Continuous delivery pipeline configuration

This file explains how to configure a continuous delivery pipeline for our project using NetBeans, Jenkins, Maven and Glassfish.

We will create three Glassfish servers that represent development, testing and production environments, our application will be deployed to these servers.

System configuration

The following environment variables must be configured (the paths may be a bit different):

- GLASSFISH_HOME = C:\Program Files\glassfish-4.1.1
- MAVEN_HOME = C:\Program Files\NetBeans 8.2\java\maven

Also add the followings to your Path variable:

- %GLASSFISH_HOME%\bin
- %MAVEN_HOME%\bin

Creating GlassFish domains

A GlassFish domain must be created for each environment.

To create the development domain, open the console and use the following command (**change the path to the location where you want to create the domains**):

*asadmin create-domain --domaindir "**C:\Users\vinro\OneDrive\Documents\Efrei\M1\Java EE\Glassfish domains**" --adminport 5050 --instanceport 5051 development*

When prompted, enter “admin” for both user name and password.

```
PS C:\> asadmin create-domain --domaindir "C:\Users\vinro\OneDrive\Documents\Efrei\M1\Java EE\Glassfish domains" --
adminport 5050 --instanceport 5051 development
Enter admin user name [Enter to accept default "admin" / no password]>admin
Enter the admin password [Enter to accept default of no password]>
Enter the admin password again>
Using port 5050 for Admin.
Using port 5051 for HTTP Instance.
Using default port 7676 for JMS.
Using default port 3700 for IIOP.
Using default port 8181 for HTTP_SSL.
Using default port 3820 for IIOP_SSL.
Using default port 3920 for IIOP_MUTUALAUTH.
Using default port 8686 for JMX_ADMIN.
Using default port 6666 for OSGI_SHELL.
Using default port 9009 for JAVA_DEBUGGER.
Distinguished Name of the self-signed X.509 Server Certificate is:
[CN=VINCENT-ASUS,OU=GlassFish,O=Oracle Corporation,L=Santa Clara,ST=California,C=US]
Distinguished Name of the self-signed X.509 Server Certificate is:
[CN=VINCENT-ASUS-instance,OU=GlassFish,O=Oracle Corporation,L=Santa Clara,ST=California,C=US]
Domain development created.
Domain development admin port is 5050.
Domain development admin user is "admin".
Command create-domain executed successfully.
```

The development domain is now created.

Use the same command to create domains for testing and production environments:

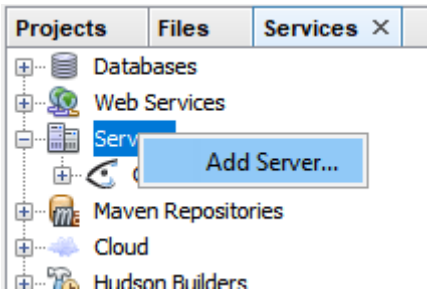
*asadmin create-domain --domaindir "C:\Users\vinro\OneDrive\Documents\Efrei\M1\Java EE\Glassfish domains" --adminport **6060** --instanceport **6061 testing***

*asadmin create-domain --domaindir "C:\Users\vinro\OneDrive\Documents\Efrei\M1\Java EE\Glassfish domains" --adminport **7070** --instanceport **7071 production***

