Supplement Notes
Installing Kofax RPA on Apache Tomcat

The Missing Manual Version 1.2

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1. Introduction

This is the missing document for Kofax RPA installation for tomcat. This document cover step by step installation Kofax RPA 11 into apache tomcat.

What this document cover?

- A step by step guide on installing Kofax RPA on tomcat
- Tomcat configuration to secure your tomcat installation with SSL (Secure Socket Layer).

What this document will not cover

- Buying the SSL certificate, for more information please contact and buy the certificate from your trusted certificate authority.
- Installing database ex: Microsoft SQL

Installation to Apache tomcat used for production deployment and for your development user can use the embedded tomcat server.

Please install the Database server before installing the Kofax RPA. Remember the image in this document just for a reference only you might have different environment.

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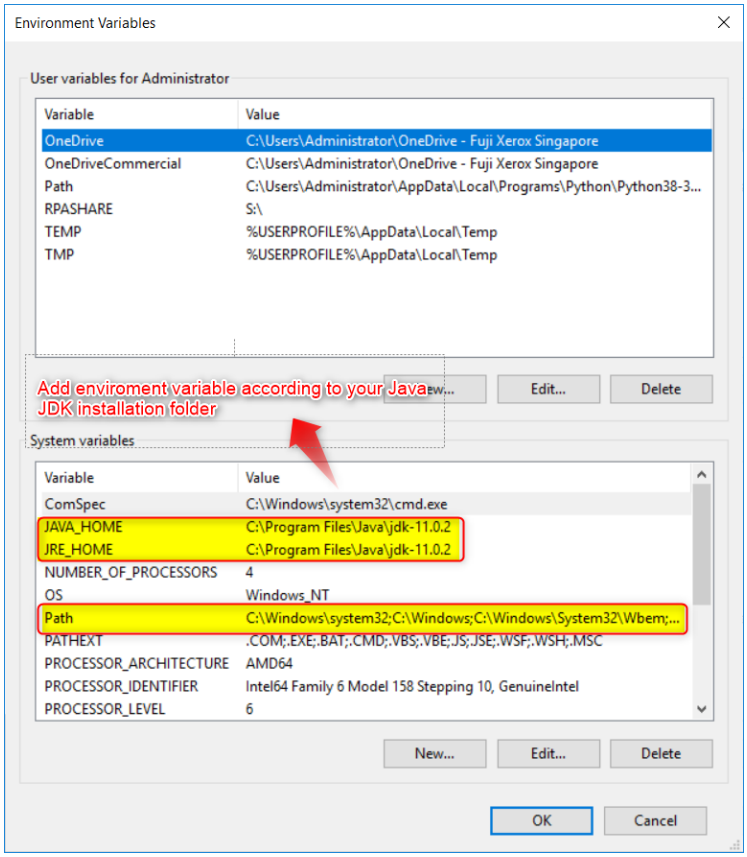
2. Install Java SDK and Set Environment Variable

1. Download Java SDK 11
2. Go to https://www.oracle.com/java/technologies/javase-jdk11-downloads.html
3. Run the installer
4. Configure the JAVA_HOME, PATH and JRE_HOME accordingly (add \bin for PATH environment variable)
5. Go to https://www.java.com/en/download/help/path.xml for more information
6. It will look like this



You will something similar to above if you follow the instruction from the URL above.

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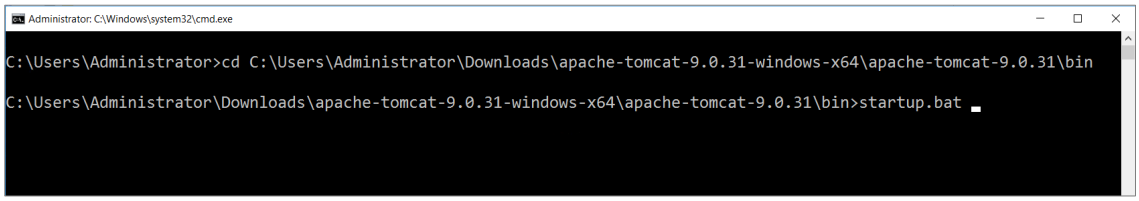
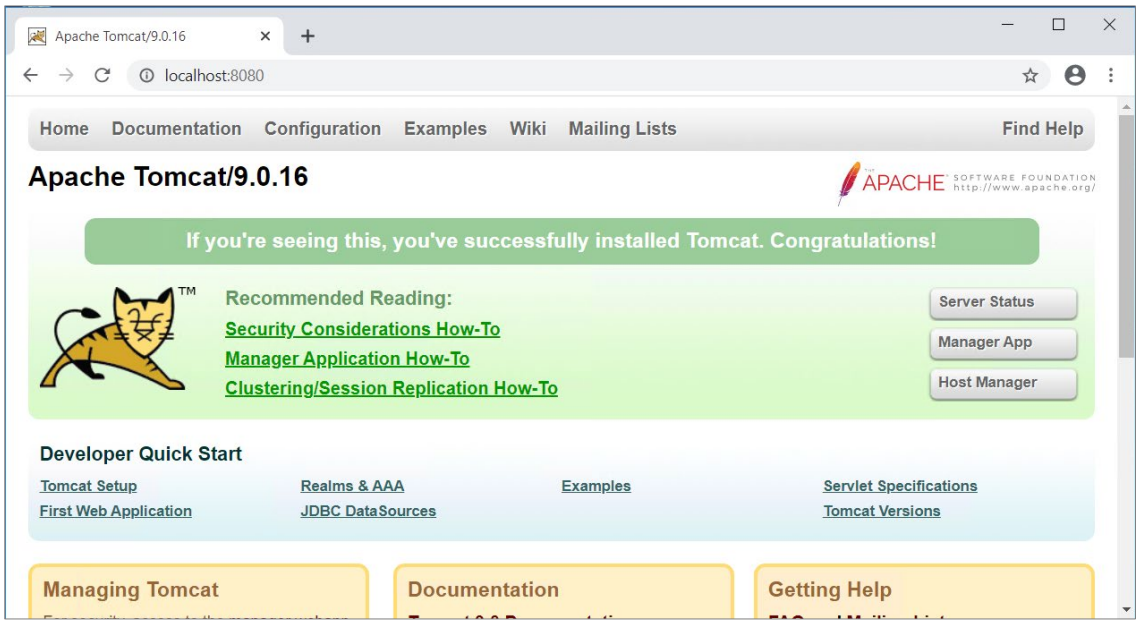
3. Download the tomcat and install

1. Go to http://tomcat.apache.org/ and download the installer
2. You can download either windows service installer or zip file
3. Download the 64-Bit Windows version
4. Un-zip the folder
5. Open command prompt and navigate to tomcat bin folder
6. Go to [Installation Folder]\apache-tomcat-9.0.31-windows-x64\apache-tomcat-9.0.31\bin
7. You screen will look something like this



8. Type startup.bat
9. Go to your browser and type http://localhost:8080



You will something similar to above if installation is successful

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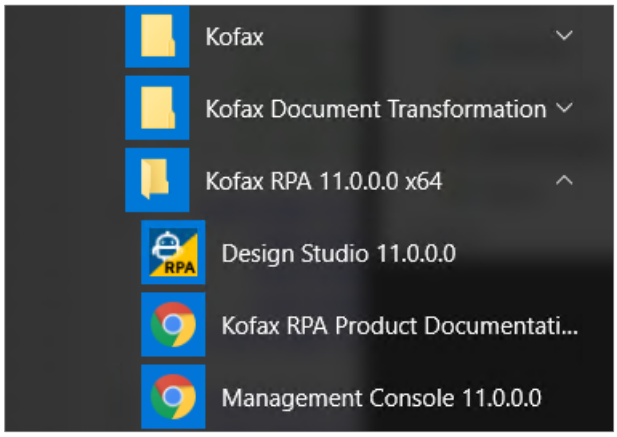
4. Install Kofax RPA

1. Download your installer from https://delivery.kofax.com
2. Install all the Kofax RPA component
3. Kofax RPA 11.000
4. Kofax RPA Desktop Automation
5. Kofax RPA DTS (optional) as it's huge installer
6. Run the setup
7. If the installation completed you would see this following image under your start menu



