

Team: \_\_ Zheng, Wenda; Li, Zhihao; Luo, Maoyi; Li, Shiyuan\_\_\_\_

Date: \_May 20, 2020\_

Section: \_\_CSCI-GA.3033-010\_\_\_\_

## **Project1 Local Deployment Procedures**

**Total in points** (100 points total): \_\_\_\_\_

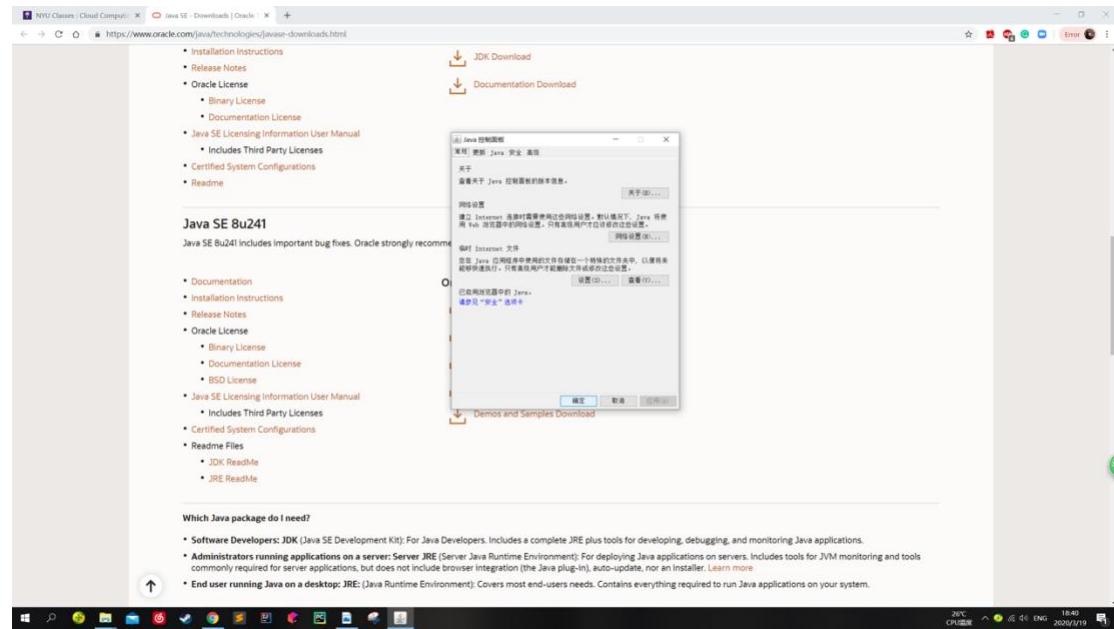
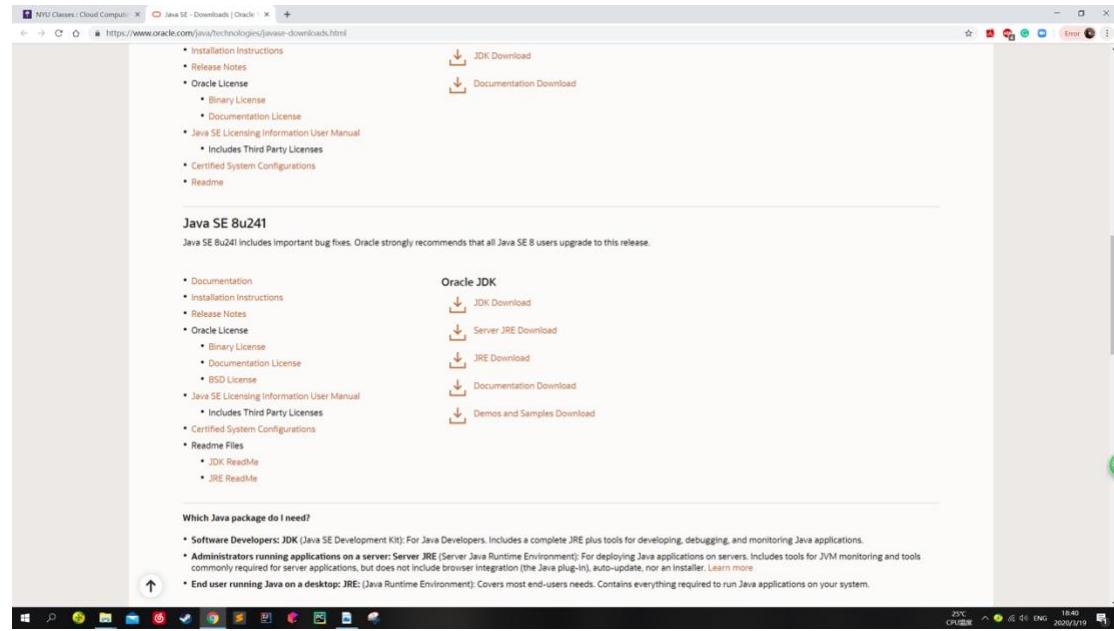
**Independent Statement:** This project is completed and owned by our team.

(Sign: Wenda Zheng, Zhihao Li, Maoyi Luo, Shiyuan Li)

**Professor's Comments:**

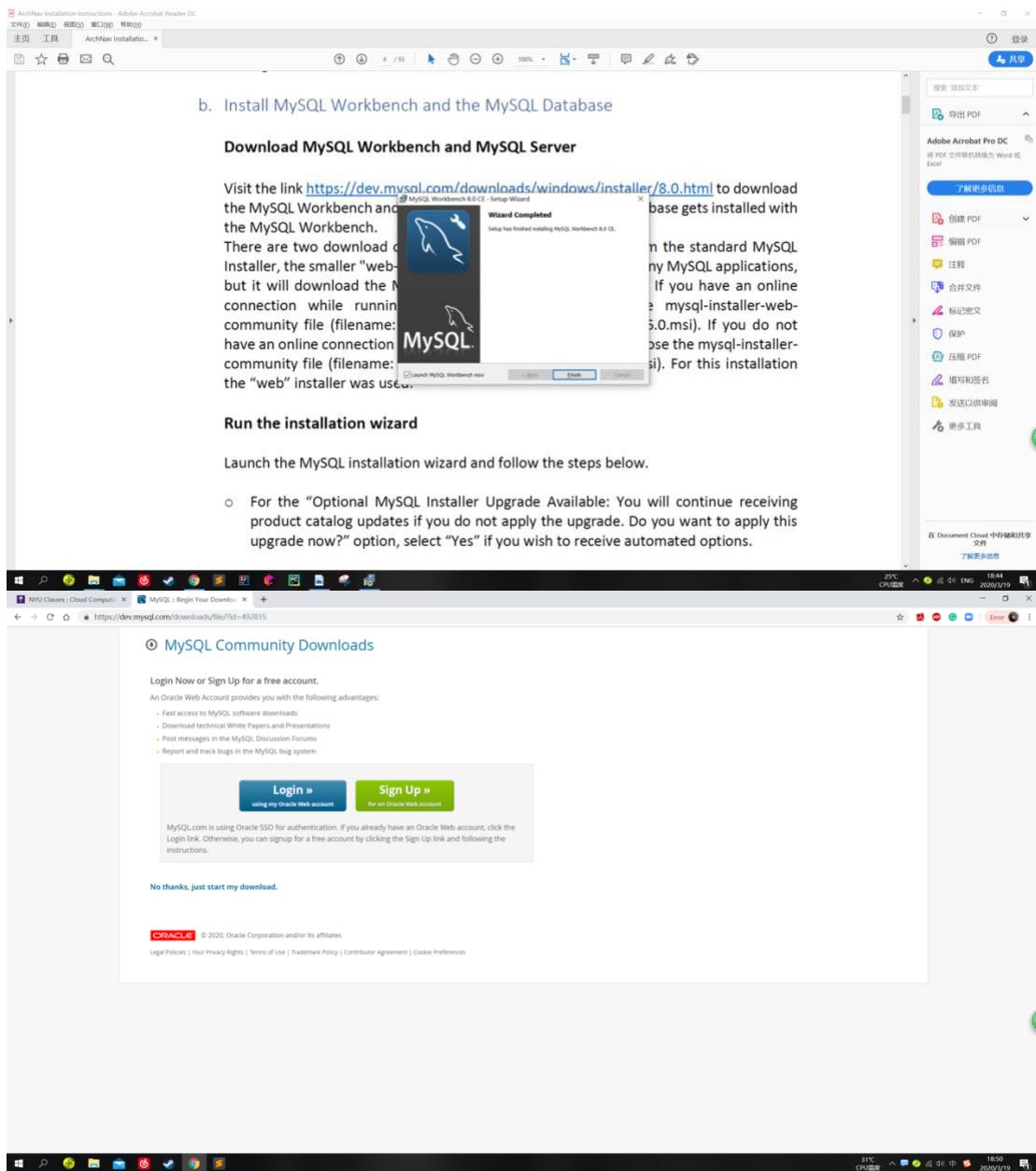
## 1. Software Requirements

### A. Install Java SDK

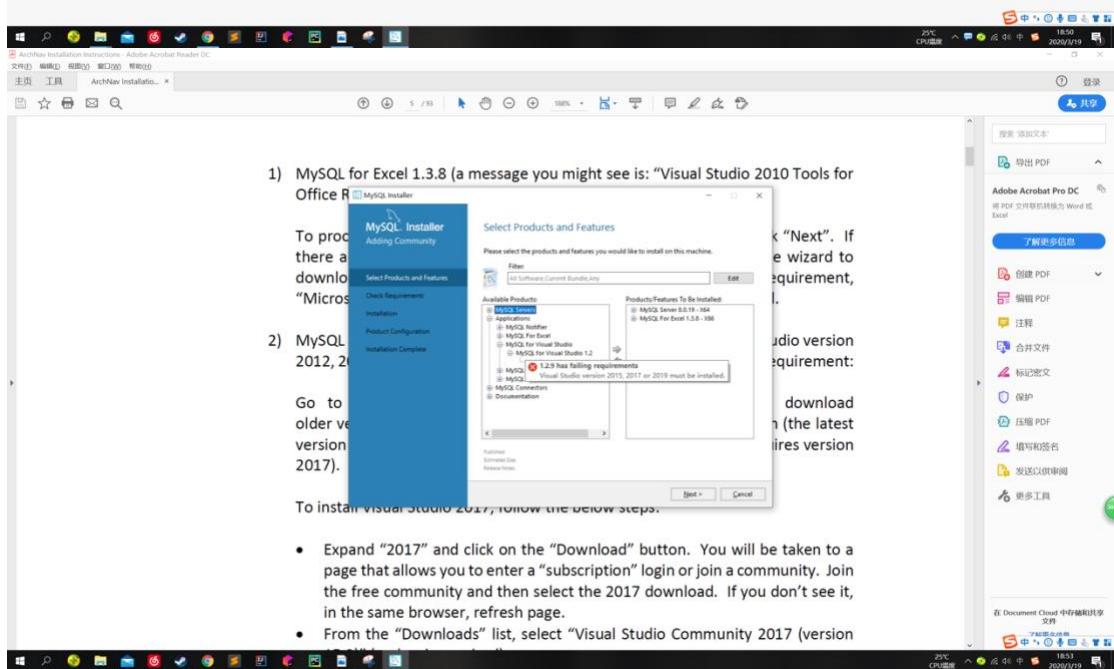
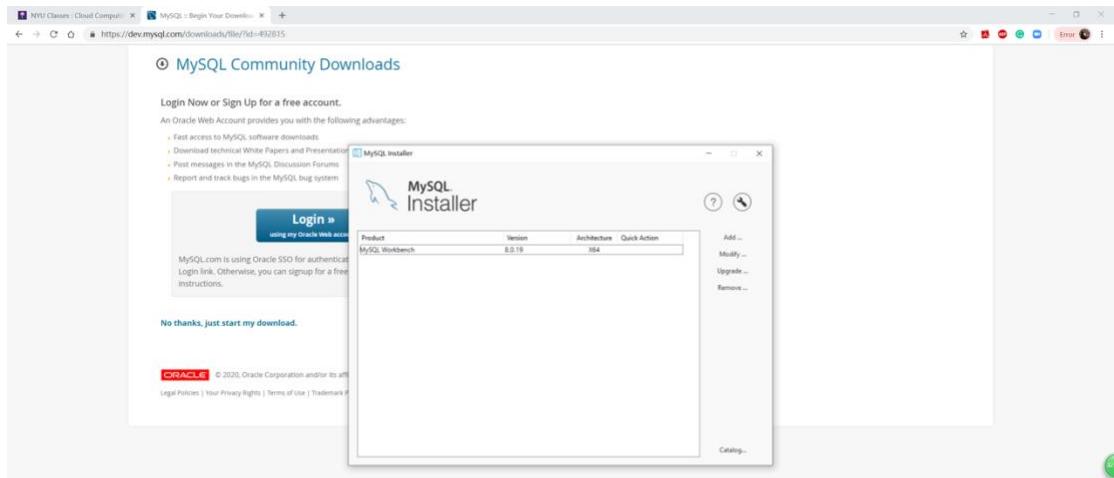


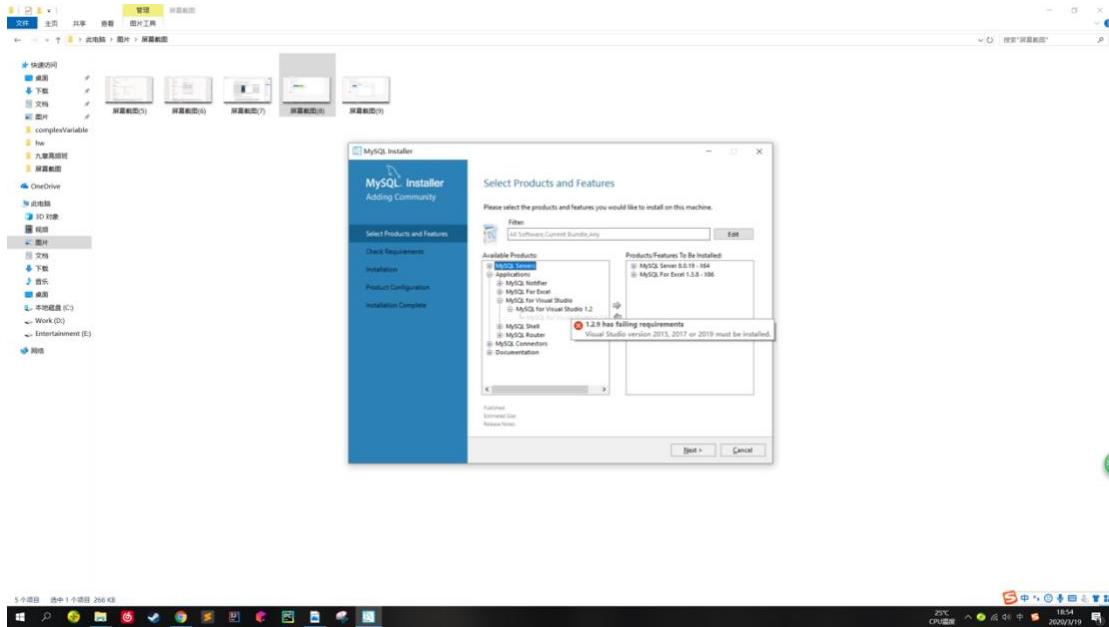
### b. Install MySQL Workbench and MySQL Database

#### 1. Download MySQL Workbench and MySQL Server



## 2. Run the installation wizard





### 3. Install visual studio

ArchNav Installation Instructions - Adobe Acrobat Reader DC  
文件 帮助 标题栏 窗口 退出  
主页 工具 ArchNav Installation Instructions

To install Visual Studio 2017, follow the below steps:

- Expand “2017” and click on the “Download” button. You will be taken to a page that allows you to enter a “subscription” login or join a community. Join the free community and then select the 2017 download. If you don’t see it, in the same browser, refresh page.
- From the “Downloads” list, select “Visual Studio Community 2017 (version 15.9)” (no key required).
- Click on the install link in the “Visual Studio Installer” window.
- The installer will begin the download and installation process. You will be prompted to choose workloads. Deselect all workloads except “MySQL for Visual Studio 1.2.9”, click “Install”, and then click “Continue”.

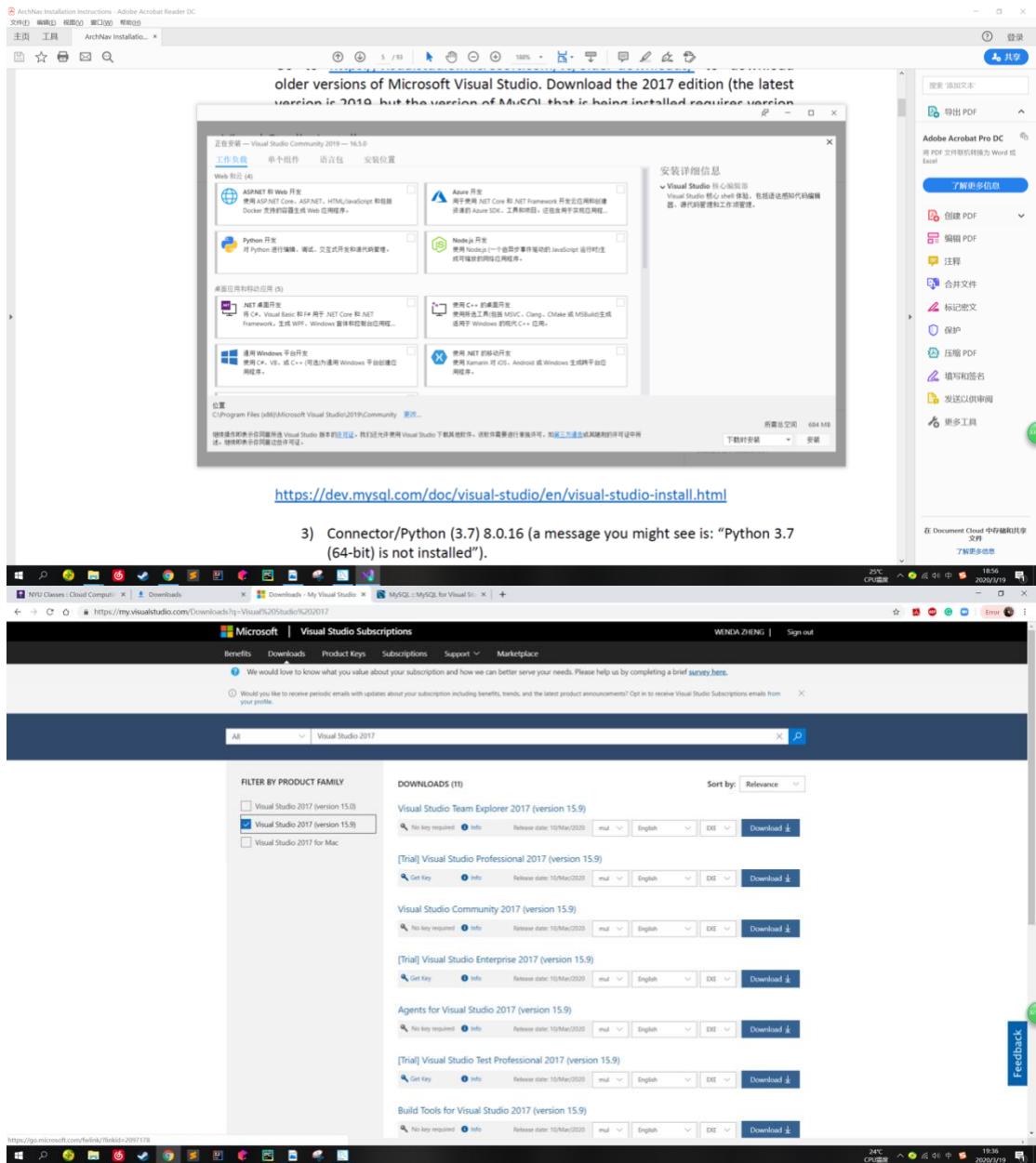
Additional documentation on installing the required MySQL for Visual Studio can be found at:

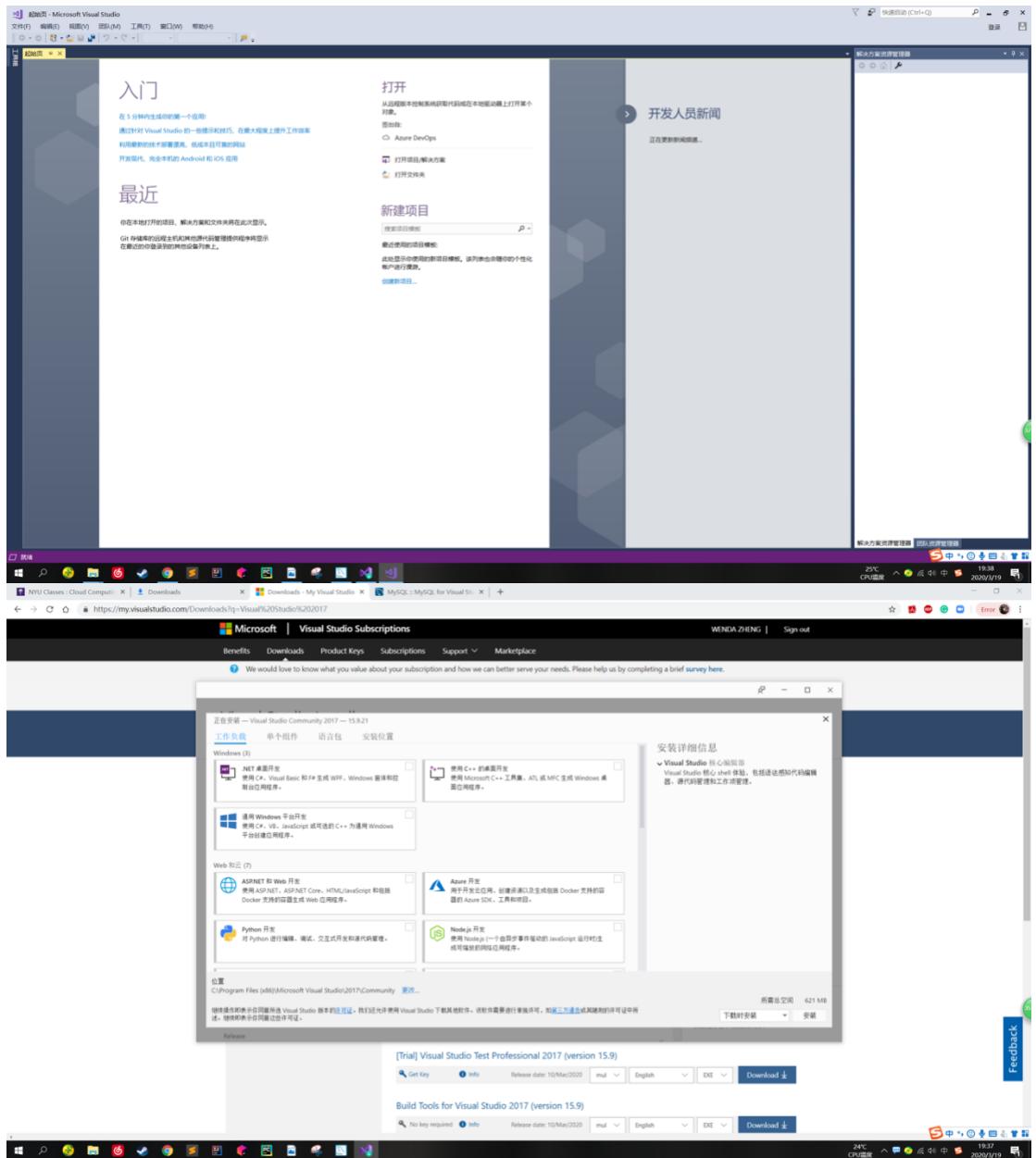
<https://dev.mysql.com/doc/visual-studio/en/visual-studio-install.html>

3) Connector/Python (3.7) 8.0.16 (a message you might see is: “Python 3.7 (64-bit) is not installed”).

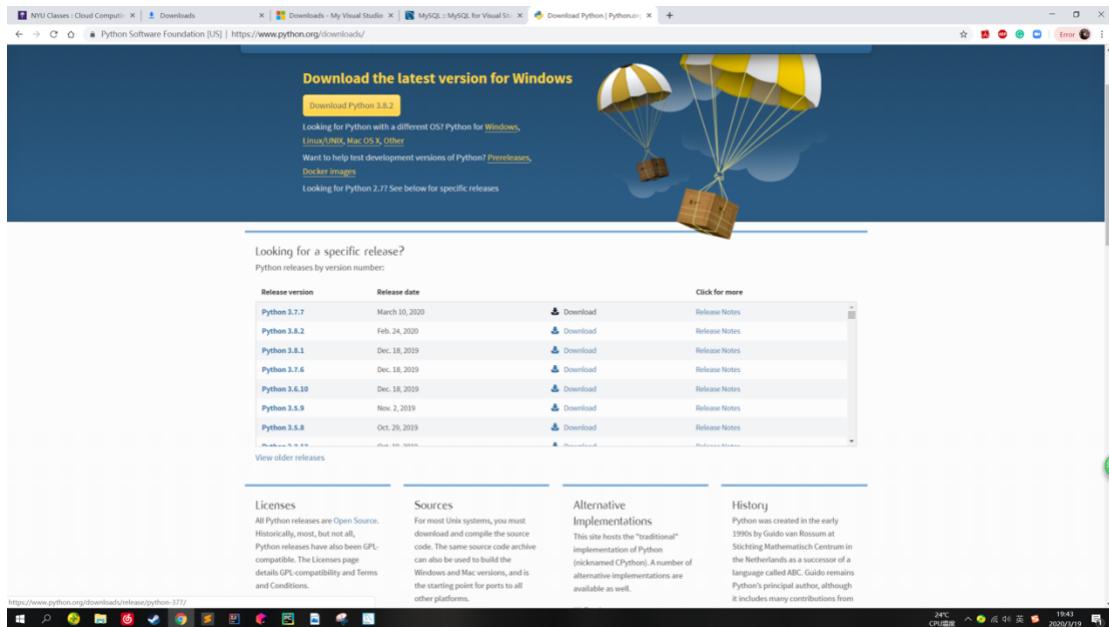
To proceed, there are two options: (1) click on “Execute” or (2) click “Next”. If there are any failed requirements, then click “Execute” to allow the wizard to download and install the dependency. To address the failed

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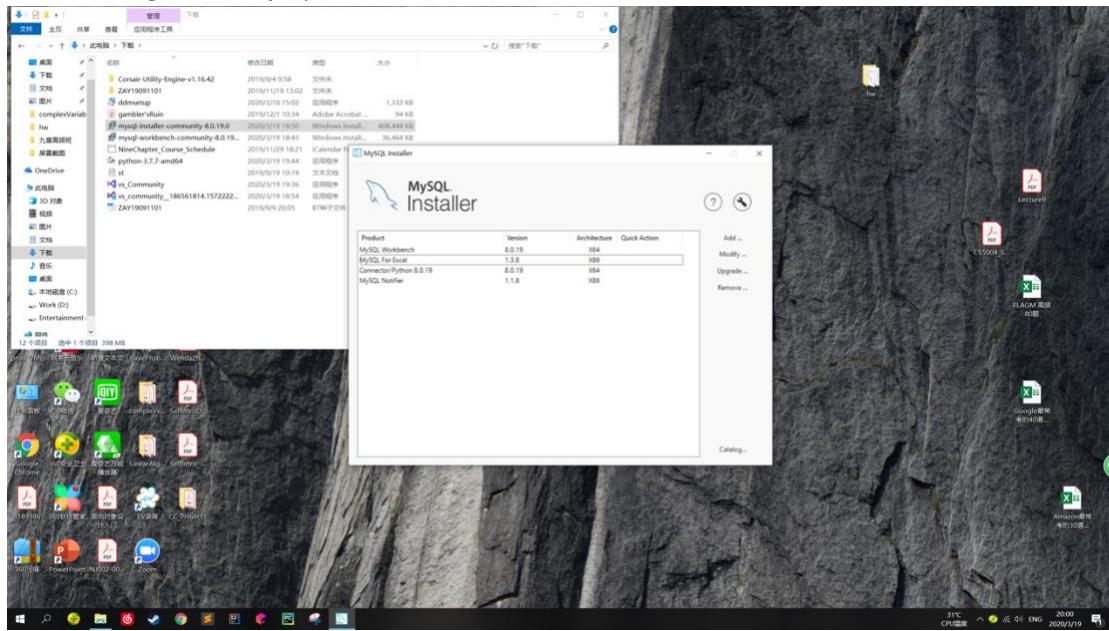


