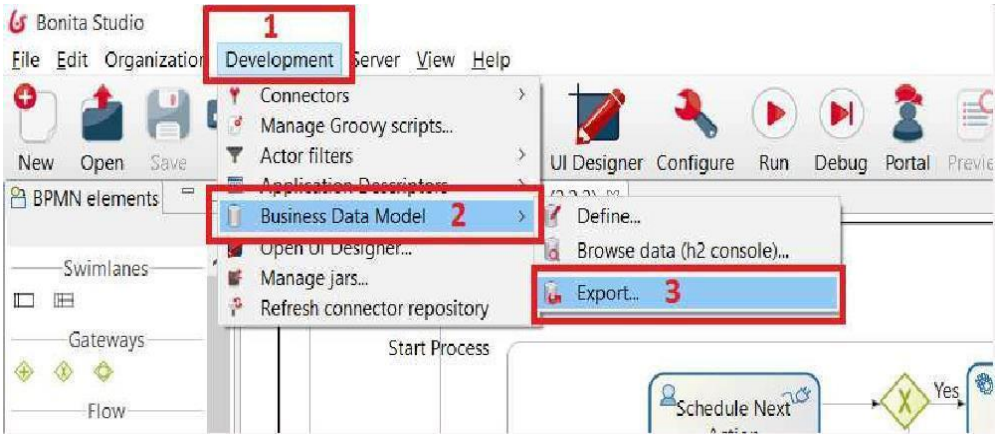
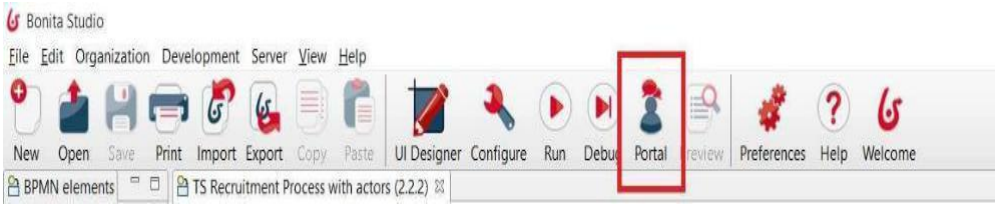
3. Export the Business Data Model (BDM) from Bonita Studio, go to Development -> Business Data Model -> Export to export on common place.

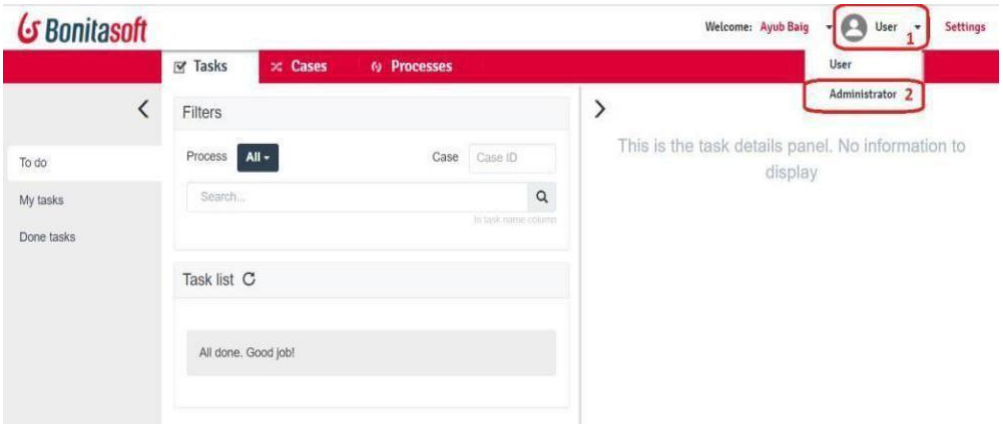


4. Export Application and Dashboard page.

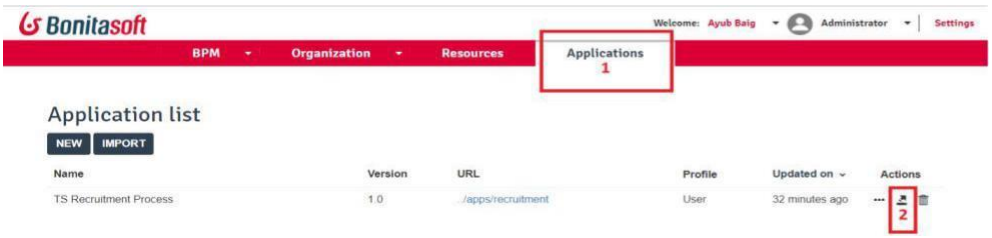
a. From the studio Click on Portal



b. In browser a portal with default login credentials will open.
   - Click on User a dropdown will appear then
   - Click on Administrator.



c.
   - click on Applications
   - click on Export icon to export on common place.