*This is basic installation of Kofax RPA you shouldn't fail this. Please refer to official manual for more information. Or start looking for new job *joking** 😊

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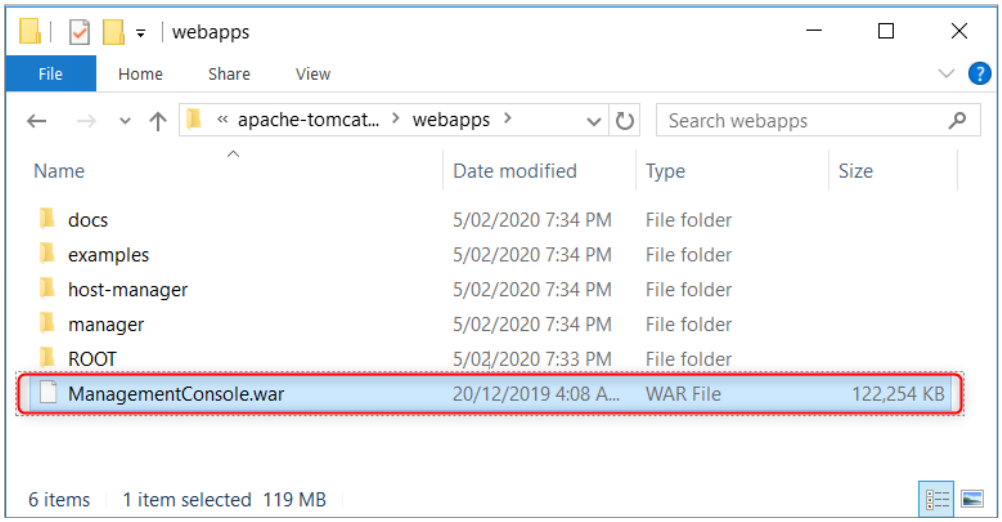
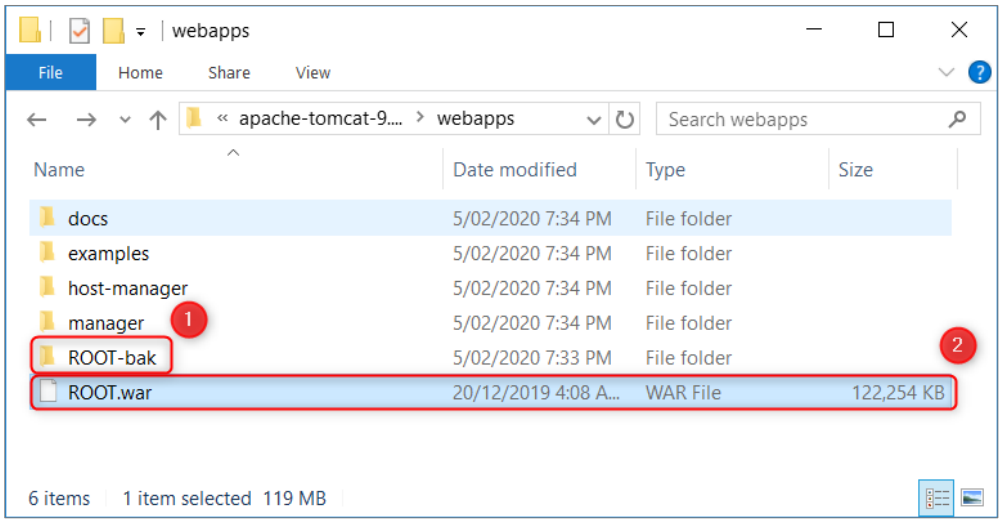
5. Install Management Console into ROOT folder

Installation of war file into tomcat

1. Go to Kofax RPA installation folder
2. Default location is: C:\Program Files\Kofax RPA 11.0.0.0 173 x64\WebApps
3. Copy over ManagementConsole.war into [Installation path] \apache-tomcat-9.0.16\webapps.



We're going to install into a root folder without need to type Management console so Change it into ROOT.war and backup the old ROOT folder



4. Modify your localhost file
5. Create a "Catalina" folder under apache-tomcat-9.0.31\ conf folder
6. Create a "localhost" under the "Catalina" folder

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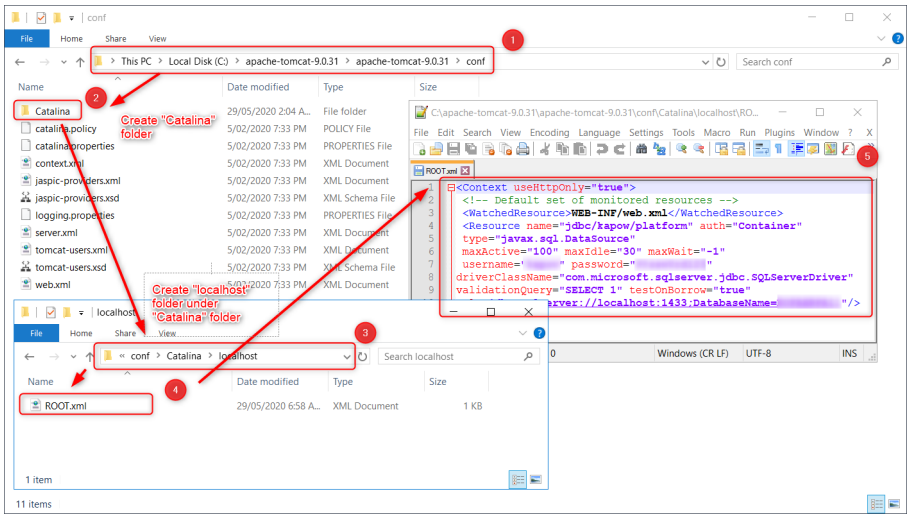
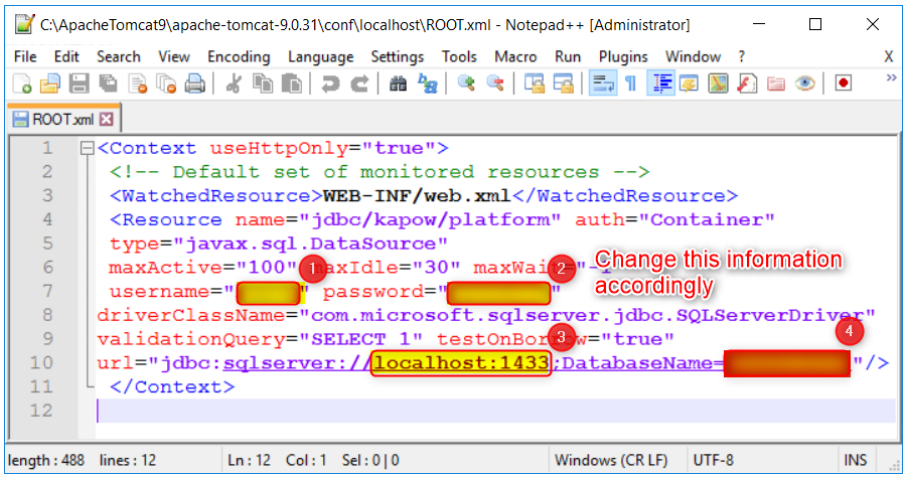
7. Create a “ROOT.xml” file sample below

Please create same xml file name as war file (ex: ROOT.war equal to ROOT.xml)




```
<Context useHttpOnly="true">
 <!-- Default set of monitored resources -->
 <WatchedResource>WEB-INF/web.xml</WatchedResource>
 <Resource name="jdbc/kapow/platform" auth="Container"
 type="javax.sql.DataSource"
 maxActive="100" maxIdle="30" maxWait="-1"
 username="[username]" password="[password]"
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
validationQuery="SELECT 1" testOnBorrow="true"
url="jdbc:sqlserver://localhost:1433;DatabaseName=[databasenam
e]"/>
</Context>
```

You can copy past the text above for MS SQL installation, please change the username, password, and server information.