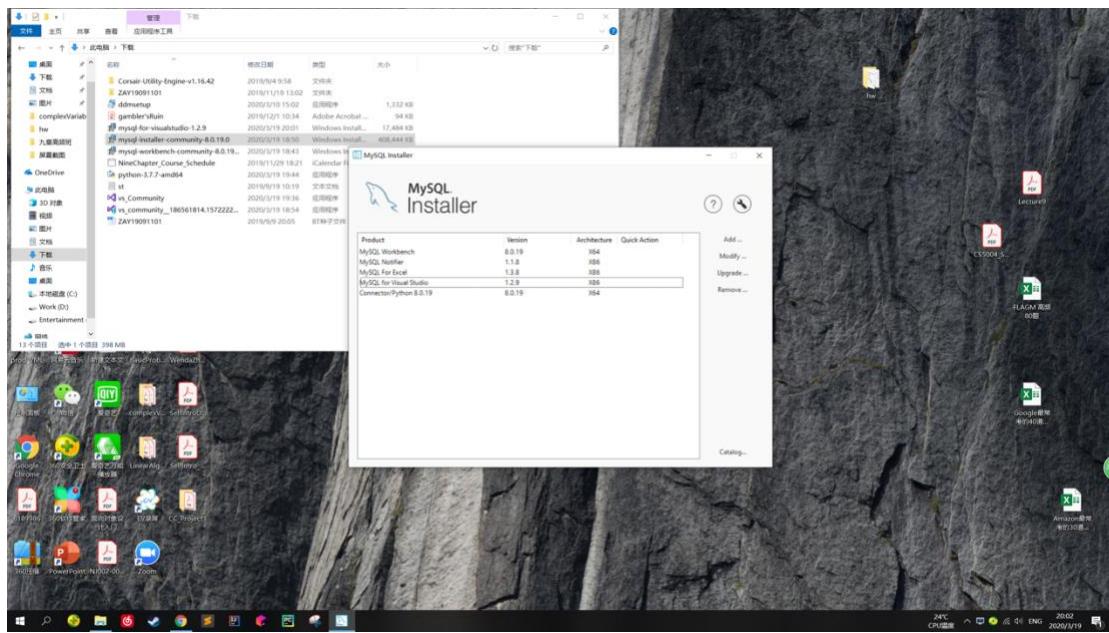


## 4. Install Python



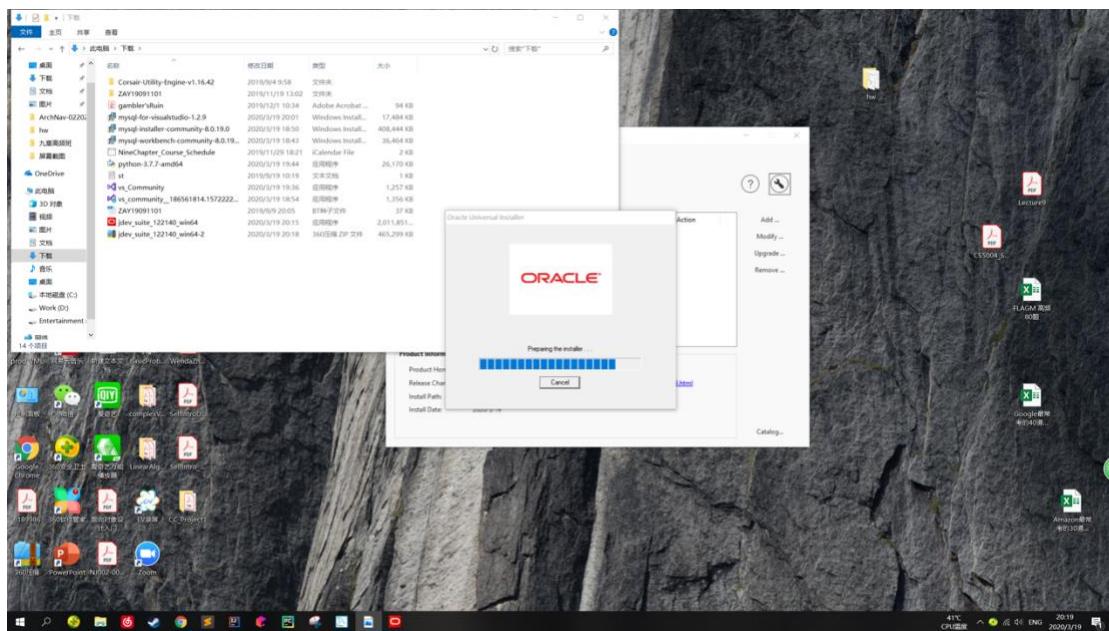
## 5. Finishing install Mysql

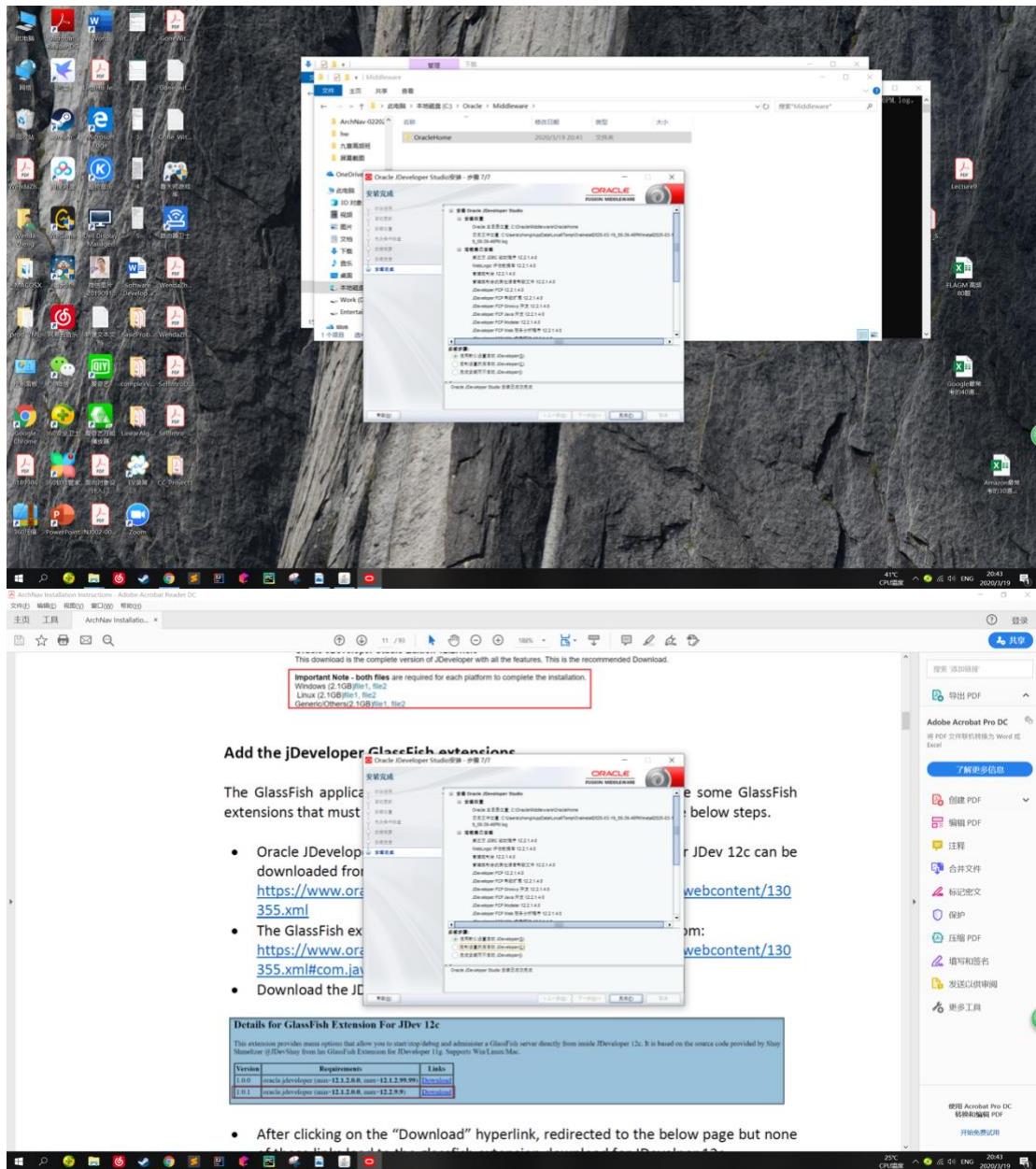


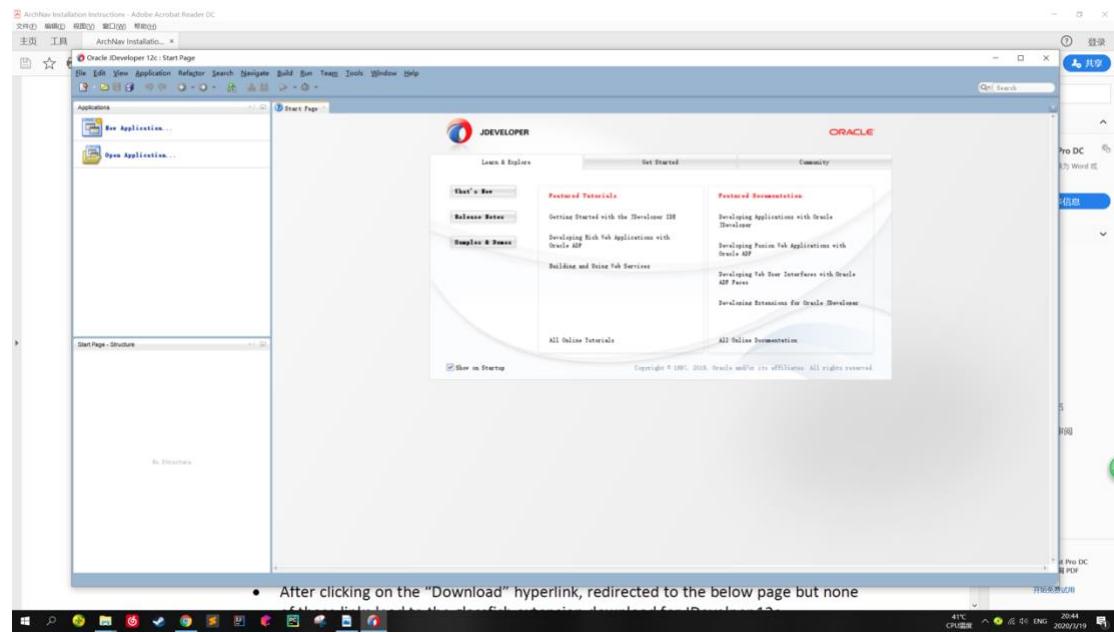


## C. Install JDeveloper

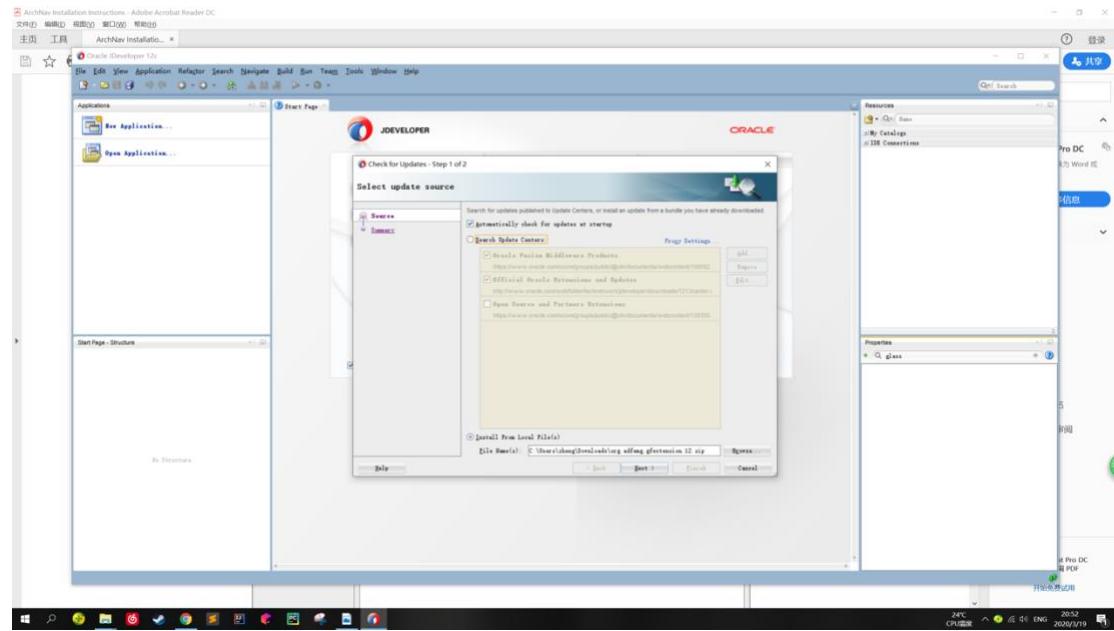
### Part 1

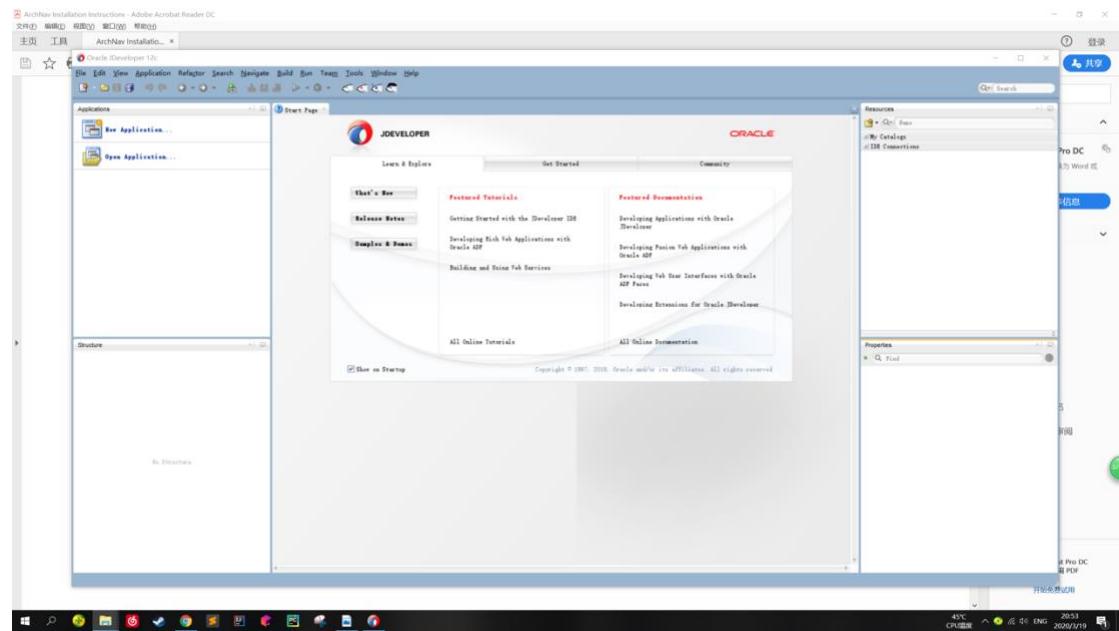




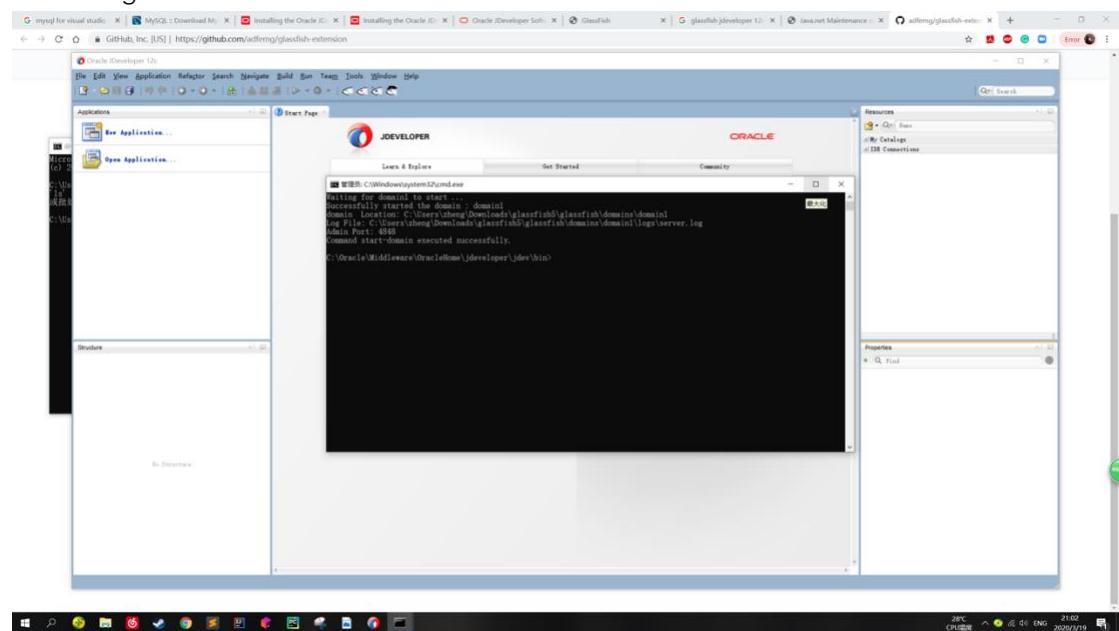


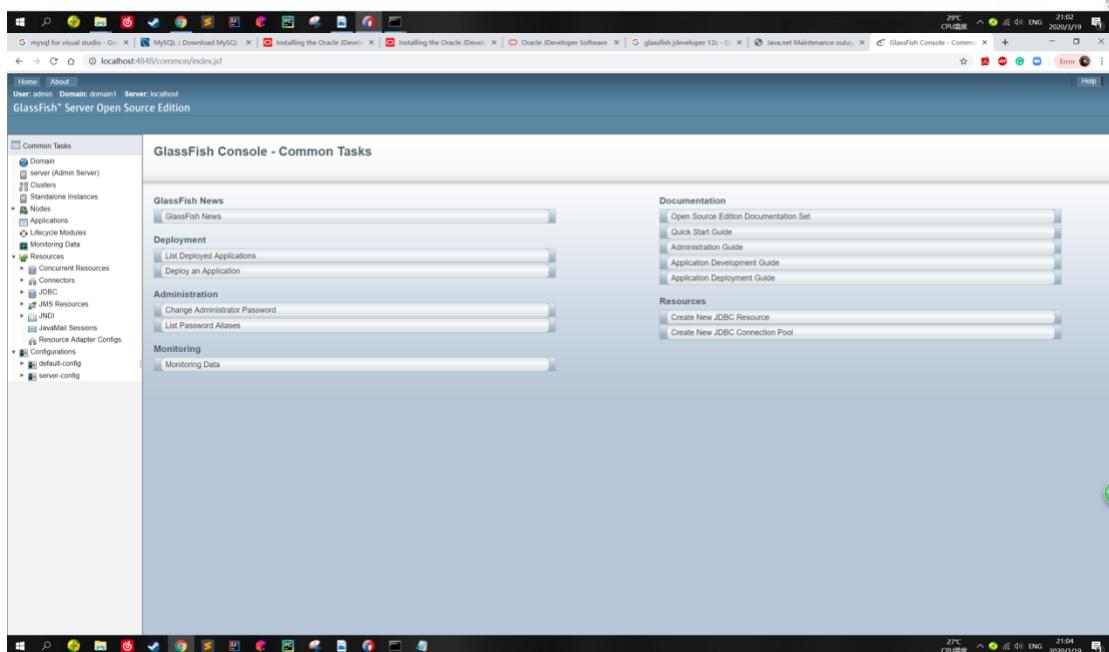
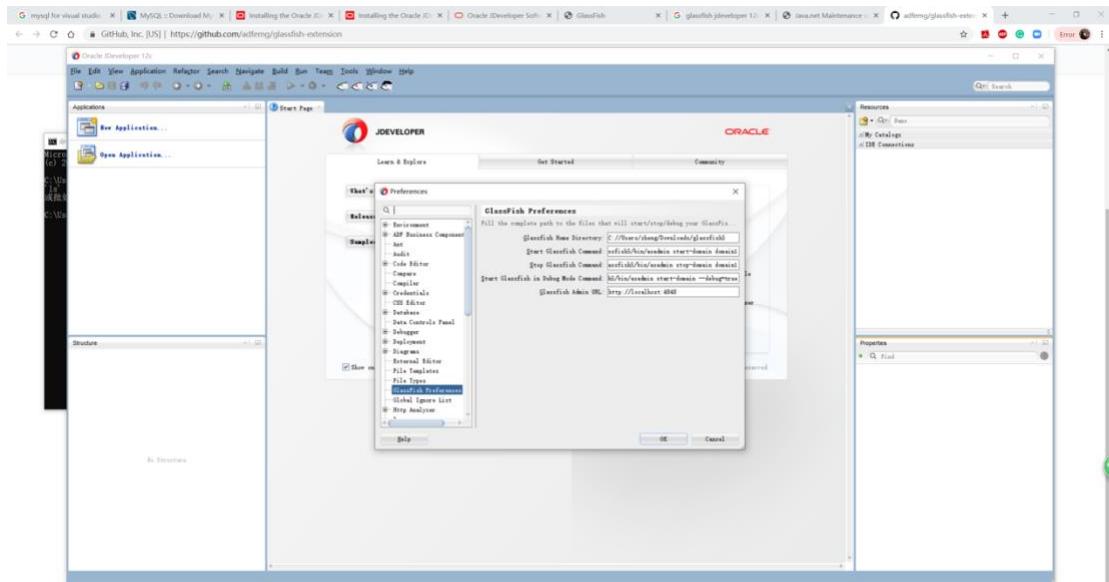
## Part 2: Add glassfish extension



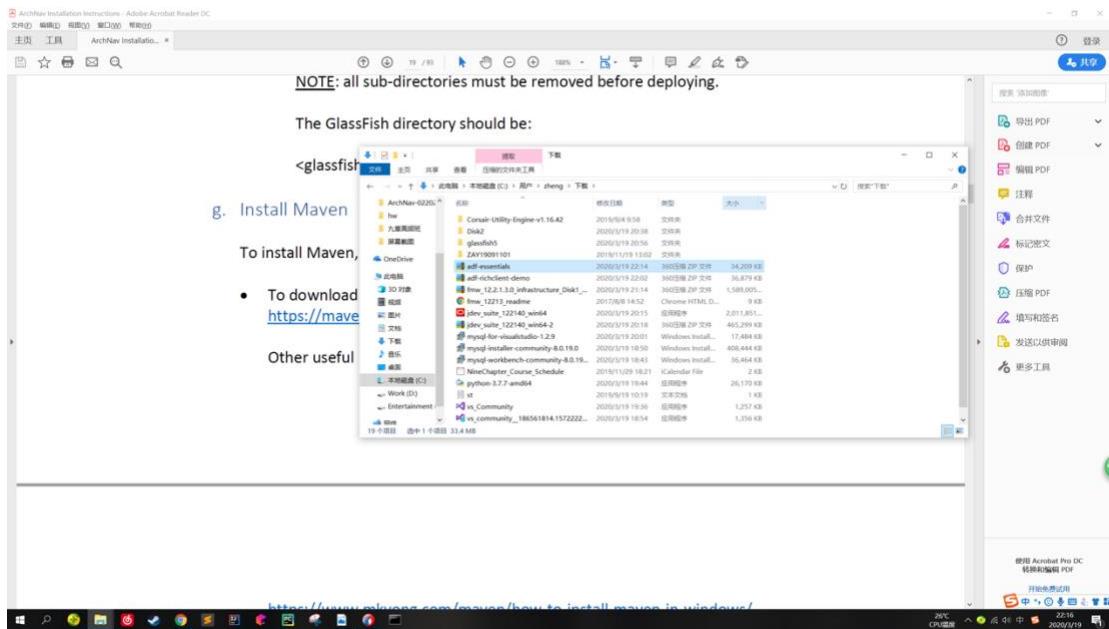
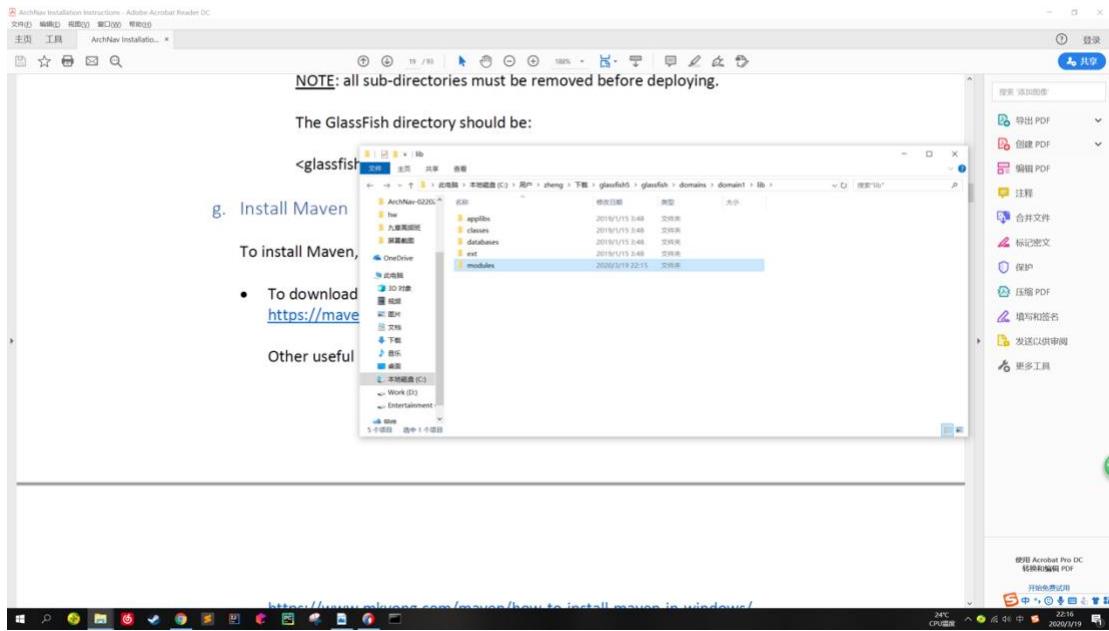


## D. Install glassfish

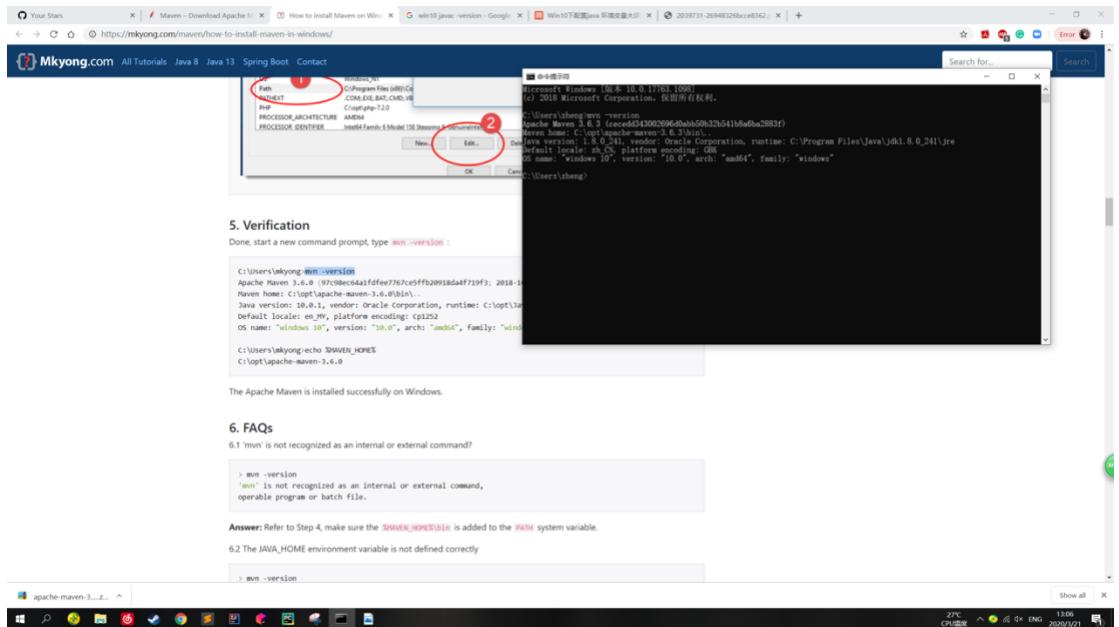




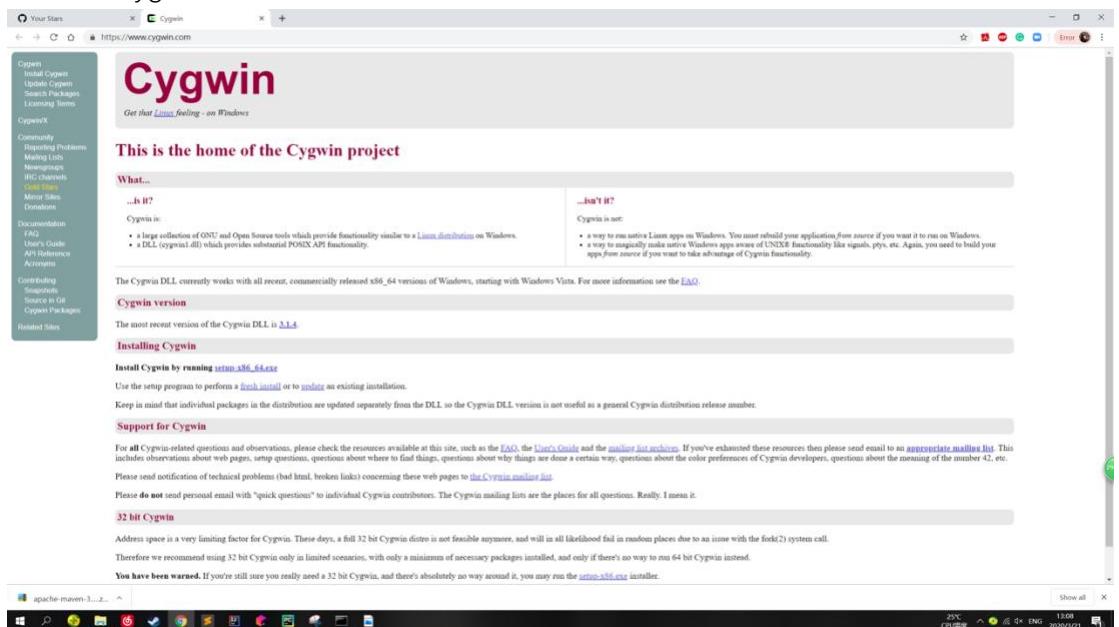
## F. Install Oracle ADF Essentials

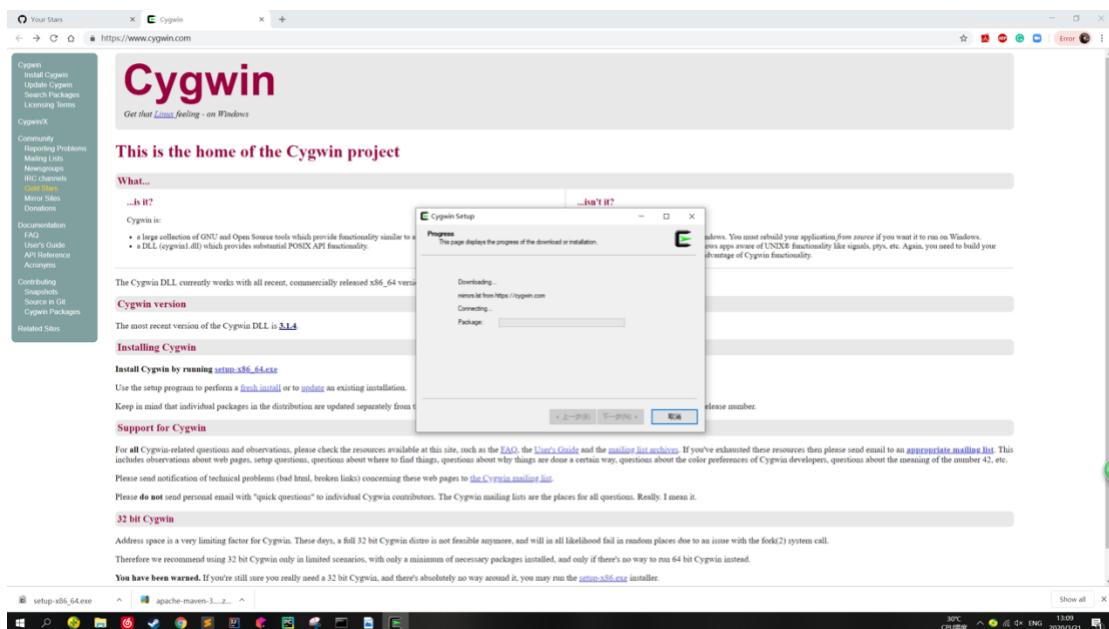
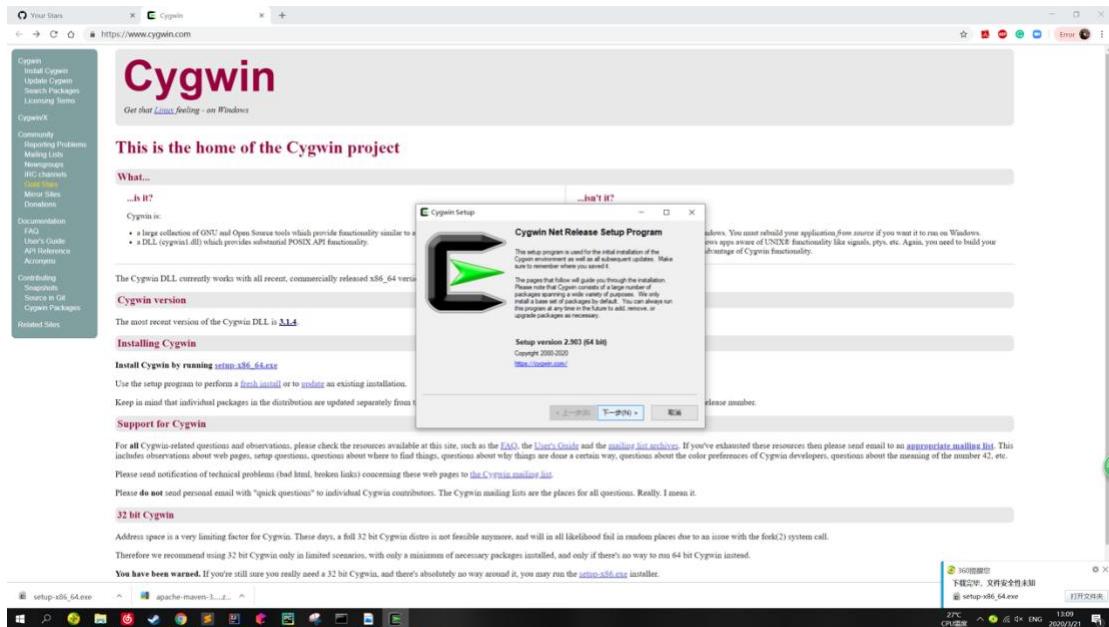


