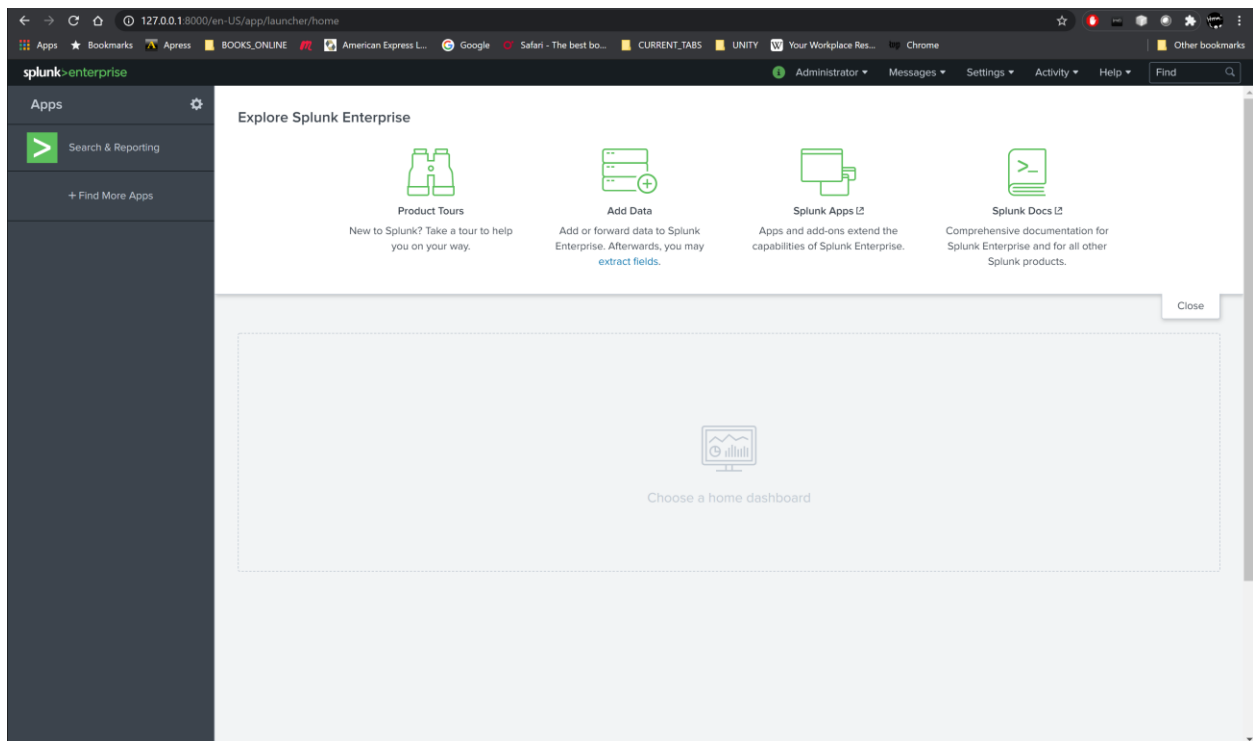


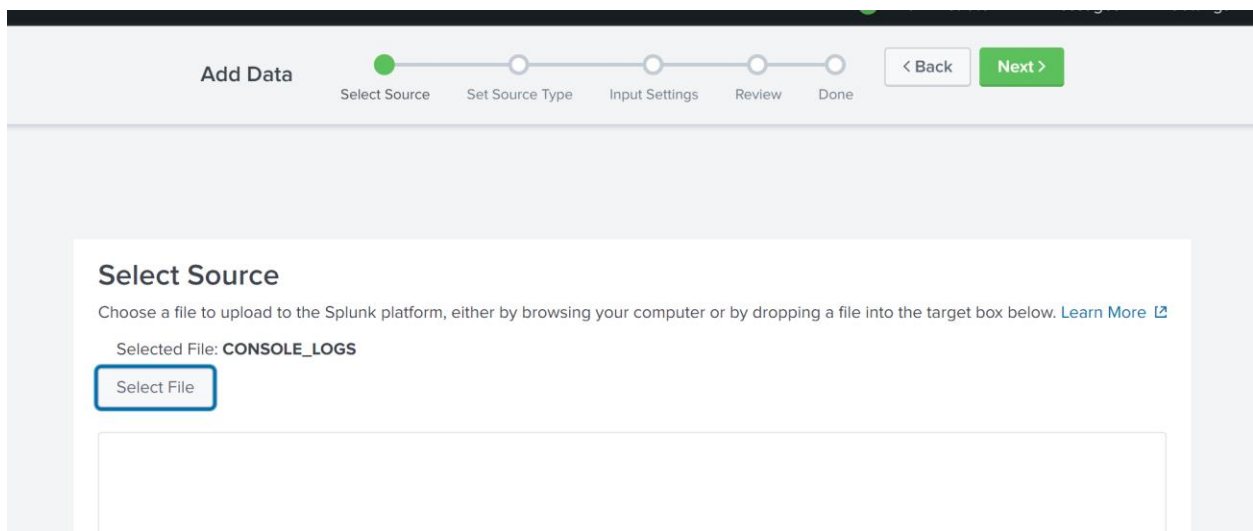
# Splunk, Jenkins and Deployment

## Using Splunk

- Installed Splunk
- Working in browser on local machine:

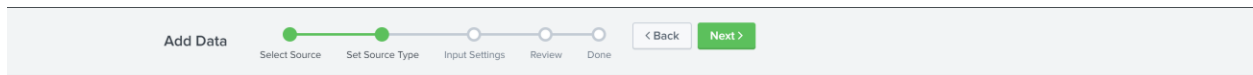


- Uploaded CONSOLE\_LOGS



## Splunk and Jenkins

### Adding my CONSOLE\_LOGS



Before indexing. If the events look correct and have the right timestamps, click Next. If you cannot find an appropriate source type for

			View Event Summary	
List ▾ Format 20 Per Page ▾			< Prev 1 2 3 4 Next >	
	Time	Event		
1	3/25/21 6:02:06.522 PM	2021-03-25 18:02:06.522 INFO 71428 --- [main] com.example.demo.SareetaApplication : Starting SareetaApplication on DESKTOP-G57UGNQ with PID 71428 (D:\2021_A\ONLINE_COURSES\UDACITY\JWOND\PROJECTS\ECOMMERCE_WS\nd035-c4-Security-and-DevOps\starter_code\target\classes started by lafig in D:\2021_A\ONLINE_COURSES\UDACITY\JWOND\PROJECTS\ECOMMERCE_WS\nd035-c4-Security-and-DevOps\starter_code)		
2	3/25/21 6:02:06.523 PM	2021-03-25 18:02:06.523 INFO 71428 --- [main] com.example.demo.SareetaApplication : No active profile set, falling back to default profiles: default		
3	3/25/21 6:02:06.856 PM	2021-03-25 18:02:06.856 INFO 71428 --- [main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.		
4	3/25/21 6:02:06.895 PM	2021-03-25 18:02:06.895 INFO 71428 --- [main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 32ms. Found 4 JPA repository interfaces.		
5	3/25/21 6:02:07.355 PM	2021-03-25 18:02:07.355 INFO 71428 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (http)		
6	3/25/21 6:02:07.362 PM	2021-03-25 18:02:07.362 INFO 71428 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]		
7	3/25/21 6:02:07.362 PM	2021-03-25 18:02:07.362 INFO 71428 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.37]		
8	3/25/21	2021-03-25 18:02:07.462 INFO 71428 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext		

- Review of file:

## Review

Input Type ..... Uploaded File  
File Name ..... CONSOLE\_LOGS  
Source Type ..... eCommerce\_Console\_Logs  
Host ..... DESKTOP-G57UGNQ  
Index ..... Default

## Indexing and Searching

Searching for all lines with \*Exception\*

## Splunk and Jenkins

**New Search** Save As Create Table View Close

source="CONSOLE\_LOGS" host="DESKTOP-G57UGNQ" sourcetype="eCommerce\_Console\_Logs" | search \*Exception