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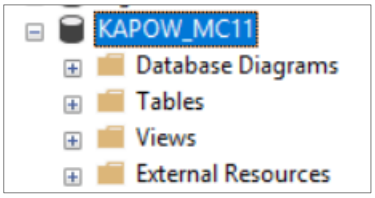
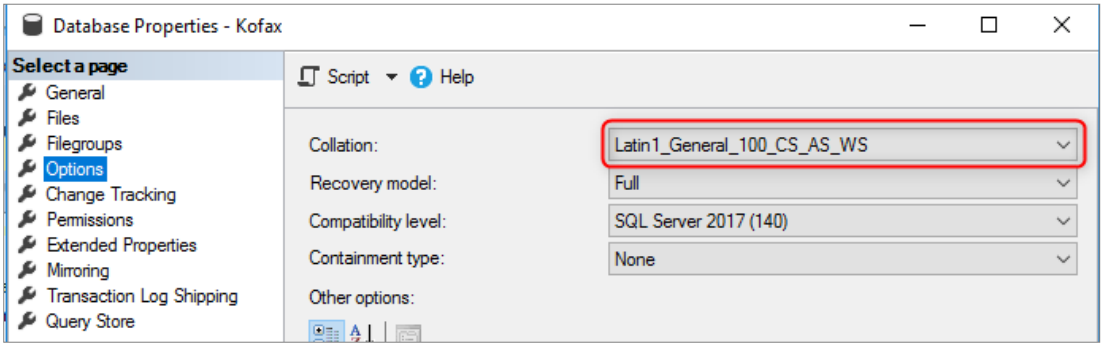
Database installation and configuration

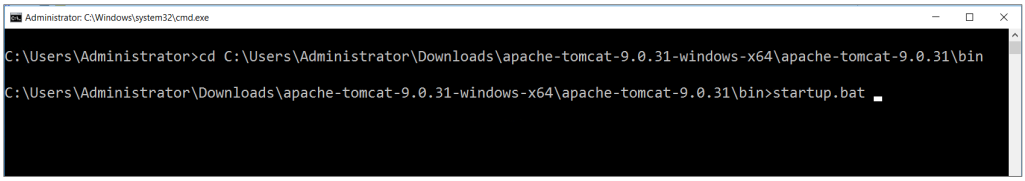
1. Download necessary JDBC for your database
2. For this documentation MS-SQL is used go to https://docs.microsoft.com/en-us/sql/connect/jdbc/download-microsoft-jdbc-driver-for-sql-server?view=sql-server-ver15
3. Copy the JDBC for JRE 11 into [Installation Path] \ apache-tomcat-9.0.31\lib folder
4. Create a database according to the database name specify on the ROOT.xml



Change the collation into Latin_General_100_CS_AS_WS. This just what is being recommended.



5. Go to your command prompt again and run the startup.bat as shown below.



6. You will see something like this

```
29-May-2020 07:24:28.408 INFO [main]
org.apache.coyote.AbstractProtocol.start Starting
ProtocolHandler ["http-nio-8080"]
29-May-2020 07:24:28.420 INFO [main]
org.apache.catalina.startup.Catalina.start Server startup in
[94,082] milliseconds
```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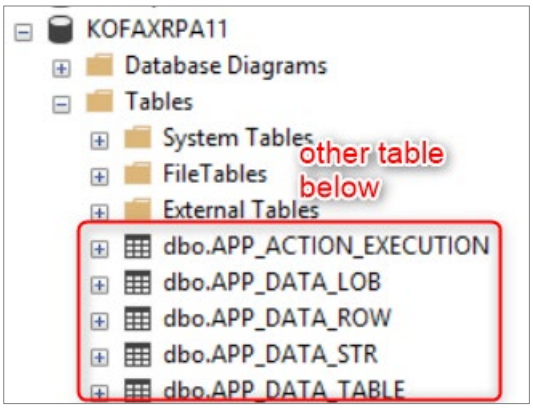
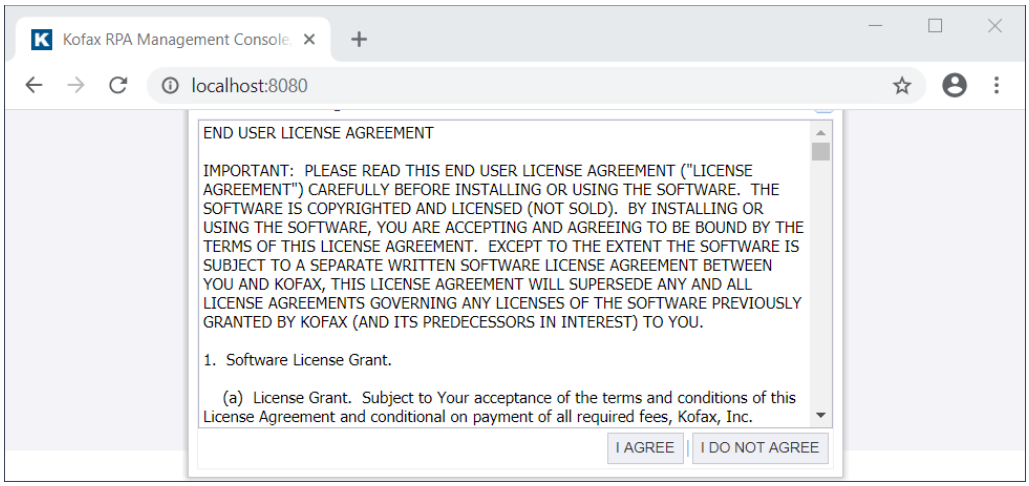
Without any error above, the you're up to go

If everything was set correctly activating the application will run the SQL query to populate table into the database.



7. Go to browser and browse http://localhost:8080



Please enter the license information before proceed with next steps installation.

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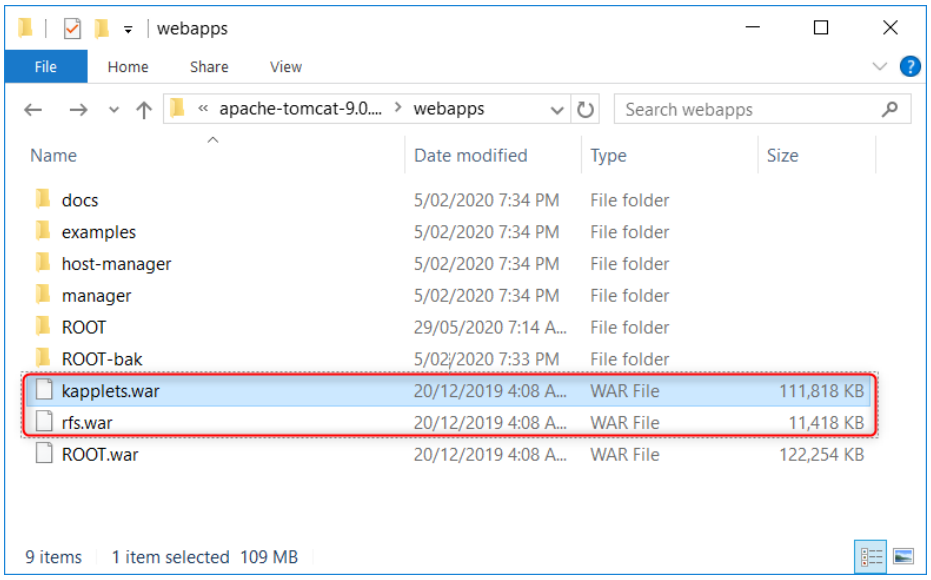
6. Install Kapplets and RFS

Installation of war file into tomcat

1. Go to Kofax RPA installation folder
2. Default location is: C:\Program Files\Kofax RPA 11.0.0.0 173 x64\WebApps
3. Copy over kapplets.war and rfs.war into [Installation path] \apache-tomcat-9.0.16\webapps.