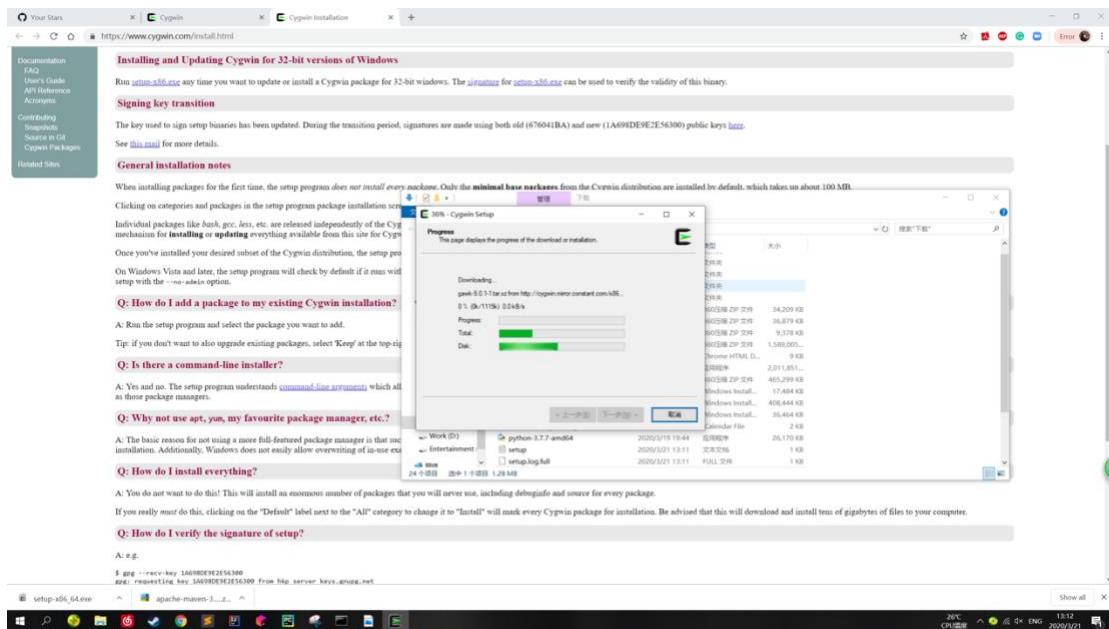
## G. Install Maven



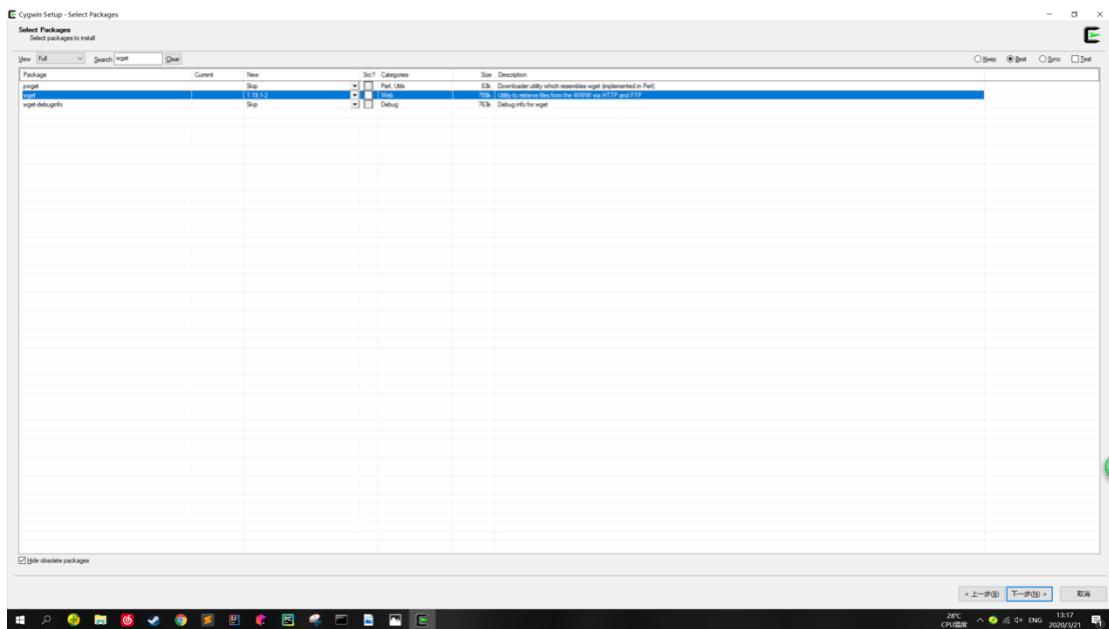
## H. Install Cygwin

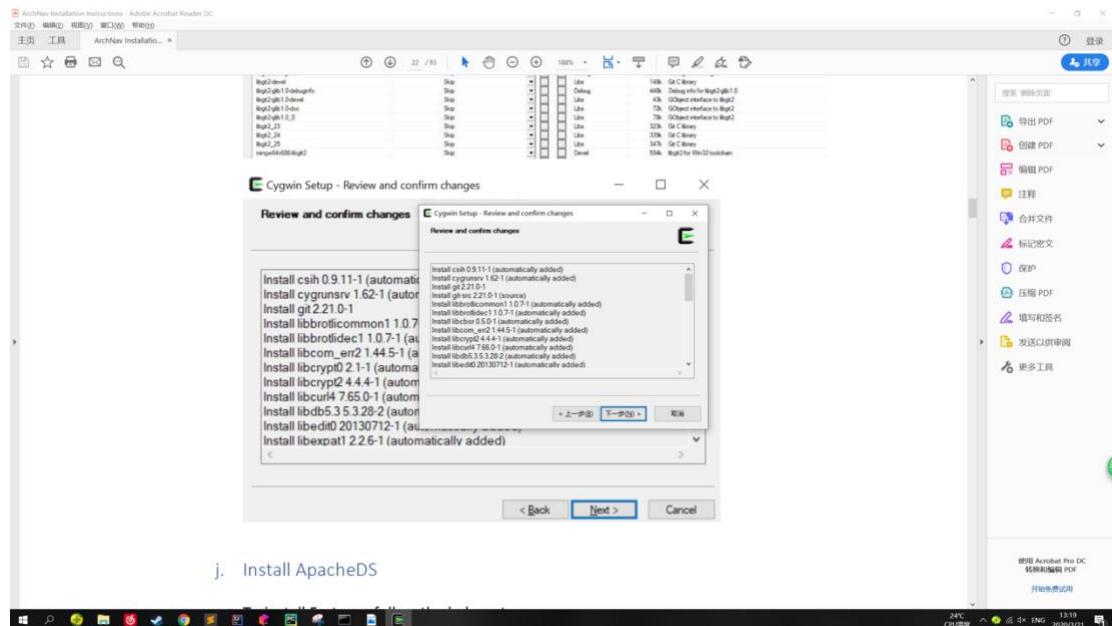
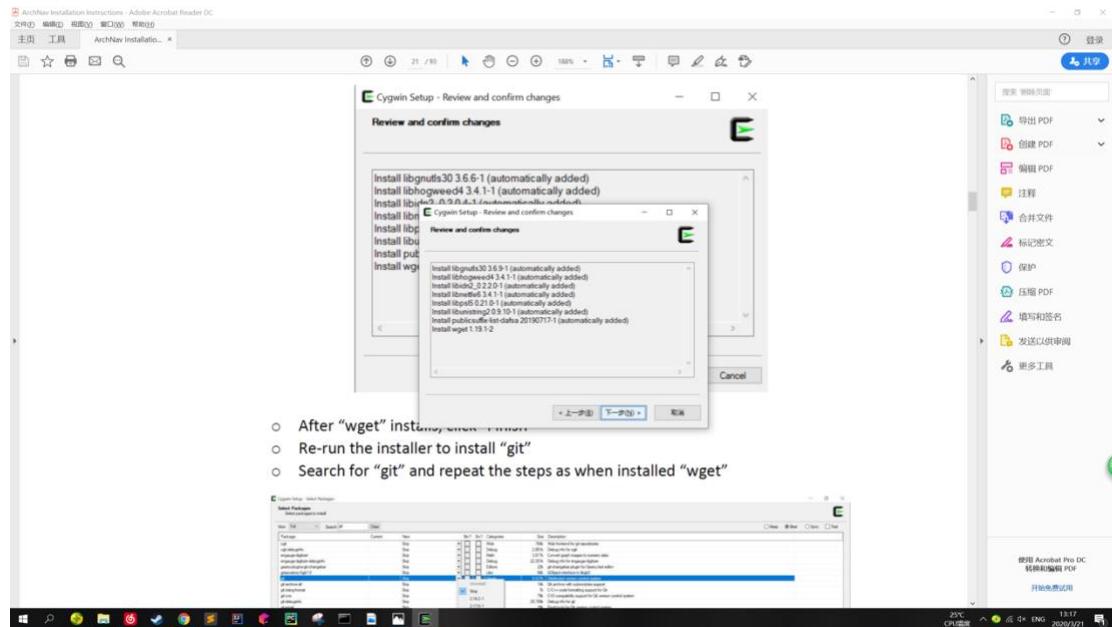




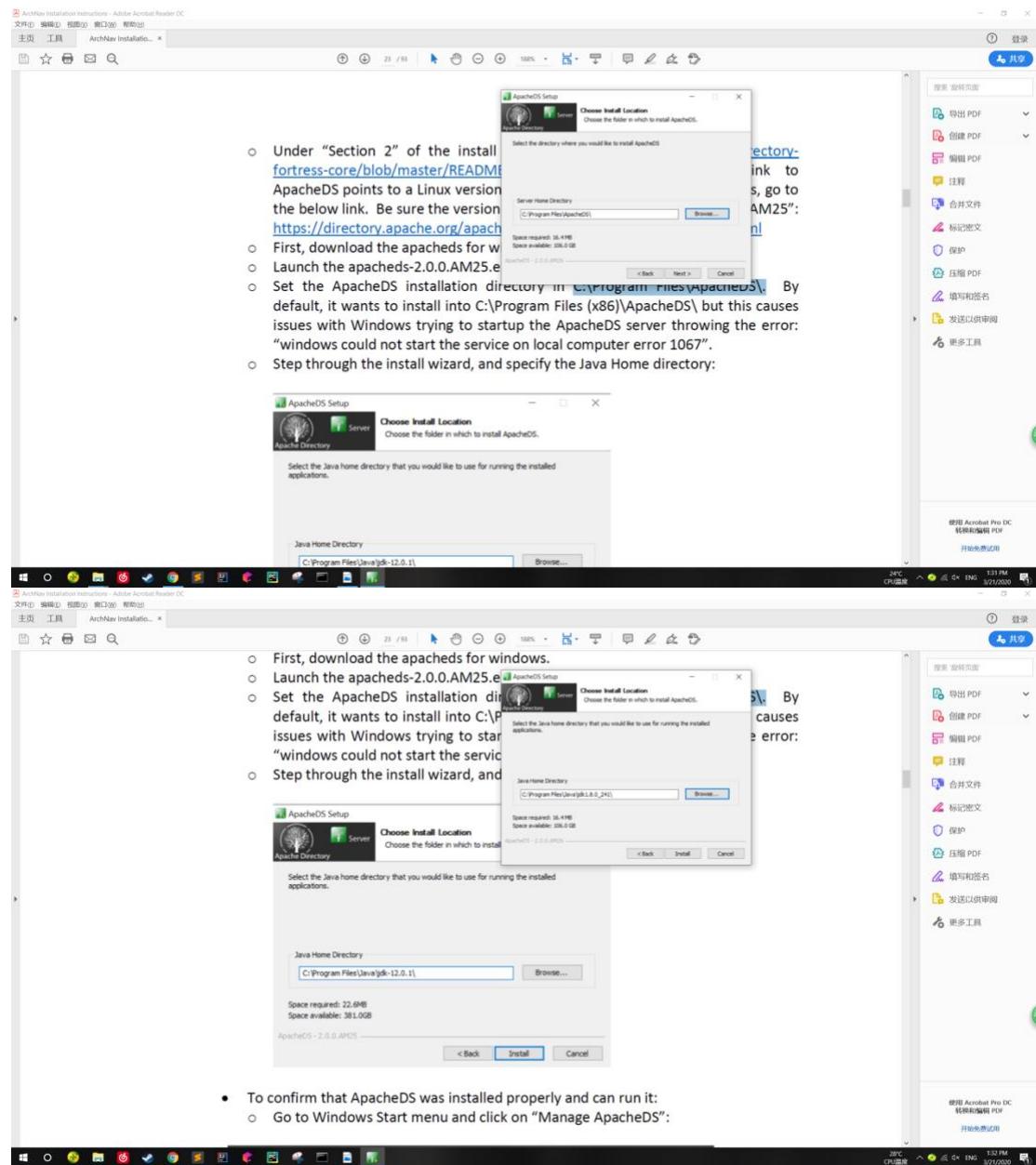


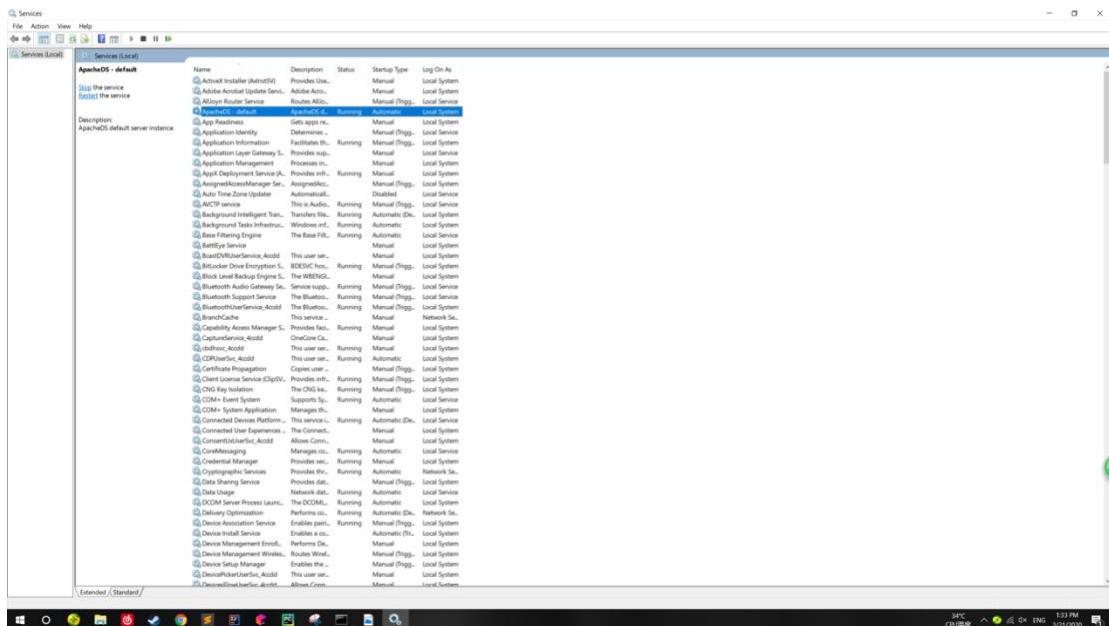
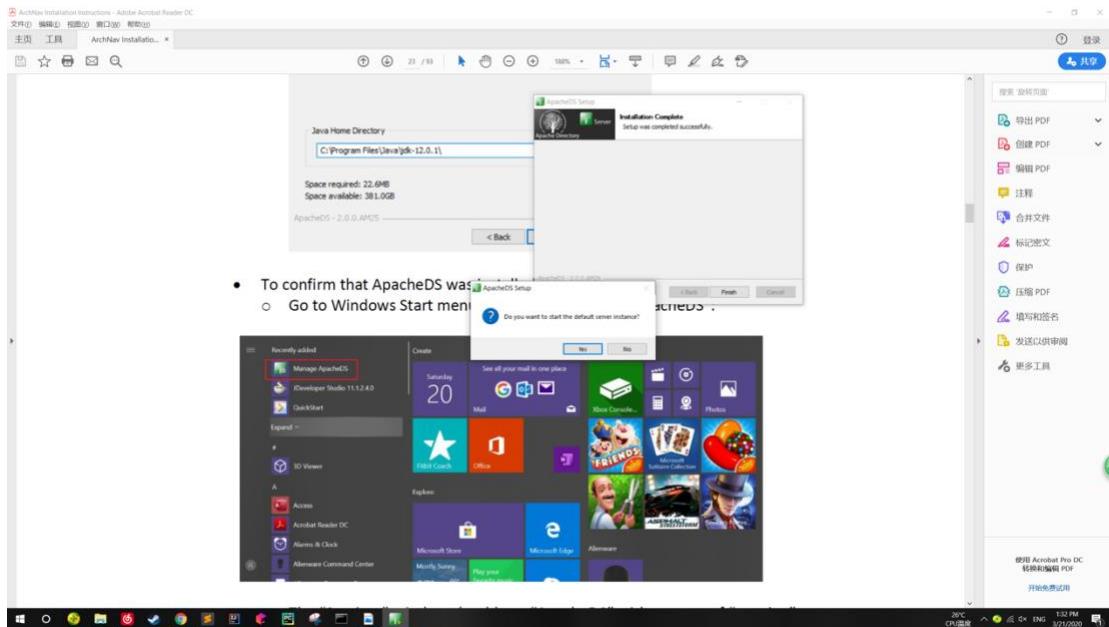
## I. Install weget and git packages



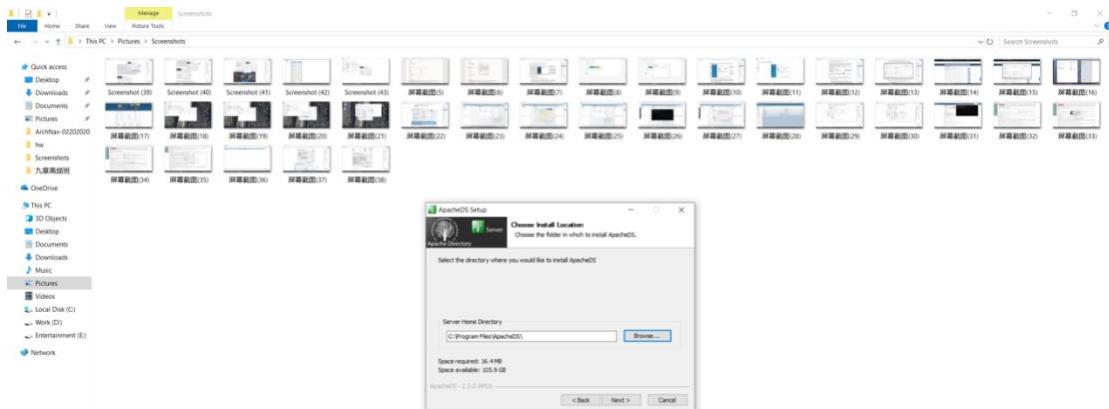
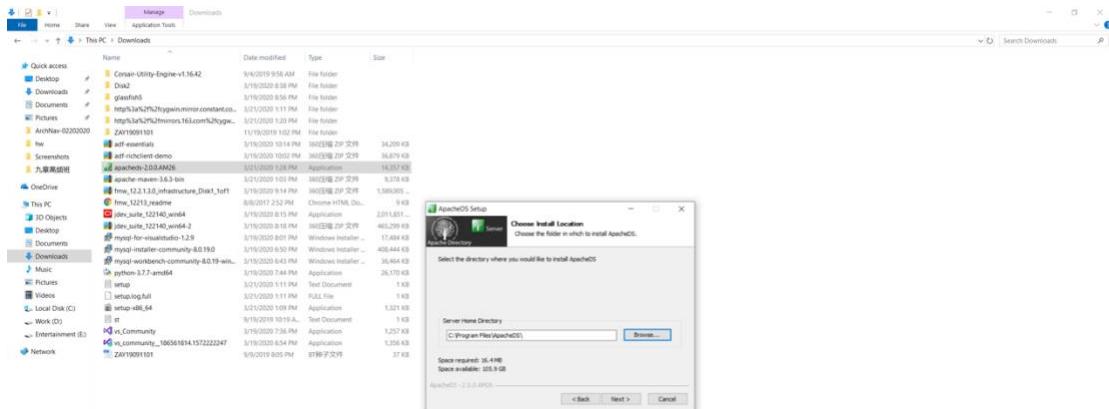


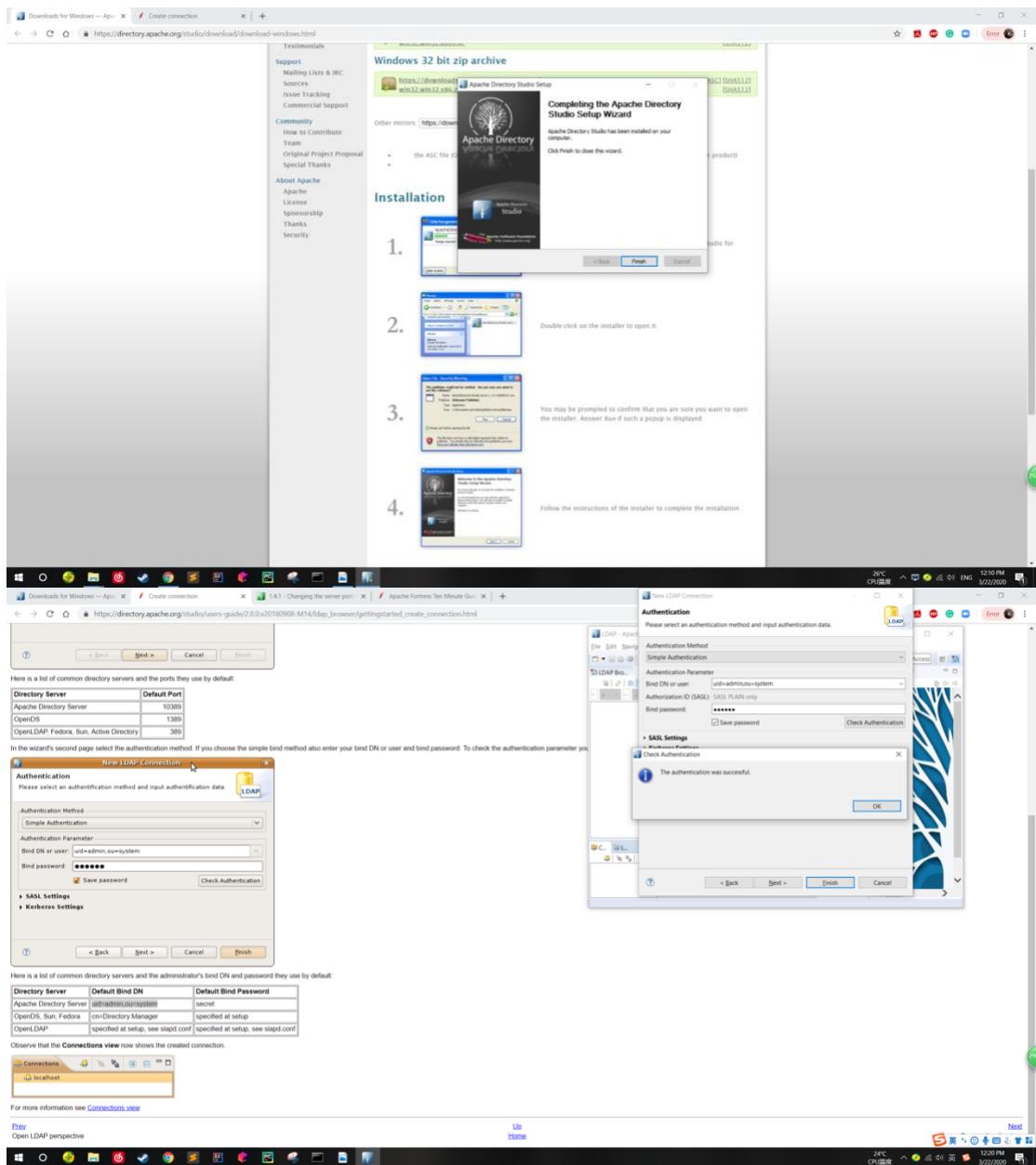
#### J. Install ApacheDS

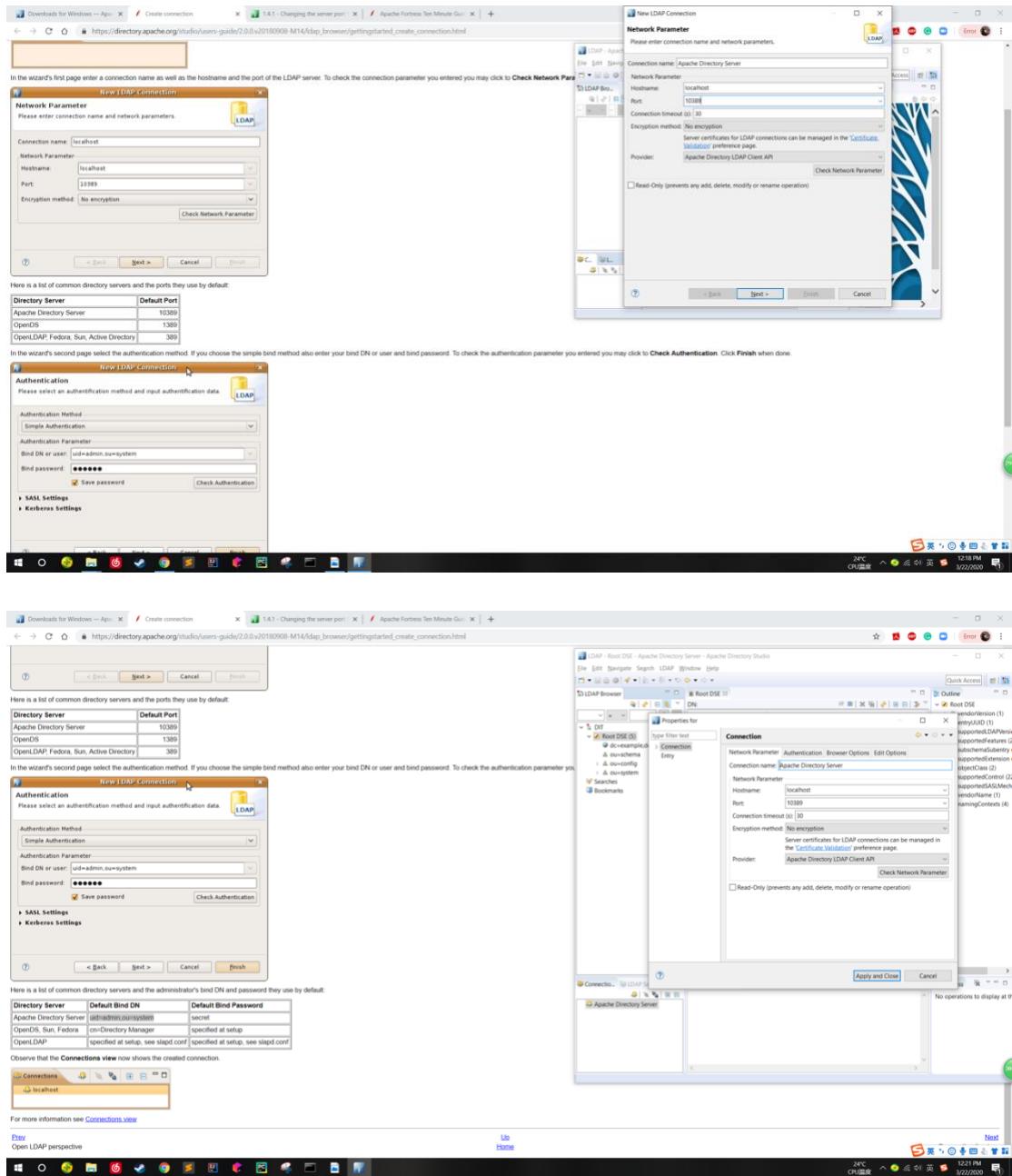




## K. Install Directory Studio







## L. Install Fortress

1. Apache Fortress Ten Minute Guide

Build Apache Fortress Core

This section provides instructions to install Fortress Core, setup usage with ApacheDS, and run the junit tests.

Steps to complete:

- Set java and maven home env variables.
- Change directory:

```
cd directory-fortress-core/
```

3. Copy build.properties.example build.properties

```
cp build.properties.example build.properties
```

4. Edit the build properties in root folder of package. These parameters will be used to generate config artifacts. Change the settings to:

```
# This points fortress to LDAP host.
ldap.url=ldap://host
ldap.port=10889
ldap.server.type=apacheds
```

5. Build fortress core. This step will generate config artifacts using settings from build.properties.

fortress-core-2.0.3-clip ~

This section provides instructions to install Fortress Core, setup usage with ApacheDS, and run the junit tests.

Steps to complete:

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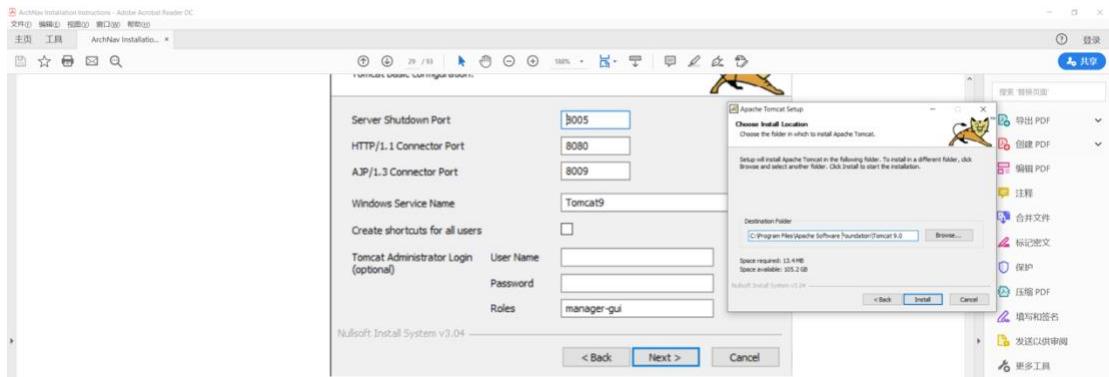
```
mvn install
```

6. Verify the following config artifacts were created by build as they are required later:

```
ls -l config/fortress.properties
ls -l ldap/refresh/refreshData.ws
```

fortress-core-2.0.3-clip ~

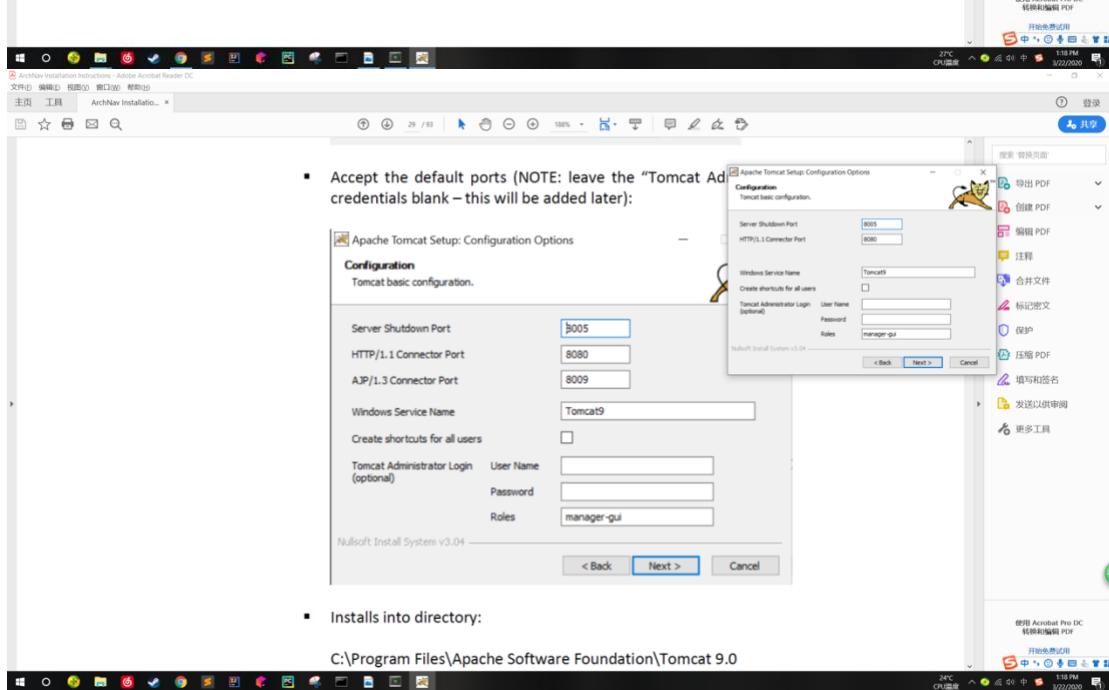
## M. Install Tomcat



- Installs into directory:

C:\Program Files\Apache Software Foundation\Tomcat 9.0

- Unzip apache-tomcat-9.0.21-windows-x64.zip in the C directory.
- To test run Tomcat.