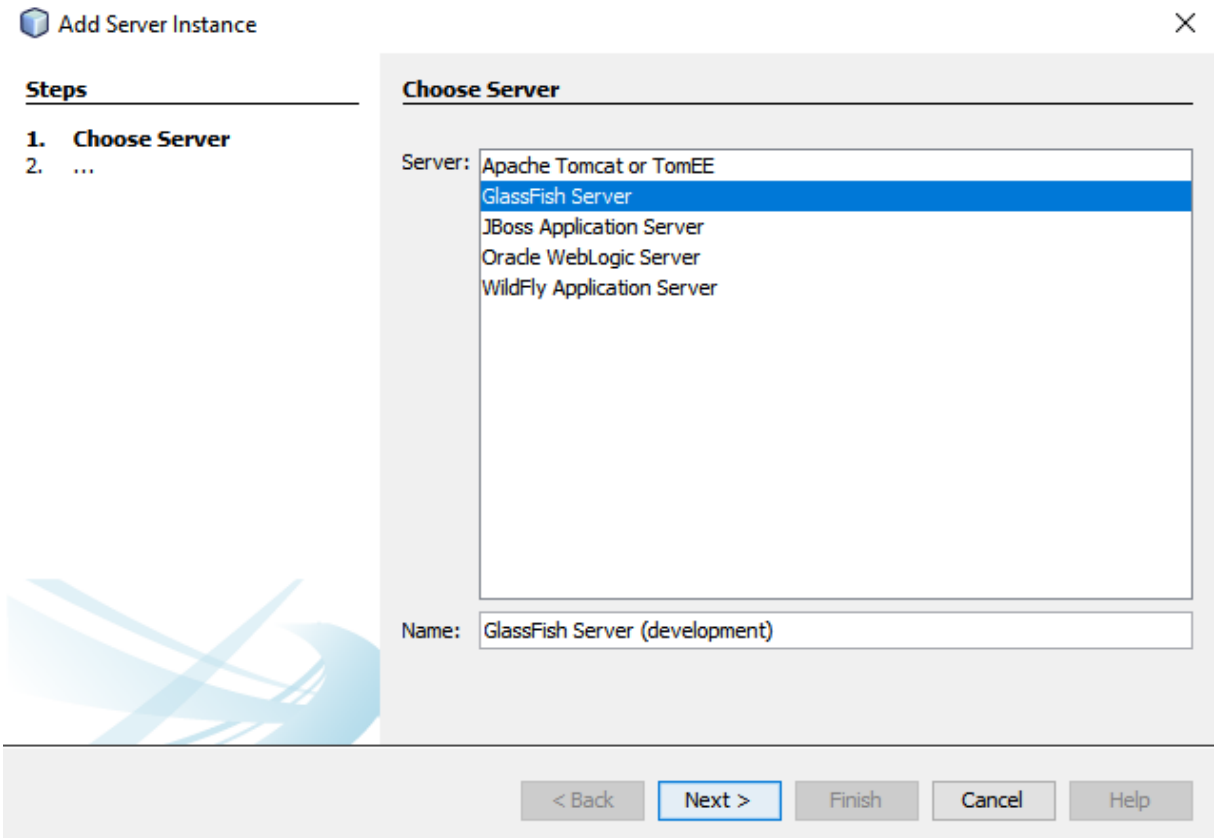
GlassFish server configuration

We will first create the development server.

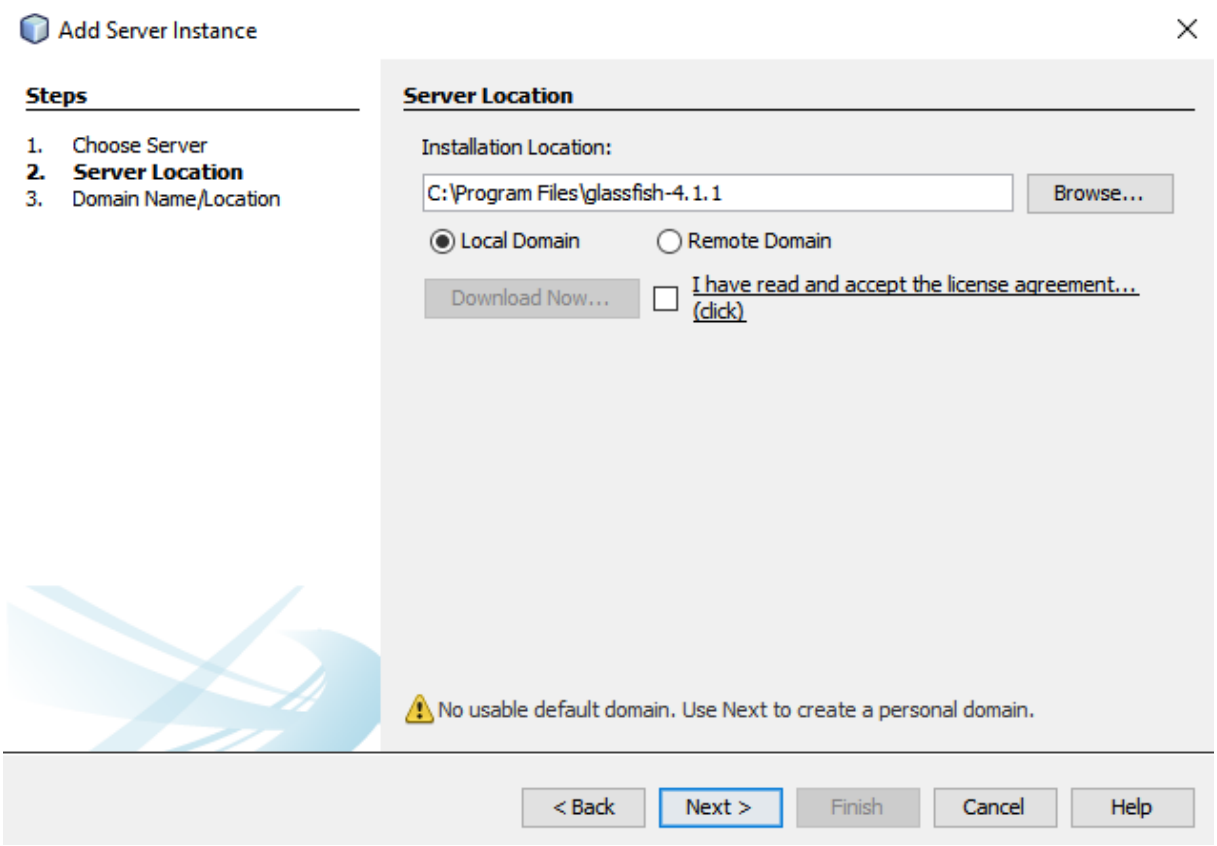
In NetBean's Services tab, right click "Servers", and add a server:



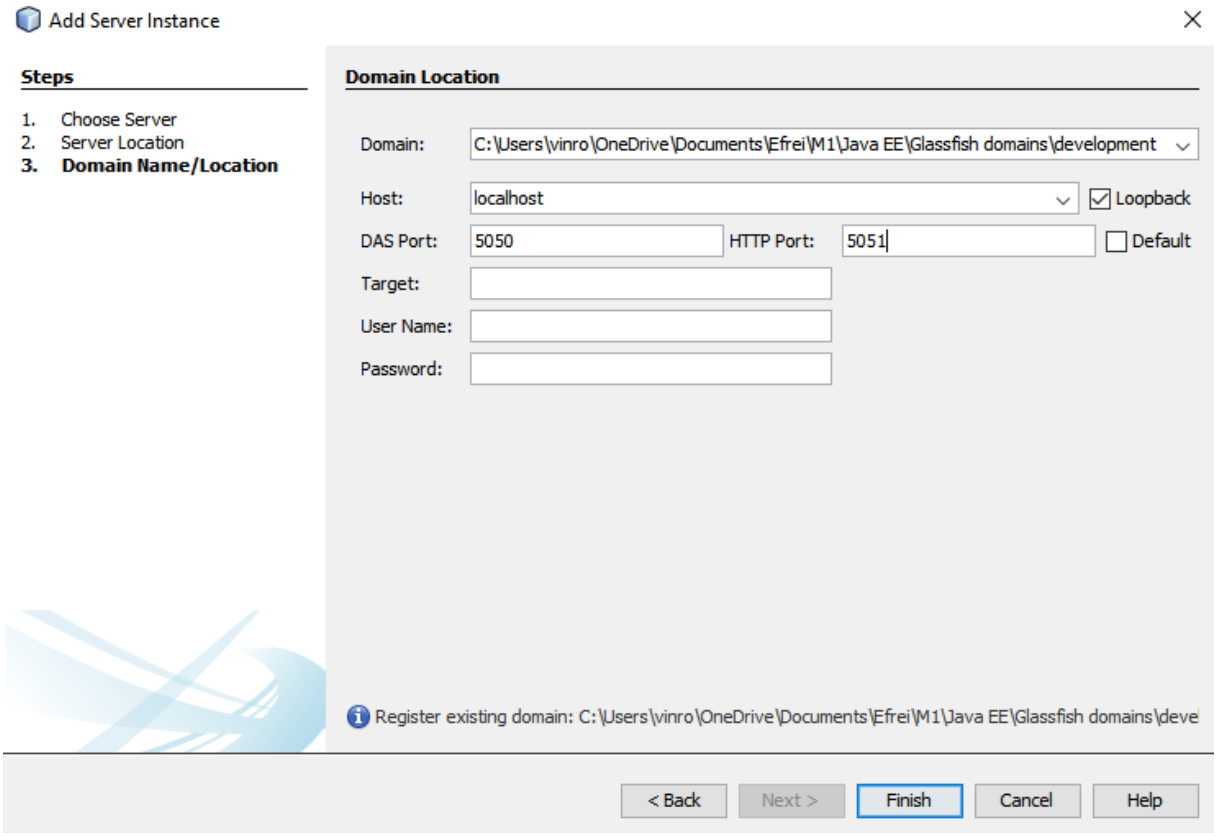
Select "GlassFish Server", give your server a name such as "GlassFish Server (development)", and click "Next":



On the next page, set your GlassFish installation location and click “Next”:



On the next page, set the path to the GlassFish domain you created before, set “DAS Port” to 5050 and “HTTP Port” to 5051:

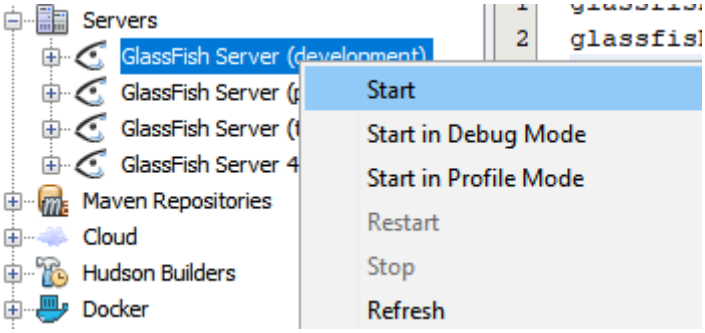


Click finish and a new GlassFish server will be created.

Repeat these steps to create two other servers for the testing and production environments. Use these settings:

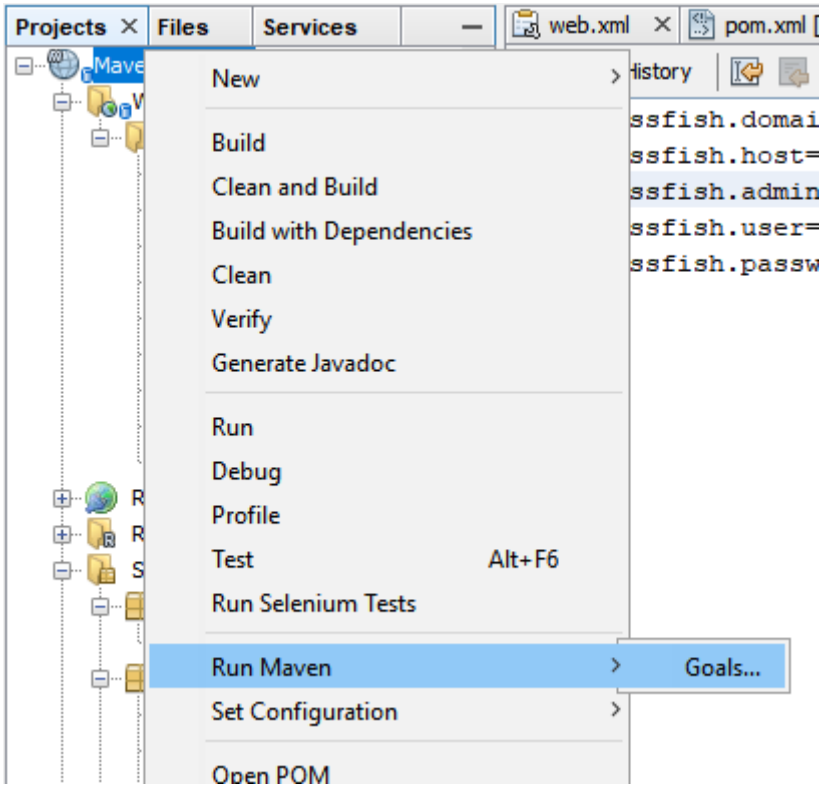
- Testing server:
  - Name: “testing”
  - DAS Port: 6060
  - HTTP Port: 6061
- Production server:
  - Name: “production”
  - DAS Port: 7070
  - HTTP Port: 7071

We will try the development server. Right-click it and select “Start”:



If prompted for credentials, leave the fields empty.

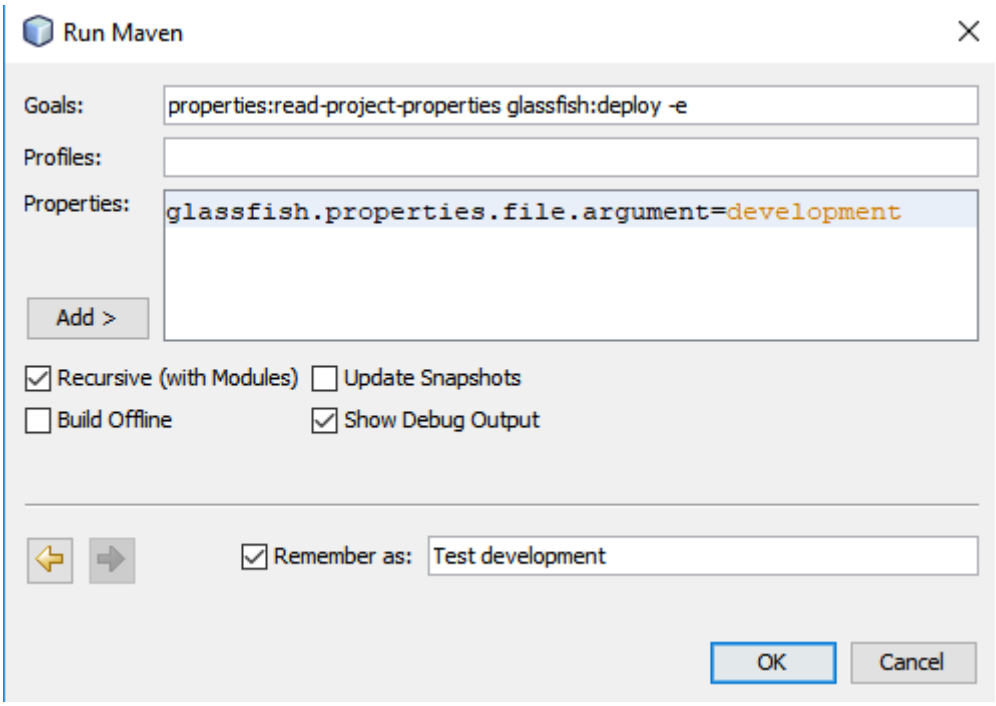
Test your configuration by running a Maven Goal:



Write the following and click OK:

Goals: *properties:read-project-properties glassfish:deploy -e*

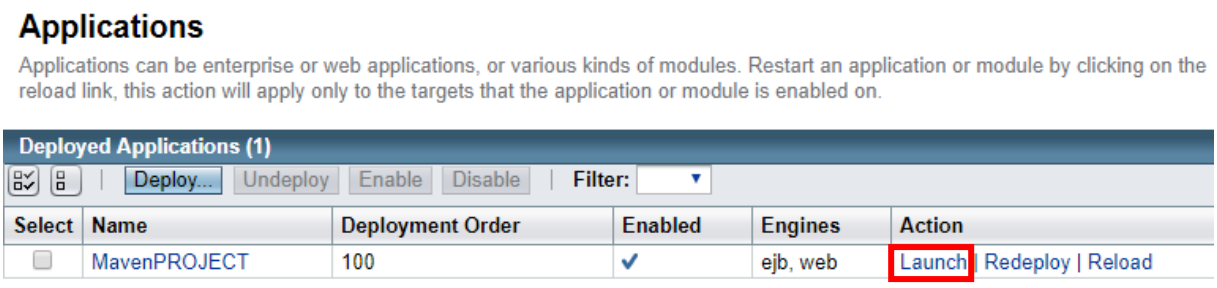
Properties: *glassfish.properties.file.argument=development*



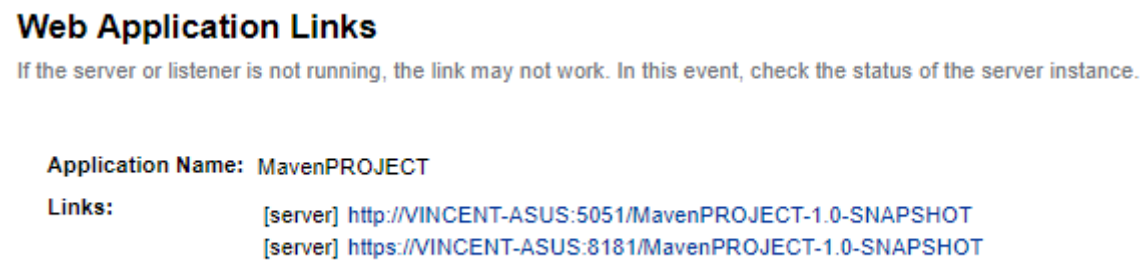
After the build ends, connect to your server console at http://localhost:5050/ and log in using "admin" as both user name and password.

Click "List Deployed Applications":

Then, click "Launch" on the right of "MavenPROJECT":



GlassFish gives you two links to visit the applications, click on the first one and you should be redirected to the employee management application:



Jenkins configuration

Plugins

Make sure the following plugins are installed:

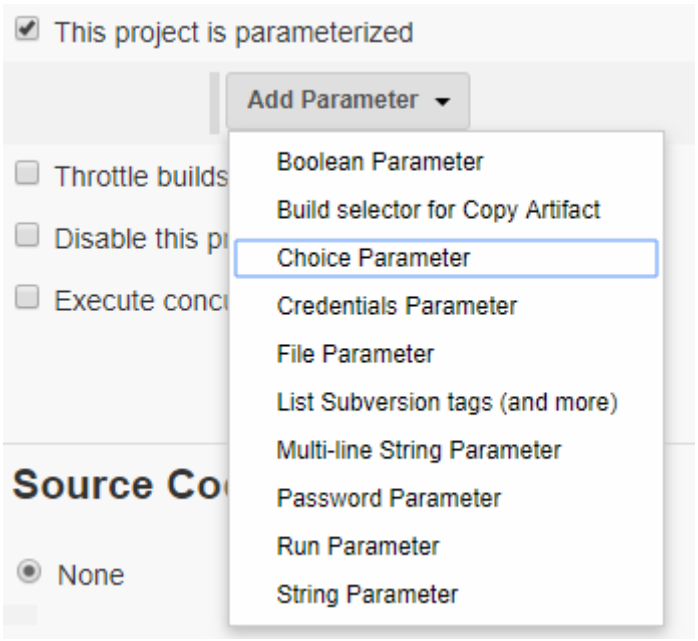
- Build with parameters
- Copy artifact
- GIT plugin
- Parameterized trigger plugin
- Maven integration plugin
- GitHub plugin

Configure the Jenkins job

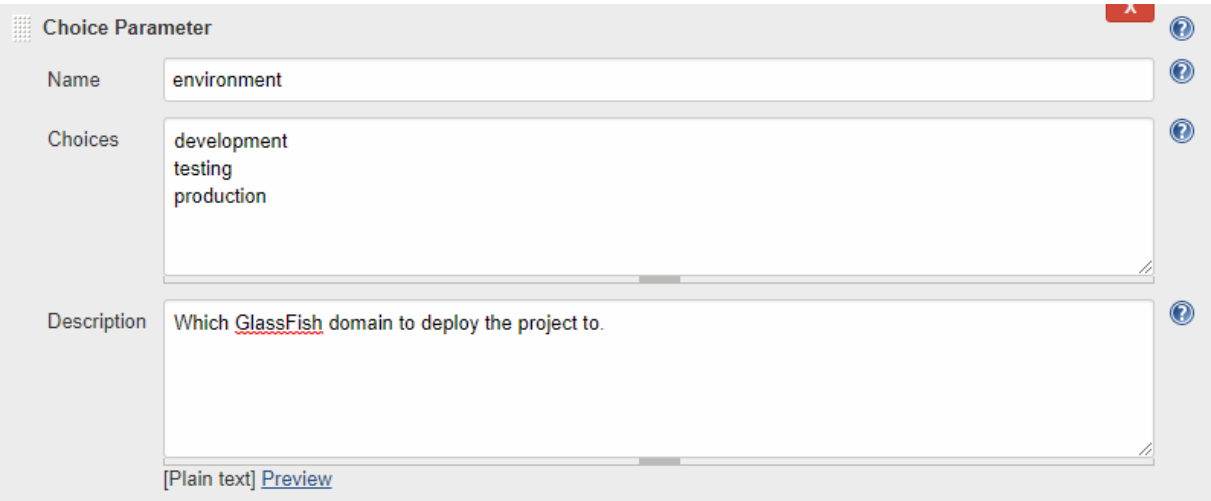
Create a new job, give it a name, and select “Freestyle project”.

To select the environment we want to deploy the project to, we add a parameter to the build.

Under “General”, check the “This project is parameterized option” and add a “Choice Parameter”:

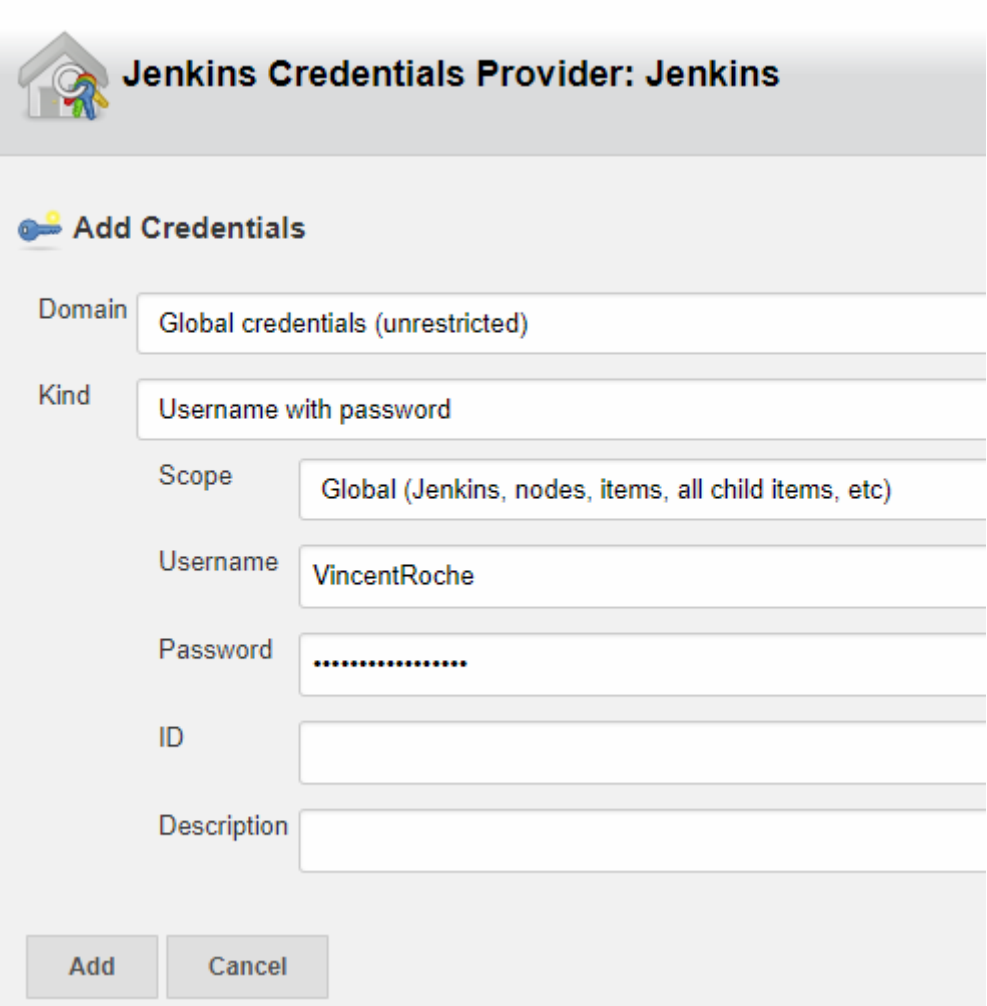


Configure the parameter:

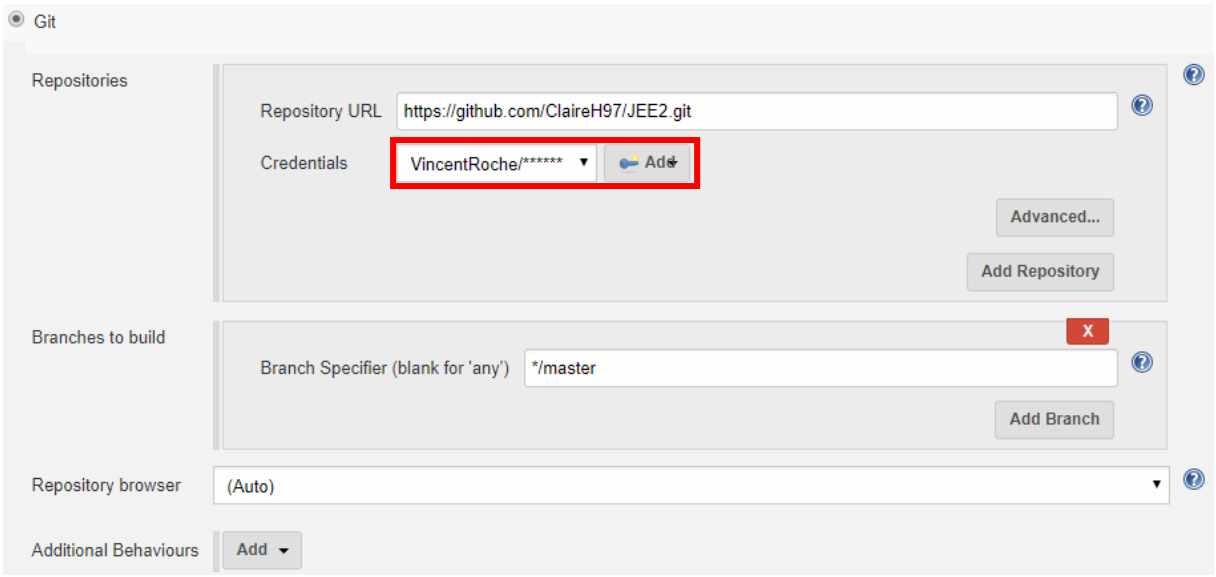


In the “Source Code Management” section, select “Git”.