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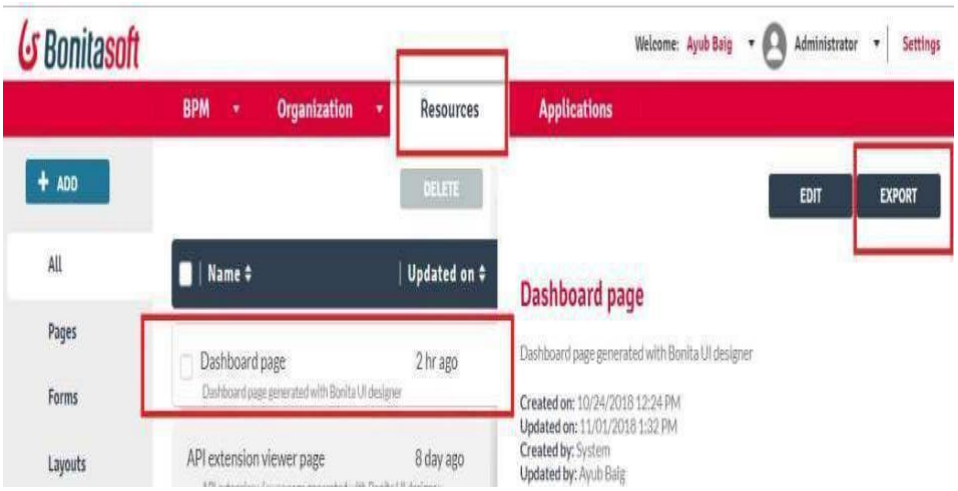
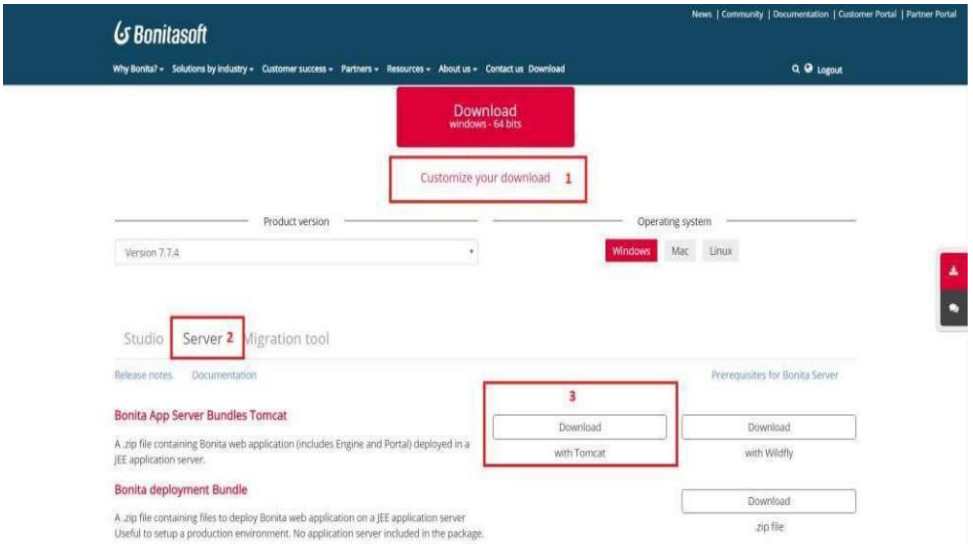
d.

- click on Resources
- select the Dashboard page
- click on Export icon to export on common place.



5. Download the Tomcat package from the Bonita website under Customize your download section.



6. Unzip the downloaded file (Bonita-x.y.z-Tomcat-a.b.c).The unzipped Tomcat bundle is referred to as <TOMCAT_HOME>. Recommended location to unzip is C:\Bonita.
7. Edit file <TOMCAT_HOME>/setup/database.properties according to your database specifications. In this file there are two setups for database, one for engine database that stores all the configurations and portal information, and the other is business

data database. Below is configuration example for MySql Database.

Comment [MA1]: Add snapshot of curren properties file

```
#################################################################################
#
# Modify the following values to suit your database needs.
# Fore more information, see file ../HOW_TO_CONFIGURE_AND_RUN.txt
#
#################################################################################

########################################
# Bonita database properties
########################################
# valid values are (h2, postgres, sqlserver, oracle, mysql)
db.vendor=mysql
# when using h2, no server or port setting is needed since connexion is made using file protocol mode using relative directory:
db.server.name=10.10.10.35
db.server.port=3306
# if your database name contains a backslash (\) character, you must double it (\\):
db.database.name=bonita_engine
db.user=bonita
# if your database password contains a backslash (\) character, you must double it (\\):
db.password=bonita

##################################
# Business Data database properties
##################################
# valid values are (h2, postgres, sqlserver, oracle, mysql)
bdm.db.vendor=mysql
bdm.db.server.name=10.10.10.35
bdm.db.server.port=3306
bdm.db.database.name=bonita_business_data
bdm.db.user=bonita
bdm.db.password=bonita

# IMPORTANT NOTE regarding H2 database:
# in case you move whole setup folder to another directory, you must change property below
# to point to original folder containing h2 database folder
# new value can be relative or absolute since it still points to the right folder
# WARNING for Windows users: keep forward slashes like below (instead of backslashes):
#h2.database.dir=../h2_database
```