- Installs into directory:

C:\Program Files\Apache Software Foundation\Tomcat 9.0

Change the configuration

```
1<?xml version="1.0" encoding="UTF-8"?>
2<!--
3   Licensed to the Apache Software Foundation (ASF) under one or more
4   contributor license agreements. See the NOTICE file distributed with
5   this work for additional information regarding copyright ownership.
6   The ASF licenses this file to you under the Apache License, Version 2.0
7   (the "License"); you may not use this file except in compliance with
8   the License. You may obtain a copy of the License at
9
10   http://www.apache.org/licenses/LICENSE-2.0
11
12   Unless required by applicable law or agreed to in writing, software
13   distributed under the License is distributed on an "AS IS" BASIS,
14   WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
15   See the License for the specific language governing permissions and
16   limitations under the License.
17
18<tomcat-users xmlns="http://tomcat.apache.org/xml"
19  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
20  xsi:schemaLocation="http://tomcat.apache.org/xml/tomcat-users.xsd"
21  version="1.5">
22<!--
23   NOTE: By default, no user is included in the "manager-gui" role required
24   to operate the "manager/html" web application. If you wish to use this app,
25   you must define such a user - the username and password are arbitrary. It is
26   strongly recommended that you do NOT use one of the users in the commented out
27   section below since they are intended for use with the examples web
28   application.
29
30<!--
31   NOTE: The sample user and role entries below are intended for use with the
32   examples web application. They are wrapped in a comment and thus are ignored
33   when the XML is parsed. If you wish to use these users with your own web
34   application, do not forget to remove the <!-- ... --> that surrounds
35   them. You will also need to set the passwords to something appropriate.
36
37<!--
38<role rolename="tomcat"/>
39<role rolename="role1"/>
40<user username="tomcat" password="tomt-be-changed" roles="tomcat"/>
41<user username="tomcat" password="tomt-be-changed" roles="tomcat,role1"/>
42<user username="role1" password="tomt-be-changed" roles="role1"/>
43
44<role rolename="manager-script"/>
45<role rolename="manager-gui"/>
46<!--
47<user username="manager" password="manager123" roles="manager-script"/>
48<user username="manager" password="manager123" roles="manager-gui"/>
49</tomcat-users>
```

Login to the manage page

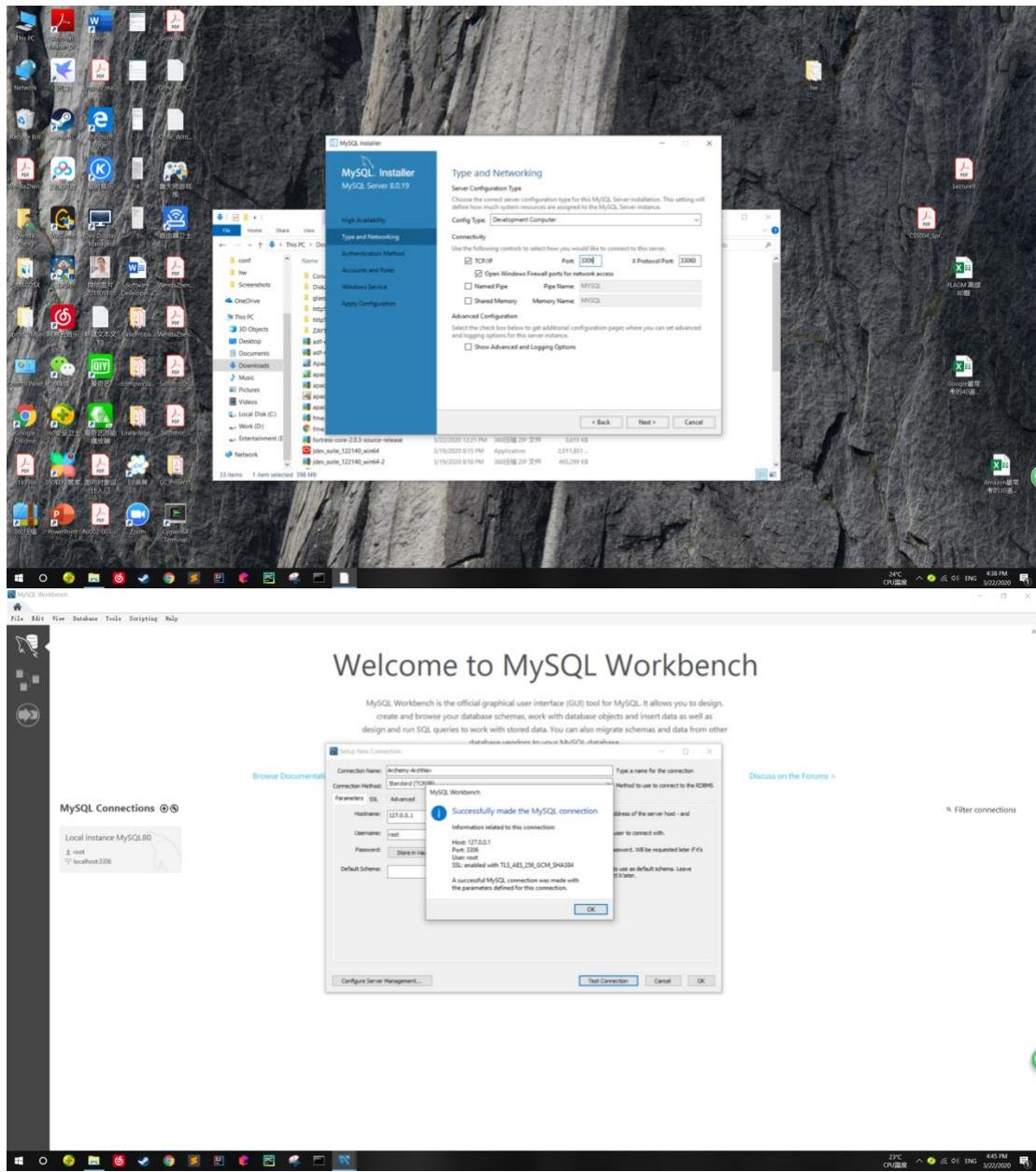
The screenshot shows the Apache Tomcat Web Application Manager interface. At the top, there's a header with the Apache logo and navigation links for Manager, List Applications, HTML Manager Help, Manager Help, and Server Status. Below the header is a table titled 'Applications' with columns for Path, Version, Display Name, Running, Sessions, and Commands. The table lists three applications: 'Welcome to Tomcat' (Path /, Version None specified), 'Tomcat Documentation' (Path /docs, Version None specified), and 'Tomcat Manager Application' (Path /manager, Version None specified). The 'Commands' column for each row contains buttons for Start, Stop, Reload, Undeploy, and session expiration options. Below the applications table is a 'Deploy' section with fields for Context Path, Versions (for parallel deployment), XML Configuration file path, and WAR or Directory path, followed by a 'Deploy' button. Underneath is a 'WAR file to deploy' section with a 'Select WAR file to upload' dropdown and a 'Deploy' button. Further down are sections for 'Configuration' (with a 'Re-read TLS configuration files' button) and 'Diagnostics' (with a 'Check to see if a web application has caused a memory leak on stop, reload or undeploy' link). The bottom of the window shows a toolbar with various icons and a status bar indicating system information.

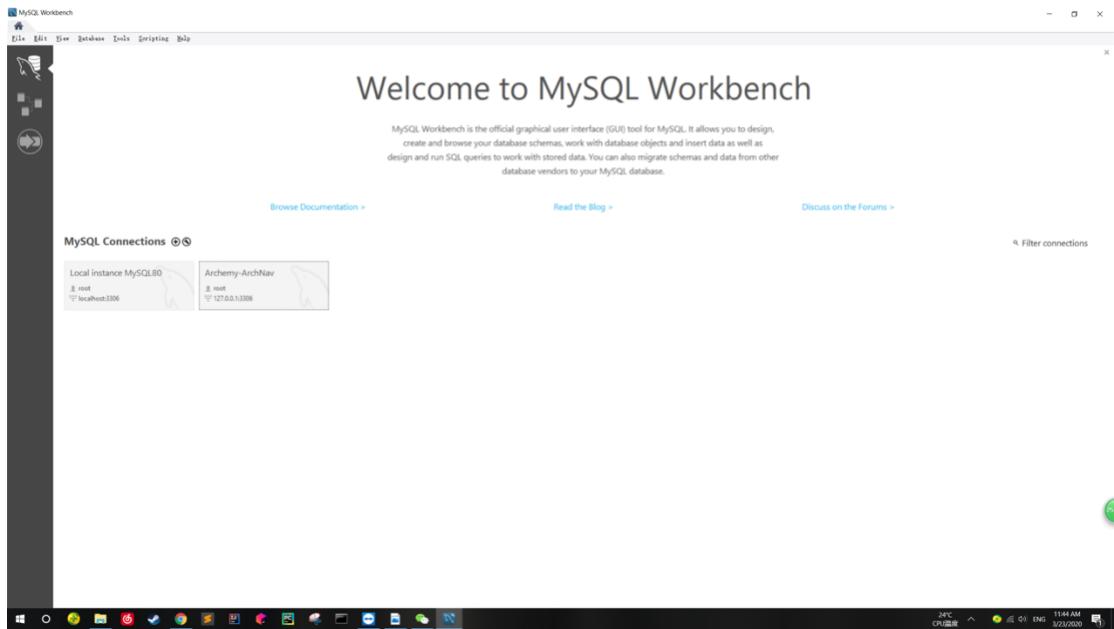
## 2. Software Setups

### a. Setup ArchNav Database

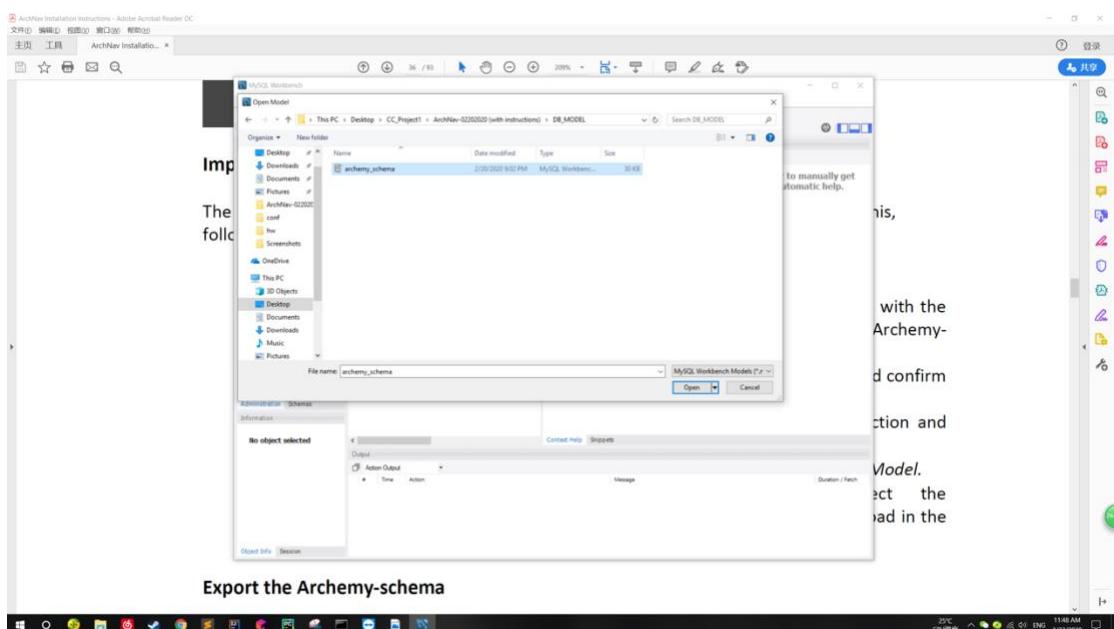
#### 1. Create a new MySQL Connection for the ArchNav database

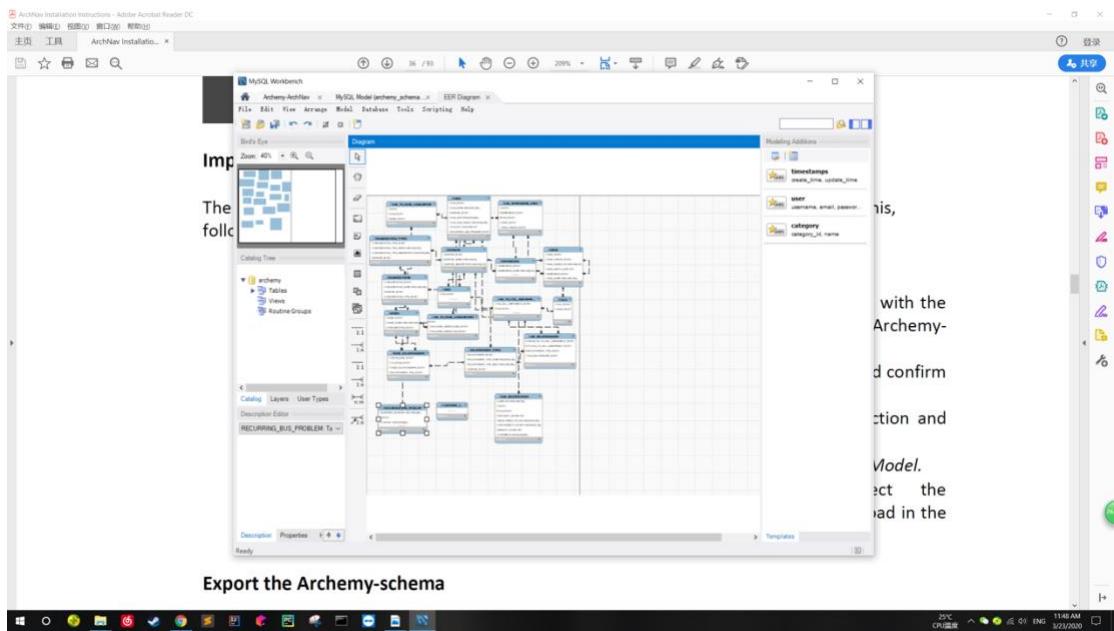
The screenshot shows the MySQL Workbench interface. On the left is a sidebar with icons for Home, User, Database, Tools, Scripting, and Help. The main area is titled 'Welcome to MySQL Workbench'. A central dialog box is open, titled 'Setup New Connection', with the connection name set to 'ArchNav-ArchNav'. The 'Connector Method' is set to 'Standard (TCP/IP)'. Under 'Parameters - SSL Advanced', the 'Hostname' is set to '127.0.0.1', 'Port' is set to '3306', 'Username' is 'root', and 'Password' is 'StarkInVault...'. The 'Default Schema' field is empty. At the bottom of the dialog are buttons for 'Configure Server Management...', 'Test Connection', 'Cancel', and 'OK'. To the right of the dialog, there's a 'Discuss on the Forums' link and a 'Filter connections' link. The bottom of the window shows a toolbar with various icons and a status bar indicating system information.



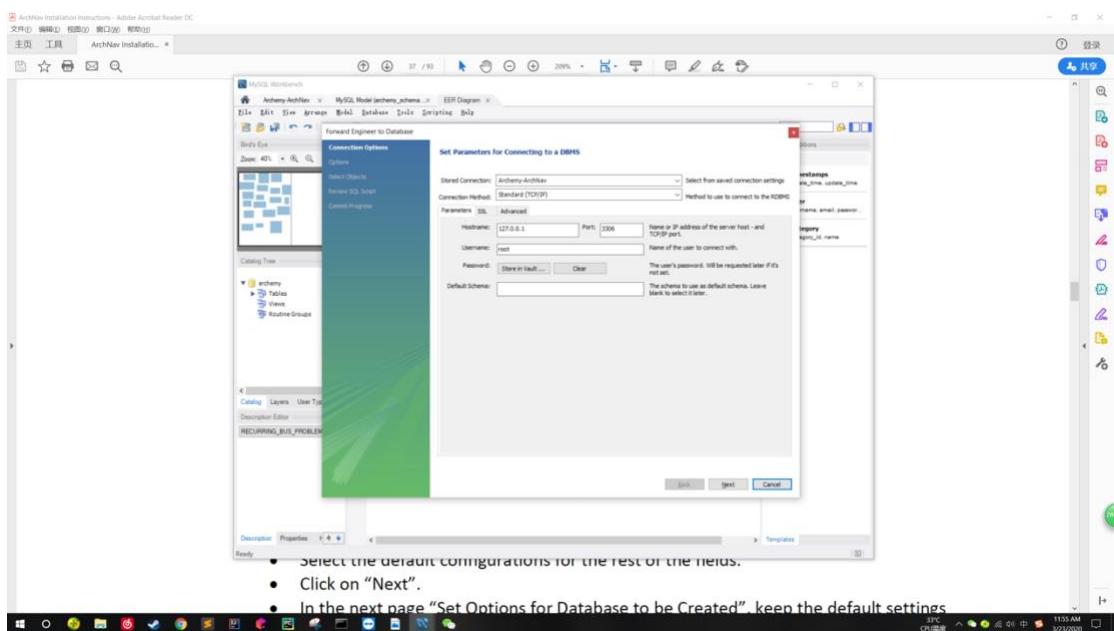


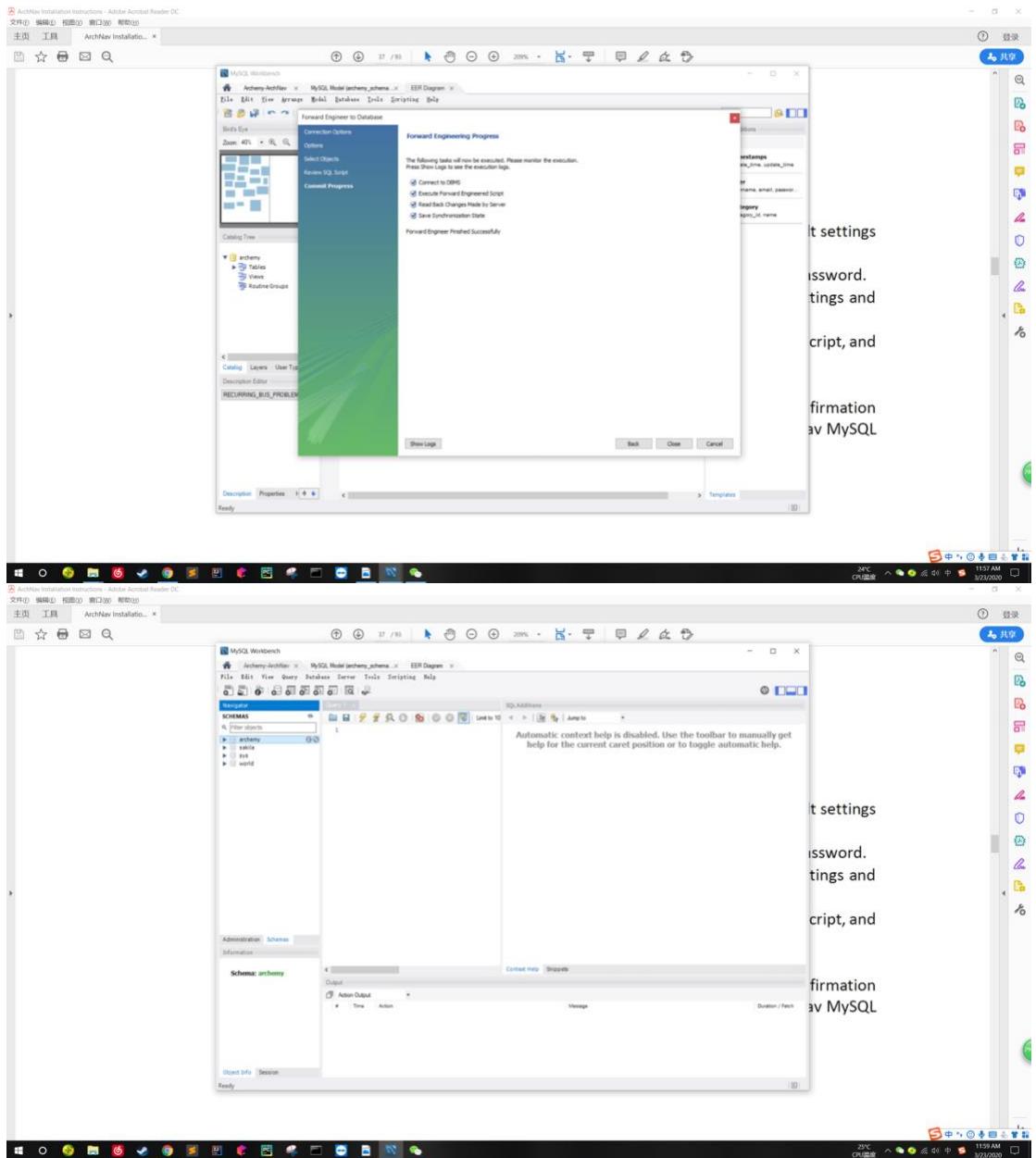
## 2. Import the ArchNav Schema into the new MySQL database

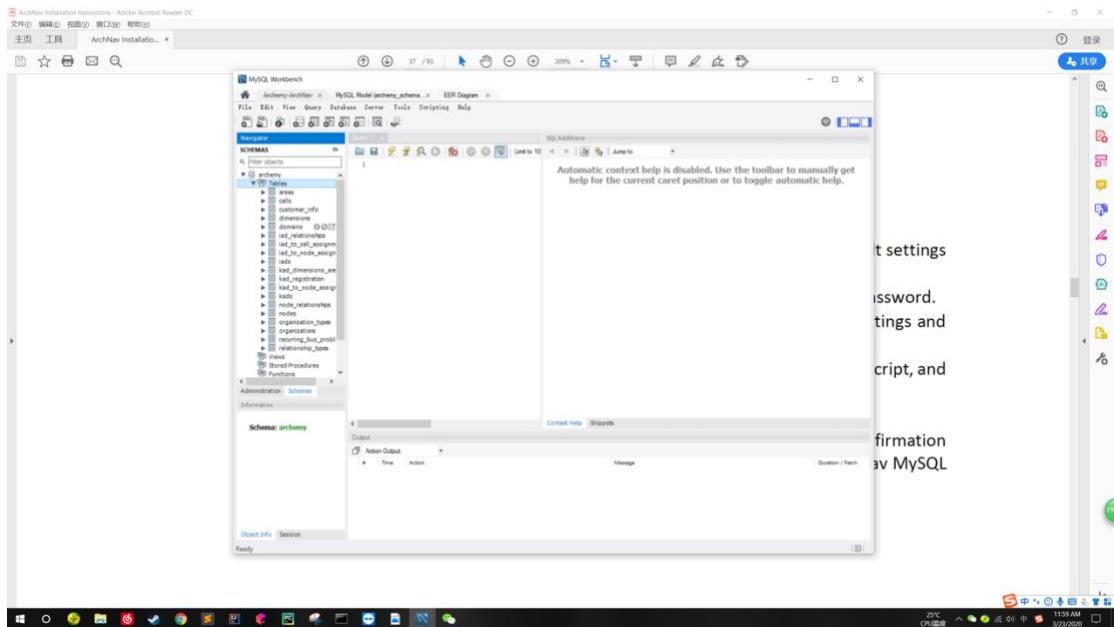




### 3. Export the Archemy-schema





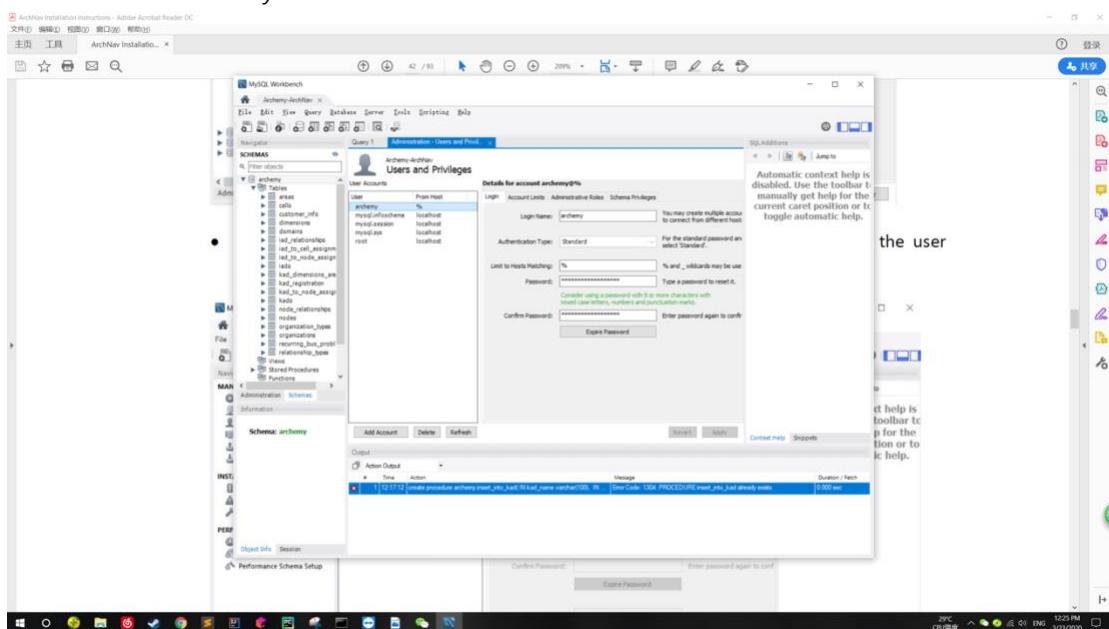


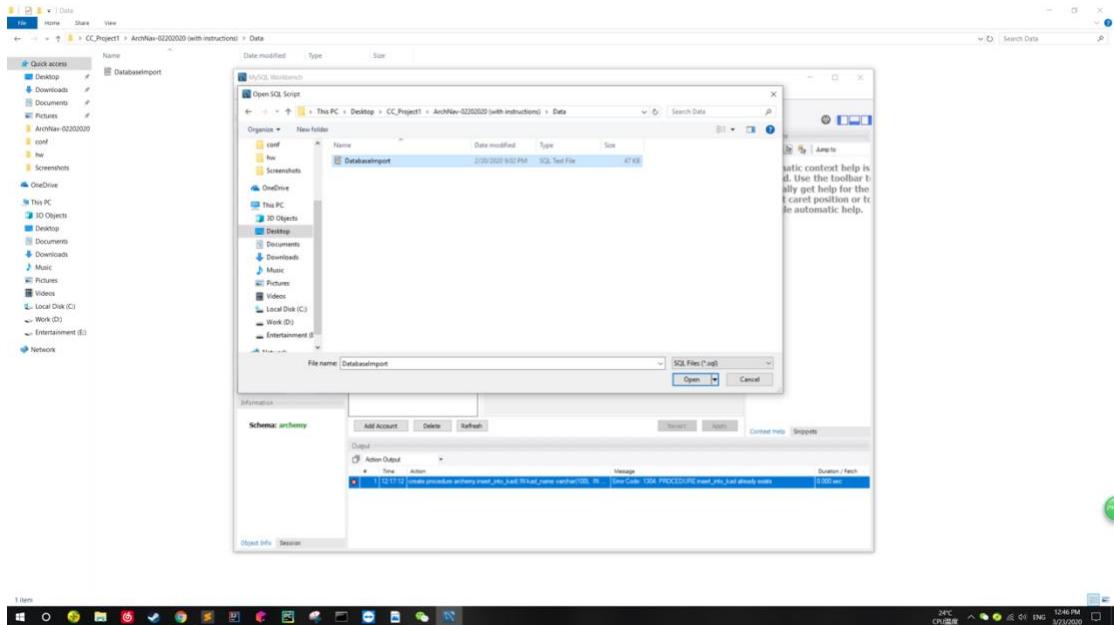
### 3. Import the ArchNav stored procedures

```

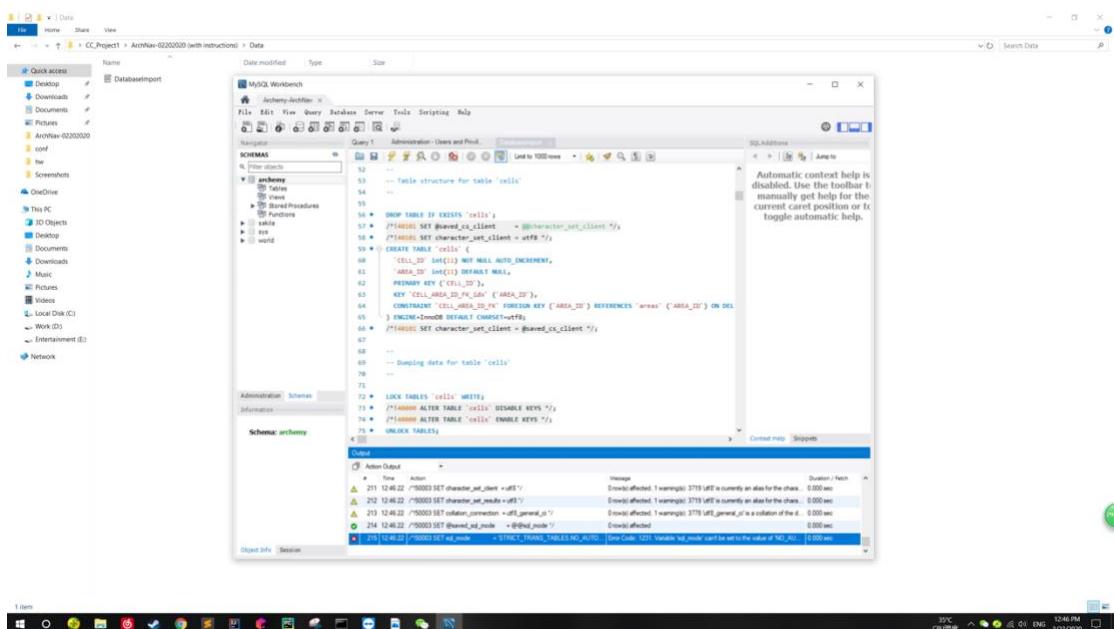
File Edit Selection View Goto Tools Project Preferences Help
C:\Users\zheng\Desktop\CC\Project\ArchNav-0202020 (with instructions)\App\ArchNavAppModel\src\com\archemy\searchapp\models\sql\procedures.sql - Sublime Text (UNREGISTERED)
<*> procedures.sql
1 Delimiter $$ 
2  CREATE PROCEDURE archomy.insert_into_kad(
3   IN kad_name varchar(100),
4   IN kad_link varchar(100),
5   IN kad_public_link varchar(100),
6   IN kad_problem_id int(11),
7   IN business_problem Integer,
8   OUT kad_id int(11)
9 )
10 BEGIN
11   INSERT INTO kads(kad_name,domain_id,kad_link,kad_public,RECURRING_BUS_PROBLEM_ID)
12   VALUES (kad_name,domain_id,kad_link,kad_public_link,business_problem);
13   SET @last_insert_id:=LAST_INSERT_ID();
14   SET kad_id:=@last_insert_id;
15 END $$
16 Delimiter ;
17 
18 
19 
20 
21 
22 
23 
24 
25 
26 
27 
28 
29 
30 
31 
```

#### 4. Create the Archemy database user





## 6. Import the ArchNav data

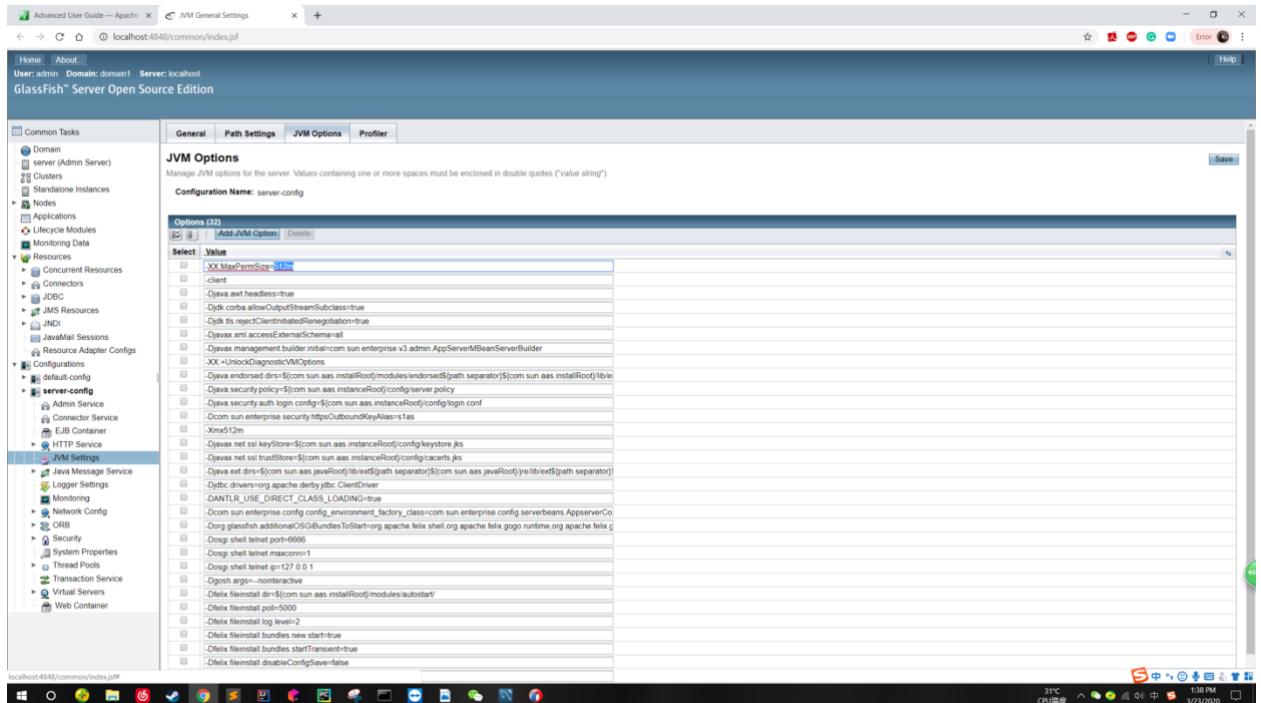


### b. Configure GlassFish for ADF Applications

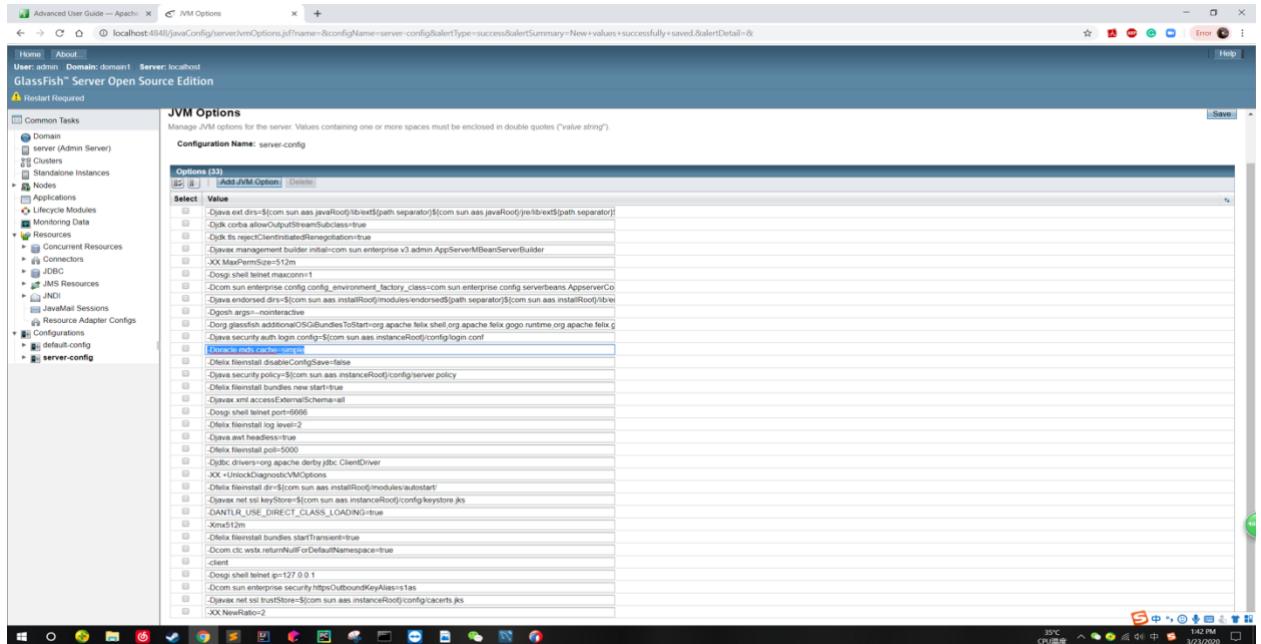
## Configure GlassFish

To configure GlassFish for ADF applications, follow the below steps.