4. Modify your localhost file
5. Navigate to “Catalina” folder under apache-tomcat-9.0.31\conf folder
6. Navigate to “localhost” under the “Catalina” folder

   If you install on the separate server make sure you create those to folder first

7. Create a “kapplets.xml” file sample below

   Please create same xml file name as war file (ex: kapplets.war equal to kapplets.xml)

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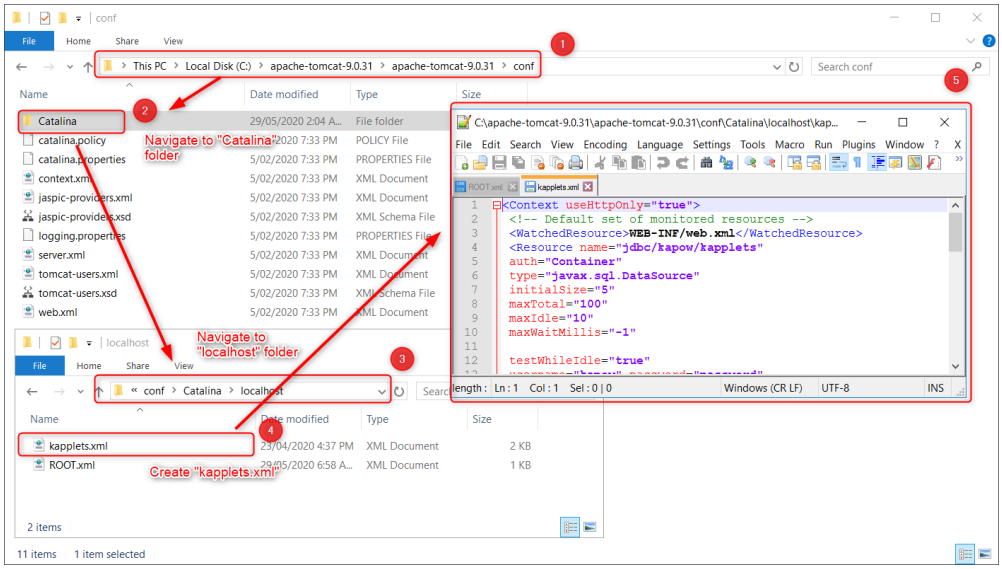


```
<Context useHttpOnly="true">
 <!-- Default set of monitored resources -->
 <WatchedResource>WEB-INF/web.xml</WatchedResource>
 <Resource name="jdbc/kapow/kapplets"
 auth="Container"
 type="javax.sql.DataSource"
 initialSize="5"
 maxTotal="100"
 maxIdle="10"
 maxWaitMillis="-1"
 testWhileIdle="true"
 username="[username]" password="[password]"
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
validationQuery="SELECT 1" testOnBorrow="true"
url="jdbc:sqlserver://[yoursqlserver]:1433;DatabaseName=[kappl
etdatabasename]"/>


 <Environment name="spring.datasource.driverClassName"
value="com.microsoft.sqlserver.jdbc.SQLServerDriver"
type="java.lang.String" override="false"/>
 <Environment name="spring.jpa.database-platform"
value="org.hibernate.dialect.SQLServer2012Dialect"
type="java.lang.String" override="false"/>
 <Environment name="spring.datasource.url"
value="jdbc:sqlserver://[yoursqlserver]:1433;DatabaseName=[dat
abasename];SelectMethod=cursor" type="java.lang.String"
override="false"/>
 <Environment name="spring.datasource.username"
value="[username]" type="java.lang.String" override="false"/>
```


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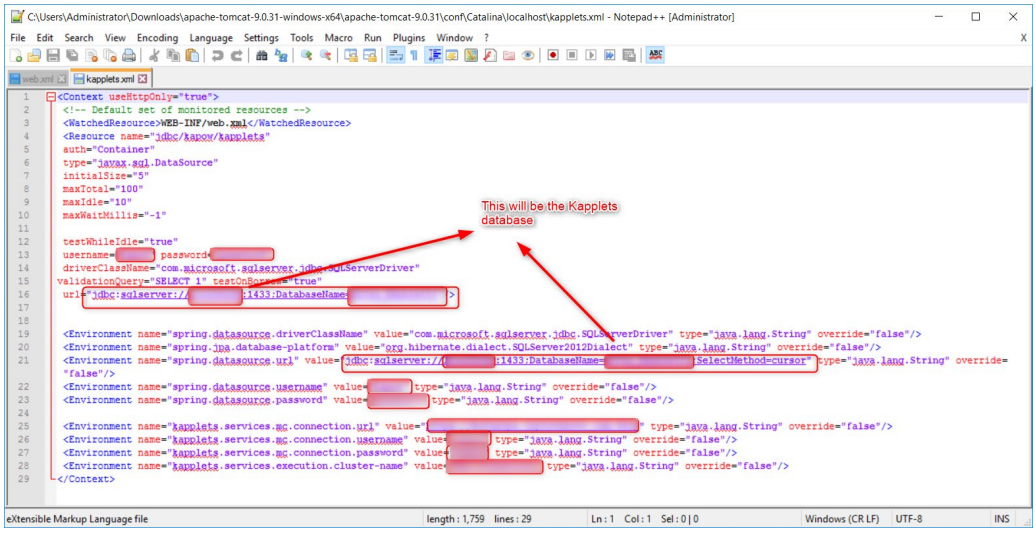
```
 <Environment name="spring.datasource.password"
value="[password]" type="java.lang.String" override="false"/>


 <Environment name="kapplets.services.mc.connection.url"
value="http://[managementconsoleurl]:443/"
type="java.lang.String" override="false"/>
 <Environment name="kapplets.services.mc.connection.username"
value="admin" type="java.lang.String" override="false"/>
 <Environment name="kapplets.services.mc.connection.password"
value="admin" type="java.lang.String" override="false"/>
 <Environment name="kapplets.services.execution.cluster-name"
value="Non Production" type="java.lang.String"
override="false"/>
</Context>
```

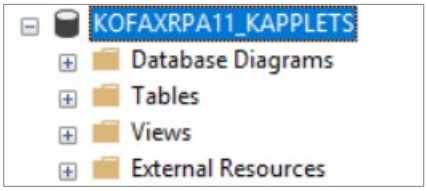
Please remember to change the necessary value according to your environment.

8. Create a database according to the database name specify on the kapplets.xml



Please remember to change the necessary value according to your environment. This would be separate database from Management Console #best practice

9. Create a database according to the database name specify on the kapplets.xml



10. Go to your command prompt again and run the startup.bat as shown below.

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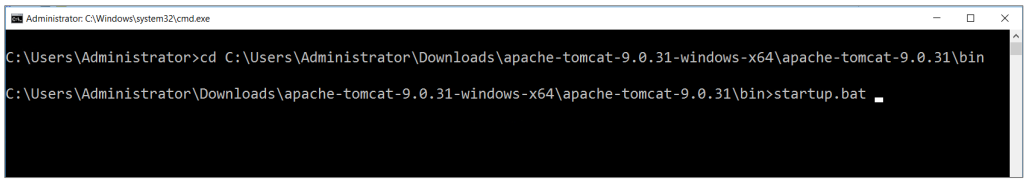
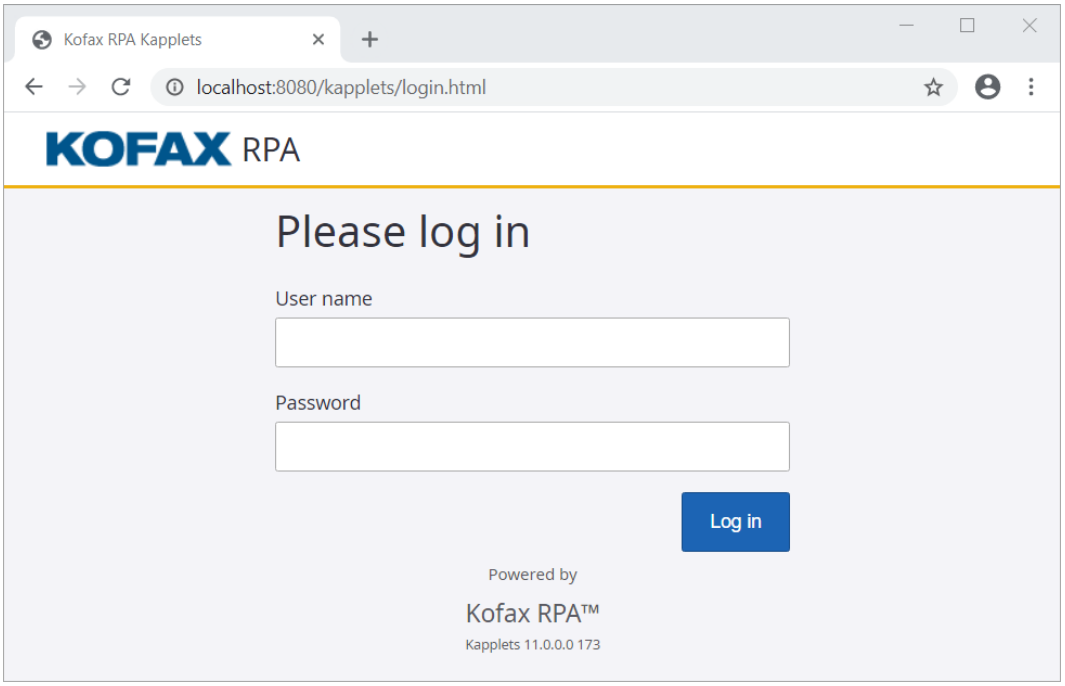