3 events (before 3/25/21 9:25:26.000 PM) No Event Sampling

Events (3) Patterns Statistics Visualization

Format Timeline Zoom Out Zoom to Selection Deselect 1 minute per column

Time	Event
3/25/21 6:33:46.450 PM	2021-03-25 18:33:46.450 WARN 71428 --- [nio-8080-exec-5] .w.s.m.s.DefaultHandlerExceptionResolver : Resolved [org.springframework.web.HttpRequestMethodNotSupportedException: Request method 'GET' not supported] host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:02:45.230 PM	2021-03-25 18:02:45.230 INFO 71428 --- [nio-8080-exec-3] com.example.demo.service.UserService : UserService.prepareNewUser - DuplicateUsernameException. host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:02:09.003 PM	2021-03-25 18:02:09.003 INFO 71428 --- [main] o.s.s.web.DefaultSecurityFilterChain : Creating filter chain: any request, [org.springframework.security.web.context.request.async.WebAsyncManagerIntegrationFilter@da11873, org.springframework.security.web.context.SecurityContextPersistenceFilter@3346e986, org.springframework.security.web.header.HeaderWriterFilter@2079fcfc, org.springframework.web.filter.CorsFilter@39159b14, org.springframework.security.web.authentication.logout.LogoutFilter@560be8c0, com.example.demo.security.JWTAuthenticationFilter@57ab4b33, com.example.demo.security.JWTAuthenticationVerificationFilter@43b2e7db, org.springframework.security.web.savedrequest.RequestCacheAwareFilter@126d0868, org.springframework.security.web.servletapi.SecurityContextHolderAwareRequestFilter@12a9e864, org.springframework.security.web.authentication.AnonymousAuthenticationFilter@46d51d5e, org.springframework.security.web.session.SessionManagementFilter@7865cc83, org.springframework.security.web.access.ExceptionTranslationFilter@3e1897d, org.springframework.security.web.access.intercept.FilterSecurityInterceptor@864cd310] host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs

- All logging activities from Controllers:

**New Search** Save As Create Table View Close

source="CONSOLE\_LOGS" host="DESKTOP-G57UGNQ" sourcetype="eCommerce\_Console\_Logs" | search \*Controller

22 events (before 3/25/21 9:28:34.000 PM) No Event Sampling

Events (22) Patterns Statistics Visualization

Format Timeline Zoom Out Zoom to Selection Deselect 1 minute per column

Time	Event
3/25/21 6:40:21.867 PM	2021-03-25 18:40:21.867 INFO 71428 --- [nio-8080-exec-1] c.e.demo.controllers.OrderController : OrderController:getOrdersForUser - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:37:30.954 PM	2021-03-25 18:37:30.954 INFO 71428 --- [nio-8080-exec-9] c.e.demo.controllers.OrderController : OrderController:submit - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:34:13.336 PM	2021-03-25 18:34:13.336 INFO 71428 --- [nio-8080-exec-6] c.e.demo.controllers.CartController : CartController:removeFromCart - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:30:09.350 PM	2021-03-25 18:30:09.350 INFO 71428 --- [nio-8080-exec-1] c.e.demo.controllers.CartController : CartController:addToCart - sending back cart items. host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:30:09.346 PM	2021-03-25 18:30:09.346 INFO 71428 --- [nio-8080-exec-1] c.e.demo.controllers.CartController : CartController:addToCart - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:28:23.644 PM	2021-03-25 18:28:23.644 INFO 71428 --- [nio-8080-exec-9] c.e.demo.controllers.CartController : CartController:addToCart - sending back cart items. host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:28:23.624 PM	2021-03-25 18:28:23.624 INFO 71428 --- [nio-8080-exec-9] c.e.demo.controllers.CartController : CartController:addToCart - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs
3/25/21 6:23:51.151 PM	2021-03-25 18:23:51.151 INFO 71428 --- [nio-8080-exec-6] c.e.demo.controllers.ItemController : ItemController:getItemsByName - invoked host = DESKTOP-G57UGNQ source = CONSOLE_LOGS sourcetype = eCommerce_Console_Logs

## Alerts

- The plan is to set up an alert if we see "bad request returned" in the logs

Save As Alert

×

Settings

Title

Bad Request Returned

Description

Reports if we see the "bad requests" in our logs

Permissions

Private

Shared in App

Alert type

Scheduled

Real-time

Run every hour ▾

At

0 ▾

minutes past the hour

Expires

24

hour(s) ▾

Trigger Conditions

Trigger alert when

Number of Results ▾

is greater than ▾

5

Trigger

Once

For each result

Throttle ?

☒

Suppress triggering for

60

second(s) ▾

Trigger Actions

Cancel

Save

Save As Alert

Send email

Remove

To

nyguerillagirl@gmail.com

Comma separated list of email addresses.  
[Show CC and BCC](#)

Priority

Highest ▾

Subject

Splunk Alert: Too many Bad Reque

The email subject, recipients and message can include tokens that insert text based on the results of the search. [Learn More](#)

Message

The alert condition for '\$name\$' was triggered.