- In the GlassFish admin console, increase the JVM MaxPermSize to 512m:
    - Click on server-config→JVM Settings.
    - Click on the “JVM Options” tab.
    - Update the -XX:MaxPermSize value by increasing it to 512m (see below):



- Add -Doracle.mds.cache=simple as a DVM Option:

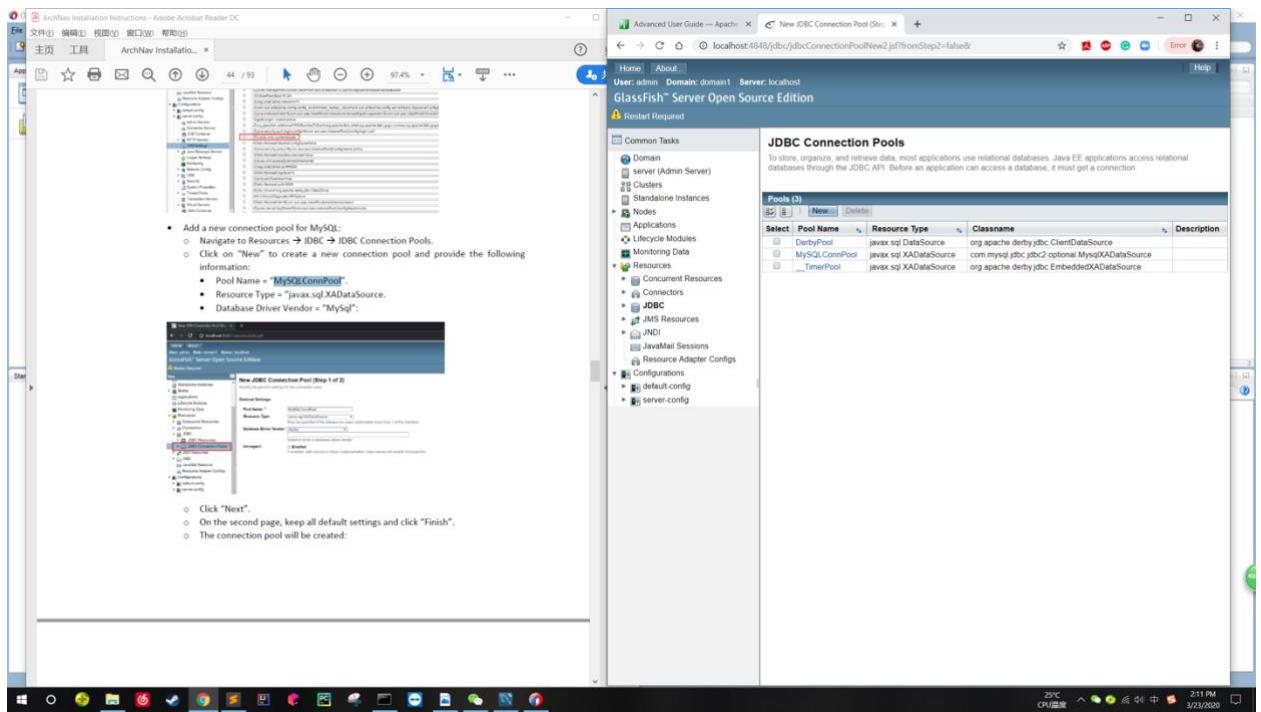


- Add a new connection pool for MySQL:
    - Navigate to Resources → JDBC → JDBC Connection Pools.
    - Click on “New” to create a new connection pool and provide the following

information;

- Pool Name = “MySQLConnPool”.
  - Resource Type = “javax.sql.XADataSource”.
  - Database Driver Vendor = “MySQL”:

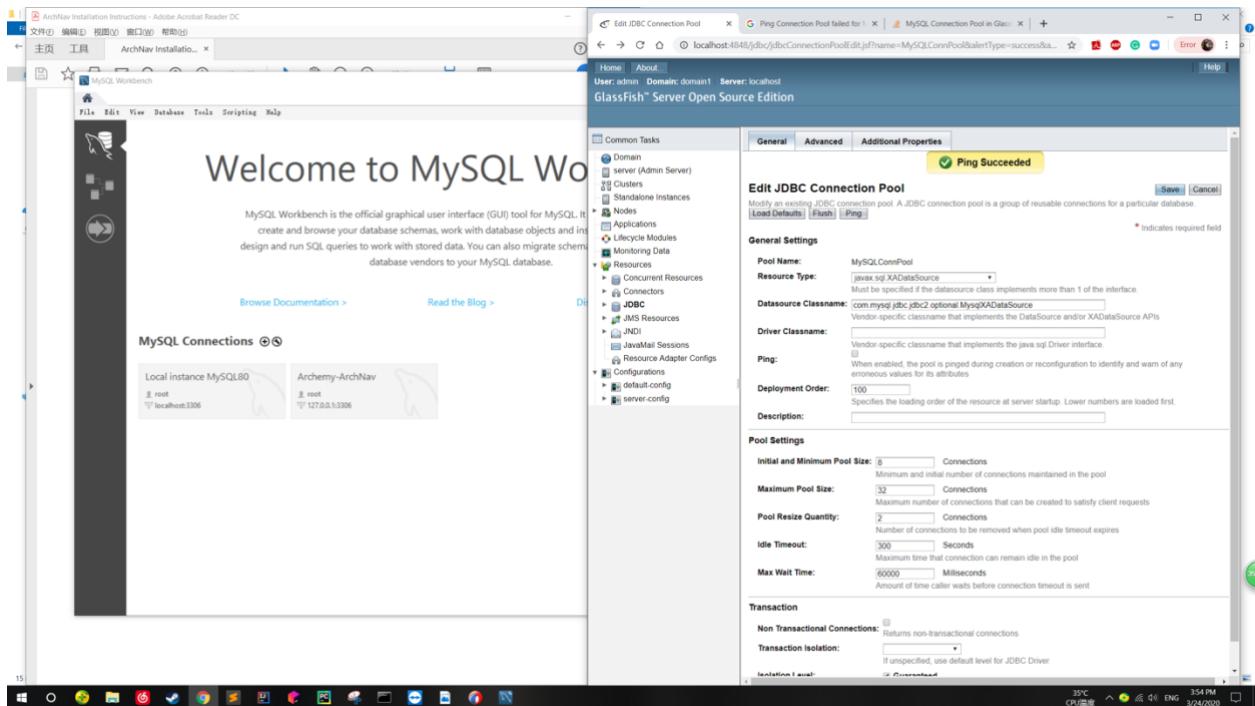
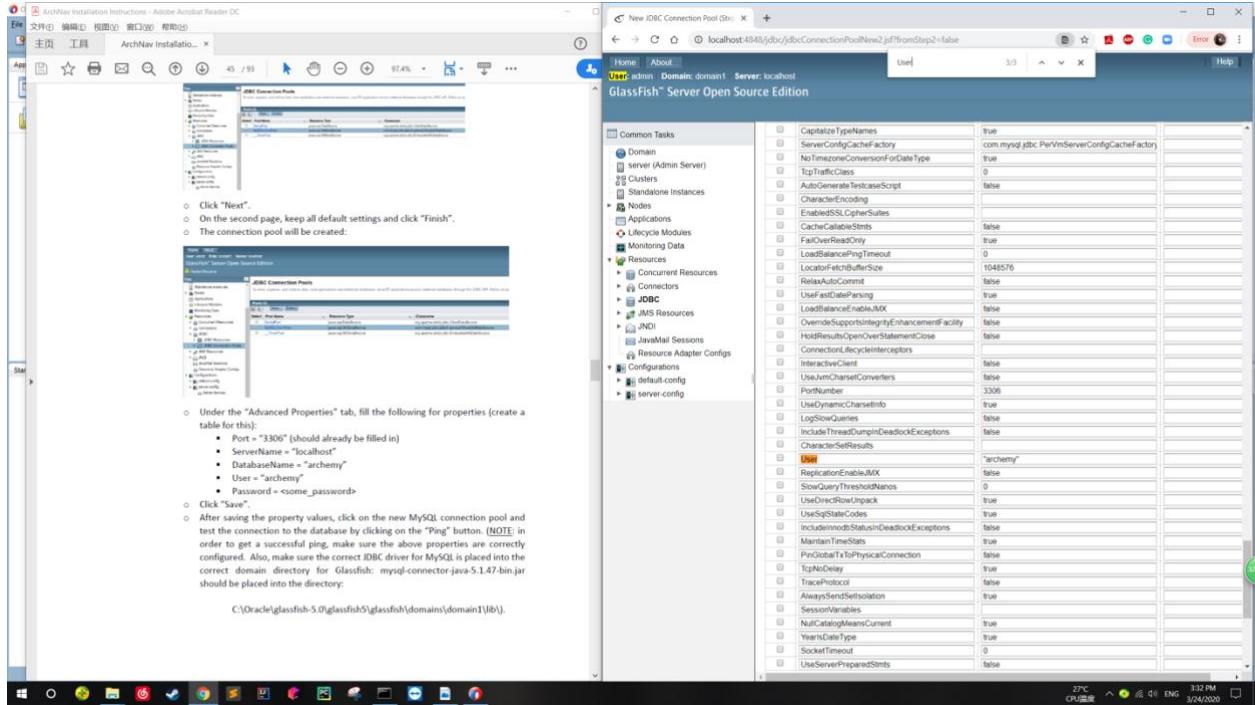
And the connection pool is created and showed below.



Under the “Advanced Properties” tab, fill the following for properties (create a table for this):

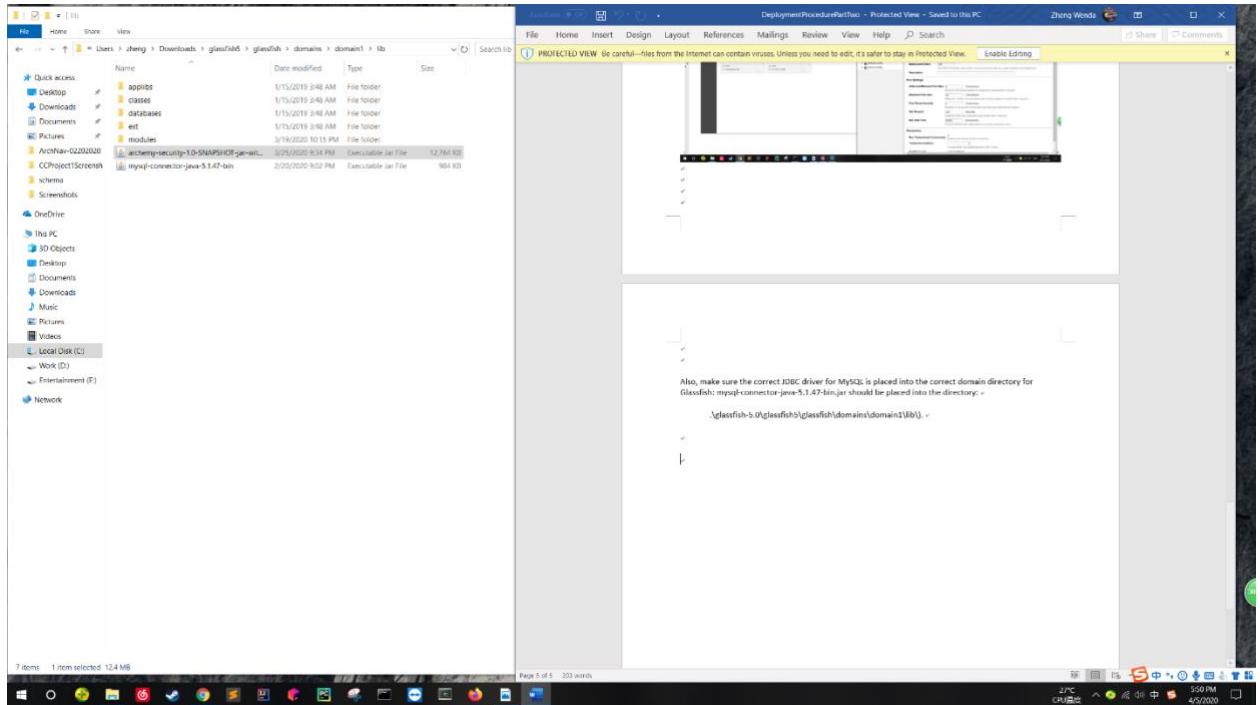
- ▪ Port = “3306” (should already be filled in)
- ▪ ServerName = “localhost”
- ▪ DatabaseName = “archemy”
- ▪ User = “archemy”
  
- Password = <some\_password> ○ Click“Save”.

After saving the property values, click on the new MySQL connection pool and test the connection to the database by clicking on the “Ping” button. (NOTE: in order to get a successful ping, make sure the above properties are correctly configured.

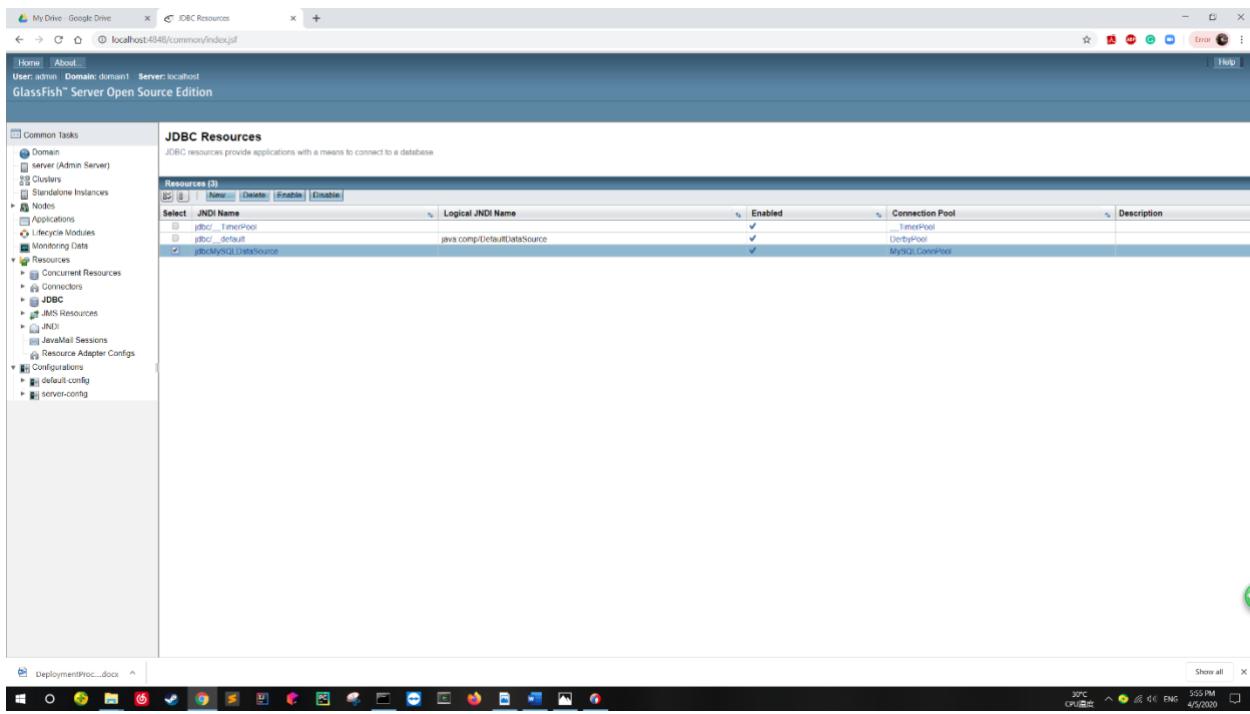


Also, make sure the correct JDBC driver for MySQL is placed into the correct domain directory for Glassfish: mysql-connector-java-5.1.47-bin.jar should be placed into the directory:

.\glassfish-5.0\glassfish5\glassfish\domains\domain1\lib\).



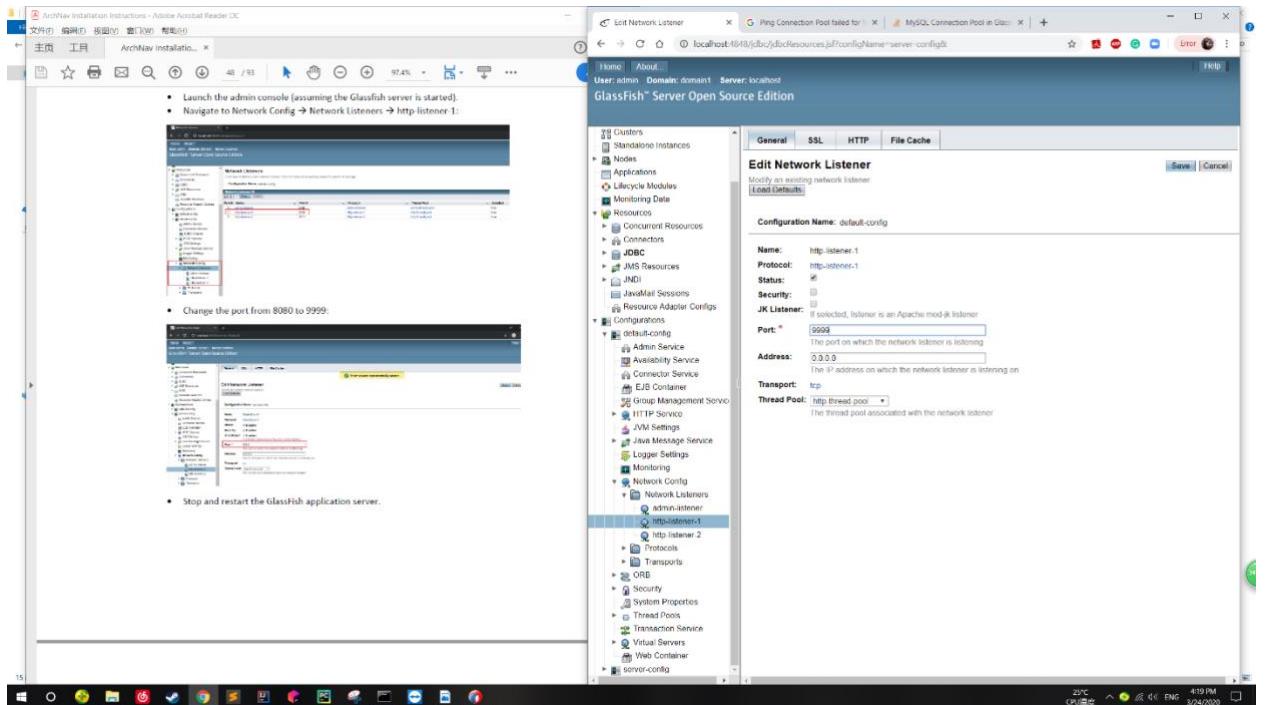
- Create a new JDBC Resource to use with the MySQL connection pool.
  - Click on “New”.
  - Fill in JNDI Name, select Pool Name:
  - Click “OK”.



## Set GlassFish on a different port

The GlassFish and Tomcat application servers are both configured to use the HTTP port of 8080 by default. It is better to leave the Tomcat application server configured to use port 8080, and so the GlassFish HTTP port must be configured to use a different port. To do this, follow the steps below.

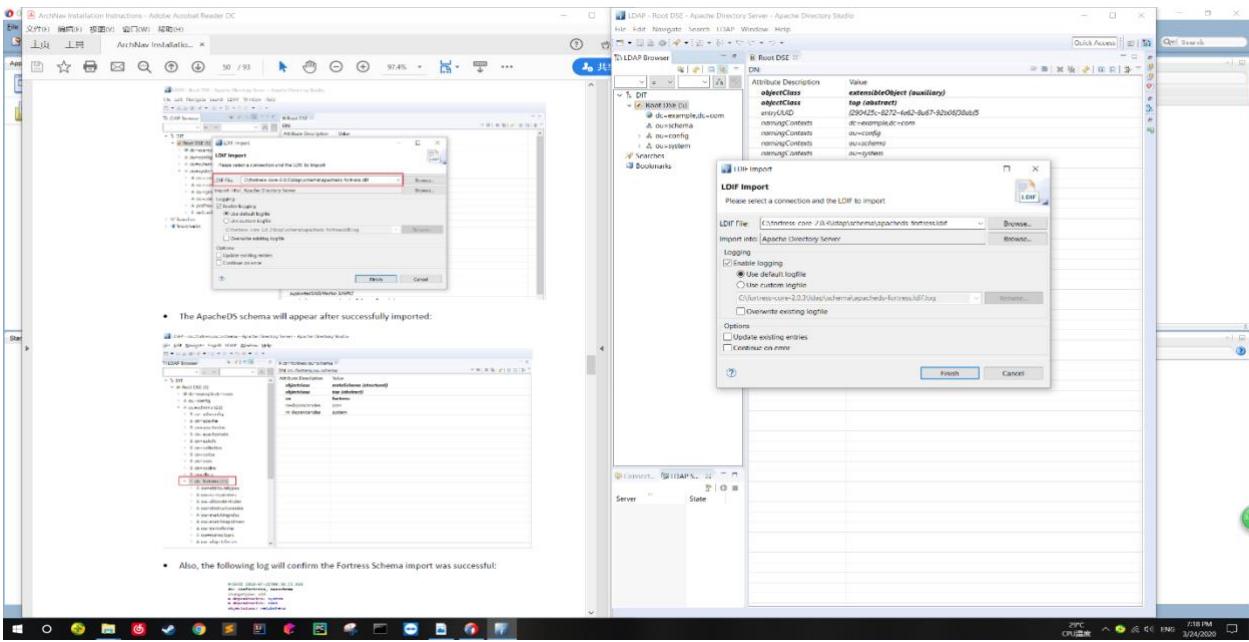
- Launch the admin console (assuming the Glassfish server is started).
- Navigate to Network Config → Network Listeners → http-listener-1:
- Change the port from 8080 to 9999:
- Stop and restart the GlassFish application server.



### c. Import ApacheDS Schema

To import the ApacheDS schema, follow the below steps.

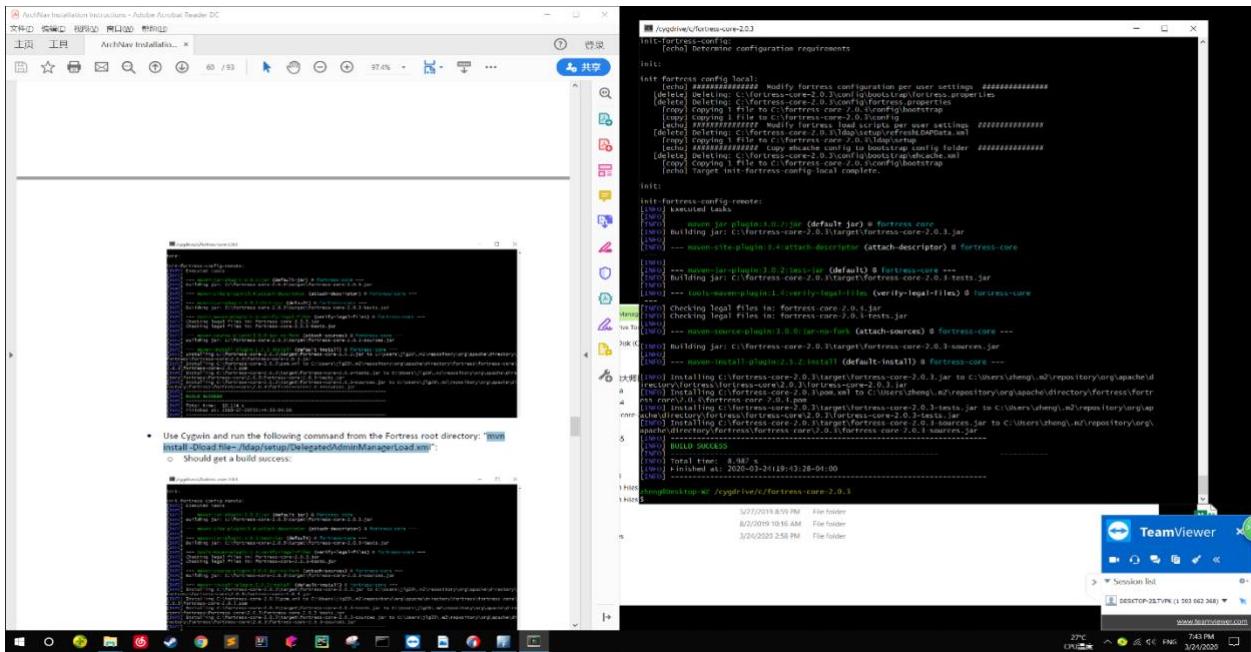
- In Apache Directory Studio, right-click on “Root DSE (5)” in left frame.
- Select Import → LDIF Import.
- Navigate to the LDIF file:
- The ApacheDS schema will appear after successfully imported:



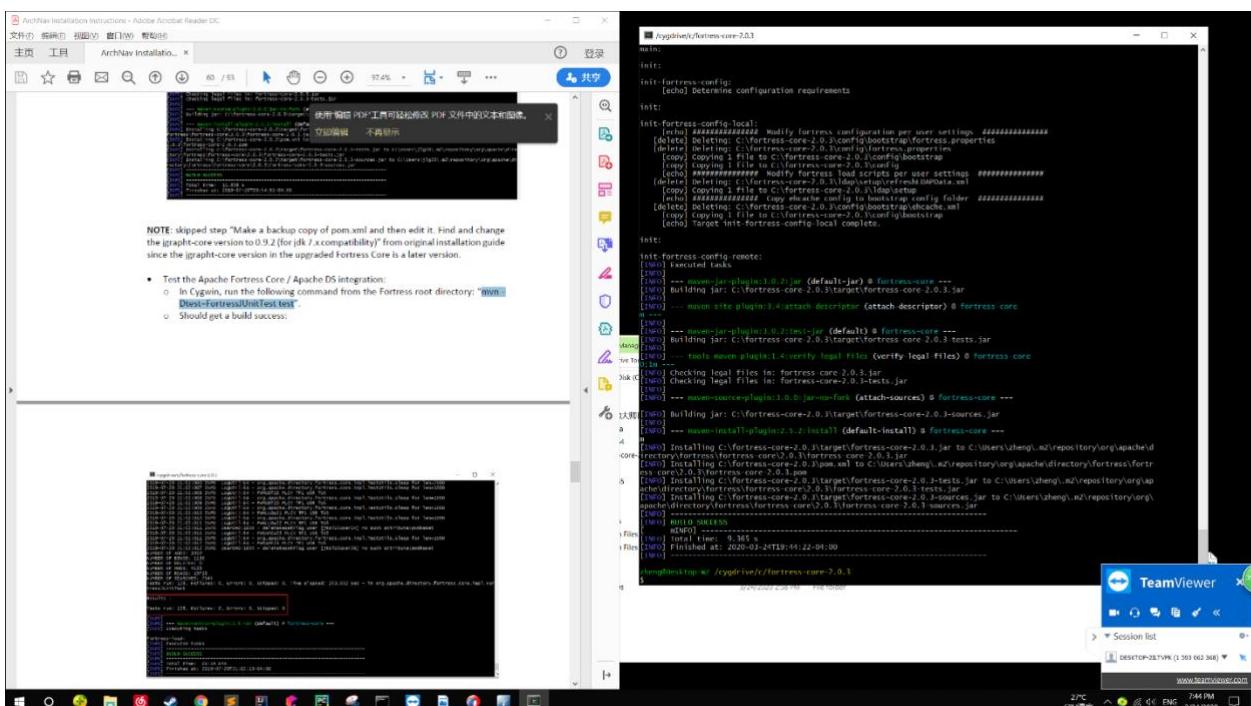
## d. Integrate Apache Fortress Core and ApacheDS

To integrate Fortress and ApacheDS, follow the below steps.

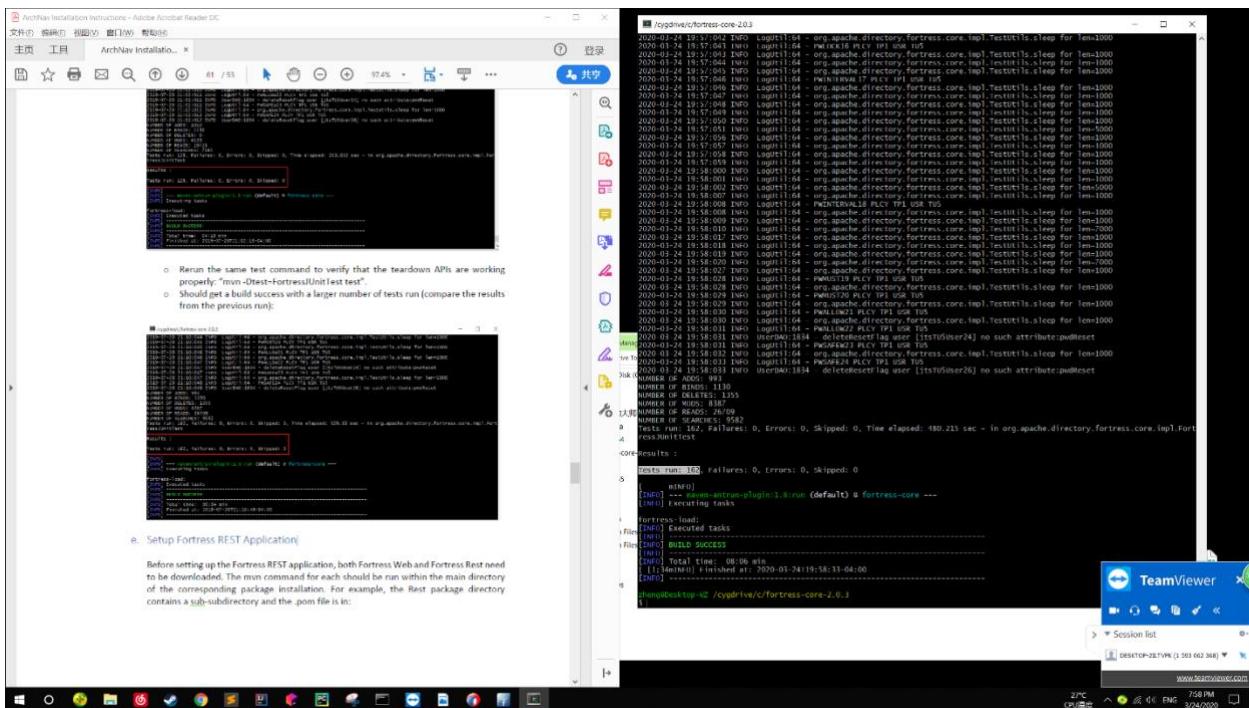
- Use Cygwin and run the command in the Fortress root directory: “mvn install -Dload.file=./ldap/setup/refreshLDAPData.xml”:
- Should get a build success:



- Use Cygwin and run the following command from the Fortress root directory: “mvn install -Dload.file=./ldap/setup/DelegatedAdminManagerLoad.xml”:
    - Should get a build success:



- Test the Apache Fortress Core / Apache DS integration:
  - In Cygwin, run the following command from the Fortress root directory: “mvn -Dtest=FortressJUnitTest test”.
  - Should get a build success:
  - Rerun the same test command to verify that the teardown APIs are working properly: “mvn -Dtest=FortressJUnitTest test”.
  - Should get a build success with a larger number of tests run (compare the results from the previous run):



## e. Setup Fortress REST Application

Before setting up the Fortress REST application, both Fortress Web and Fortress Rest need to be downloaded. The mvn command for each should be run within the main directory of the corresponding package installation. For example, the Rest package directory contains a sub-subdirectory and the .pom file is in:

```
./src/main/resources/FortressRestServerPolicy.xml tomcat:deploy"
```

To run download Fortress Web and Fortress Rest, follow the below steps.