8. Run <TOMCAT_HOME>/setup/start-bonita.bat.

9. Go to http://host:port/bonita it should show you Bonita portal login page.

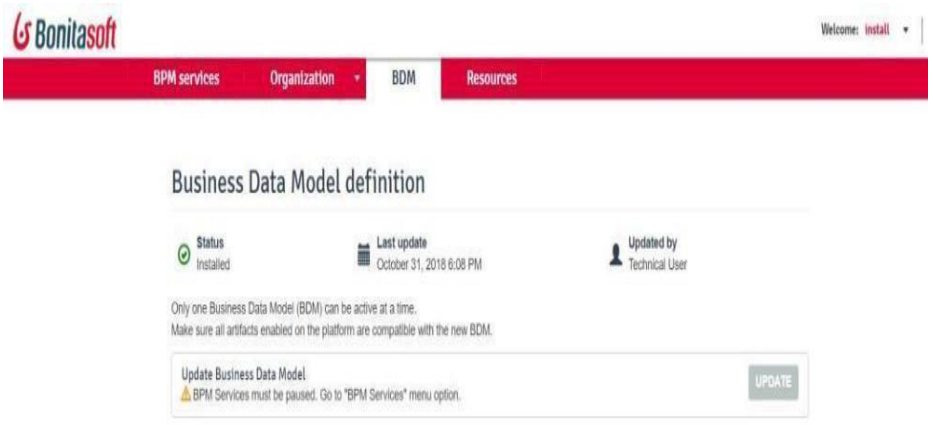
10. You need to log in as the Technical user in order to create a new user with an Administrator profile.
    The Technical user has limited rights in Bonita BPM Portal and exists just to manage operations that are not related to processes, such as initializing the organization, installing the BDM (Business Data Model) or the Resources.
    The default credentials are:

    - Login = install
    - Password = install

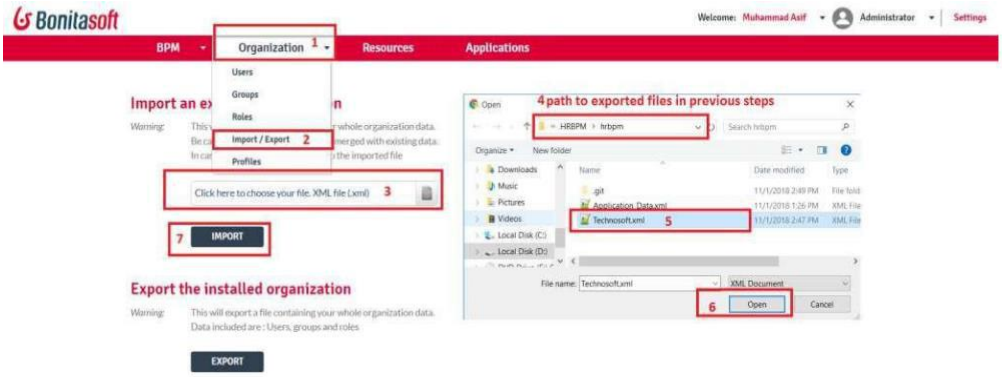
Comment [MA2]: What is it?

Comment [AS3]: Defined in the above paragraph

11. Import the BDM (exported in above steps) by going into BDM tab in portal. Follow the instructions written in the tab to install/update.



12. Import the organization (exported in above steps) by going into Organization tab in portal.



Comment [MA4]: Why we need admin?

Comment [AS5]: Explained below

13. Go to
    - **Organization**
    - **Profiles**.
    - Select Administrator profile
    - Click on the More button.

Administrator profile is needed to install and manage processes in the portal and
also, the tasks, resources, application and organization details.

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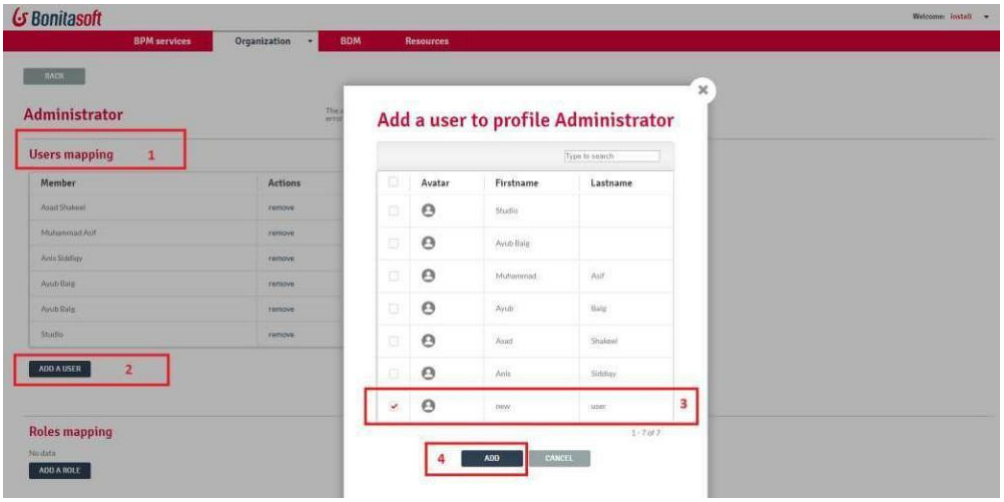
14. Under

