Steps to Projects to HDAP

Create Jenkins Job for the Project

Go to Jenkins application https://apps2.hdap.gatech.edu/jenkins/

Login to Jenkins

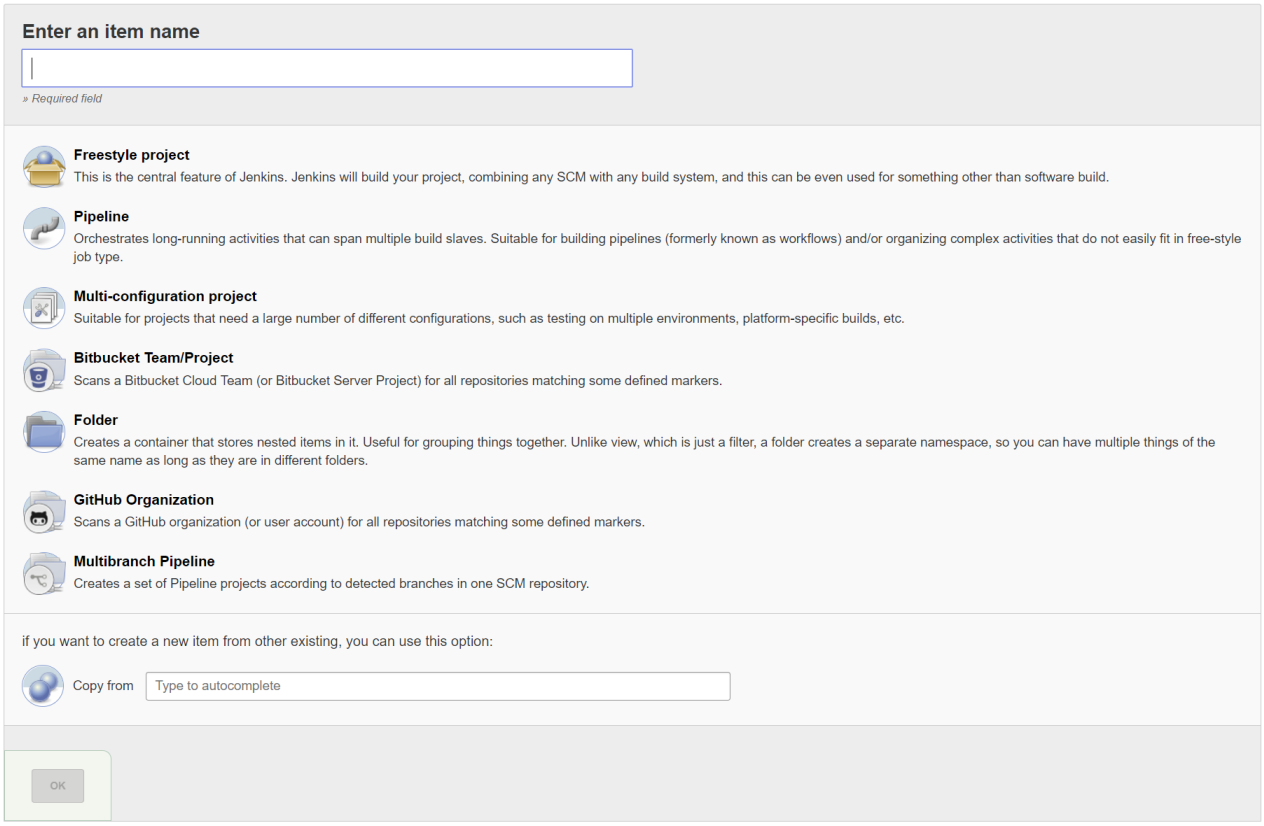
Press the **log in** link in the upper right corner of the screen

Use your GT credentials to log in to the system.