- Run the following wget commands to download fortress-realm, fortress-rest, fortress-web:

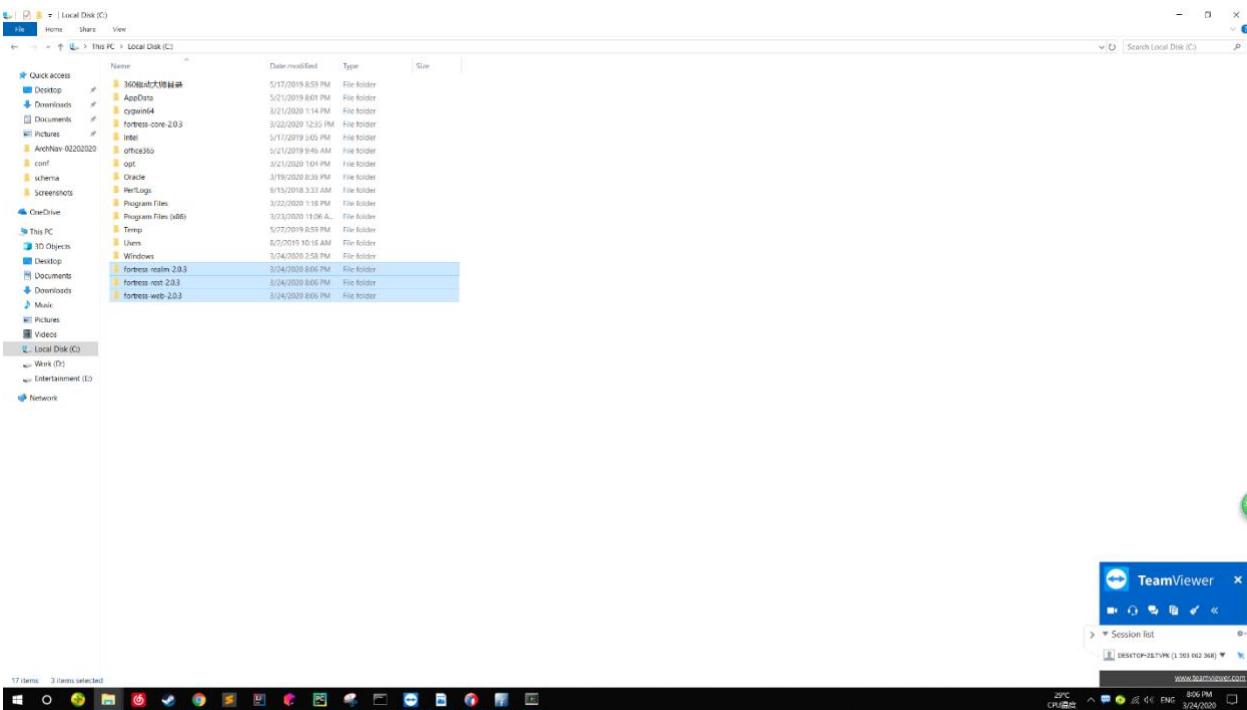
Command: wget http://apache.cs.utah.edu//directory/fortress/dist/2.0.3/fortress-realm-2.0.3-source-release.zip

Command: wget http://apache.cs.utah.edu//directory/fortress/dist/2.0.3/fortress-rest-2.0.3-

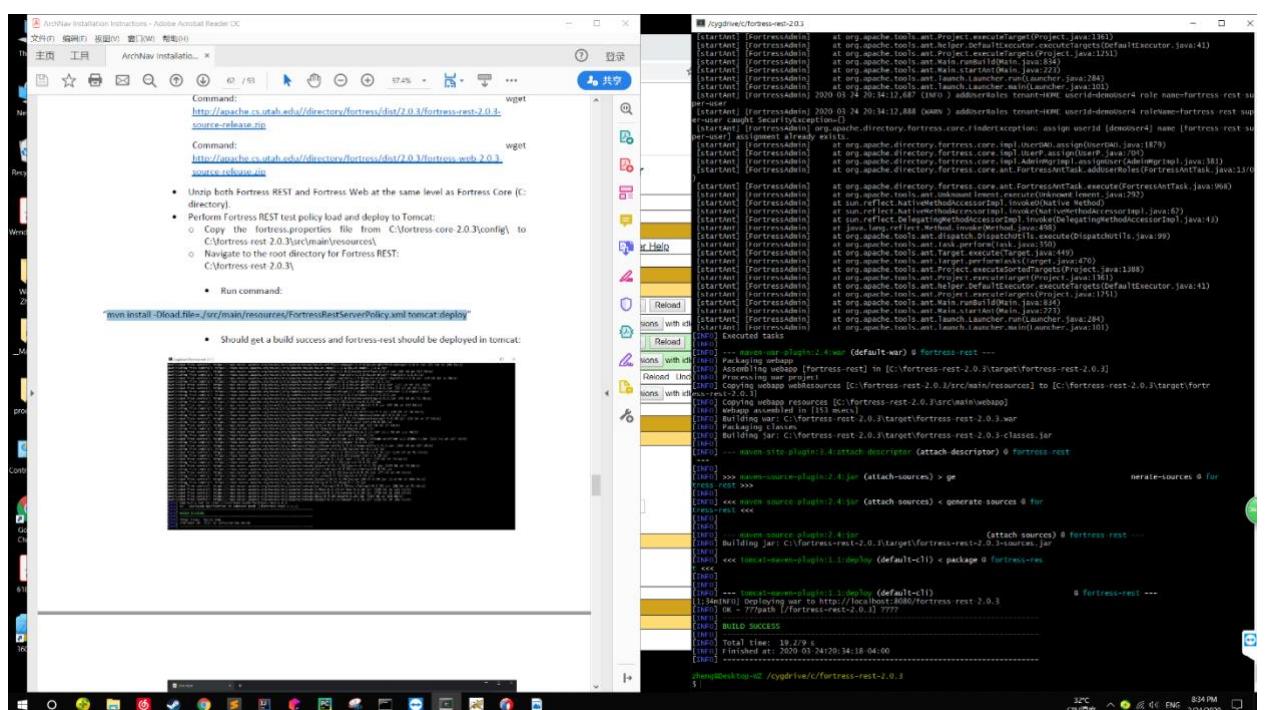
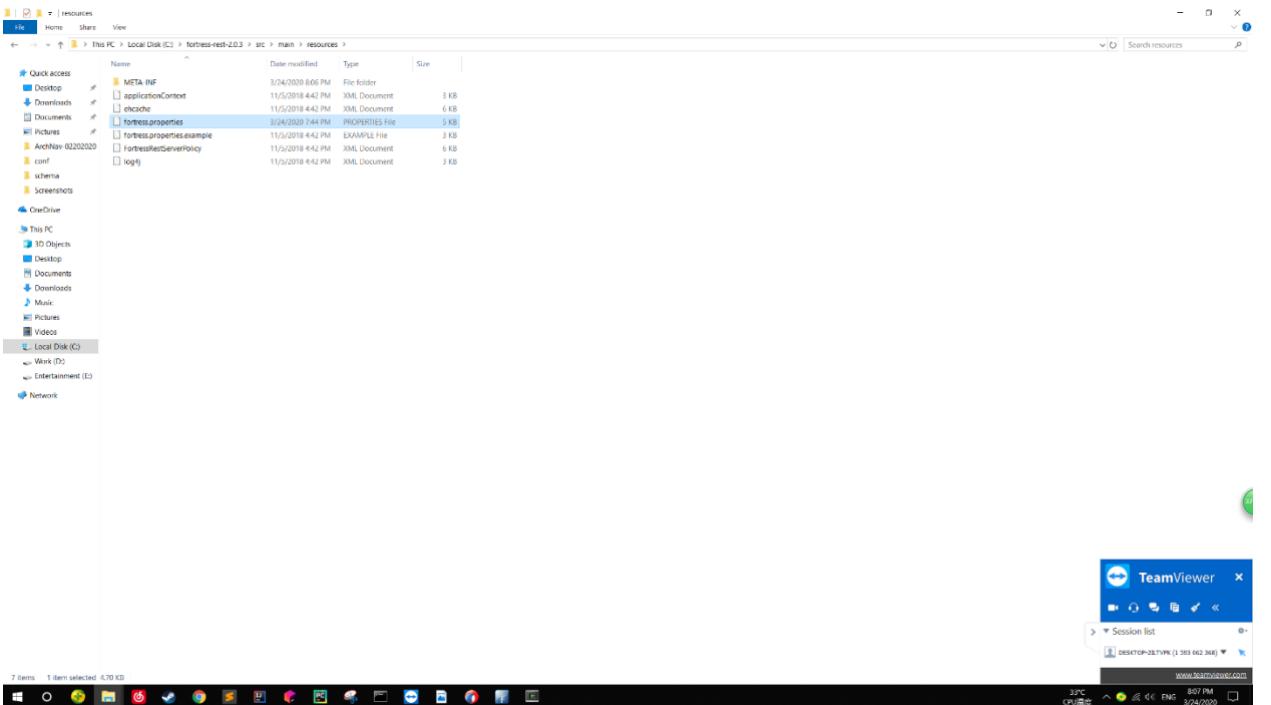
source-release.zip

Command: wget http://apache.cs.utah.edu//directory/fortress/dist/2.0.3/fortress-web-2.0.3-source-release.zip

- Unzip both Fortress REST and Fortress Web at the same level as Fortress Core (C: directory).



- Perform Fortress REST test policy load and deploy to Tomcat:
  - o Copy the fortress.properties file from C:\fortress-core-2.0.3\config\ to C:\fortress-rest-2.0.3\src\main\resources\
  - o Navigate to the root directory for Fortress REST:  
C:\fortress-rest-2.0.3\
  - Run command:  
"mvn install -Dload.file=../src/main/resources/FortressRestServerPolicy.xml tomcat:deploy"
  - Should get a build success and fortress-rest should be deployed in tomcat:



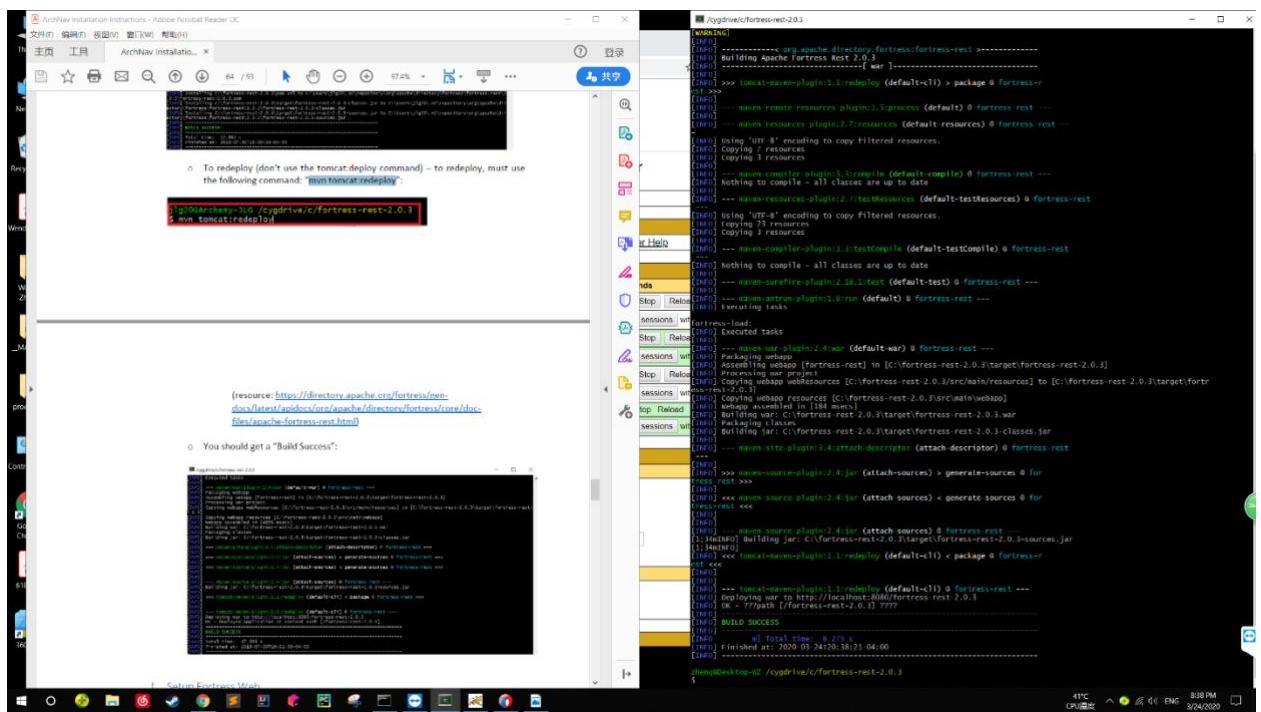
- After fortress-rest was already deployed to tomcat, and do another build and redeploy – can

break the command into two different steps:

o To rebuild fortress-rest (from root directory), use command:

“mvn install -Dload.file=../src/main/resources/FortressRestServerPolicy.xml”

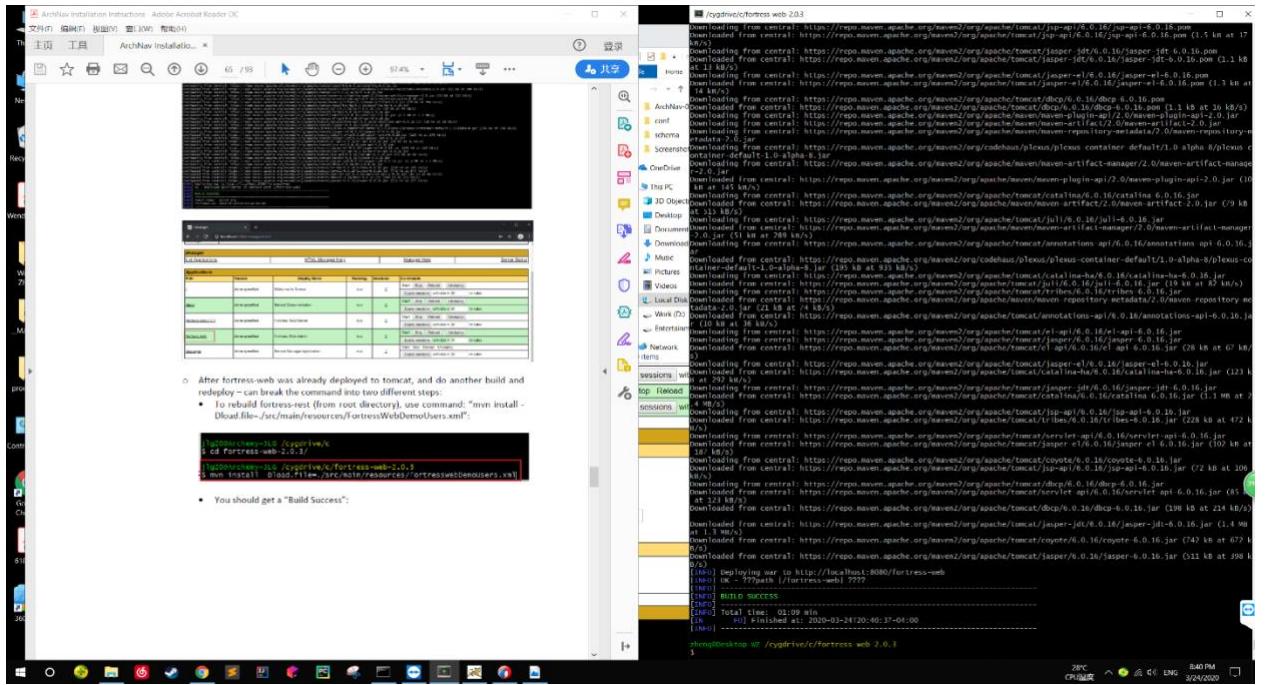
o You should get a “Build Success”:



## f. Setup Fortress Web

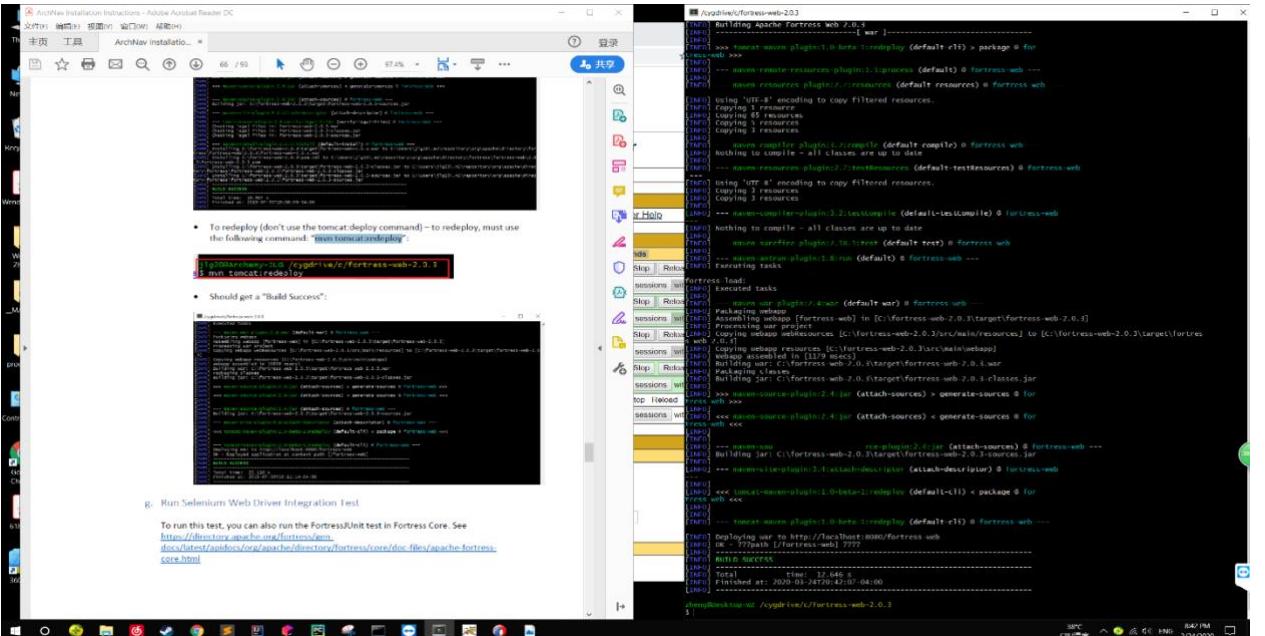
To setup Fortress Web, follow the below steps.

- Copy the fortress.properties file from C:\fortress-core-2.0.3\config\ to C:\fortress-web-2.0.3\src\main\resources\
- Navigate to the root directory for Fortress web (C:\fortress-web-2.0.3\ ) and run the command “mvn install -Dload.file=../src/main/resources/FortressWebDemoUsers.xml tomcat:deploy”
  - o You should get a build success, and fortress-web should be deployed in tomcat:



o After fortress-web was already deployed to tomcat, and do another build and redeploy – can break the command into two different steps:

- To rebuild fortress-rest (from root directory), use command: “mvn install -DloadFile=./src/main/resources/FortressWebDemoUsers.xml”;
- You should get a “Build Success”:

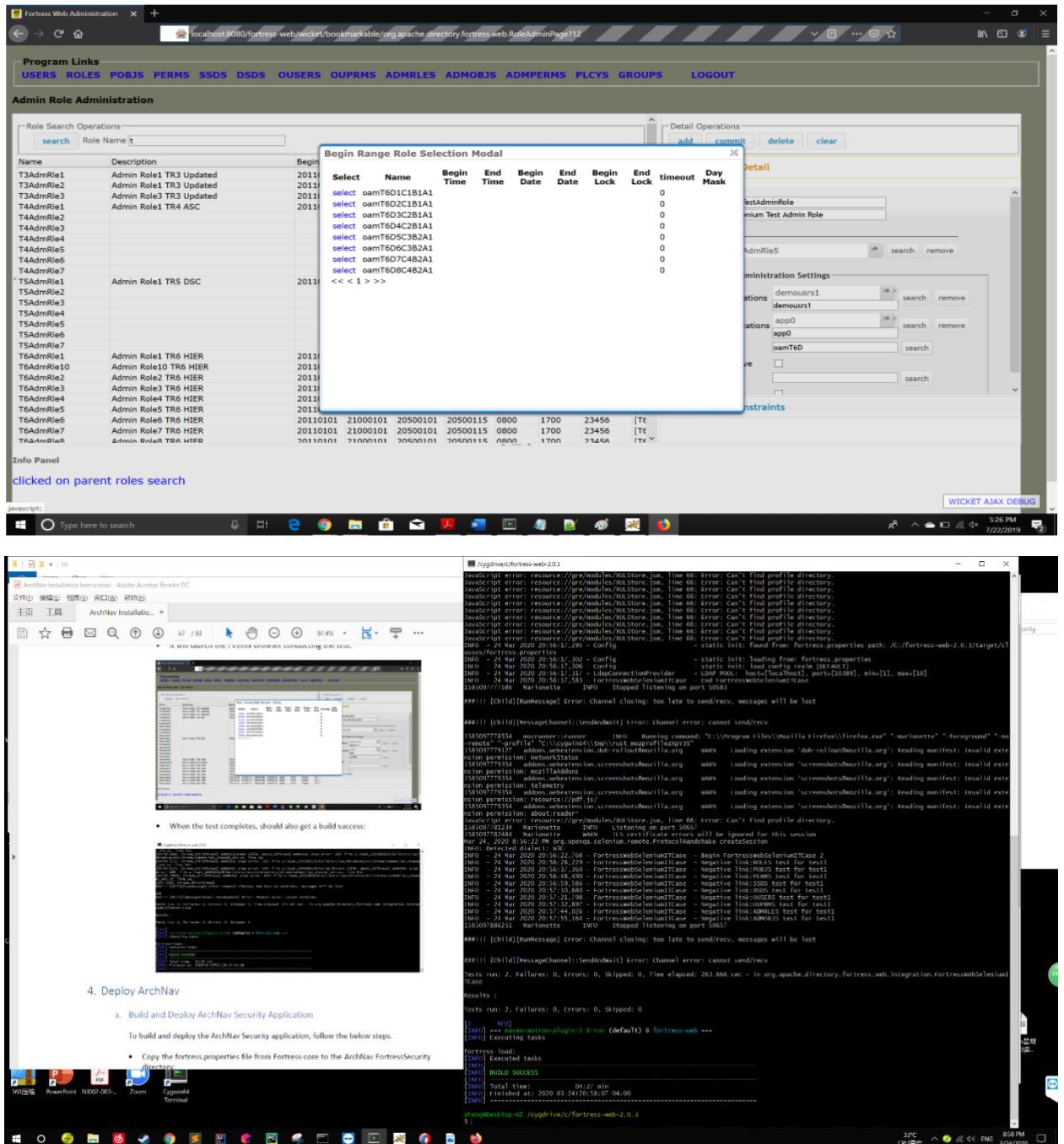


## g. Run Selenium Web Driver Integration Test

To run this test, you can also run the FortressJUnit test in Fortress Core. See  
<https://directory.apache.org/fortress/gen-docs/latest/apidocs/org/apache/directory/fortress/core/doc-files/apache-fortress-core.html>

To run this test, follow the below steps.

- Run from root directory of Fortress-web
  - Run the test command: “mvn test -Dtest=FortressWebSeleniumITCase”:
  - It will launch the Firefox browser conducting the test:



## 4. Deploy ArchNav

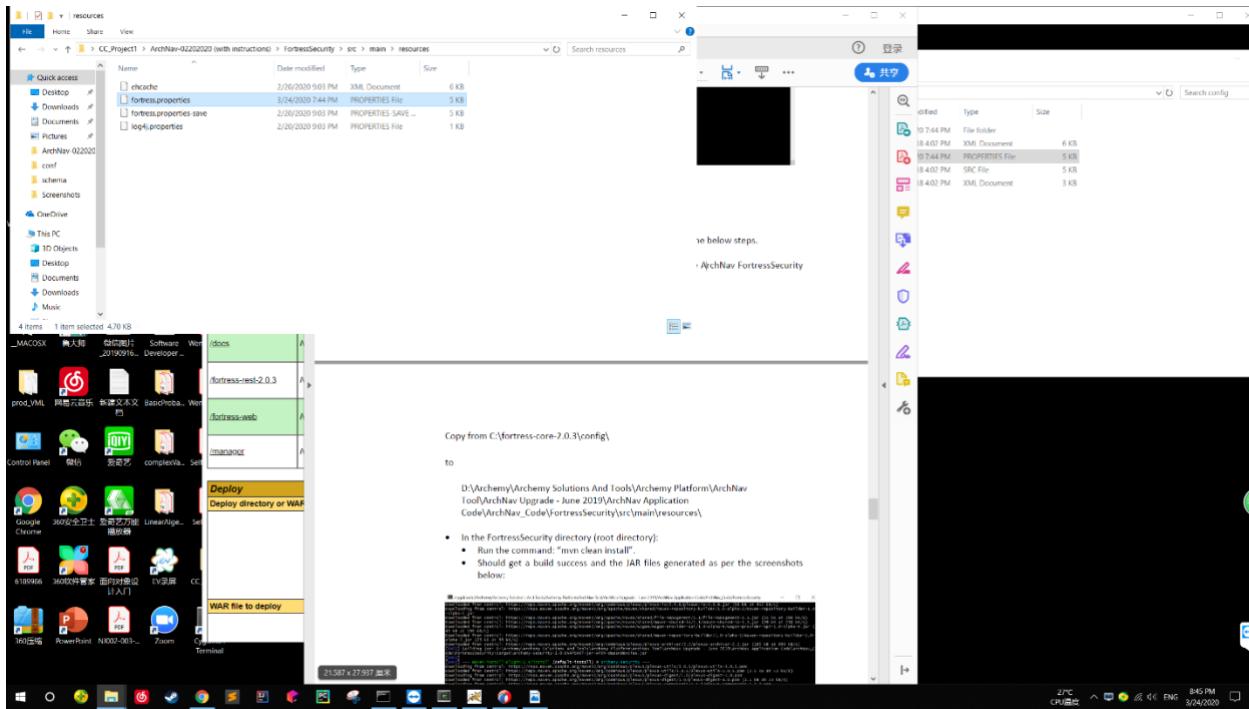
#### a. Build and Deploy ArchNav Security Application

To build and deploy the ArchNav Security application, follow the below steps.

