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2.1 Installation

You first need to extract the demo distribution zip (homeloan-integration-demo-1.0.zip) to a location of your choosing. Once extracted, you will have the following folder structure:

- \homeloan-integration-demo
  - \installs – Initially empty, but will contain the SOA-P and BRMS platform downloads.
  - \projects – The three projects that comprise the demo.
  - \support – Additional supporting files used by the demo.
  - \target – Will be created by running init.sh. Contains the fully configured SOA-P and BRMS runtime server.
  - init.sh – Script to install and configure the run time server environment.
  - Quick Start Guide.odt – This document

Next, download SOA Platform and BRMS Platform from the Red Hat Customer Portal (https://access.redhat.com/jbossnetwork).

Download SOA Platform:

1. Under *JBoss Enterprise Platforms*, select the *SOA Platform* product.
2. Select version *5.2.0 GA* in the *Version* field.
3. Download *SOA Platform 5.2.0*

Download BRMS Platform:

1. Under *JBoss Enterprise Platforms*, select the *BRMS Platform* product.
2. Select version *5.2.0* in the *Version* field.
3. Download *JBoss BRMS 5.2.0*

*(*Please note that this is the deployable distribution, not the standalone one.)

Now copy both files, `soa-p-5.2.0.GA.zip` and `brms-p-5.2.0.GA-deployable.zip`, to the homeloan-integration-demo's *installs* folder.

Lastly, from the homeloan-demo folder, run the *init.sh* script:

```
$ ./init.sh
```

When the script completes you will have a new folder named *jboss-soa-p-5*, in the homeloan-integration-demo's *target* folder. The *jboss-soa-p-5* folder is a ready to run SOA Platform 5.2 server runtime with the following modifications made:

- The *admin* account enabled (password is *admin*) in the soa-users.properties file in *homeloan-integration-demo/target/jboss-soa-p-5/jboss-as/server/default/conf/props*
- Registered an additional RiftSaw event listener in the *bpel.properties* file (see *bpel.event.listeners*) located in *homeloan-integration-demo/target/jboss-soa-p-5/jboss-as/server/default/deploy/riftsaw.sar.*
- Copied the custom RiftSaw event listener implementation jar file (*droolsfusion-eventlistener.jar*) to *homeloan-integration-demo/target/jboss-soa-p-5/jboss-as/server/default/deploy/riftsaw.sar/lib*.
- Deployed the *jboss-brms.war* (Business Rule Manager/Guvnor) to *homeloan-integration-demo/target/jboss-soa-p-5/jboss-as/server/default/deploy*. This eliminates the need to have two separate servers running.

2.2 JBoss Developer Studio Configuration

You can run this demo with either of the following versions.

JBoss Developer Studio 5

In this section, you will configure JBoss Developer Studio. Specifically you will add the SOA Platform 5.2 server runtime environment and then import the three projects that make up the home loan integration demo.

Important: It is assumed that you already have JBoss Developer Studio installed. This demo has been tested with JBoss Developer Studio 5 (latest).

Launch JBoss Developer Studio

1. Either select or switch to a new workspace by pointing to the *homeloan-integation-demo/projects* folder.
2. If the Welcome to JBoss Developer Studio screen appears, dismiss it by click the Workbench arrow in the upper right

Fix for missing GEF dependency in SOA Tools update site

1. Select *Help → Install New Software...* and add GEF update site http://download.eclipse.org/tools/gef/updates/releases/
2. **Do not select any components**, move on to next step to install SOA tools update site and the needed dependencies for GEF will be automatically resolved.

Install SOA tools for ESB and BRMS

1. Select *Help → Install New Software...* and add SOA Tools update site https://devstudio.jboss.com/updates/5.0/staging/soa-tooling/
2. Select *BRMS Tooling (all sub-menu items will be selected)* and *SOA-P Tooling* sub-menu item *Jboss ESB Tools* only proceed thru installation and restart JBoss Developer Studio to complete the installation.

Detect and add a SOA-P 5.2 runtime environment

1. Select *Preferences* from the *Window* menu.
2. In the left hand side, expand *JBoss Tools* and then select *JBoss Tool Runtime Detection*
3. Select the Add button and navigate to the *homeloan-integration-demo/target* folder, then select *OK*.
4. The SOA-P 5.2 runtime created earlier should have been found and selected. If so, select *OK*.
5. Select *OK* again to close the Preferences dialog window.

Import Projects

1. Select *Import...* from the *File* menu.
2. Expand the *General* folder, and then select *Existing Projects into Workspace*
3. Select the *Browse* button to *Select root directory*, you should be in the *homeloan-integration-demo* folder (if not, then navigate there) and then select *OK*.
4. Make sure the three projects (homeloan-orgination-bpel, homeloan-origination-cep, and homeload-origination-esb) and then select *Finish*.
5. The projects are now imported. Note that you might see the *Problems* view report 4 errors. This is due to bad build path errors on two of the projects (marked with red exclamation points).
6. Fix errors by right-clicking on *homeloan-origination-cep* project, select *Properties,* select *Java Build Path,* select *Libraries* tab, select *JRE System Library* marked with red star, click button *Edit...*, pop-up listing of JRE System Library appears, select *Workspace default JRE* button and *Finish*. This project will rebuild and be fixed.
7. Fix errors in *homeloan-origination-esb* project by following same process listed in previous step.

JBoss Developer Studio 4.1.1.GA

In this section, you will configure JBoss Developer Studio. Specifically you will add the SOA Platform 5.2 server runtime environment and then import the three projects that make up the home loan integration demo.

Important: It is assumed that you already have JBoss Developer Studio installed. This demo has been tested with JBoss Developer Studio 4.1.1.GA.