Include

☒ Link to Alert

☒ Link to Results

☐ Search String

☐ Inline [Table ▾](#)

☐ Trigger Condition

☐ Attach CSV

☐ Trigger Time

☐ Attach PDF

☒ Allow Empty Attachment

Type

HTML & Plain Text

Plain Text

Cancel

Save

Bad Request Returned

Reports if we see the "bad requests" in our logs

Enabled: ..... Yes. [Disable](#)

App: ..... search

Permissions: ..... Private. Owned by figgy. [Edit](#)

Modified: ..... Mar 25, 2021 9:39:34 PM

Alert Type: ..... Scheduled. Hourly, at 0 minutes past the hour. [Edit](#)

Trigger Condition: .. Number of Results is > 5. [Edit](#)

Actions: ..... ▾ 1 Action [Edit](#)

[✉ Send email](#)

There are no fired events for this alert.

## Jenkins

- Create instance

The screenshot shows the AWS Management Console interface for an EC2 instance. The breadcrumb navigation at the top indicates the path: EC2 > Instances > i-02c7aa27680b57ccb. The main heading is "Instance summary for i-02c7aa27680b57ccb" with an "info" link. Below the heading, it says "Updated less than a minute ago". There are three buttons: "Refresh", "Connect", and "Instance state" with a dropdown arrow. The instance details are organized into three columns:

Instance ID	Public IPv4 address	Private IPv4 addresses
i-02c7aa27680b57ccb	54.166.51.152   <a href="#">open address</a>	172.31.92.198
Instance state	Public IPv4 DNS	Private IPv4 DNS
Running	ec2-54-166-51-152.compute-1.amazonaws.com   <a href="#">open address</a>	ip-172-31-92-198.ec2.internal
Instance type	Elastic IP addresses	VPC ID
t2.micro	-	vpc-71b5010c
AWS Compute Optimizer finding	IAM Role	Subnet ID
Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>	-	subnet-45224464

- Connect to instance – using putty (used previous key pair)

The screenshot shows a terminal window titled "ec2-user@ip-172-31-92-198:~". The terminal output is as follows:

```
login as: ec2-user
Authenticating with public key "imported-openssh-key"

  _  |  _  |  )
 _  | (  _  /   Amazon Linux 2 AMI
 _  | \  _  |  |

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-92-198 ~]$
```

- Installed docker
- Reboot machine
- Log back in and reboot machine
- Create and run a container running Jenkins blue

```
ec2-user@ip-172-31-92-198:~
8080 -v jenkins-data:/var/jenkins_home -v /var/run/docker.sock:/var/run/docker.s
ock -v "$HOME"/home jenkinsci/blueocean
Unable to find image 'jenkinsci/blueocean:latest' locally
latest: Pulling from jenkinsci/blueocean
f84cab65f19f: Pull complete
1b644c4a8096: Pull complete
8c8bd3ba0591: Pull complete
69f511625e10: Pull complete
37ff47824b2c: Pull complete
e3bd02b4413e: Pull complete
7c78786a8233: Pull complete
6bd24d5d5adb: Pull complete
a3d49c58f001: Pull complete
39d4ef9ed059: Pull complete
670c8eb4dd6f: Pull complete
81ec78568d25: Pull complete
65109a829757: Pull complete
4cc6e7fd6fd5: Pull complete
f9971a516738: Pull complete
f7d44d235e40: Pull complete
Digest: sha256:7d10c896979cb3b6fc5db576d1c697a0e7a2a6cdd96484ee94b5c6c8505414a1
Status: Downloaded newer image for jenkinsci/blueocean:latest
e6eda656cc646a8f5f2148f8b34a3cd025462cc1751c27ea254448701b38dd7c
[ec2-user@ip-172-31-92-198 ~]$
```

- Open a shell into myContainer (Jenkins container)
  - Add maven
  - Created ssh key

```
ec2-user@ip-172-31-92-198:~
OK: 463 MiB in 94 packages
bash-5.0# ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:/xlyUF4HP6XTjyj4PFECyXM3KEDDtmxtS1QX/Q67AD8 root@e6eda656cc64
The key's randomart image is:
+---[RSA 3072]---+
|      o+. *o++=|
|      o.= =.*+|
|      o + = +.=|
|      =.B o.++|
|      S *o+ .+.|
|      + =E . .|
|      * oo . |
|      = o.  |
|      o    |
+-----[SHA256]-----+
bash-5.0#
```