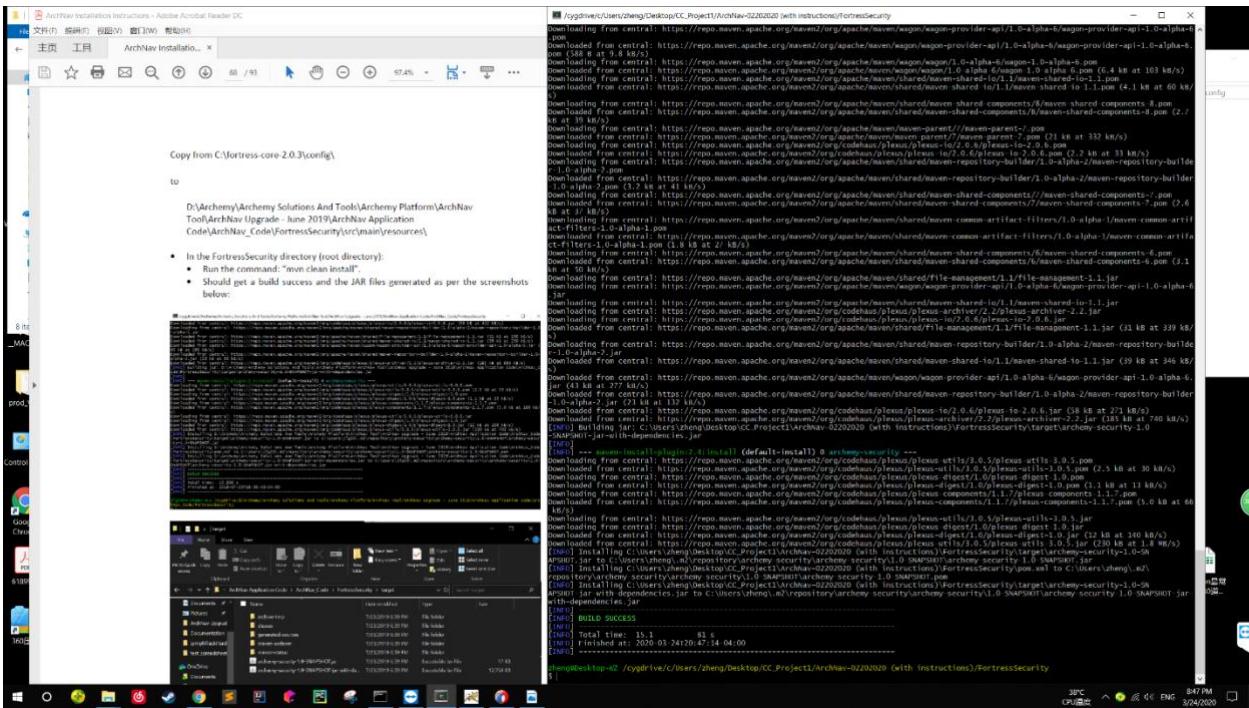
- Copy the fortress.properties file from Fortress-core to the ArchNav FortressSecurity directory:

Copy from C:\fortress-core-2.0.3\config\  
to

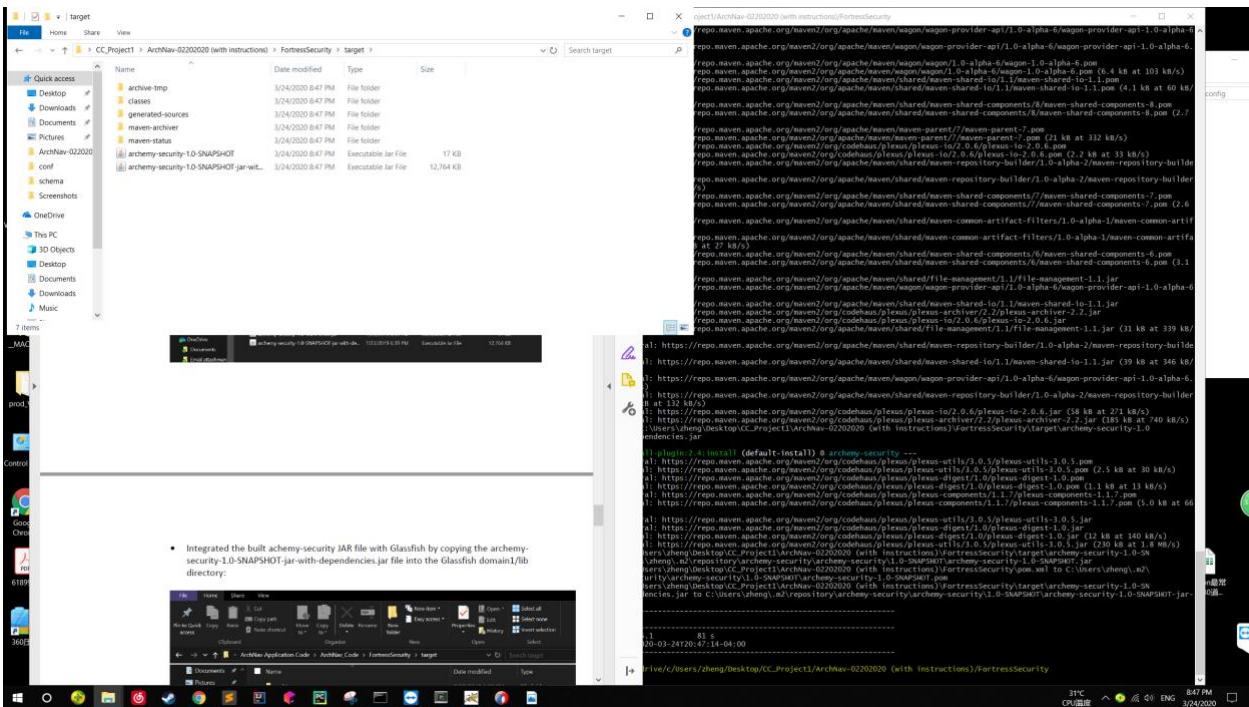
D:\Archemy\Archemy Solutions And Tools\Archemy Platform\ArchNav Tool\ArchNav  
Upgrade - June 2019\ArchNav Application  
Code\ArchNav\_Code\FortressSecurity\src\main\resources\



- In the FortressSecurity directory (root directory):
- Run the command: “mvn clean install”.
- Should get a build success and the JAR files generated as per the screenshots below:



- Integrated the built archemy-security JAR file with Glassfish by copying the archemy-security-1.0-SNAPSHOT-jar-with-dependencies.jar file into the Glassfish domain1/lib directory:

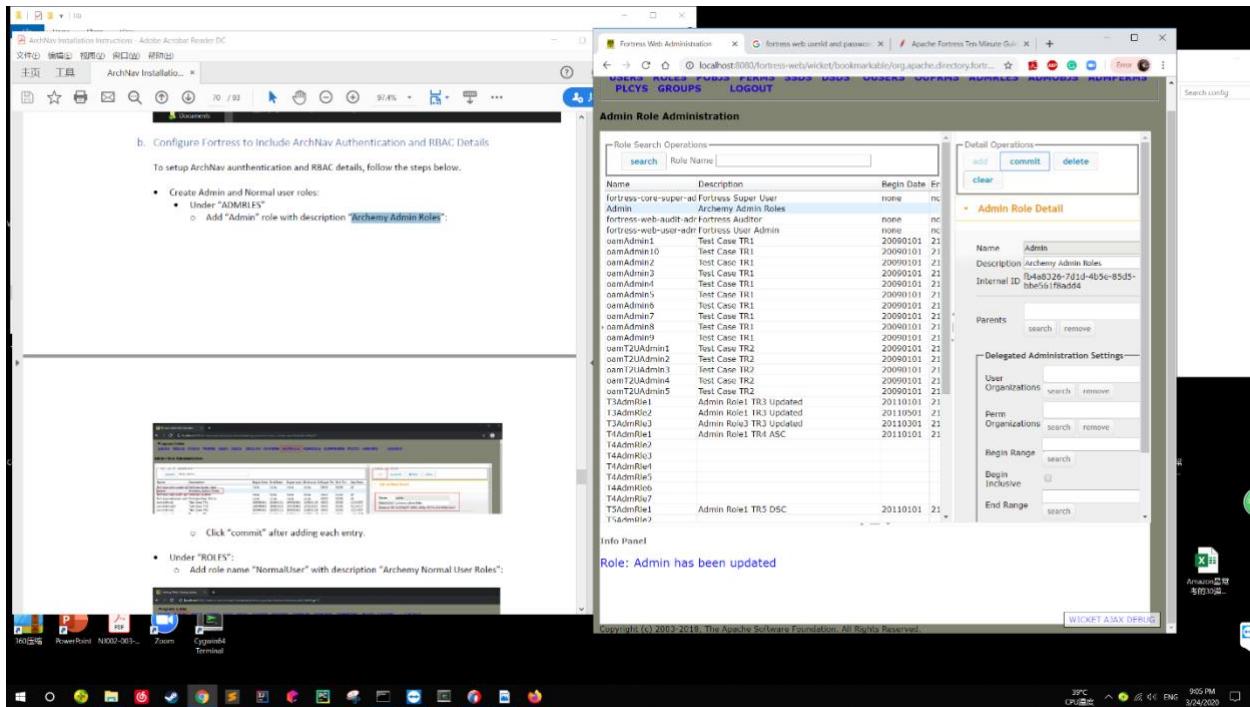


## b. Configure Fortress to Include ArchNav Authentication and RBAC

## Details

To setup ArchNav authentication and RBAC details, follow the steps below.

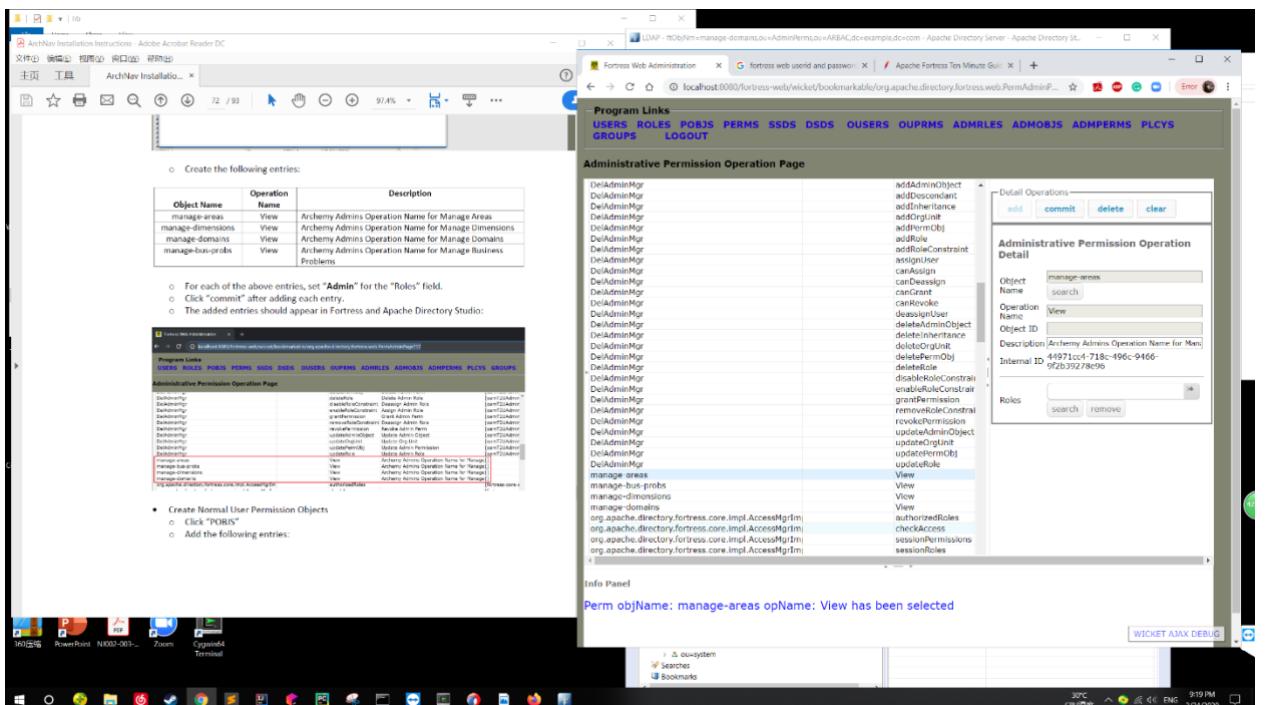
- Create Admin and Normal user roles:
  - Under “ADMRLES”
    - Add “Admin” role with description “Archemy Admin Roles”:
    - Click “commit” after adding each entry.



- Under “ROLES”:
  - Add role name “NormalUser” with description “Archemy Normal User Roles”:
  - Click “commit” after adding each entry.
- Create administrative permission objects
  - Click “ADMOBJS”
    - Add the following entries:

Object Name	Perm Organization	Description
manage-areas	default	Archemy Manage Areas Permission Object for Admins
manage-dimensions	default	Archemy Manage Dimensions Permission Object for Admins
manage-domains	default	Archemy Manage Domains Permission Object for Admins
manage-bus-probs	default	Archemy Manage Business Problems Permission Object for Admins

- Click “commit” after adding each entry.
- All entries should appear in the Fortress web app (see above) as well as in Apache Directory Studio (see below):



- Create administrative permissions
  - Click “ADMPERMS”
  - Locate the entries for the administrative objects created in the previous steps by clicking on the “Search” button in the right-hand frame labeled “Administrative Permission Operation Detail” and use the popup to select the administrative object that was created in the previous step:
  - Create the following entries:

<b>Object Name</b>	<b>Operation Name</b>	<b>Description</b>
manage-areas	View	Archemy Admins Operation Name for Manage Areas
manage-dimensions	View	Archemy Admins Operation Name for Manage Dimensions
manage-domains	View	Archemy Admins Operation Name for Manage Domains
manage-bus-probs	View	Archemy Admins Operation Name for Manage Business Problems

- o For each of the above entries, set “Admin” for the “Roles” field.
- o Click “commit” after adding each entry.
- o The added entries should appear in Fortress and Apache Directory Studio:
  
  
  
  
  
- Create Normal User Permission Objects
  - o Click “POBJS”
  - o Add the following entries:
  

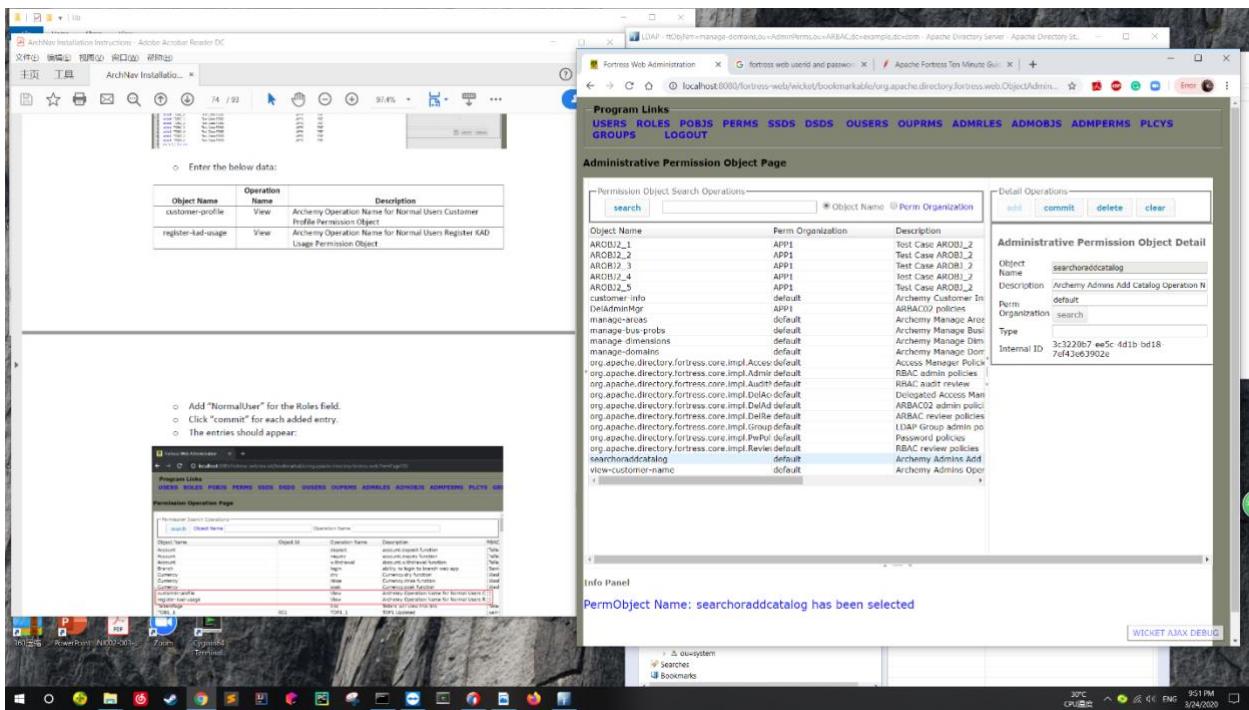
<b>Object Name</b>	<b>Perm Organization</b>	<b>Description</b>
customer-profile	default	Archemy Customer Profile Permission Object for Normal Users
register-kad-usage	default	Archemy Register KAD Usage Permission Object for Normal Users

  - o Click “Commit” after each entry is added.
  - o Entries should appear in the Fortress web app:
  
  
  
  
  
  - Create Normal User Permissions
    - o Click “PERMS”
    - o Search for each Normal User Object and add the following Normal User Permissions by clicking “Search” in the “RBAC Permission Operation Detail” frame and selecting from the popup:
    - o Enter the below data:

Object Name	Operation Name	Description
customer-profile	View	Archemy Operation Name for Normal Users Customer Profile Permission Object
register-kad-usage	View	Archemy Operation Name for Normal Users Register KAD Usage Permission Object

- o Add “NormalUser” for the Roles field.
- o Click “commit” for each added entry.
- o The entries should appear:



- Create Admin Permission Objects for Catalog Add, Delete, and View Cust Name Operations
  - o Click on “ADMROBJS”
  - o Add the following entries:

Object Name	Perm Organization	Description
searchoraddcatalog	default	Archemy Admins Add Catalog Operation Name for Search and Add Catalog Permission Object
view-customer-name	default	Archemy Admins Operation Name for View Customer Name Permission Object

- o Click “commit” after each added entry.

- o Entries should appear in Fortress:

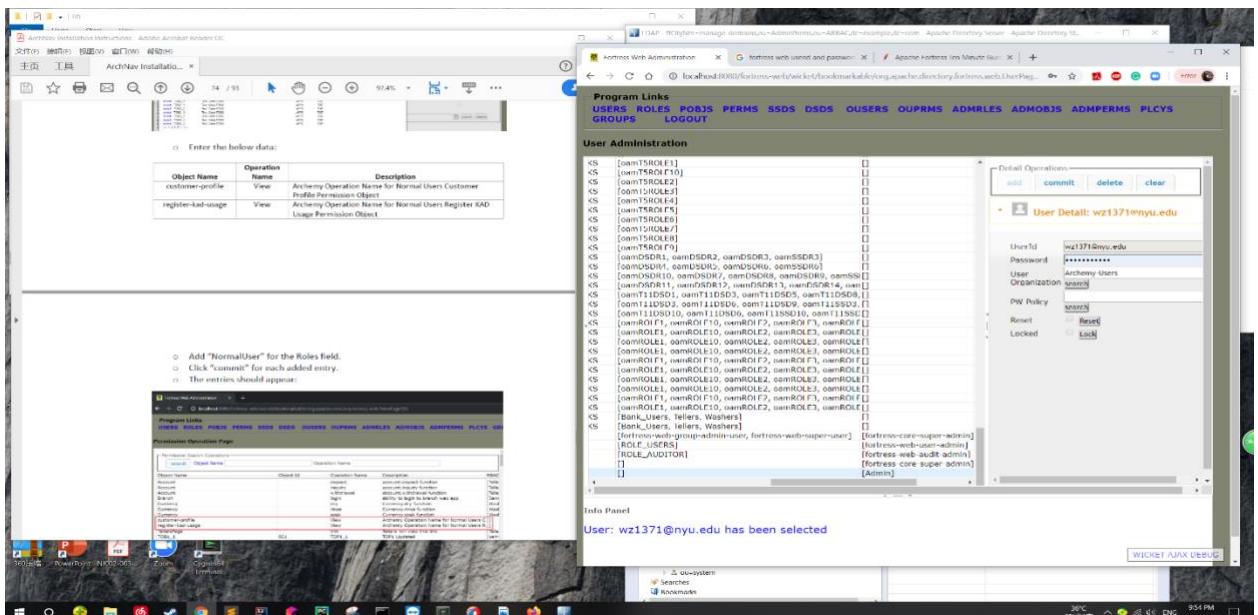
- Create a user organizational unit administration object.
  - o Click on “OUSERS”
  - o Enter the following fields:

Name	Description
“Archemy-Users”	Archemy Users OU

- Create an Admin user.
  - o Click on “USERS”
  - o Fill in the following fields:

User Id	Password	User Organization	Admin Role Assignments
<create username> (use an email address as the username)	<create password>	Archemy-Users	Admin

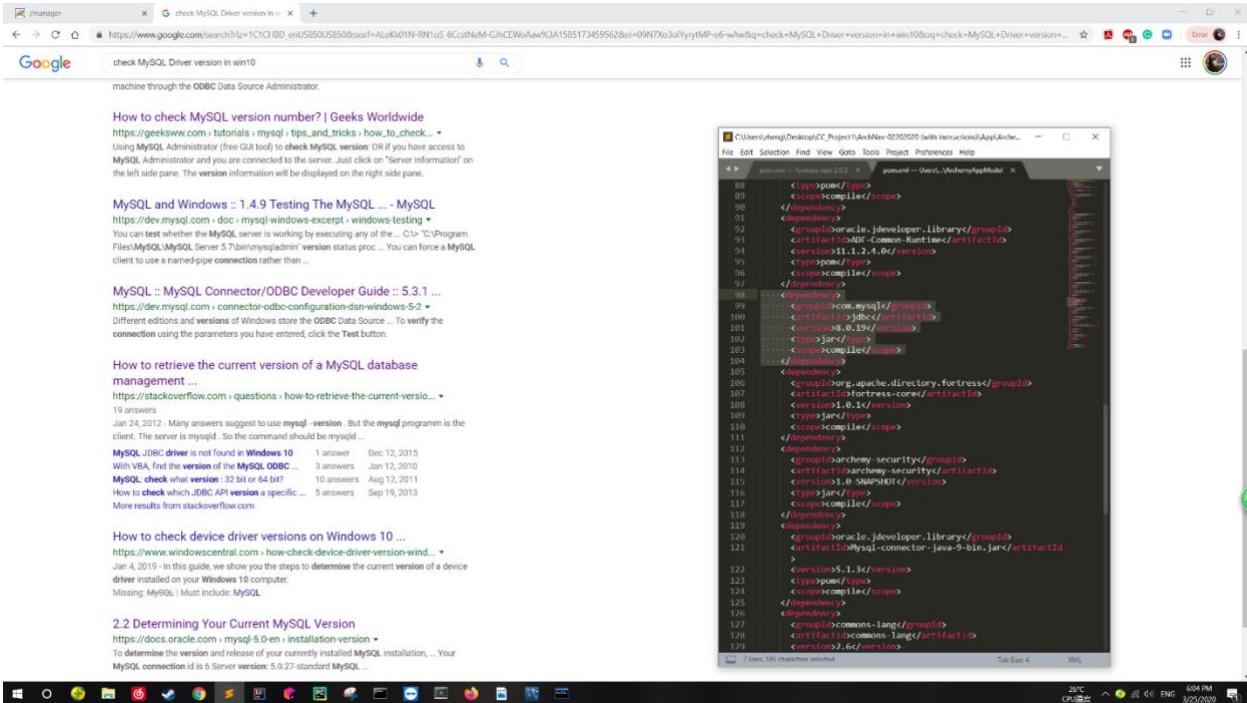
- Must click “Add” and then “Commit” first to create the user before assigning “Admin” as the “Admin Role Assignments”. When add “Admin” as an “Admin Role Assignments” must click on “Assign” button and then click on the “Commit” again. To confirm the Admin role assignment was successful, click on “USERS” to refresh the list of users, and scroll to the right. “Admin” should be listed as an “Admin Role Assignments”.



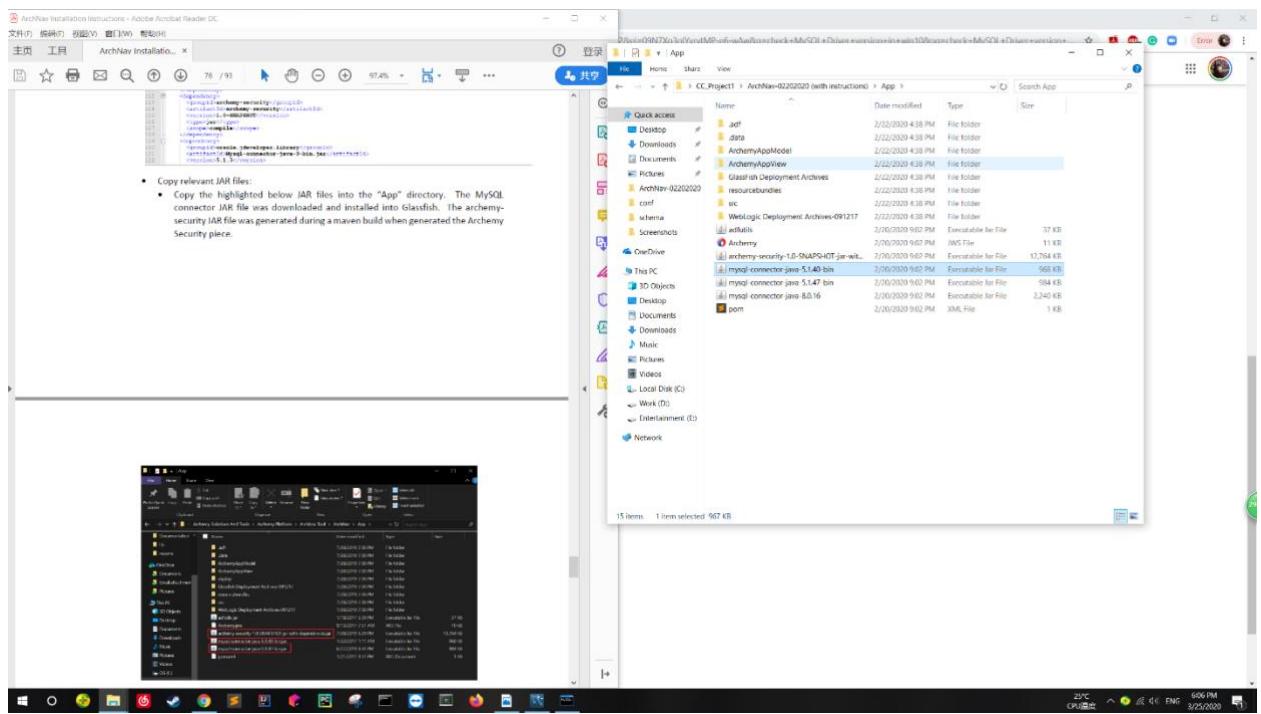
## c. Build the ArchNav Application

To build the ArchNav application, follow the steps below.

- Configure ArchemyAppModel to point to the correct version of the MySQL driver (do this before loading the ArchNav project into JDeveloper).
- Open the pom.xml file in an editor.
- Change the version for the MySQL Driver:



- Copy relevant JAR files:
  - Copy the highlighted below JAR files into the “App” directory. The MySQL connector JAR file was downloaded and installed into Glassfish. The archemy-security JAR file was generated during a maven build when generated the Archemy Security piece.



- Change the header in faces-config.xml

Open the faces-config.xml file located in:

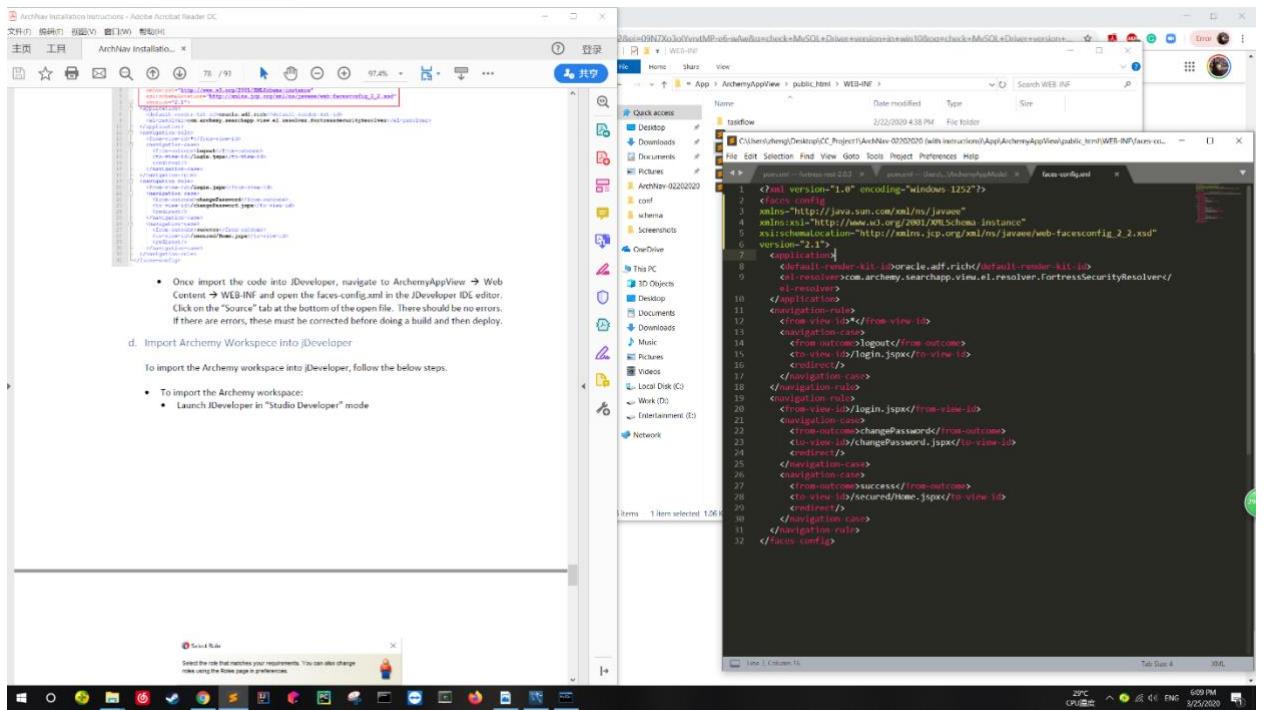
./ArchemyAppView/public\_html/WEB-INF/

Change the <faces-config> tab, replace:

```
<faces-config version="2.0" xmlns="http://java.sun.com/xml/ns/javaee">
```

And put the following in place:

```
<faces-config
  xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee/web-facesconfig_2_2.xsd"
  version="2.1">
```



- Once import the code into JDeveloper, navigate to ArchemyAppView → Web Content → WEB-INF and open the faces-config.xml in the JDeveloper IDE editor. Click on the “Source” tab at the bottom of the open file. There should be no errors. If there are errors, these must be corrected before doing a build and then deploy.

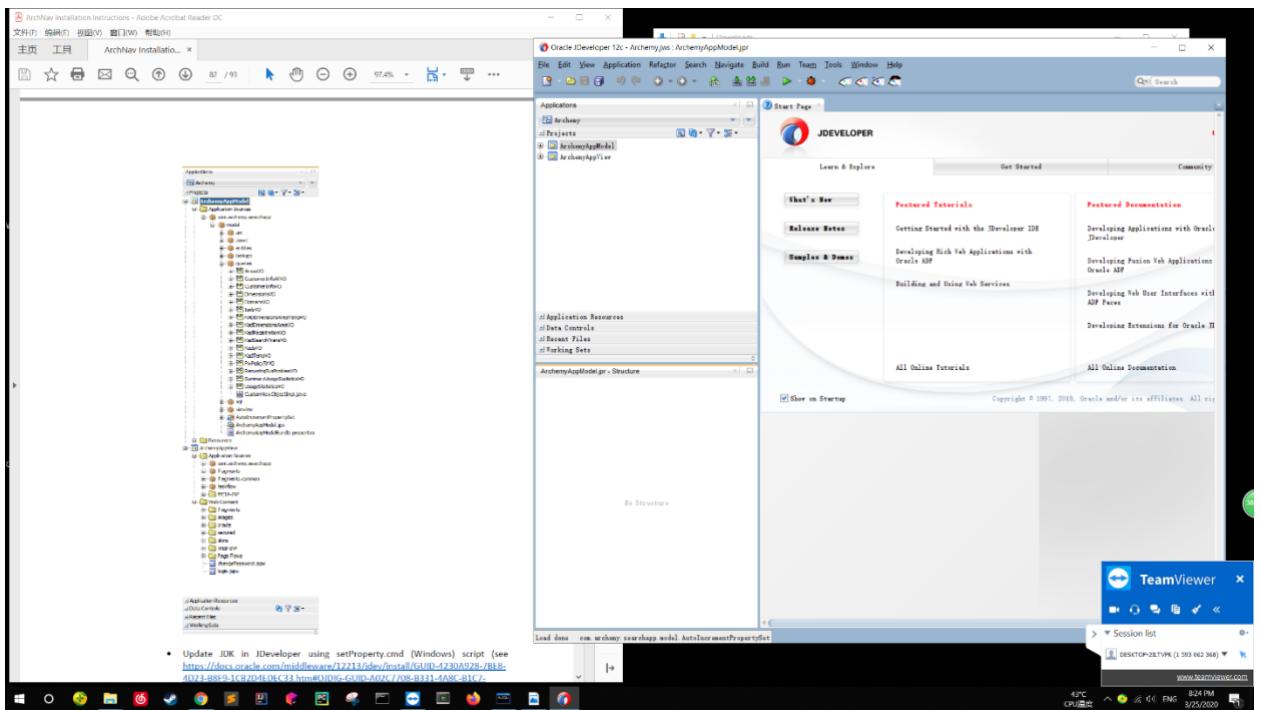
#### d. Import Archemy Workspace into jDeveloper

To import the Archemy workspace into jDeveloper, follow the below steps.

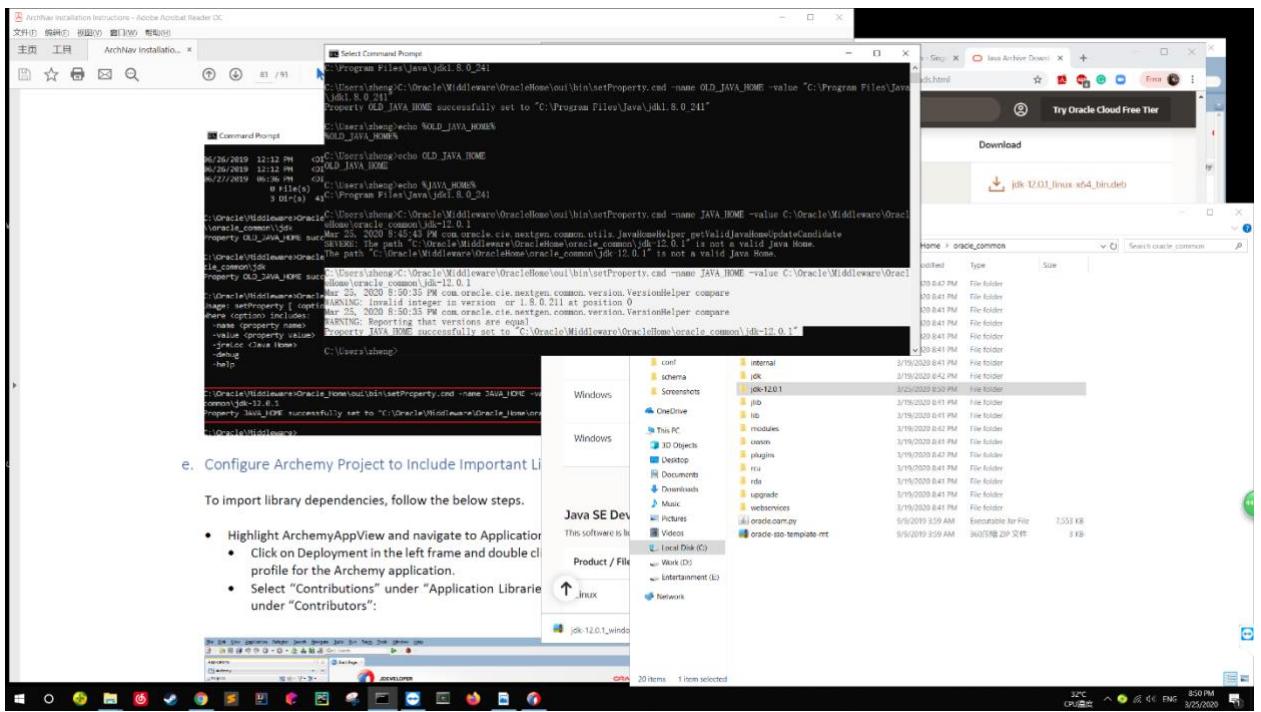
- To import the Archemy workspace:
- Launch JDeveloper in “Studio Developer” mode
- In JDeveloper, go to File → Open.
- Navigate to and select Archemy.jws under the App directory.
- Select “Yes” and click “Next” to migrate the Archemy workspace to be compatible with JDeveloper 12c.