11. You will see something like this

```
29-May-2020 07:24:28.408 INFO [main]
org.apache.coyote.AbstractProtocol.start Starting
ProtocolHandler ["http-nio-8080"]
29-May-2020 07:24:28.420 INFO [main]
org.apache.catalina.startup.Catalina.start Server startup in
[94,082] milliseconds
```

Without any error above, the you're up to go

12. Go to your browser and navigate to Kapplets page



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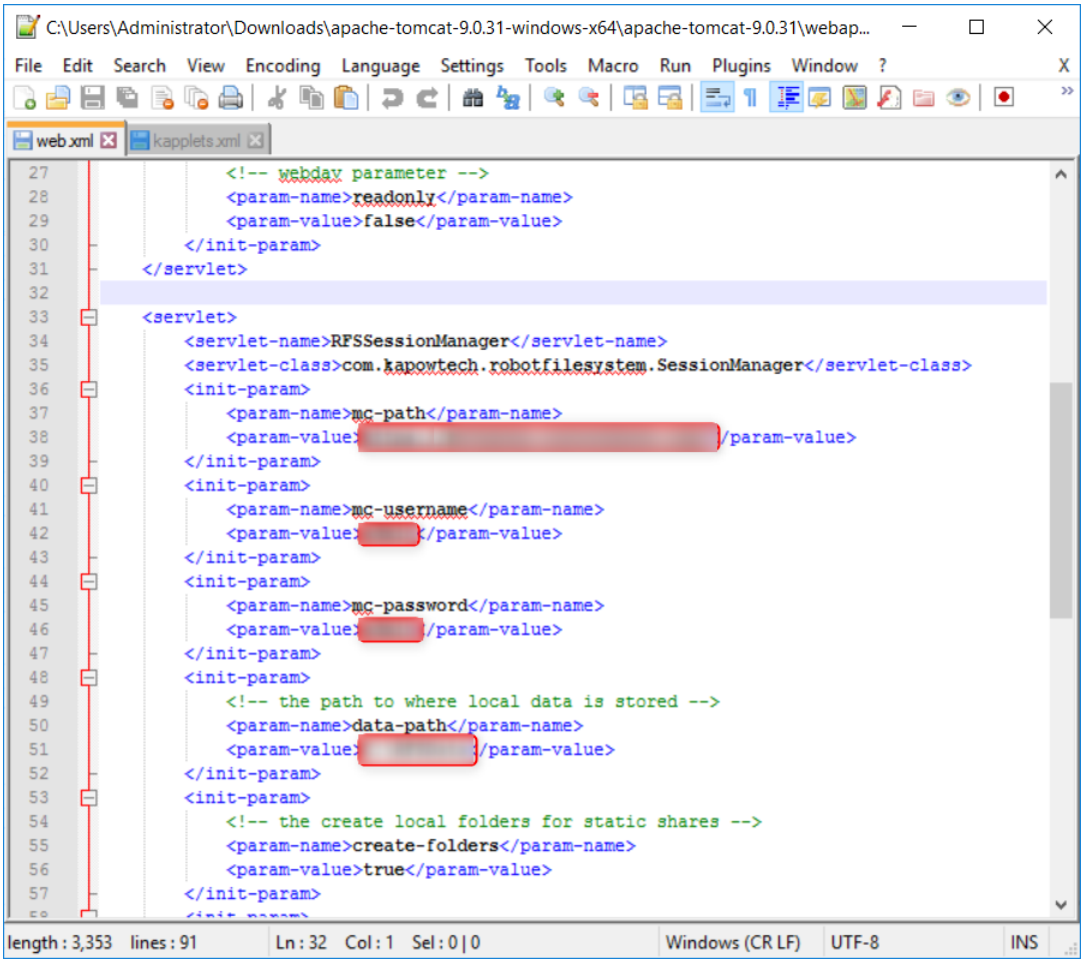
Configuring WEB.XML for RFS

1. Navigate to tomcat folder go to [Installation path]\apache-tomcat-9.0.16\webapps\rfs\WEB-INF\web.xml
2. Edit the web.xml file



Please enter the management console URL, username, and password

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7. Tomcat as Service

Installing tomcat as service

1. Go to your tomcat folder installer
2. Navigate to [Installation path]\apache-tomcat-9.0.16\bin\
3. Run the command below

```
service.bat install KofaxRPA-V11.0
```

4. If it's installed successfully, it will register under windows service

Un-installing tomcat service

1. Go to your tomcat folder installer
2. Navigate to [Installation path]\apache-tomcat-9.0.16\bin\
3. Run the command below

```
service.bat remove KofaxRPA-V11.0
```

4. If it's un-installed successfully, it will remove from windows service

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8. Installing RoboServer

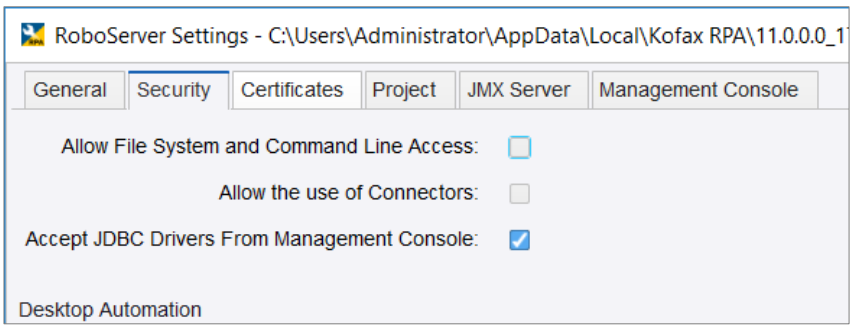
Installing RoboServer as Service

1. Configure the service command to install RoboServer as service

```
-i RoboServer.conf wrapper.ntservice.account=.\administrator
wrapper.ntservice.password=[password]
wrapper.ntservice.name="Kofax RPA 11.0.0.0 173 Non Production
50000" wrapper.ntservice.starttype=AUTO_START
wrapper.syslog.loglevel=INFO wrapper.app.parameter.1="-
service" wrapper.app.parameter.2="socket:50000"
wrapper.app.parameter.3="-mcUrl"
wrapper.app.parameter.4="http://admin:admin@127.0.0.1:8080/"
wrapper.app.parameter.5="-cl" wrapper.app.parameter.6="Non
Production"
```

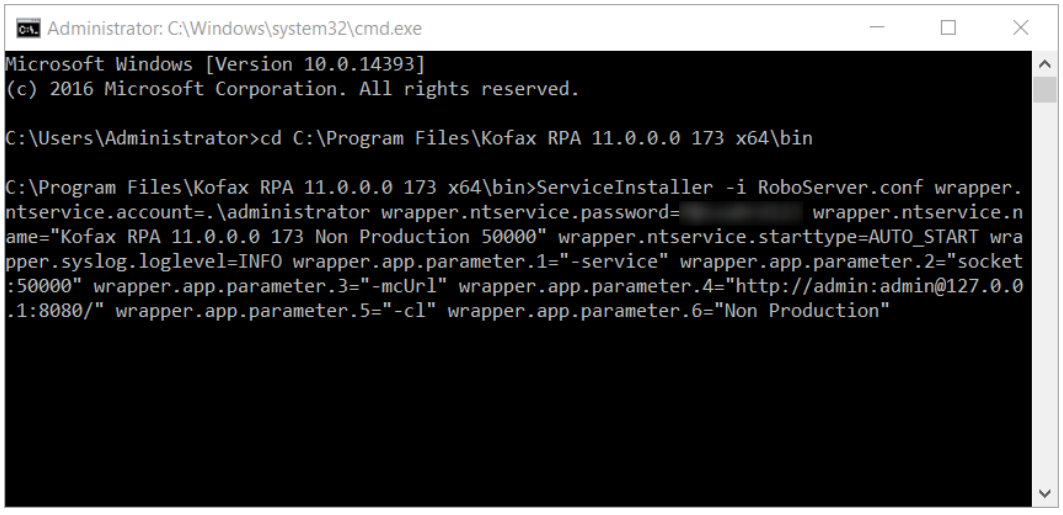
Please enter the -mcUrl parameter such as username, password, and port. In addition, please enter the service account that going to be use to run the application.