Private key:

## Splunk and Jenkins

```
-----BEGIN OPENSSH PRIVATE KEY-----
b3BlbnZaclrZXktZjEAAAAAG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAAdzc2gtcn
NhAAAAAwEAAQAAAEYay1vk/PC5wm8Mkpczyl5p8uDGls07aLCSeeXtrM/QvT7fo26TLhXM
8eHzpmQQ22ToNd9aNMuKl0/65em5Sejtesla5QXlhgXLJkQiqG9QOkzUX21LNAPiNCcv8
BlJXOXoG+h8Z9zc+eJkmXUJ7vfxNxoB49zQQhRt9Ib/zP3IQQ3dCgVAEQyquiJ/PrzrfJg
MNEgOYbmJ3/EEToAghmggIa8zdP5BW5OytOGeeF4bkjvWHXwWpQA54eKath9SIpjTPJp3X
pPGBxlu0U+dVoAFenYP/TvZWLWAV6C7cLUa2+0Vfx97ZsFlh5eszqTCSktDHi2UQHE2dMD
+JhK5fMxtzUL/Ixvavag6GOnieIgeSa851Z4KextWl4vGHj+rNL5HtUIeQiQPOnSKyxRsw
iBSXQC1944veDFH03DgBy99ReDCjuCsRvgnKEN/UXMGCxO9YsPtdnEo4HzK6t9oCyj8KQC
uDyjdvhFYzbCBTymnEb2thSel8KQQhR5H1i78LfTAAAFiNM1NUDTJTVAABAAAB3NzaClYc2
EAAAGBAMtb5PzwucJvDJXKM8peafLgxi7NO2iwknnl7azP0L0+36Nuky4VzPhh86ZkENTk
6LTxfWjTLipdP+uXpuUno7XrNWuUF9YYFyyZEIkBvUDpGVF9tSzQD4jQnL/AZSVz16Bvof
Gfc3PniZJl1Ce738TcaAePc0EIUbFSG/8z9yKkN3QoLwBEMgroifz6863yYDDRIDmG5id/
xBE6AIIZoICGvM3TnQVutSrThnnheGyo71h18Fj0AOeHigLYfUiKY0zyad16Txm8ZbtFPn
VABXp2D/072VilgFegu3C1GtvtFX8fe2bBZYeXrM6kwkplQx4t1EBxNnTA/iYsuXzMbc1
C/yMb2r2oOhjp4ni1BEmvOdWeCnsbVteLxh4/qzS+R7VCHkIkDzp0issUbFogU10ApfeOL
3gxR9Nw4AcvfUXgwo7grEb4JyhDf1FzBgstVWLD7XZxKOB8yurfAAsO/CkArg8o3b3x2GW
wgU8ppxG9rYUnpfCkEIUeR9Yu/C30wAAAAMBAAEAAAGANEqI81GjMpAD154xvxPQApGx3c
8A08dLovSwzQMTFdazAxlnly3b6UbEtEB+5StpezB+FHpZIKOh0B7K15n9ysWUkvkdt/ux
2dHyIoJd9XD7Ba1hbQidNhcOd3AtkhfLIYITDmKF+YPMKEzu5Ni2jZrVw6JTbKGLAc2RTW
o7Xjkd2WaLz3G55aCt+tm83bm5alQcCS7a98Uu0Y8smkeksefznKmpGvBmallB9w03Phmi
kgihqP31TZPYtSqd7I1IzaaCZJ6/L93cmteOA1ZjjK2QMsGxwg0q7IknwIYpgKhevDXH++
h+UDM1Dfpu4I1jU1/OW7k4bu8FfoUsBjePerAFbBQbw3rMjCOWEG+V+Z82vnOXXKQ8Nh7o
R6C6D36/ZE6NvbmmOzP/83EdtcDliVhfMkpHeiITFZviYAcOL3oLd0PQTgNQI4fQDn3zk
ib7MvBBvucF748mgOAM1PMHU/L4St2o5EcCy4plbp9zzZ0gNbu4WPvEvzqmRPq/mKhAAAA
wGvDPoex3IXctH2PISq9DefLeur7NTTzdovCKrUz4nJVwt7QPn1kY451T37/Q/hCdLCKFF
9XoQKLMYQG1N+WCVVQ+qkl10a1BEIdDNFss1lq/4w9JfHlXN3qKDXsXOMO3nIsPYfRftpg
FYZvcpEYMaXG5SCZYf1MhnPWJ5T2T61oWvnfNqJ/2GA8zDWbAHSGiNW7N60ZdviKJIOwDo
t+K5bMzyOvR8Z/x0mJN0FwKx/775XNo0Cd9NR8c3xC5krUMgAAAMEA+hUvA4VOHRQdS1Hi
wzZdgeKrIkKr8DzrKTOBxxxmHq6t0kRMTFFilDs4akwNgBdF1A5g8PK7WJwOXVSx9tJo5x
itJyMox6GPPQ5qQw+edkv3Ly1N1uS2Ivi786wSL37DtaoAR6JtI9uZmI1yVUuMPYcfsXVmf
L42LmWxQUfCJRxiWwvZVjvEd3VK7dFdm30IWv5f6IV2QT+24H2V00OdBbEtXkuUp0Vd6nG
B33AoCE/U9AYy/NbBQk8Iys8RLMtsdAAAawQDQK8aibf007nVkJy1l6ml5VenYVeTZ+O/c
qdCyQeVa4jZEnoUYMjUutavT6LS1DEEIm2uAJhB9hC8wCQrv7J9lhNKWjyo1R5QueUlmCX
tdc19gD2C+Oe2CtFrZ43/72TTLosVm0AVkXJN5mlbo9qjWge9xfsxek20YV4RSt5URvQpc
NxBHCH04REZJirYQv1BvMcPulsW+yunNYYeFtstwQOEY1ZBjNvDE0F9eiz57vKzF6vvBTP
SlVBLsLf2ee68AAARcm9vdEB1NmVkyTY1NmNjNjQBAg==
-----END OPENSSH PRIVATE KEY-----
```