- Users mapping,
- click on Add a user.
- Select a user to be mapped on the administrator profile and
- click on the Add button.



15. Log out as the Technical user and log back in as the newly created user with administrative rights.

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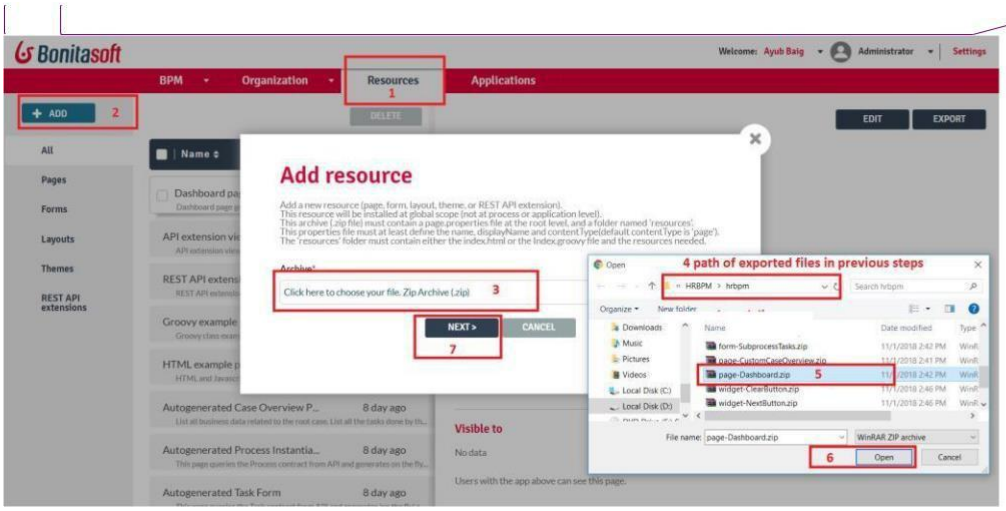
16. In Administrator mode, follow the steps mentioned in picture to import the resource page.

Comment [MA6]: From where?



Then click on confirm

The Dashboard is now added as a resource

17. Now, in Administrator mode, Import Application and set homepage.

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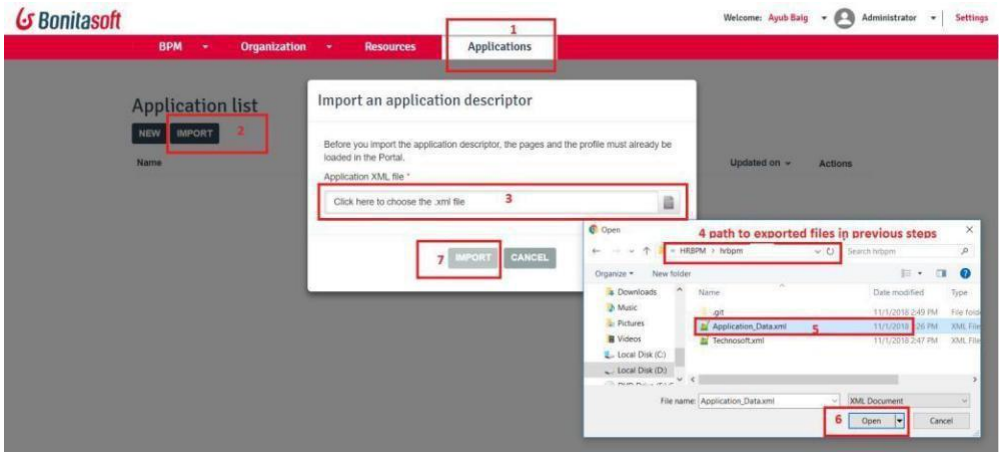
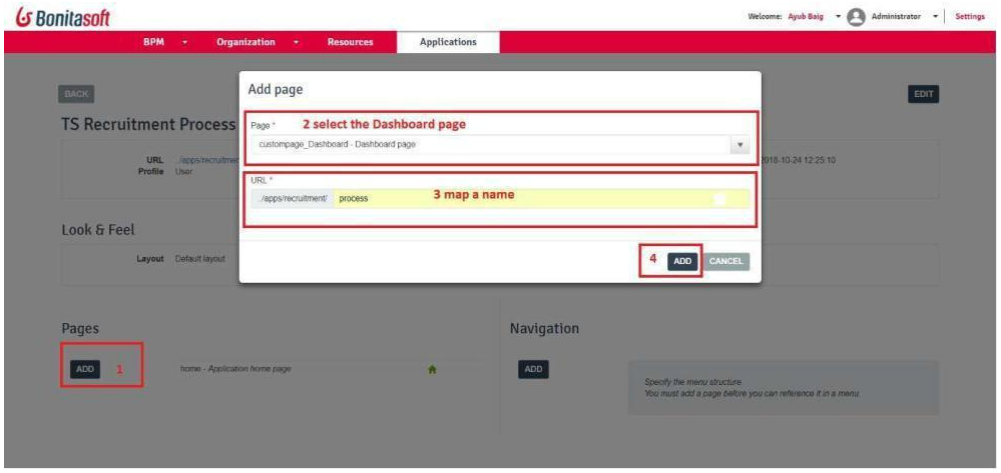
a. Follow the step to import the application