Create a New Item

Select **New Item**

Configure a New Pipeline Project



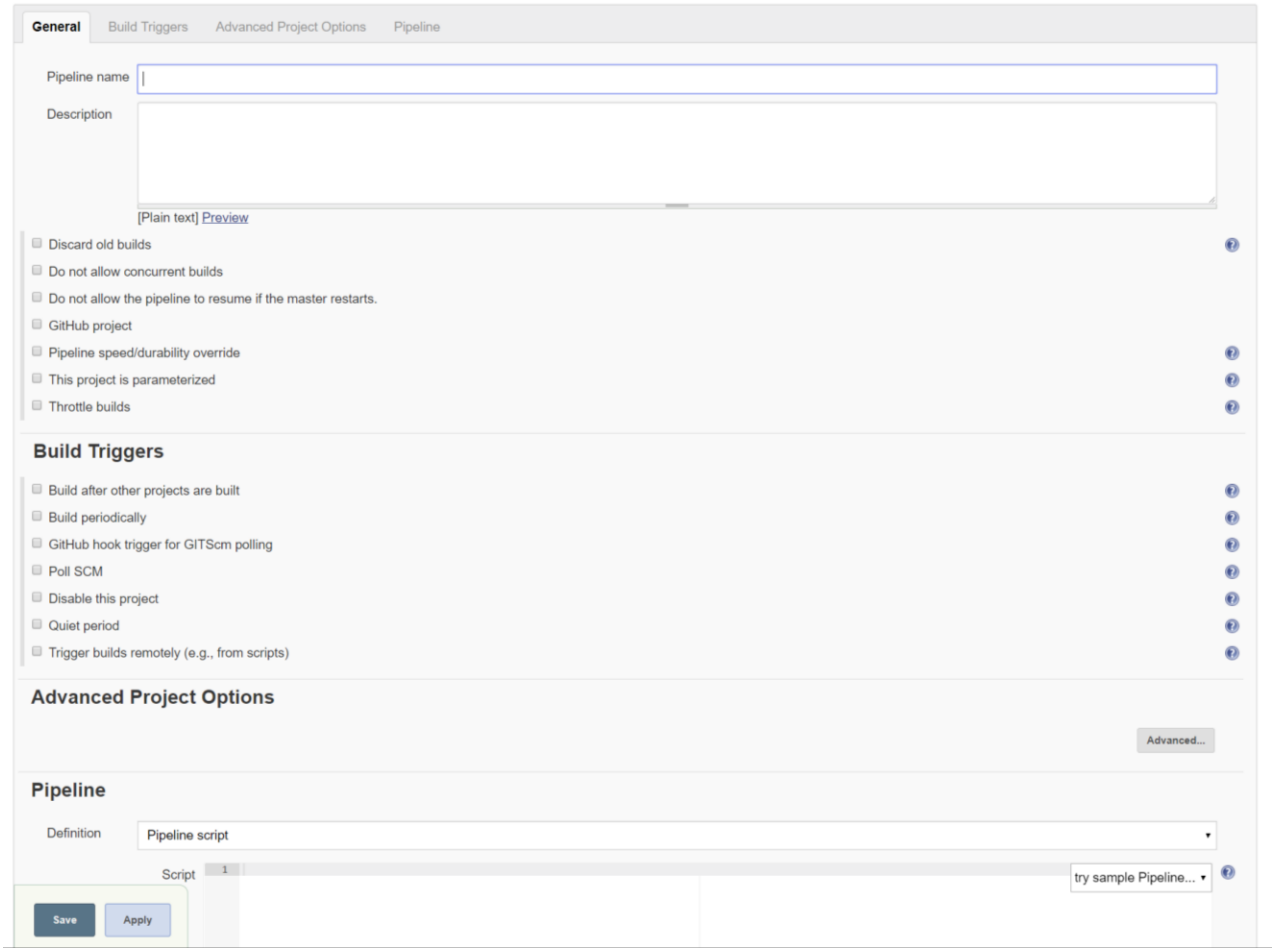
For the **Enter an item name** field type a name for the student project