2. Set to allow JDBC to be uploaded to management console.



3. Navigate to Kofax RPA installation folder with command prompt C:\Program Files\Kofax RPA 11.0.0.0 173 x64\bin

4. Run this command



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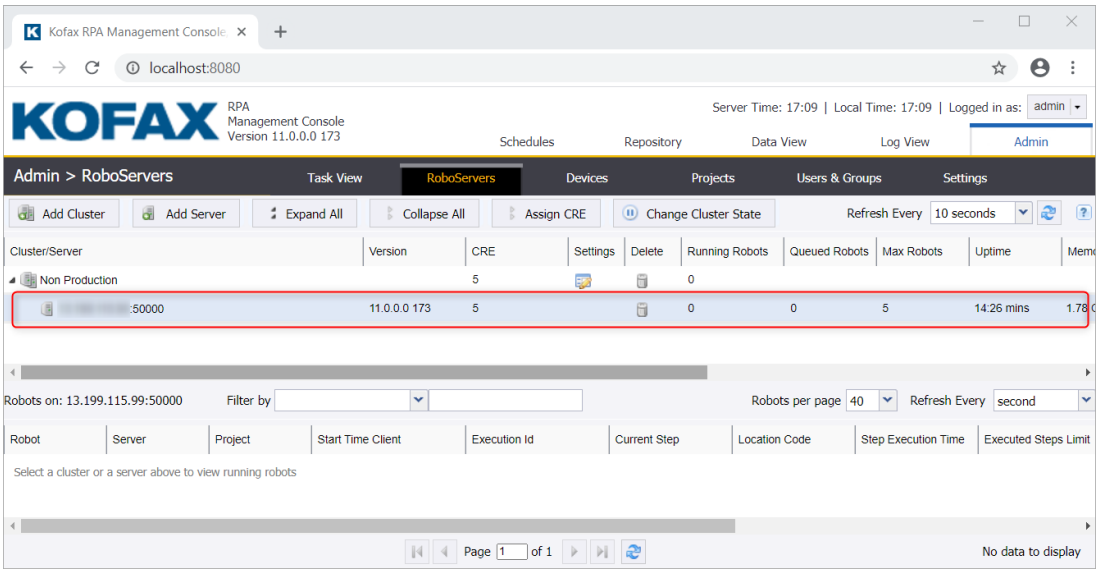
5. If RoboServer configured successfully, RoboServer setting will appear on ManagementConsole



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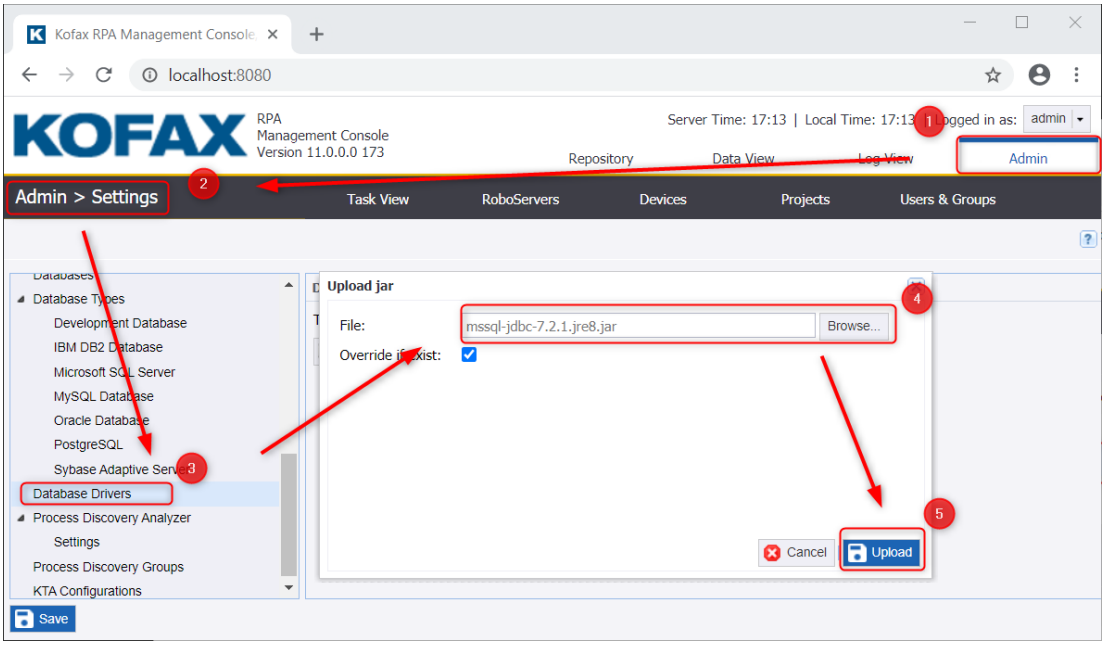
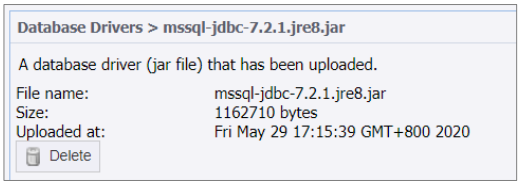
Uploading the JDBC driver

1. Navigate to management console



Please install JDBC driver for JDK version 8 into management console

2. Upload the MS SQL JDBC driver



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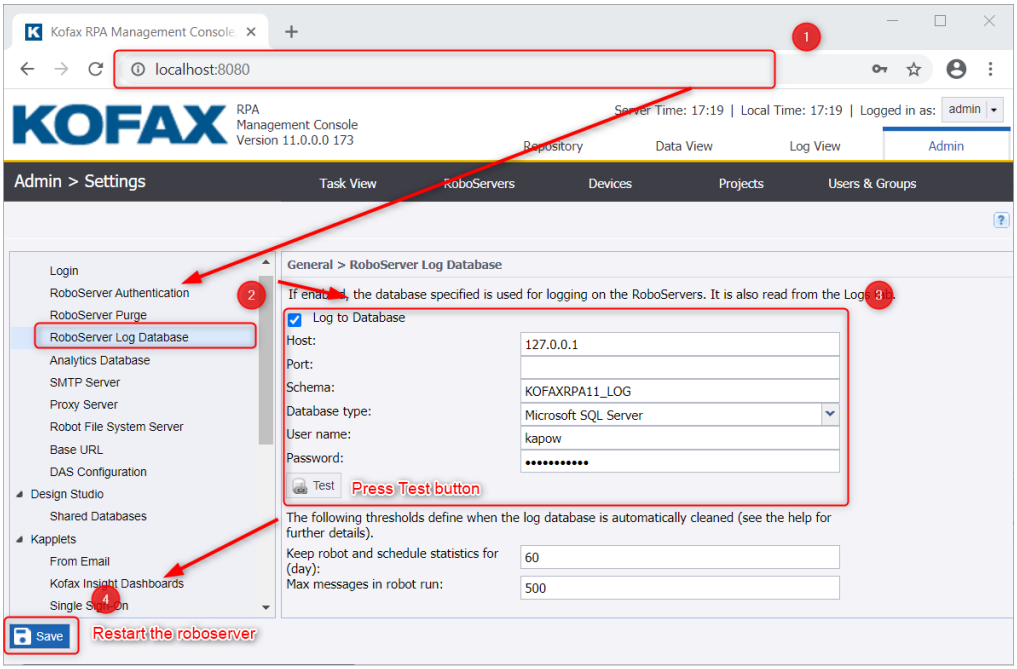
Configure RoboServer log database