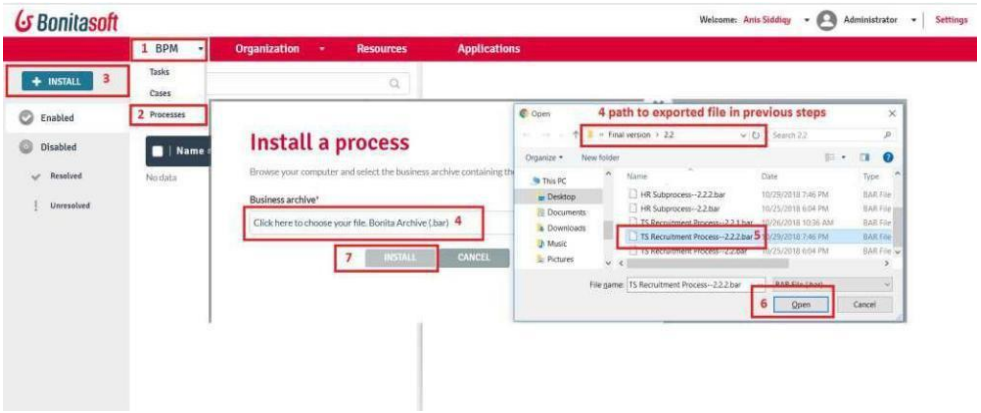
b. Application is imported
- click on dots to edit it

c.
- Add a page
- select Dashboard, added as a resource in previous step
- Map a name
- click add

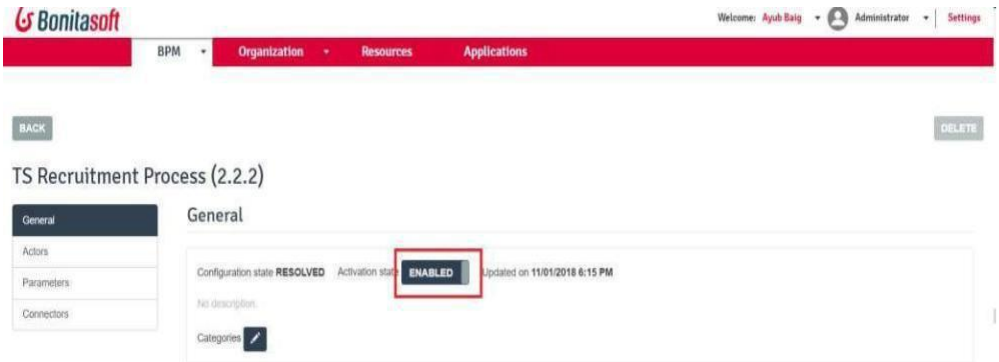


c. Set newly added page as
- homepage and
- delete the old one.

18. In the BPM tab select Processes click on Install and select the .bar file exported as a process.



19. After a process is installed, it shows button to enable the process. Please enable the newly installed process.



In the same way install the subprocess.

20. (Optional) If you want to change the color and logo of the Bonita portal do the steps defined in Customization section.