Select **Pipeline** as the project type

Press the **OK** button

Configure the Pipeline Project

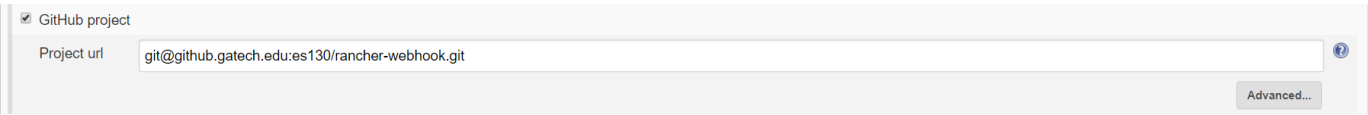
Add a Project Name and Description



Pipeline name will contain the name given on the previous page

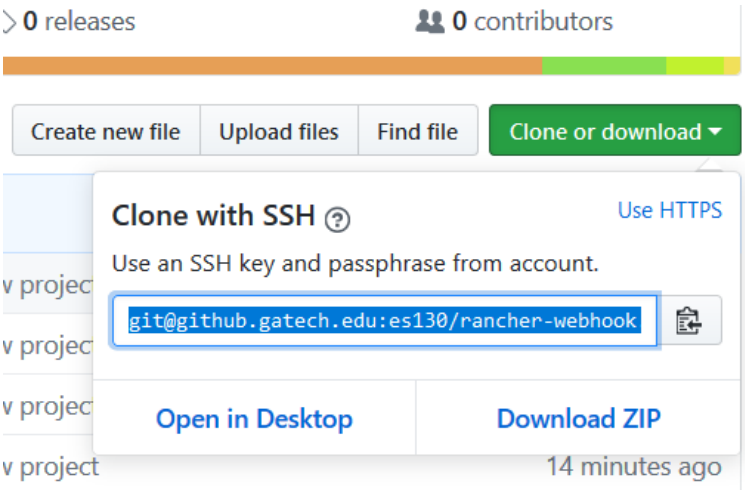
Enter a **Description** for the project

Add a GitHub Repository



Select the **GitHub project** checkbox

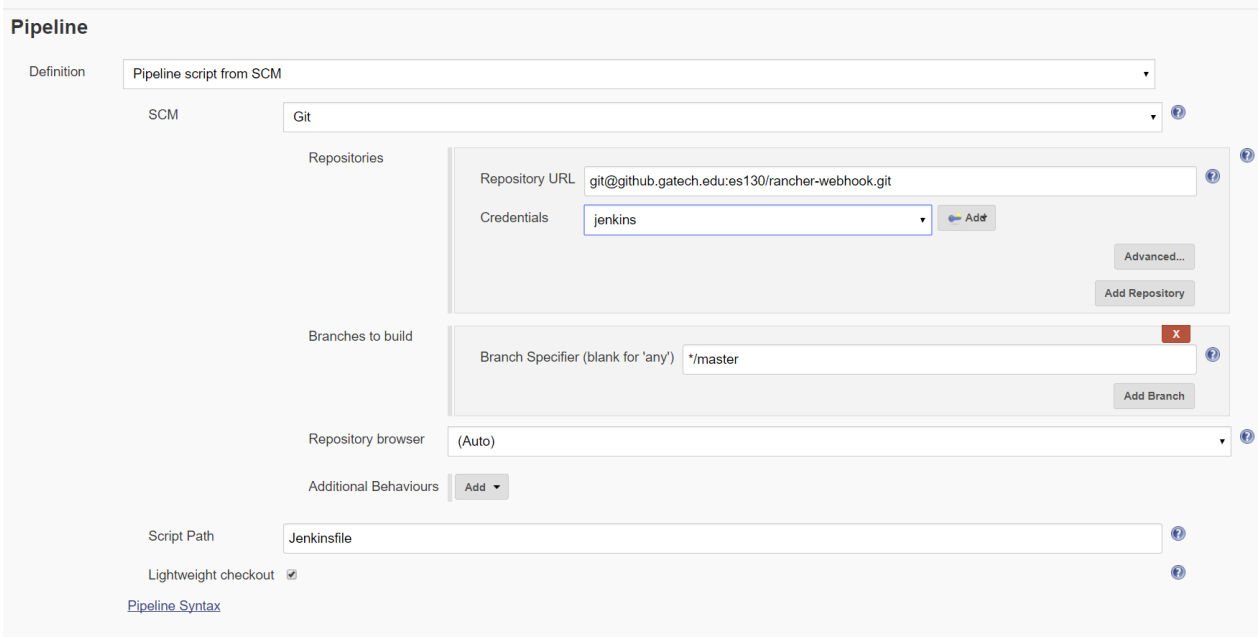
For **Project url** enter the **Clone with SSH** URL for the GitHub repository to use for this job. It is the URL displayed in modal dialog when you press the **Clone or download** button in the GitHub repository.