1. Navigate to Management console



Make sure that you have created the database table before making this change

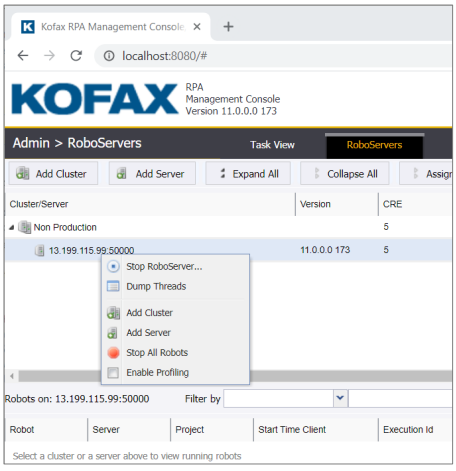
Once, completed press the test button to test the connection into database

2. Modify the RoboServer log database setting as shown above

3. Restart the RoboServer

   Go to “Admin” -> “RoboServers”

   Expand the correct cluster -> right click on designated RoboServer and press “Stop RoboServer”



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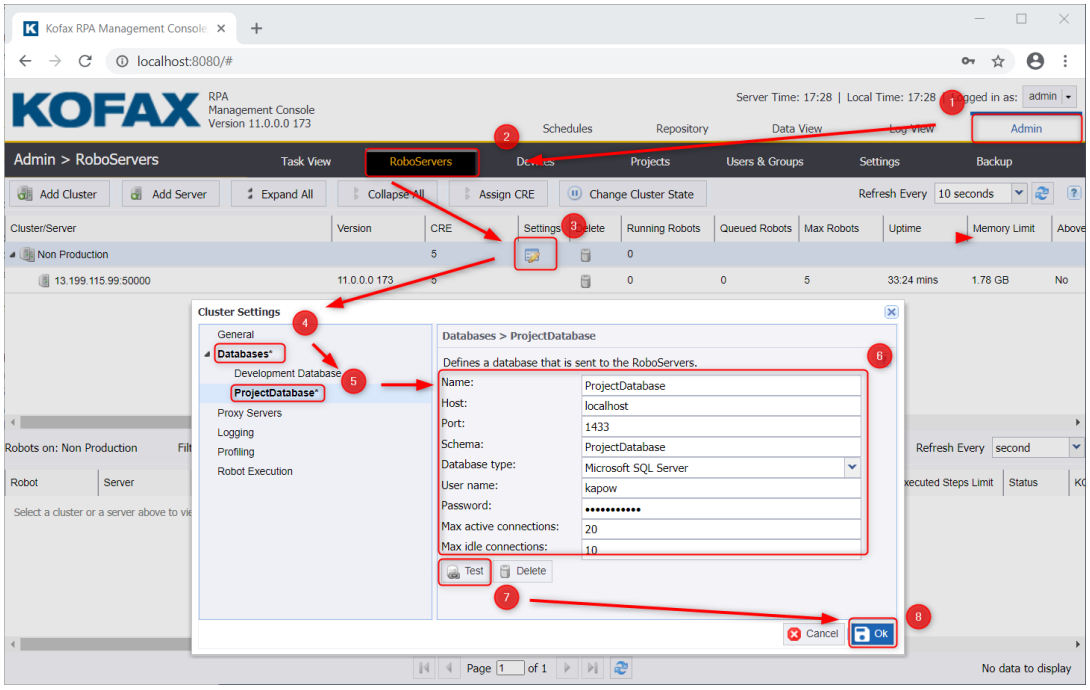
Configure RoboServer database

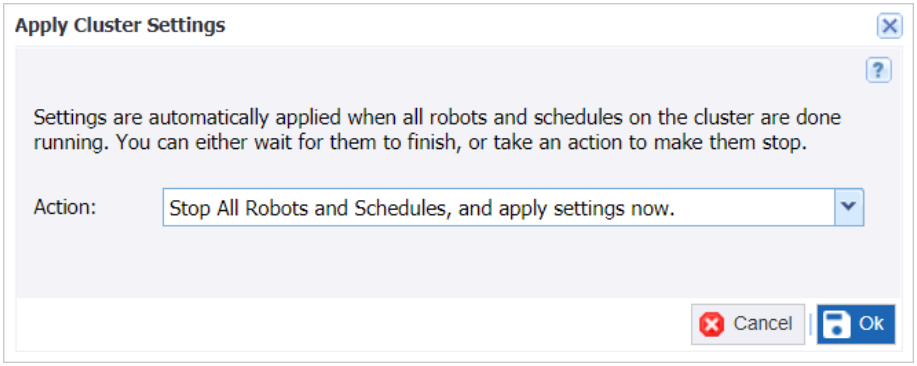
1. Navigate to Management console
2. Go to “Admin” -> “RoboServers”
3. Expand the correct cluster -> click “Settings icon” new window will appear
4. Click into “Databases” -> “Add Database”



Make sure that you have created the database table before making this change

Once, completed press the test button to test the connection into database

5. Modify the RoboServer log database setting as shown above
6. Restart the RoboServer. Select “Stop All Robots.. “ and click “Ok” button.



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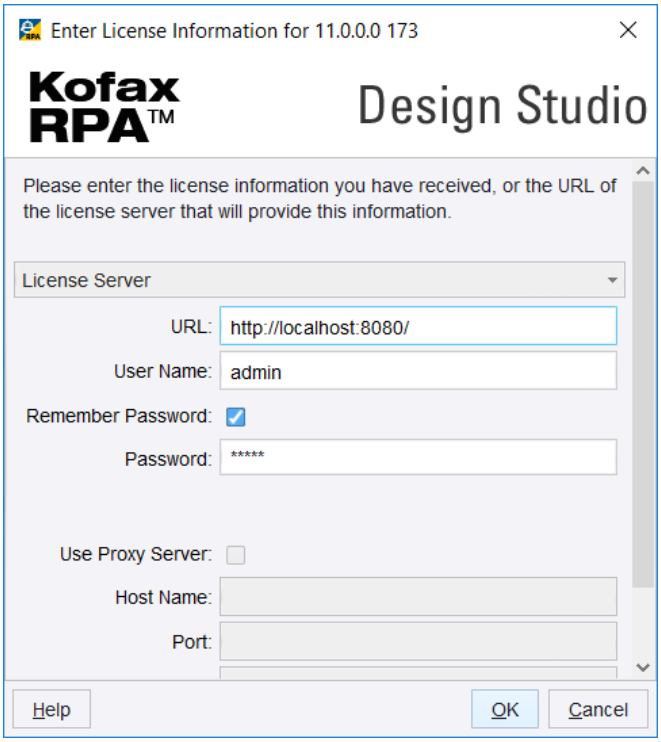
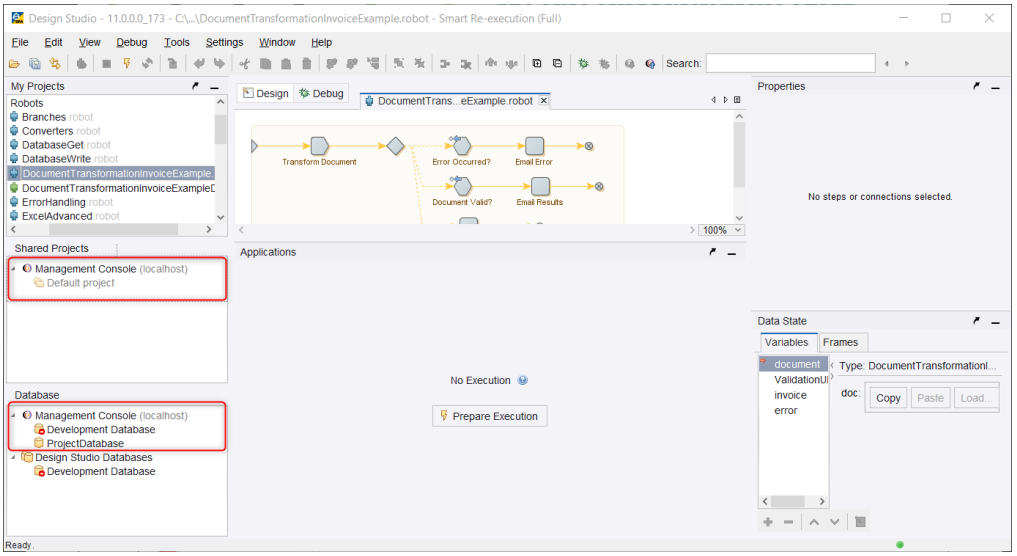
9. Validate your Configuration