## Public key:

```
ssh-rsa
AAAAB3NzaClYc2EAAAADAQABAAQgQDLW+T88LnCbwySlzPKXmny4MYuzTtosJJ55e2sz9C9Pt+jbpMuFczx4fOmZBDdBZoi
0131o0y4qXT/r16blJ6O16zVrlBfWGBcsmRCJab1A6RlRfbUs0A+I0Jy/wGUlC5egb6Hxn3Nz54mSZdQnu9/E3GgHj3NBCF
G30hv/M/cipDd0KC8ARDKq6In8+vOt8mAw0SA5huYnf8QROgCCGaCAhrzN0/kFbk7K04Z54XhsqO9YdfBY9ADnh4oC2H1Ii
mNM8mndek8ZvGW7RT51WgAV6dg/9O91YtYBXoLtwtrRb7RV/H3tmwWWHl6zOpMJKS0MeLZRActZ0wP4mEr18zG3NQv8jG9q
9qDoY6eJ4iARJrznVngp7G1bXi8YeP6s0vke1Qh5CJA86dIrLFGxaIFJdAKX3ji94MUfTcoAHL31F4MKO4KxG+CcoQ39Rcw
YLE71iw+12cSjgfmRq32gLPwPAK4PKN298dhlsIFPKacRva2FJ6XwpBCFHkfwLvw9M= root@e6eda656cc64
```



# Create First Admin User

Username:	<input type="text" value="quirmo90"/>
Password:	<input type="password" value="....."/>
Confirm password:	<input type="password" value="....."/>
Full name:	<input type="text" value="Lorraine Figueroa"/>
E-mail address:	<input type="text" value="nyguerillagirl@gmail.com"/>

## Instance Configuration

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD\_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

- Add Credentials to Jenkins
- Add public key to GitHub

## Splunk and Jenkins

The screenshot shows the GitHub interface for the repository 'nyguerrillagirl / nd035-c4-Security-and-DevOps'. The repository is forked from 'udacity/nd035-c4-Security-and-DevOps'. The top navigation bar includes links for Pulls, Issues, Marketplace, and Explore. The repository's main navigation bar includes links for Code, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The 'Deploy keys' section is active, showing a list of keys. One key is listed: 'AWS Jenkins' with a SHA256 hash, added on Mar 26, 2021, by @nyguerrillagirl, and marked as 'Never used — Read/write'. A 'Delete' button is visible next to the key.