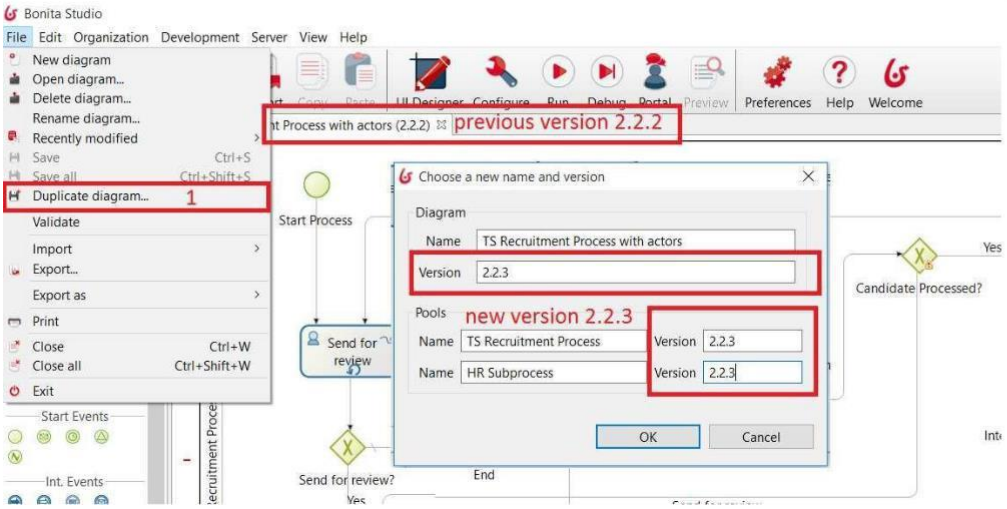
7. Updating the deployed Process

If you need to make changes to your process, you have to re-deploy to update it.
Follow these steps to update existing deployed process:

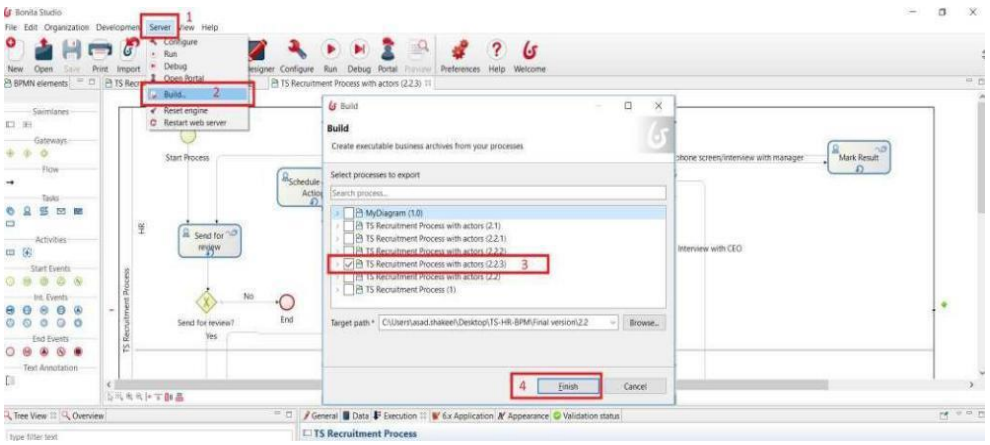
1. In the studio duplicate the diagram and change the version of it

Comment [MA7]: How?

Comment [MA8]: How?



2. Go to `Server -> Build` to make a new .bar (process) file.



3. Open the UI Designer from Bonita Studio, a link will open in browser.

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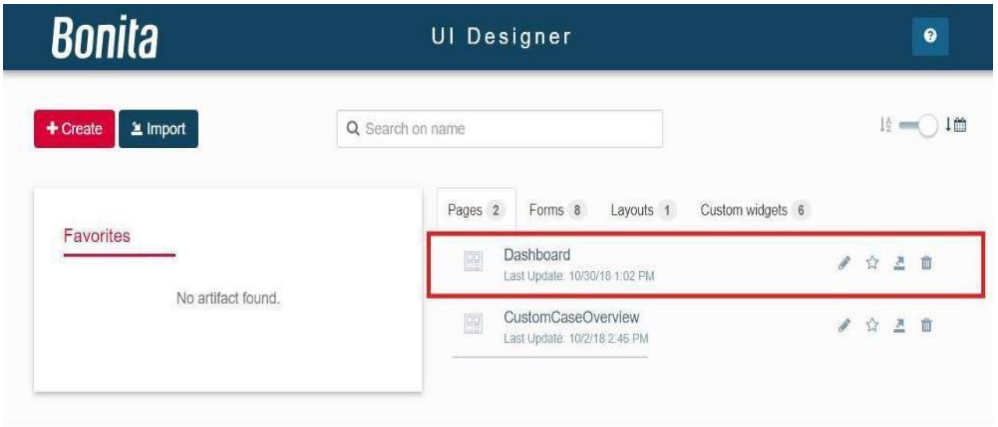
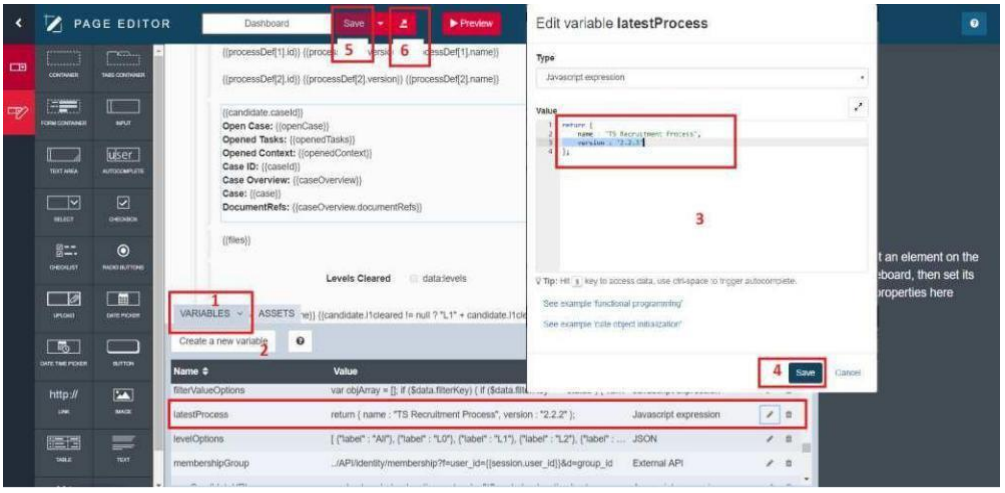
4. Open Dashboard.