Add a Build Trigger

In the **Build Triggers** section select the **GitHub hook trigger for GITScm polling** checkbox. This option will allow GitHub to tell Jenkins to build the project each time an update is pushed to the GitHub repository.

Configure the Pipeline Build



For **Definition** select the **Pipeline script from SCM** option.

For **SCM** select **Git**

For **Repository URL** enter the same Git SSH URL used for **GitHub project -> Project url**.

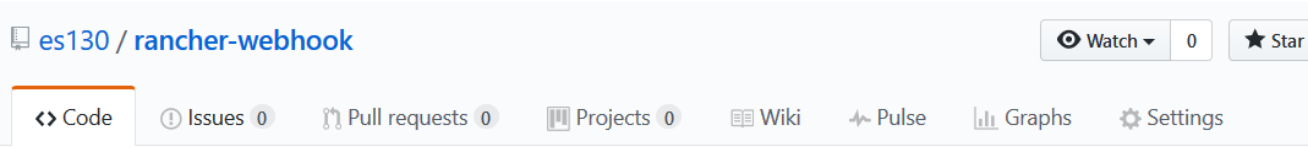
For **Credentials** select your Jenkins key. This is the key you added to you GitHub profile.

For **Script Path** select **Jenkinsfile**. This option tells Jenkins to use the Jenkinsfile, included in the root directory of the source code, to define the Pipeline process.

Press the **Save** button.