Launch JBoss Developer Studio

3. Either select or switch to a new workspace by pointing to the *homeloan-integation-demo/projects* folder.
4. If the Welcome to JBoss Developer Studio screen appears, dismiss it by click the Workbench

arrow in the upper right

Detect and add a SOA-P 5.2 runtime environment

1. Select *Preferences* from the *Window* menu.
2. In the left hand side, expand *JBoss Tools* and then select *JBoss Tool Runtime Detection*
3. Select the Add button and navigate to the *homeloan-integration-demo/target* folder, then select *OK*.
4. The SOA-P 5.2 runtime created earlier should have been found and selected. If so, select *OK*.
5. Select *OK* again to close the Preferences dialog window.

Import Projects

1. Select *Import...* from the *File* menu.
2. Expand the *General* folder, and then select *Existing Projects into Workspace*
3. Select the *Browse* button to *Select root directory*, you should be in the *homeloan-integration-demo* folder (if not, then navigate there) and then select *OK*.
4. Make sure the three projects (homeloan-orgination-bpel, homeloan-origination-cep, and homeload-origination-esb) and then select *Finish*.
5. The projects are now imported. Note that you might see the *Problems* view report seven errors. At this time, this is to be expected due to an issue with the BPEL Editor.

2.3 Start the JBoss Enterprise SOA Platform

In this section, you will start the server from within JBoss Developer Studio.

1. Select the *Servers* view
   If it is currently not open, select *Show View --> Other...* from the *Window* menu and search for the *Servers* view.
2. You should see the *jboss-soa-p* server yu created in section 2.2.
3. Right click on *jboss-soa-p* and select Start from the pop-up menu. In a few moments your JBoss Enterprise SOA Platform will be running.

2.4 Importing Rule Repository

In this section, you will import all of the JBoss Enterprise BRMS artifacts into the Business Rules Manager (a.k.a. Guvnor).

1. Open up your Web browser of choice and navigate to *http://localhost:8080/jboss-brms/*
2. Use the default credentials of *admin*/*admin*
3. Upon logging in, you will see the following prompt**:**

   This looks like a brand new repository.
   Would you like to install a sample repository?

   Important: Please be sure to select ***No thanks.***
4. Select the *Administration* section on the left hand side
5. From the *Administration* list select *Import Export*. This will open the *Import Export* window.

6. Now select *Browse...* and navigate to *homeloan-integration-demo/support* folder and select the *repository_export.xml* file.
7. Lastly, select the *Import* button. Select *OK* to confirm that you want to import the artifacts.

2.5 Deploying Demo Artifacts

The last bit of set-up involves deploying the projects you previously imported.

1. Select the *Servers* view
   If it is currently not open, select *Show View --> Other...* from the *Window* menu and search for the *Servers* view.
2. Right click on *jboss-soa-p* and select *Add and Remove...* from the pop-up menu. This will open the *Add and Remove* dialog.
3. Select the *Add All >>* buton to add the three projects to the *Configured* section. Should a project not be listed, then just right-click on it and mark it as *Deployable.*
4. Now select *Finish* to deploy the three projects the JBoss Enterprise SOA Platform

That is it!! You have successfully installed and configured the Home Loan Integration demo application.

3 Running the Demo

3.1 Endpoint Addresses

When the demo is fully deployed, three Web service endpoints are published.

- http://localhost:8080/JBHomeLoans/HomeLoanPreQualification
  - This endpoint to start a new pre-qualification process via a SOAP Web service and is one of the primary ways to start the demo. There is a sample SOAP message in the *homeloan-origination-esb* project. The file is names *AddApplicationSOAPRequest.xml* and is located in the *esbcontent/resources/sampleMessages* folder.
- http://localhost:8080/homeloan-origination-esb/ebws/homeloan-origination-demo/PreQualDecisionService
  - This endpoint is an ESB Web Service (EBWS) and exposes the BRMS knowledge base as a decision service. It is used by the BPEL process but can be called independently if you are just showing the BRMS capabilities. There is a sample SOAP message in the *homeloan-origination-esb* project. The file is names *PreQualificationDecisionRequest.xml* and is located in the *esbcontent/resources/sampleMessages* folder.
- http://localhost:8080/JBHomeLoans/CreditReport
  - This is another BPEL process, named *CreditReportProcess.bpel*. It is used by *HomeLoanPreQualification.bpel* to simulate obtaining a credit report from an outside credit agency. There is no reason to call this directly and as such there is no defined sample message for this service.

There is also a file-based listener endpoint used to receive new pre-qualification applications via the file system.

- /tmp/inboundLoanApplications
    - Saving a file with a *.loan* extension to this folder will trigger the ESB listener to start a new loan application process. This is similar to the Web service defined above, but using a file location instead of a URL endpoint. There is a sample SOAP message in the *homeloan-origination-esb* project. The file is names *AddApplicationFileRequest.xml* and is located in the *esbcontent/resources/sampleMessages* folder. Results should be a text file *PreApprovalResponse.txt* with an xml reply filled with results data.

3.2 Making the demo have different behavior

There are a few pieces of data in the message which cause the demo application to behave differently.

- Applicant's Social Security Number.
    - The first three digits of the applicant's social security number determines their credit score . For Example, if the social security number is 720-55-1234 then they will have a credit score of 720 returned from the credit agency. This is used in the Credit Score Range decision table and normally results in the loan either being approved or not being approved.
    - Also, if the credit score is an odd number, it will add a one second delay to completing the pre-qualification process. This is useful when demoing the complex event processing scenario as the extra time will cause this process to typically exceed the threshold and cause an SLA violation to be printed on the console
- Other data in determining the outcome of the pre-qualification process include the loan amount, the deposit amount, if the applicant is self-employed or not, and the length of the loan. Take a look at the Pricing loans decision table to see how this impacts the loan decisions.