- Set up my first job:


The screenshot shows the Jenkins dashboard for 'Project myFirstJob'. The dashboard includes a sidebar with links for Back to Dashboard, Status, Changes, Workspace, Build Now, Configure, Delete Project, Favorite, Open Blue Ocean, and Rename. The main content area displays the project name, a 'Workspace' link, a 'Recent Changes' link, and a 'Permalinks' section. The 'Build History' section is visible at the bottom, showing a list of builds. The top navigation bar includes a search bar, a user profile for 'Lorraine Figueroa', and a 'log out' button. The bottom of the page shows the REST API and Jenkins version 2.277.1.

- Clicked on “Build Now”

Problem: Build Now started ...it took a while and then nothing. It disappeared and the putty session froze! I did not see any errors.

## Splunk and Jenkins


- Closed the instance
- Restarted AWS Instance (later in the day)
- Started Build #2


 **Build History** **trend** ^


X


#2

Mar 26, 2021 8:25 PM






 [Atom feed for all](#)

 [Atom feed for failures](#)

### TOP of Console Output:

 **Jenkins** search Lorraine Figueroa log out

Dashboard

myFirstJob

#2

Back to Project

Status

Changes

**Console Output**


View as plain text

Edit Build Information

Delete build '#2'

Git Build Data

Open Blue Ocean

 **Console Output**

Skipping 212 KB. Full Log

2021-03-26 20:25:39.347 INFO 2259 --- [main] com.example.demo.service.UserService : ==> findByUsername - figgy

2021-03-26 20:25:39.350 INFO 2259 --- [main] com.example.demo.service.OrderService : OrderService.getUserOrderHistory - UserNotFoundException

2021-03-26 20:25:39.353 INFO 2259 --- [main] o.s.t.c.transaction.TransactionContext : Rolled back transaction for test: [DefaultTestContext@2148b47e