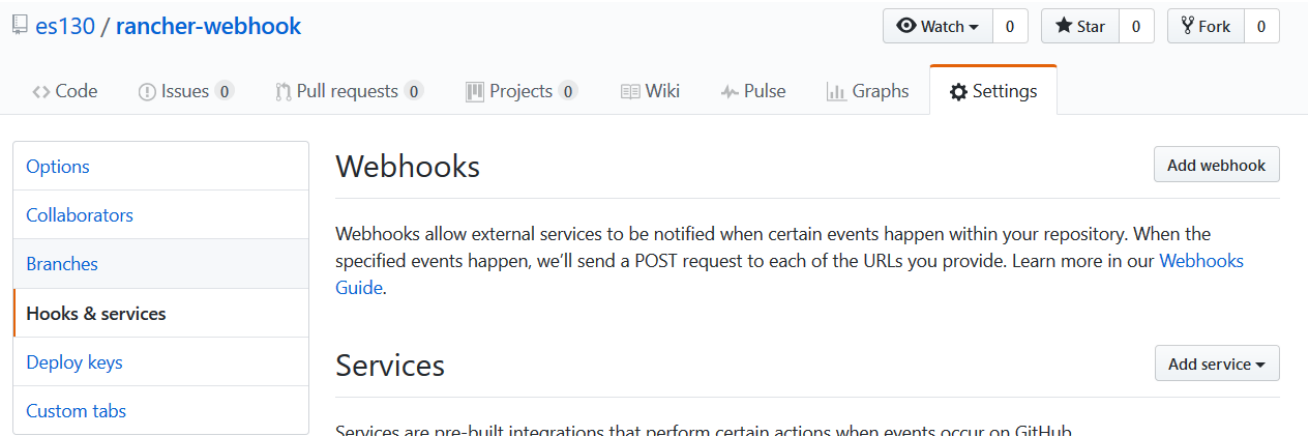
Add a Webhook to the GitHub Repository

Go to the Setting of the GitHub Repository



Select the **Settings** tab

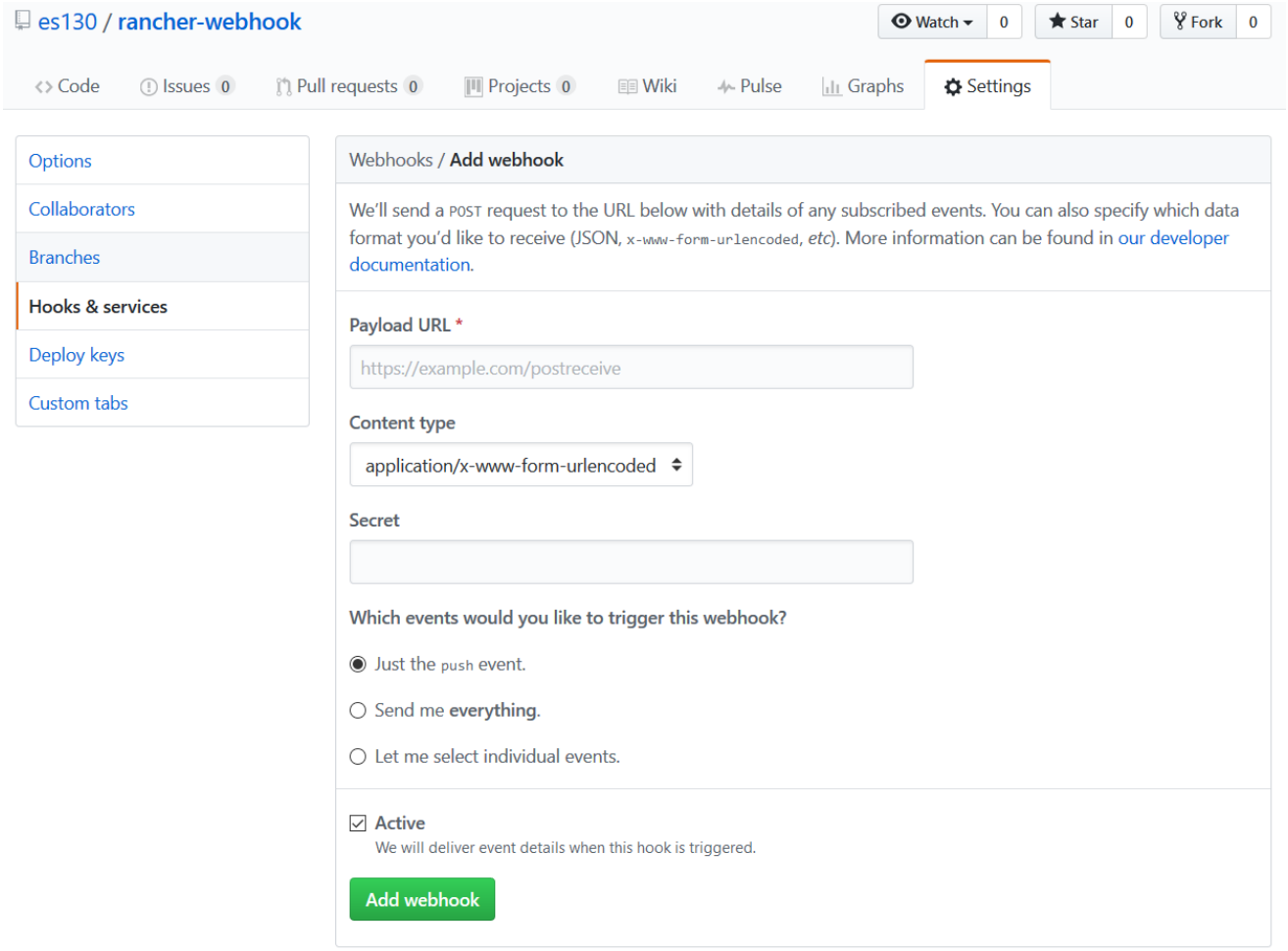
Add a Webhook



Select the **Hooks & services** menu option

Press the **Add webhook** button

Configure Webhook



For **Payload URL** enter https://apps2.hdap.gatech.edu/jenkins/github-webhook/

For **Content type** select **application/x-www-form-urlencoded**

For **Which events would you like to trigger this webhook?** Select **Just the push event.**

Make sure the **Active** checkbox is selected

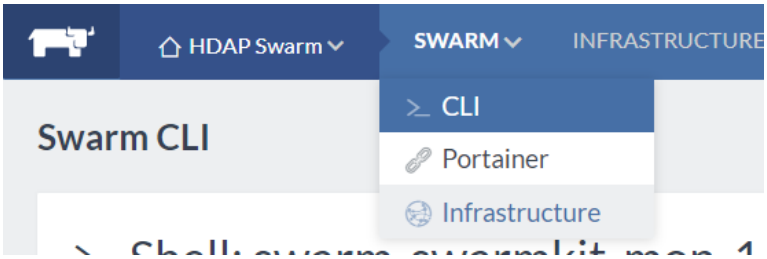
Press the **Add webhook** button

Now, any updates to the GitHub repo will notify the Jenkins server.