NOTE: the migration step was already performed to upgrade the ArchNav application project file for a later version of jDeveloper and thus is not required at this point.

- After the Archemy.jws workspace loads, the following directory structure for the project should appear in JDeveloper:



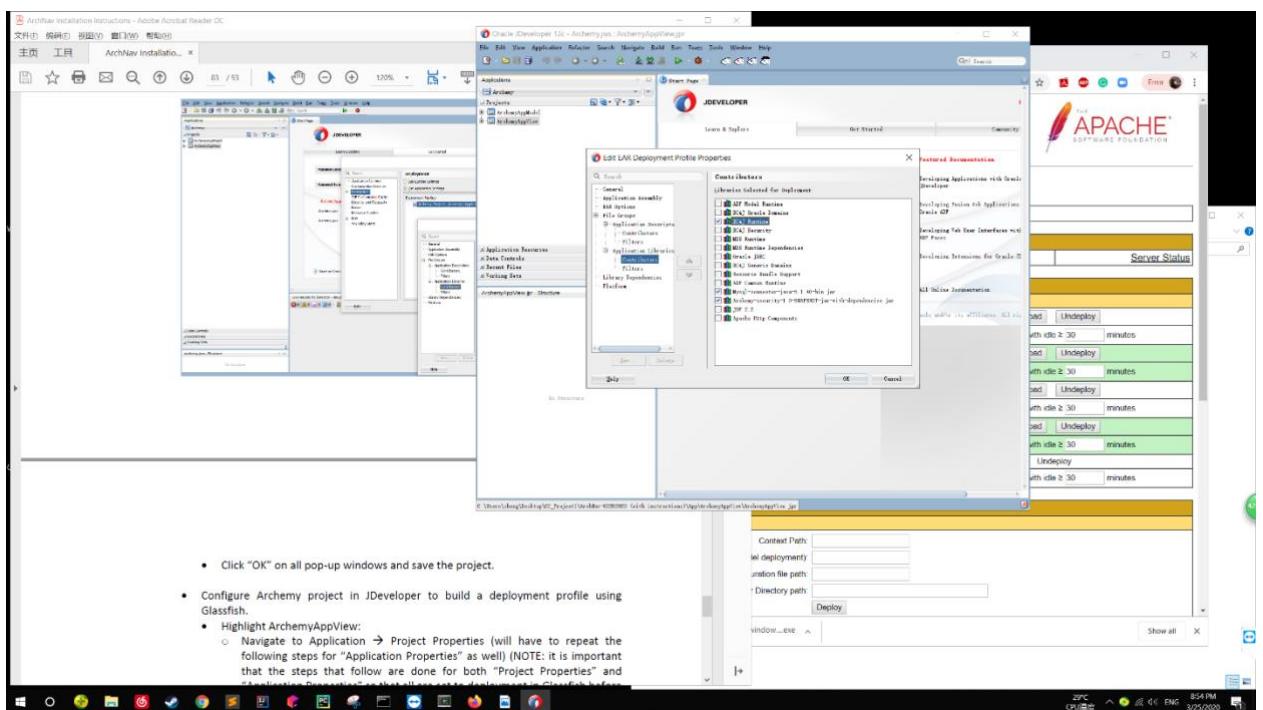
- Update JDK in JDeveloper using setProperty.cmd (Windows) script (see <https://docs.oracle.com/middleware/12213/jdev/install/GUID-4230A928-7BE8-4D23-B8F9-1CB2D4EDEC33.htm#OJDIG-GUID-A02C7708-B331-4A8C-B1C7-B35E289C7A5B>):



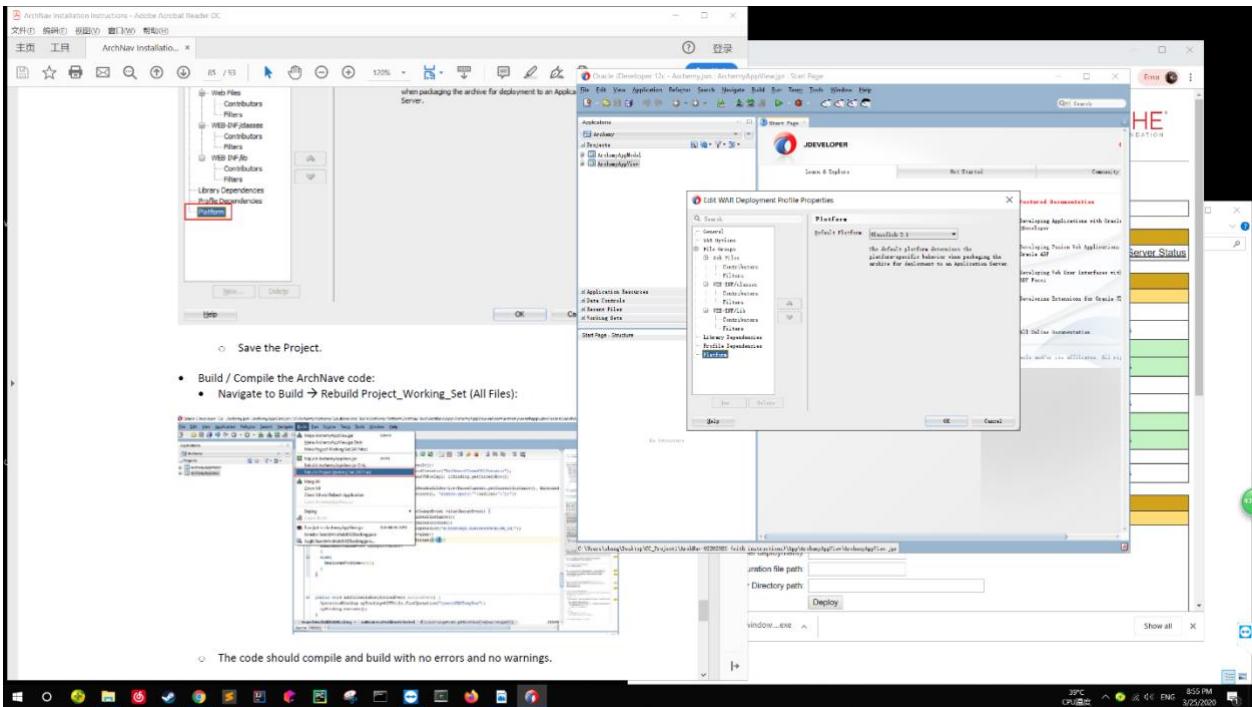
## e. Configure Archemy Project to Include Important Libraries

To import library dependencies, follow the below steps.

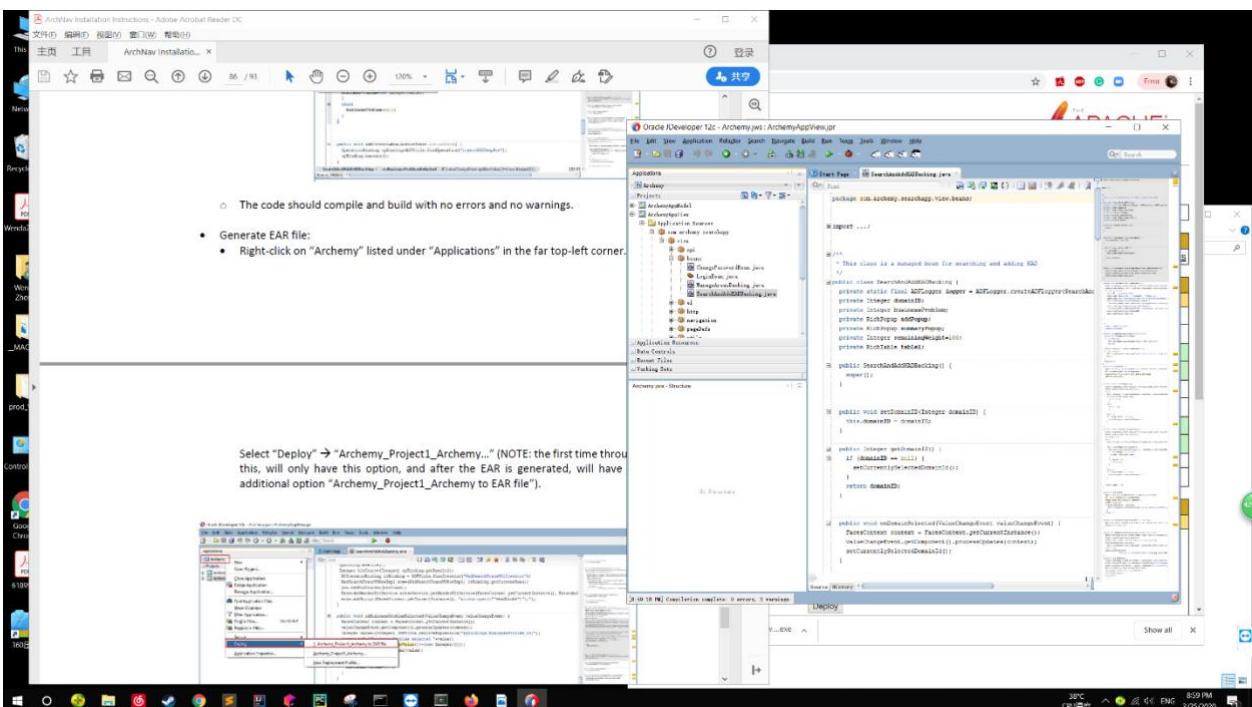
- Highlight ArchemyAppView and navigate to Applications → Application Properties.
- Click on Deployment in the left frame and double click on the existing deployment profile for the Archemy application.
- Select “Contributions” under “Application Libraries” and check “BC4J Runtime” under “Contributors”:
- Click “OK” on all pop-up windows and save the project.



- Click "OK" on all pop-up windows and save the project.
- Configure Archemy project in JDeveloper to build a deployment profile using Glassfish.
  - Highlight ArchemyAppView:
    - Navigate to Application → Project Properties (will have to repeat the following steps for “Application Properties” as well) (NOTE: it is important that the steps that follow are done for both “Project Properties” and “Application Properties” so that all are set to deployment in Glassfish before doing a build.
    - Click on “Deployment” in the left frame, and then double-click on the “Archemy\_Project1\_adflib” deployment profile:
    - Select “Platform” in the left frame, and then select “Glassfish” as the “Default Platform” in the right frame. Click OK.
    - Save the Project.



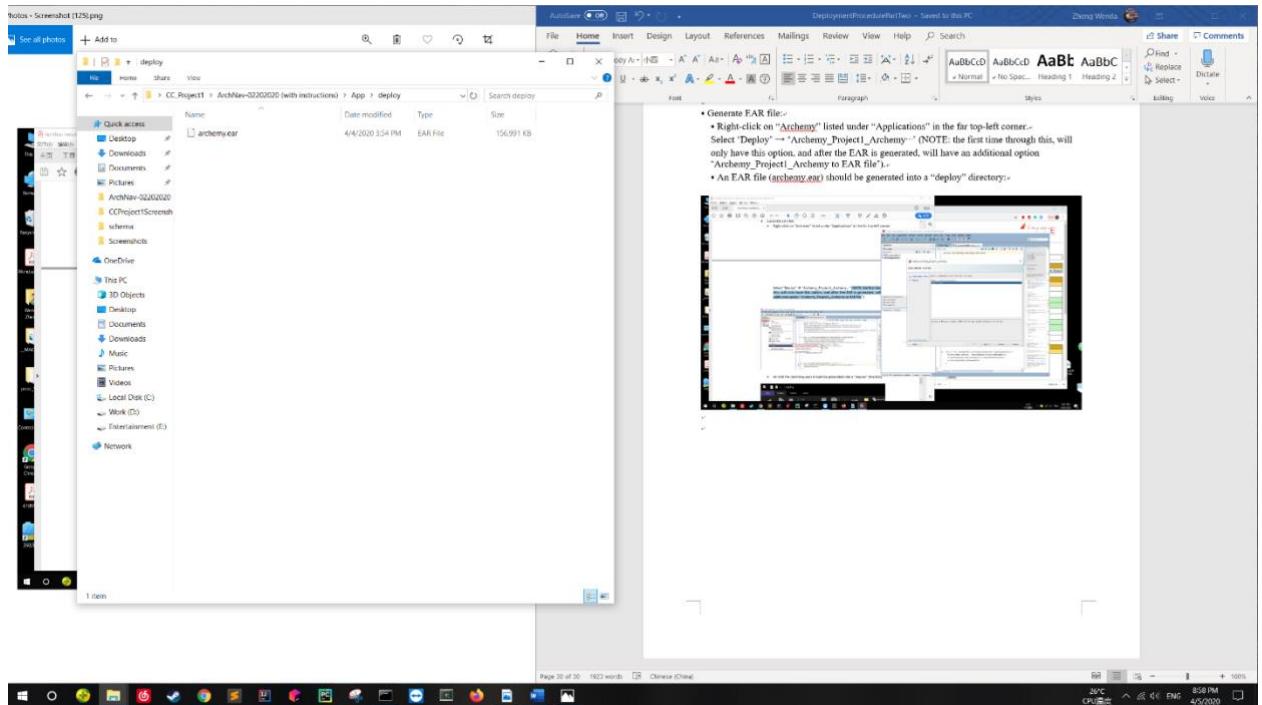
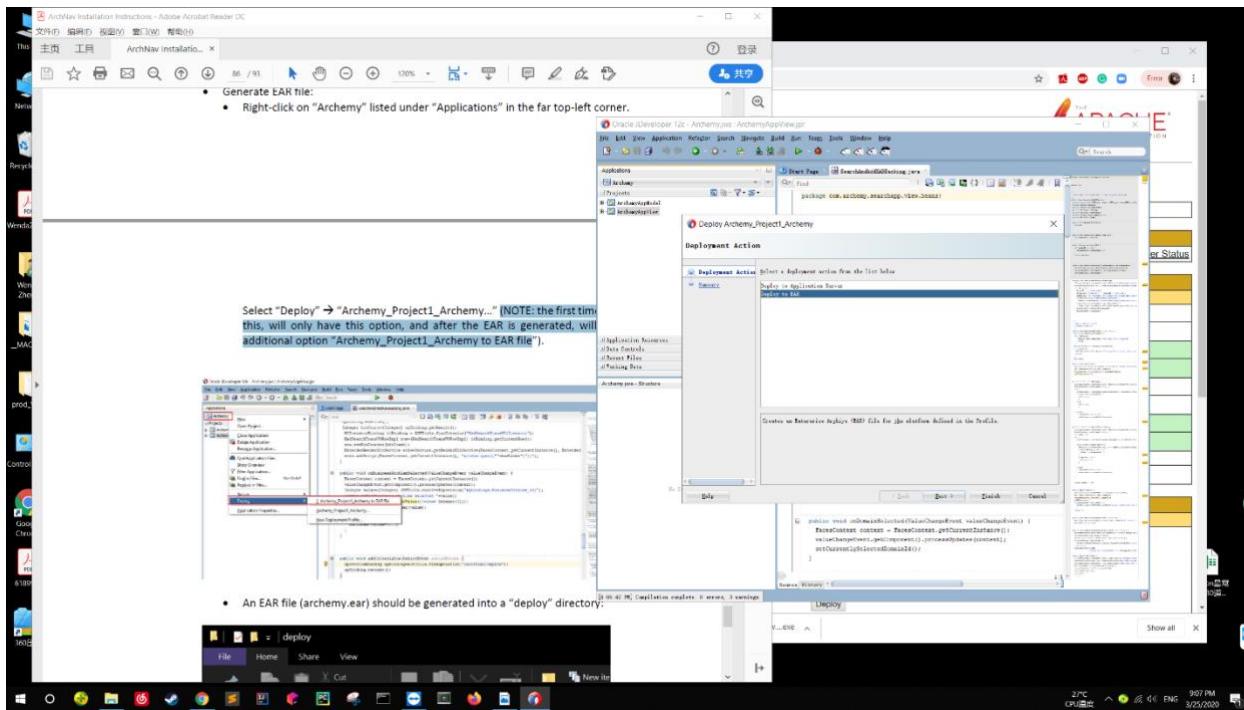
- Build / Compile the ArchNave code:
  - Navigate to Build → Rebuild Project\_Working\_Set (All Files):
    - The code should compile and build with no errors and no warnings.



- Generate EAR file:
  - Right-click on “Archemy” listed under “Applications” in the far top-left corner.

Select “Deploy” → “Archemy\_Project1\_Archemy…” (NOTE: the first time through this, will only have this option, and after the EAR is generated, will have an additional option “Archemy\_Project1\_Archemy to EAR file”).

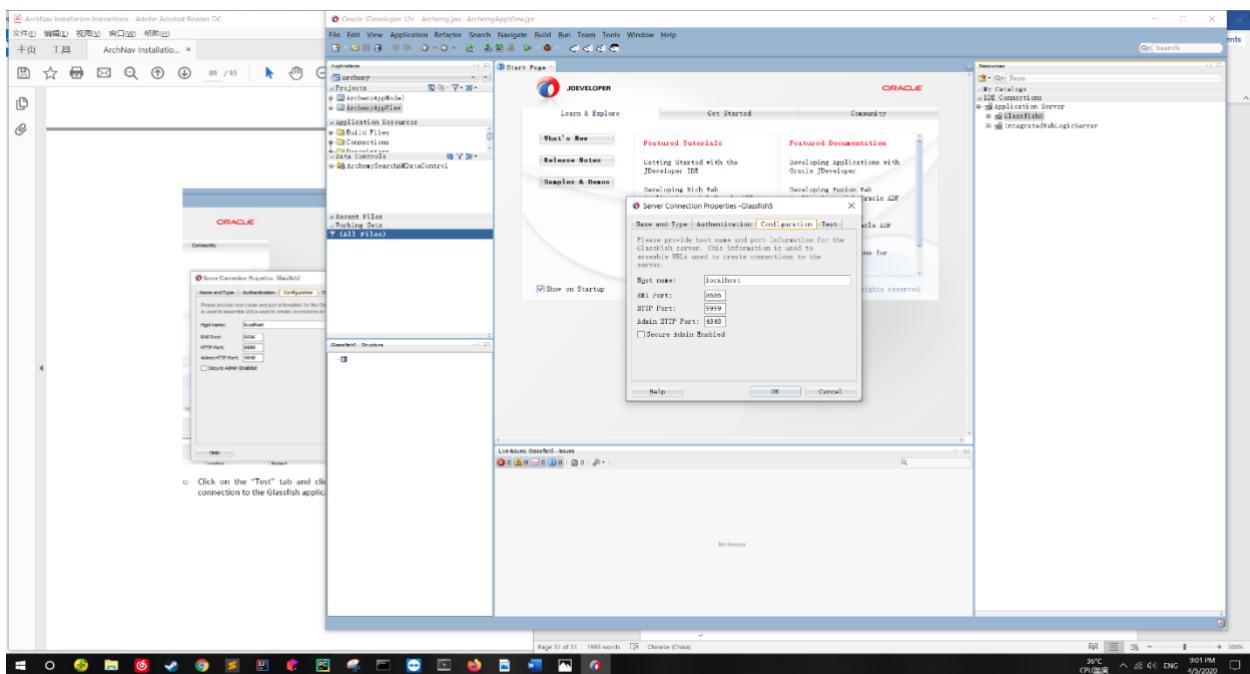
- An EAR file (archemy.ear) should be generated into a “deploy” directory:



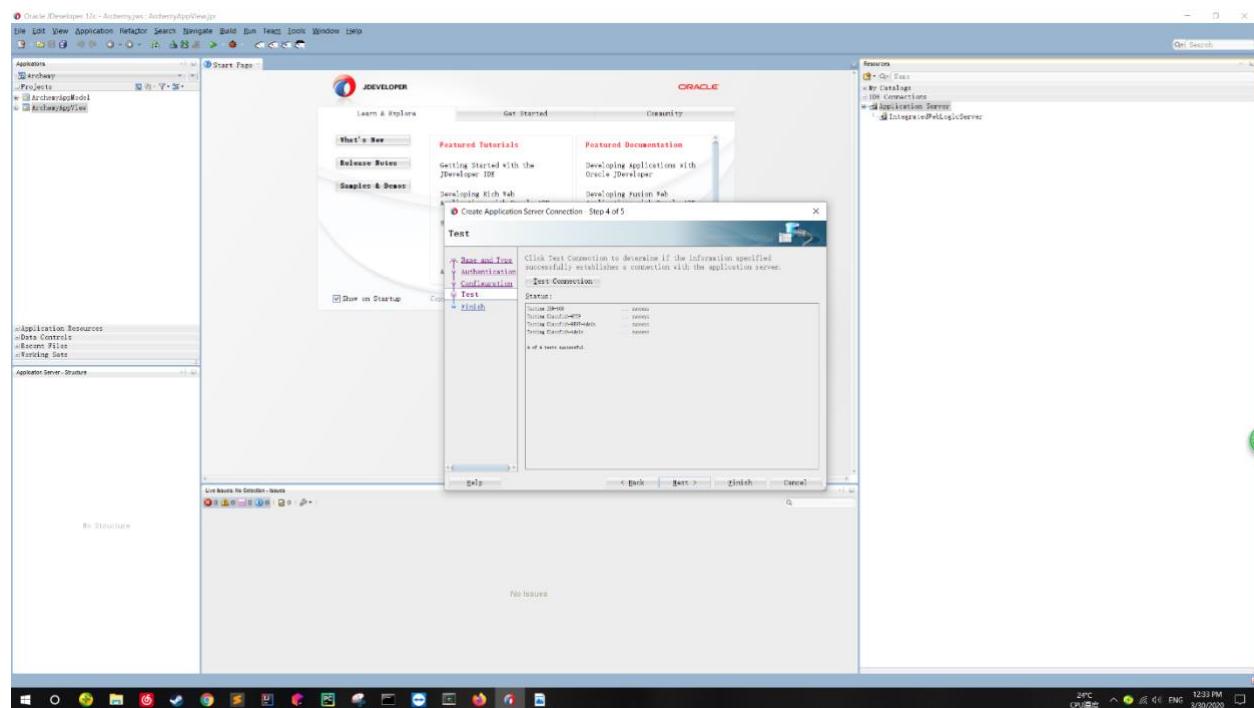
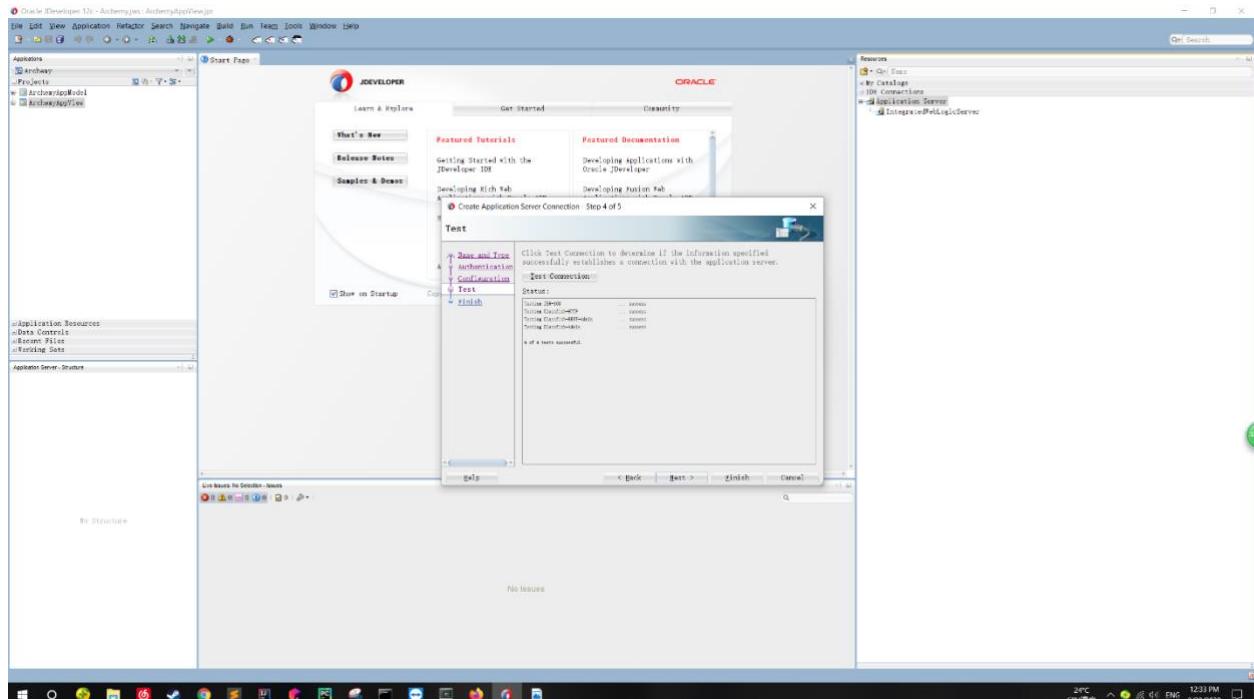
## e. Deploy ArchNav into GlassFish

Before deploying the ArchNav project into GlassFish, test the database connection. To do this follow the below steps.

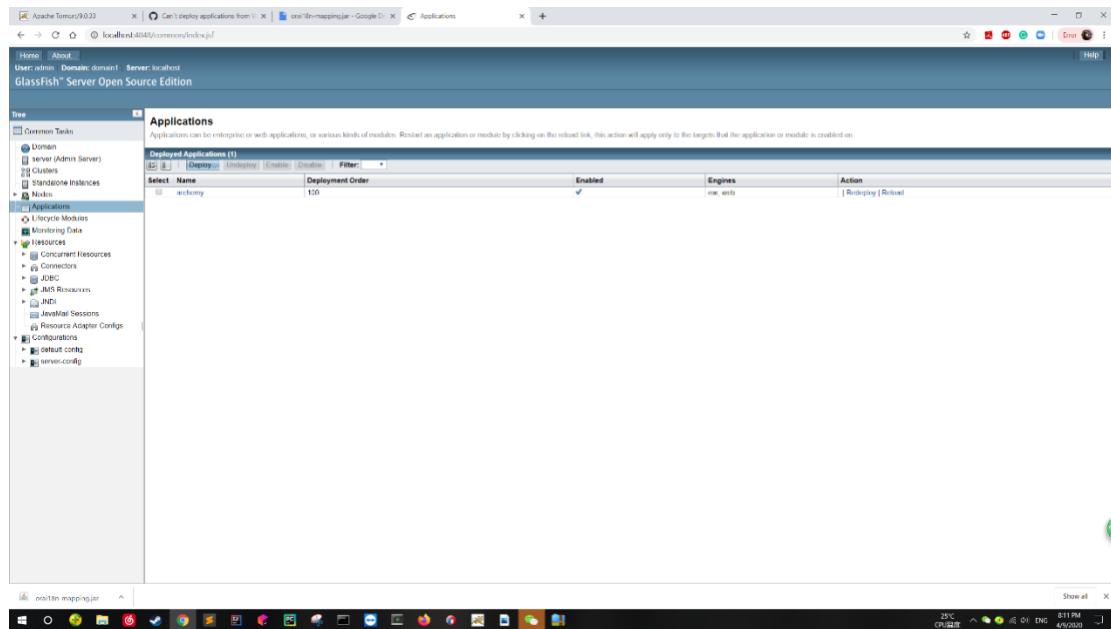
- Perform test connection to Glassfish server from JDeveloper.
  - In JDeveloper, in the far-right frame, expand “IDE Connections” and then expand “Application Server”. “Glassfish 5” should be listed as an Application server. Right-click on “Glassfish 5” and click on the “Configuration” tab to confirm the Glassfish configurations are correct.



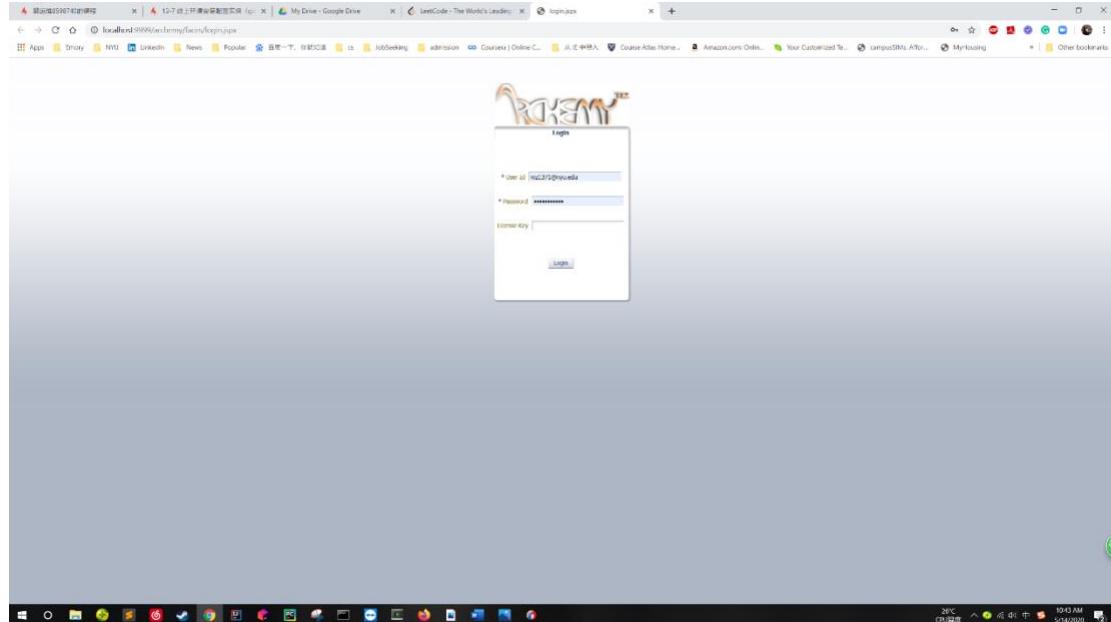
- Click on the “Test” tab and click the “Test Connection” button to confirm connection to the Glassfish application server is successful. Click OK.



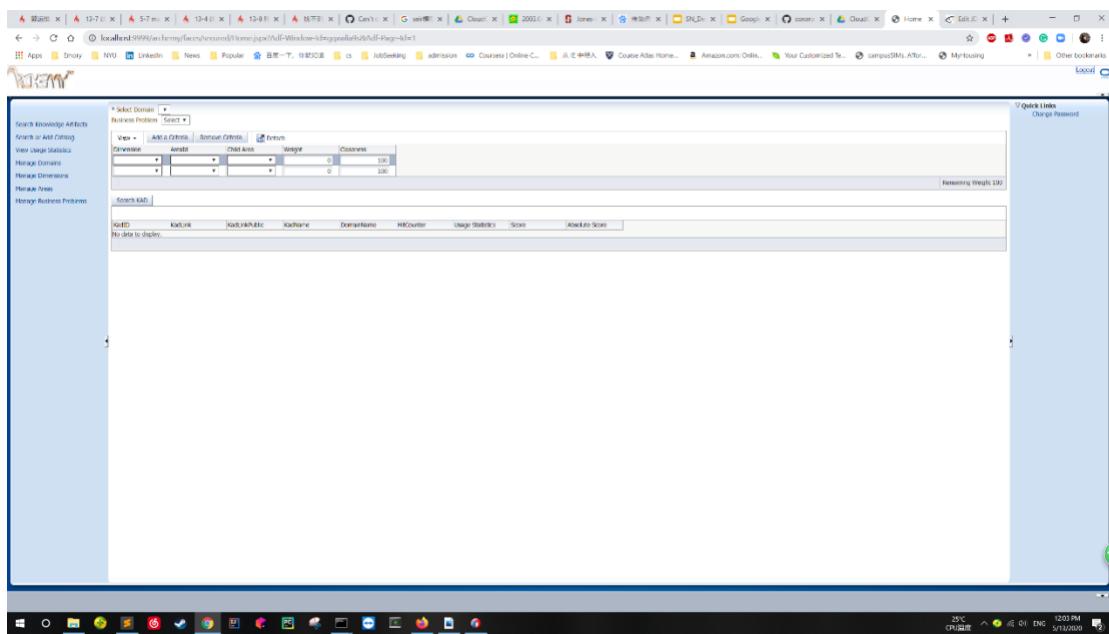
Then open localhost:4848 in the browser. Go to application and select deploy.



After successfully deployed the archemy.ear file, in a browser, go to URL: <http://localhost:9999/archemy.faces/login.jspx>.



After we enter the username and password that we created in Fortress Web, we can login to the database.



We can see that the local deployment is successful.