Run Design Studio

1. Run design studio and enter the Management Console information URL, username and password.



2. Correct setting should be shown below



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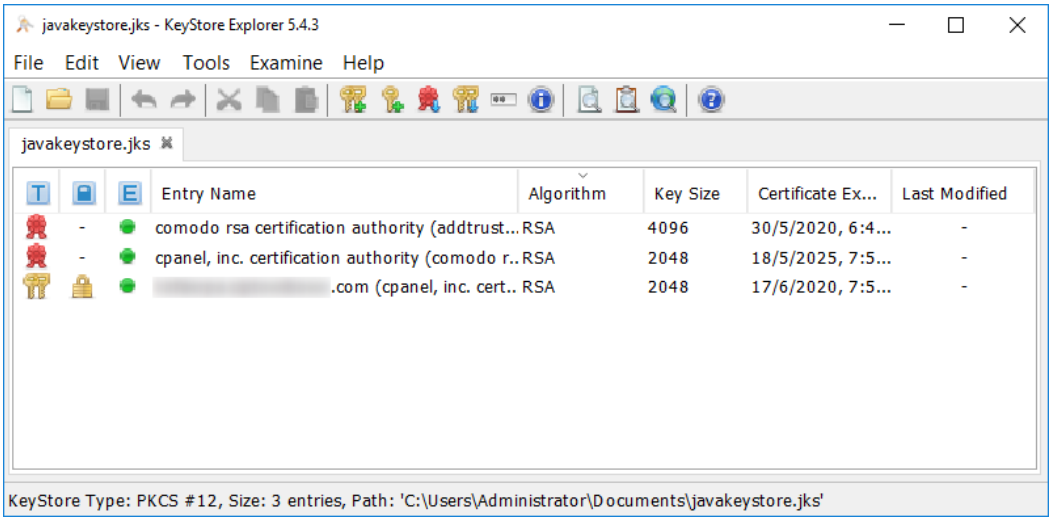
10. Configure SSL for Tomcat

Install the KeyStore Explorer

1. This is the best tools in the market to configure the SSL certificate.
2. Navigate to https://keystore-explorer.org/downloads.html

Configure the SSL certificate

1. Please buy your valid certificate from your certificate authority
2. The goal to have your own private key and public key (given by your CA) together with your CA certificate under one keystore. Below image just for an illustration.



Goal is to have your issued certificate together with private key and public key to be stored together with CA certificate.

If you choose to install from Java certs chances that your CA certificate is already available there.

3. You have two option here to create dedicated JKS or modify existing keystore from Java. Default keystore for java can be found here C:\Program Files\Java\jdk-11.0.2\lib\security under cacerts with the default password of “changeit”.
4. Save your file with *.JKS extension

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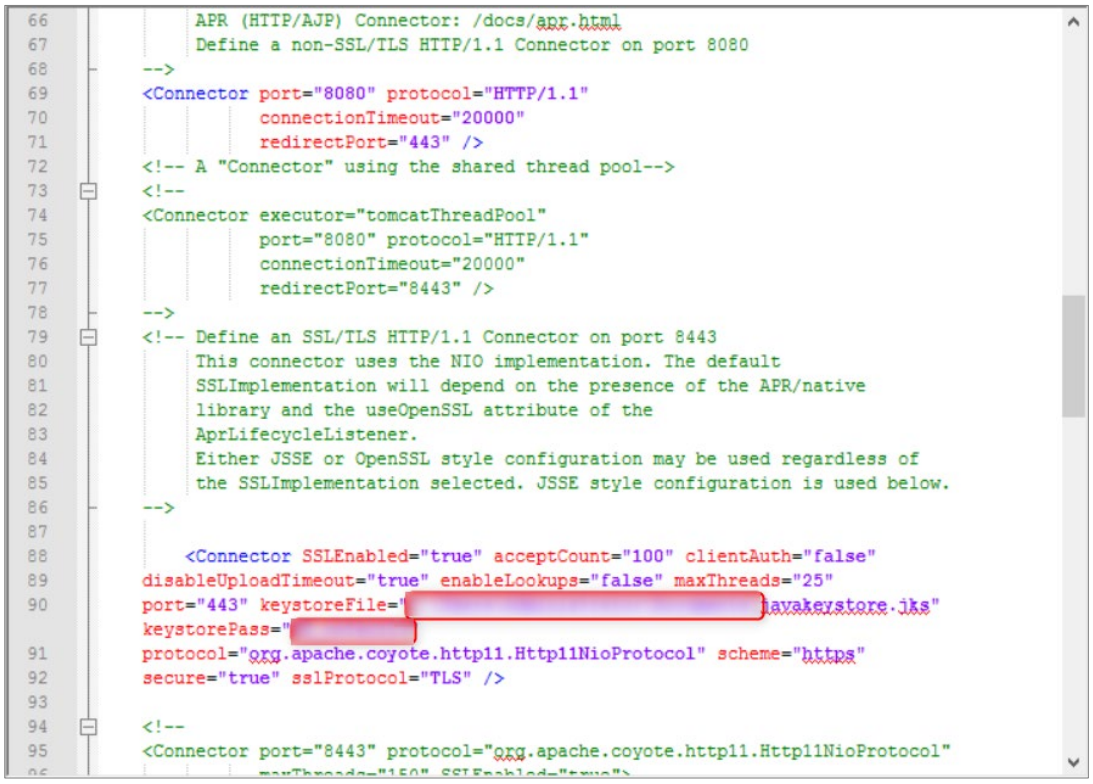
Modify server.xml on tomcat

1. Navigate to your tomcat folder and open server.xml [InstallationPath]\apache-tomcat-9.0.31\conf\server.xml
2. Add this following section under server.xml, information can be found below




```
<Connector SSLEnabled="true" acceptCount="100"
clientAuth="false"
    disableUploadTimeout="true" enableLookups="false"
maxThreads="25"
    port="443" keystoreFile="[path]\javakeystore.jks"
keystorePass="[keystorepassword]"
    protocol="org.apache.coyote.http11.Http11NioProtocol"
scheme="https"
    secure="true" sslProtocol="TLS" />
```

Add this following information as well

```
    <Connector port="8080" protocol="HTTP/1.1"
               connectionTimeout="20000"
               redirectPort="443" />
```

Redirect port 443 to ask tomcat to use port 443 instead of 8443. 443 is default port for SSL

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Modify web.xml on tomcat (forcing SSL tomcat)

1. Navigate to your tomcat folder and open web.xml [InstallationPath]\apache-tomcat-9.0.31\conf\web.xml
2. Add this following section at the bottom of the web.xml file

```
      <security-constraint>
    <web-resource-collection>
        <web-resource-name>securedapp</web-resource-name>
        <url-pattern>/*</url-pattern>
    </web-resource-collection>
    <user-data-constraint>
        <transport-guarantee>CONFIDENTIAL</transport-
guarantee>
    </user-data-constraint>
      </security-constraint>
```

This to force the tomcat to use the SSL port instead of non-SSL

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11. What Next for SSL

1. After changes has been made, please make sure change all the management console URL information accordingly
2. The configuration for these settings can be found on this module
    a. Kapplets
    b. RoboServer
    c. Design Studio
    d. RFS
    e. Other components that connected to ManagementConsole such as KTA, Document Transformation, Insight, etc

    It's important that each of the component have same or trusted the same Certificate Authority to avoid communication error.
3. Change all the management console URL into

    https://rpa.customerdomain.com:443/

    or if you have password needed

    https://admin:password@rpa.customerdomain.com:443/

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