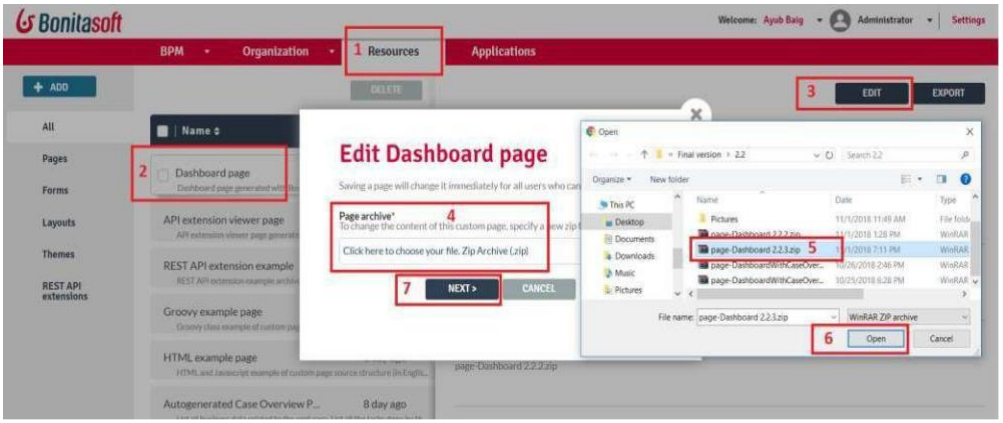
5. Update the latestProcess variable in the Dashboard according to the latest deployed process, save and then export it (@here page-Dashboard 2.2.3.zip), using the steps in following picture.

   These are required to initiate the process from the "+ new Candidate" button in the Dashboard.



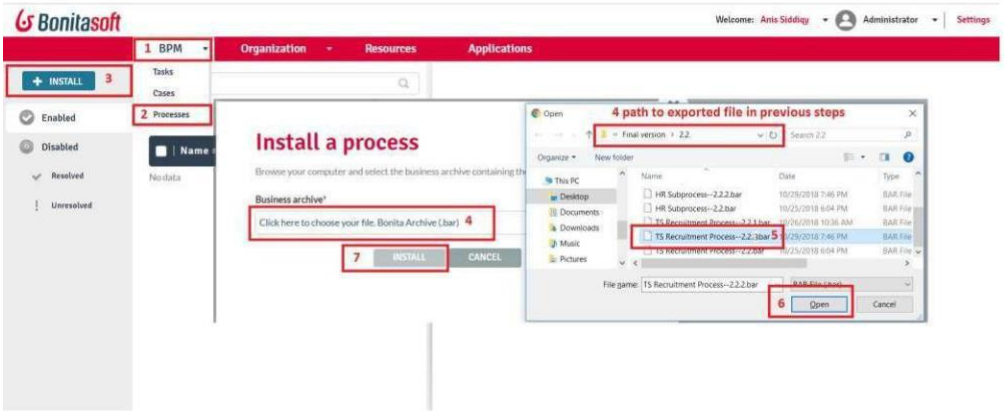
6. Login as Administrator into the portal,
   - go to the Resource tab
   - select dashboard page from page listing
   - edit the Dashboard page import the latest.

Dashboard.zip file (@here page-Dashboard 2.2.3.zip)