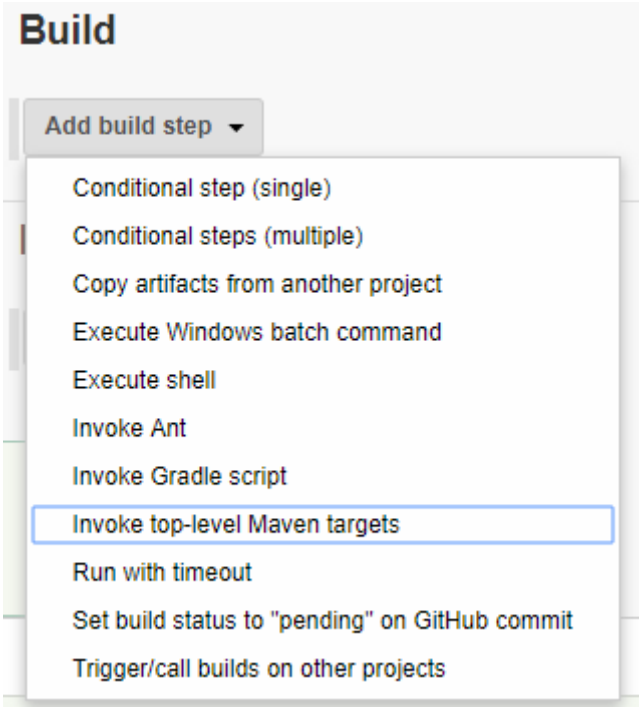
Set https://github.com/ClaireH97/JEE2.git as the repository URL, and click Add → Jenkins to add your GitHub credentials:



Select the credentials you jest created in the dropdown menu and no error should be displaying:



In the “Build” section, click “Add build step” and select “Invoke top-level Maven targets”:

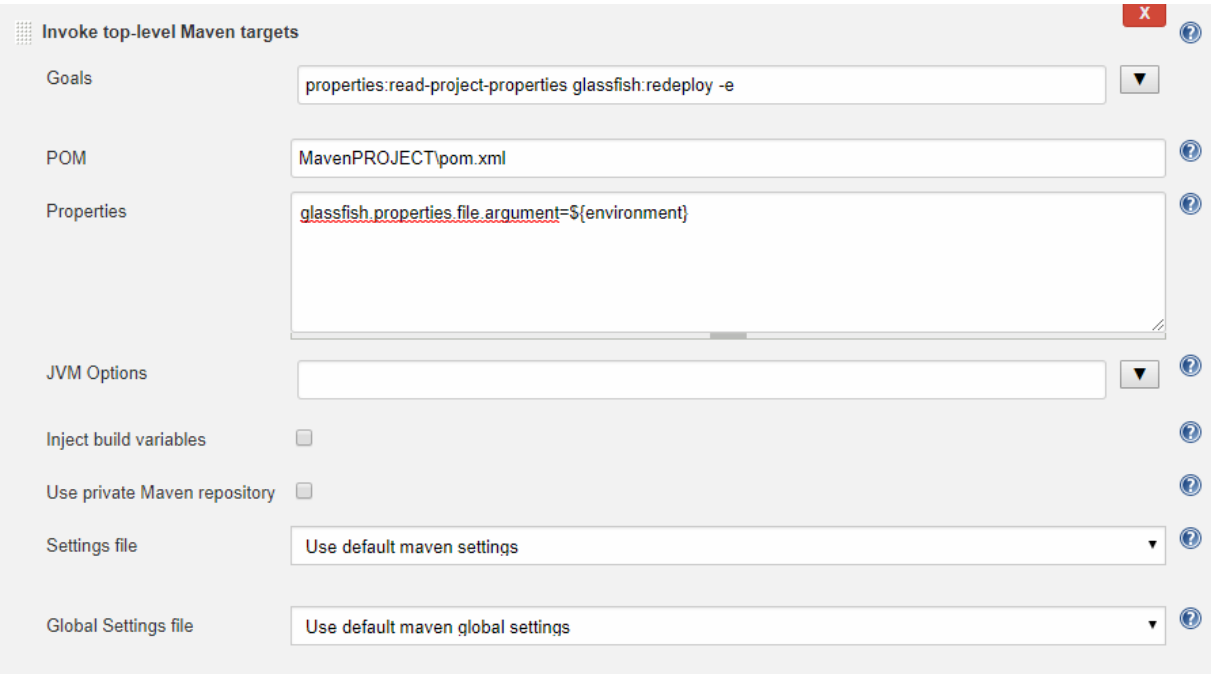


Click “Advanced…” to view all the settings, and give them these values:

Goals: *properties:read-project-properties glassfish:redeploy -e*

POM: *MavenPROJECT\pom.xml*

Properties: *glassfish.properties.file.argument=${environment}*



The Jenkins job is now configured! Save and you can now build and deploy the project by clicking “Build with parameters”.