Create a Rancher Application Stack

Go to the Rancher Application https://apps3.hdap.gatech.edu/

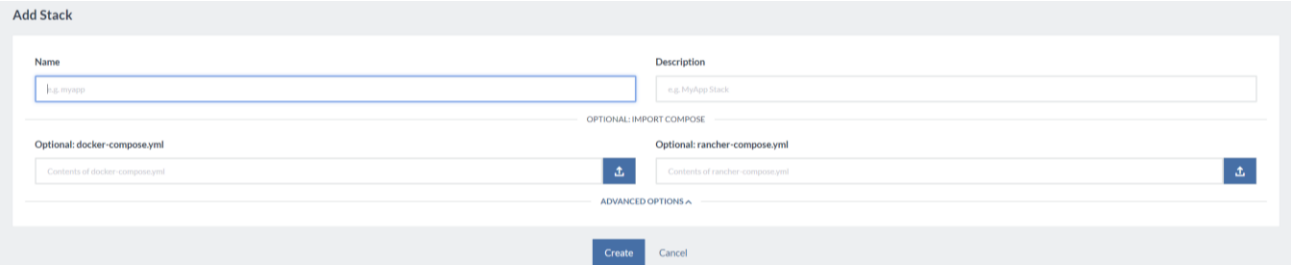
Add a new stack



From the Navigation bar select **Swarm -> Infrastructure**

On the Infrastructure Stacks page press the **Add Stack** button.

Configure New Stack



Enter a Name and Description

For **Name** enter a name for the project. It cannot have special characters or spaces. Try to make it identify the project. Probably just use the project name without punctuation or spaces.

For **Description** enter a description for the project. It is ok to use the same description you used in Jenkins.

Configure the Stack with Docker Compose

Students were asked to use Docker Compose version 2 to define how to create and link the containers for their applications. Use the **Optional: docker-compose.yml** field to upload the students docker-compose.yml file to configure the stack.

How to Upload and Modify Project docker-compose.yml

1. Use Git to clone the project to your computer
2. Press the blue upload button,  , of the **Optional: docker-compose.yml** field to bring up a file upload dialog.
3. Navigate to the directory with the project and select the **docker-compose.yml** file
4. The **Optional: docker-compose.yml** text field will now be populated with the content of the docker-compose.yml file
5. Update the docker-compose.yml text in the textbox to use the Docker images for the project that were pushed to the HDAP Docker registry by Jenkins.
    a. On your computer, open the Jenkinsfile for the project
    b. Select the tag name used in the docker.build command of the Deploy stage

```
//Define the deploy stage
stage('Deploy'){
    steps{
        //The Jenkins Declarative Pipeline does not provide functionality to deploy to a private
        //Docker registry. In order to deploy to the HDAP Docker registry we must write a custom Groovy
        //script using the Jenkins Scripting Pipeline. This is done by placing Groovy code with in a "script"
        //element. The script below registers the HDAP Docker registry with the Docker instance used by
        //the Jenkins Pipeline, builds a Docker image of the project, and pushes it to the registry.
        script{
            docker.withRegistry('https://apps2.hdap.gatech.edu'){
                //Build and push the web application image
                def applicationImage = docker.build("rancherwebhook:1.0","-f ./Dockerfile .")
                applicationImage.push('latest')
            }
        }
    }
}
```

c. Update the docker-compse text to use the **image** directive with the URL and tag used in the Jenkinsfile