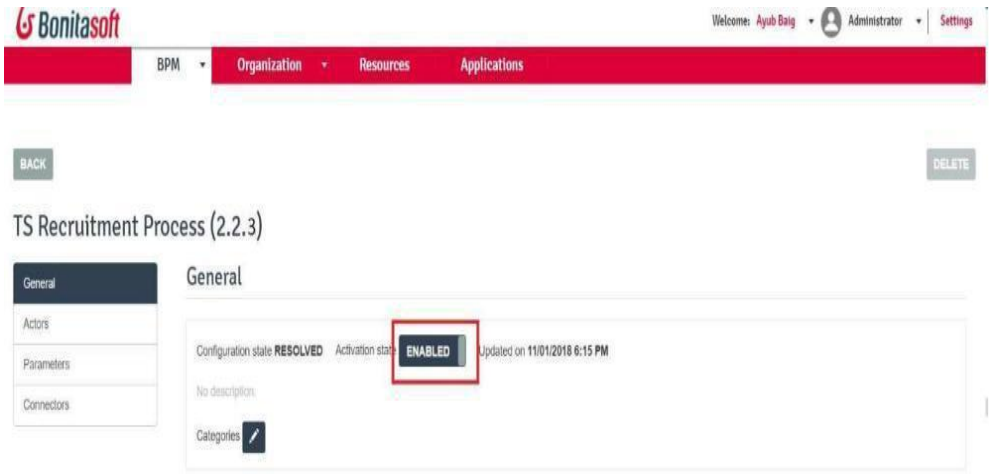


7. In the BPM tab select Processes click on Install and select the .bar file exported as a process in above steps.

Comment [MA9]: rephrase



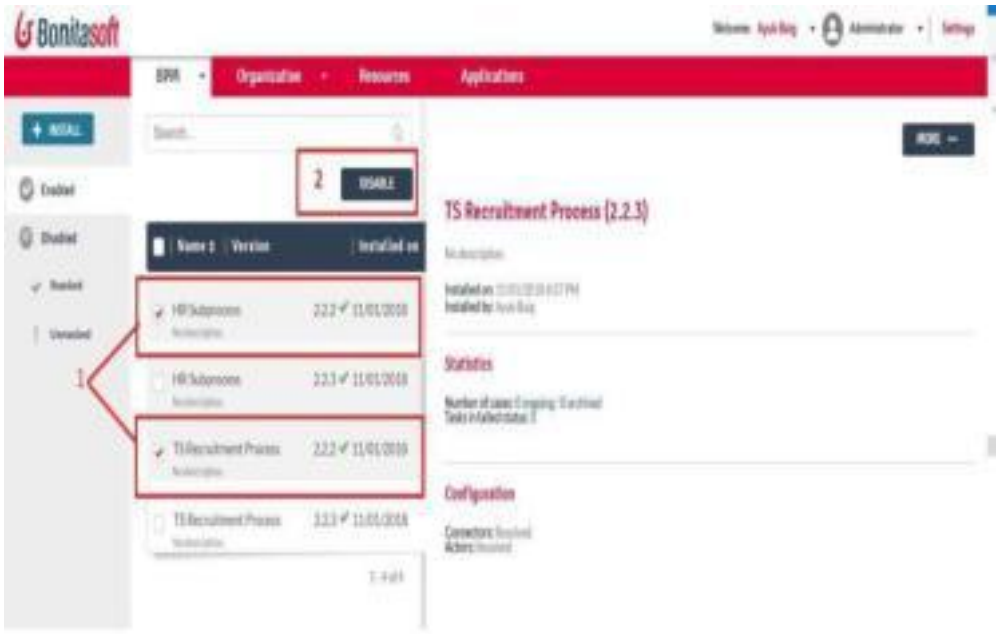
8. After a process is installed, it shows button to enable the process. Please enable the newly installed process.



In the same way install the subprocess.

9. Disable the previous version of installed process using following picture.

Comment [MA10]: How?



CAUTION: DO NOT DELETE THE PREVIOUS VERISON OF PROCESS. AS IT DELETES ALL THE PROCESS INSTANCES ASSOSIATED WITH IT.

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8. FAQ's

Q: How to assign a task to a user?

A: Select a task in Bonita Studio. In general tab select Actors and set actor filter.

Q: How to attach the external Database in production mode?

A: In Tomcat_Home\setup\database.properties change the Engine Database configuration as well as Business Data Database configuration according to yours database.

Q: How to send an Email through a task in process?

A: Select a task in Bonita Studio, In the **Execution** tab select the **Connectors In Add** a new connector of **Messaging** type select subtype **Email (SMTP).** Give a name to the newly created connector click next. Provide your email SMTP host and port and in Authentication provide a valid email and password to login then set email sender and receiver then set a subject and message and click Finish. Email is now set to send.

Q: Can I add a timer for a task?

A: Yes, a task can be hold for a time by using intermediate timer event or boundary timer. Timing can be set in terms of duration (milliseconds) or the specific date.

Q: How can I get the current task id and to whom it is assigned?

A: On a task when edit as a script in operations, there are some variables already provided:

- activityInstanceId: the identifier of the activity instance (not available for a process-level expression).
- taskAssigneeId: the identifier of the user who is performing an activity at the time when the expression is evaluated.
- processDefinitionId: the identifier of the process.
- processInstanceId: the identifier of the process instance.
- rootProcessInstanceId: for a called process or an event subprocess, the identifier of the root process (note that if there are multiple layers of called processes or subprocesses, this is the root of the hierarchy, not the parent called process or subprocesses).

Q: Can I instantiate the process through REST API calls?

A: Yes, the process can be initiated using set of REST API calls.