Original docker-compose text

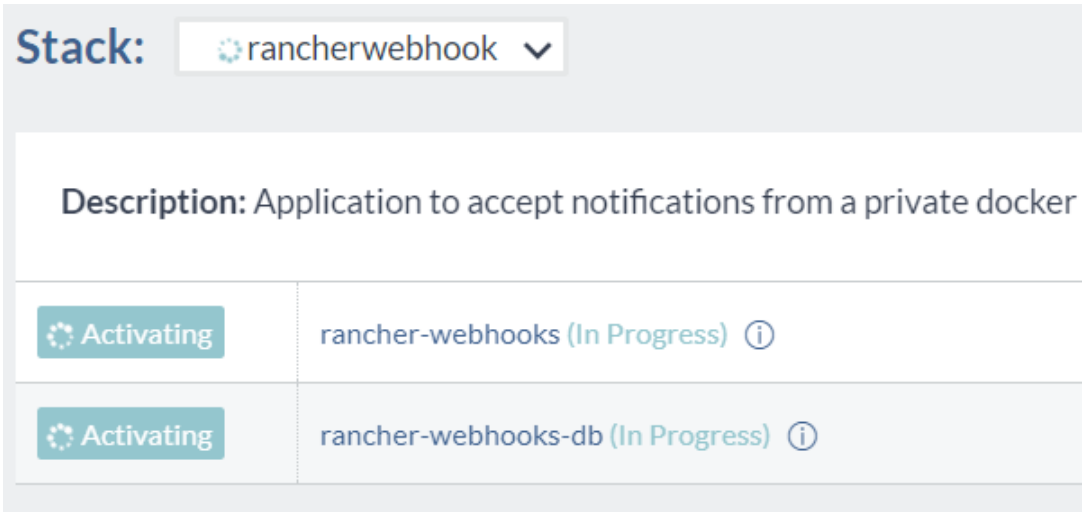
```
version: '2'
services:
 rancher-webhooks-db:
  image: postgres
  restart: always
  expose:
   - "5432"
  volumes:
   - /usr/local/share/postgresql/rancher-webhooks:/var/lib/postgresql/data
 rancher-webhooks:
  build: .
  restart: always
  ports:
   - "12000:8080"
  depends_on:
   - rancher-webhooks-db
  command: ["/usr/local/bin/wait-for-postgres.sh", "rancher-webhooks-
db","catalina.sh","run"]
```

New docker-compose text

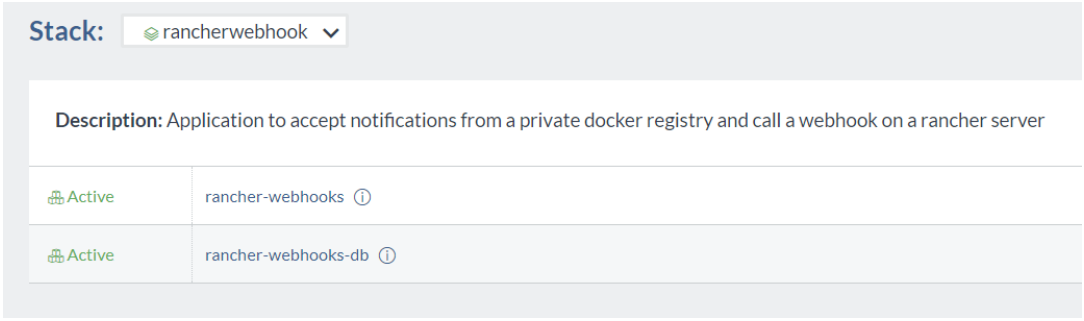
```
version: '2'
services:
 rancher-webhooks-db:
  image: postgres
  restart: always
  expose:
   - "5432"
  volumes:
   - /usr/local/share/postgresql/rancher-webhooks:/var/lib/postgresql/data
 rancher-webhooks:
  image: apps2.hdap.gatech.edu/rancherwebhook:latest
  restart: always
  ports:
   - "12000:8080"
  depends_on:
   - rancher-webhooks-db
  command: ["/usr/local/bin/wait-for-postgres.sh", "rancher-webhooks-
                db","catalina.sh","run"]
```

Notice the difference. The **build** directive of the **rancher-webhooks** service is no longer being used. Now the **image** directive is used for the **rancher-webhooks** service to tell Rancher to pull the image from the HDAP Docker registry. Also **no change is needed** for the **rancher-webhooks-db** service because its image is being pulled from Dockerhub. If an image directive is used and no URL is used in front of the image name, then Docker goes to Dockerhub to retrieve the image.

6. Press the **Create** button
7. Containers will begin to activate



8. Containers will activate



9. Test navigation to the application by selecting the link for the host port number