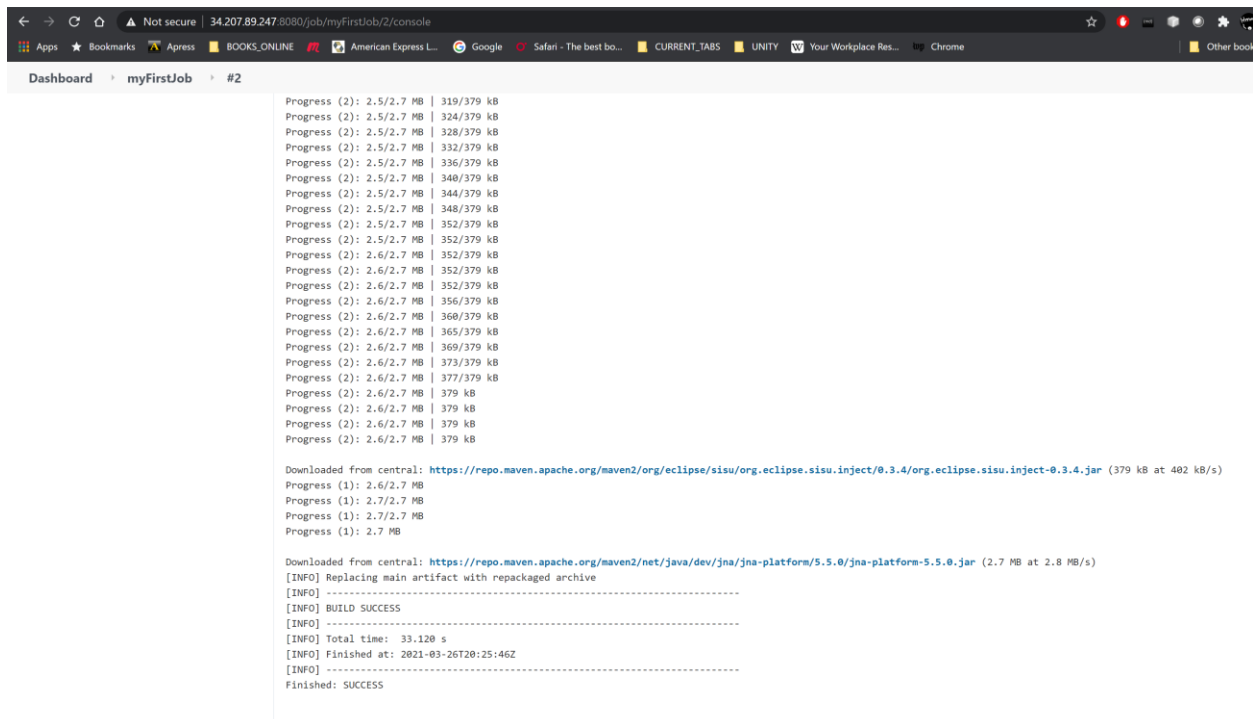
testClass = OrderServiceTest, testInstance = com.example.demo.service.OrderServiceTest@8e094c9, testMethod = testGetUserOrderHistory\_UserNotFoundException@OrderServiceTest, testException = [null], mergedContextConfiguration = [webMergedContextConfiguration@463a1f47 testClass = OrderServiceTest, locations = '{}', classes = '{class com.example.demo.SareetaApplication}', contextInitializerClasses = '{}', activeProfiles = '{}', propertySourceLocations = '{}', propertySourceProperties = '{org.springframework.boot.test.context.SpringBootTestContextBootstrapper=true}', contextCustomizers = set[org.springframework.boot.test.context.filter.ExcludeFilterContextCustomizer@18e92f8f, org.springframework.boot.test.json.DuplicateJsonObjectContextCustomizerFactory\$DuplicateJsonObjectContextCustomizer@5223e5ee, org.springframework.boot.test.mock.mockito.MockitoContextCustomizer@0, org.springframework.boot.test.web.client.TestRestTemplateContextCustomizer@1622f1b, org.springframework.boot.test.autoconfigure.properties.PropertyMappingContextCustomizer@0, org.springframework.boot.test.autoconfigure.web.servlet.MockMvcContextCustomizerFactory\$Customizer@21de68b4, org.springframework.boot.test.context.SpringBootTestArgs@1], resourceBasePath = 'src/main/webapp', contextLoader = 'org.springframework.boot.test.context.SpringBootTestContextLoader', parent = [null]], attributes = map['org.springframework.test.context.web.ServletTestExecutionListener.activateListener' -> true, 'org.springframework.test.context.web.ServletTestExecutionListener.populatedRequestContextHolder' -> true, 'org.springframework.test.context.web.ServletTestExecutionListener.resetRequestContextHolder' -> true]]

2021-03-26 20:25:39.370 INFO 2259 --- [main] o.s.t.c.transaction.TransactionContext : Began transaction (1) for test context [DefaultTestContext@2148b47e

testClass = OrderServiceTest, testInstance = com.example.demo.service.OrderServiceTest@8e094c9, testMethod = testGetUserOrderHistory\_UserNotFoundException@OrderServiceTest, testException = [null], mergedContextConfiguration = [webMergedContextConfiguration@463a1f47 testClass = OrderServiceTest, locations = '{}', classes = '{class com.example.demo.SareetaApplication}', contextInitializerClasses = '{}', activeProfiles = '{}', propertySourceLocations = '{}', propertySourceProperties = '{org.springframework.boot.test.context.SpringBootTestContextBootstrapper=true}', contextCustomizers = set[org.springframework.boot.test.context.filter.ExcludeFilterContextCustomizer@18e92f8f, org.springframework.boot.test.json.DuplicateJsonObjectContextCustomizerFactory\$DuplicateJsonObjectContextCustomizer@5223e5ee, org.springframework.boot.test.mock.mockito.MockitoContextCustomizer@0, org.springframework.boot.test.web.client.TestRestTemplateContextCustomizer@1622f1b, org.springframework.boot.test.autoconfigure.properties.PropertyMappingContextCustomizer@0, org.springframework.boot.test.autoconfigure.web.servlet.MockMvcContextCustomizerFactory\$Customizer@21de68b4,

## Splunk and Jenkins

### Bottom of Console Output:



```
Progress (2): 2.5/2.7 MB | 319/379 kB
Progress (2): 2.5/2.7 MB | 324/379 kB
Progress (2): 2.5/2.7 MB | 328/379 kB
Progress (2): 2.5/2.7 MB | 332/379 kB
Progress (2): 2.5/2.7 MB | 336/379 kB
Progress (2): 2.5/2.7 MB | 340/379 kB
Progress (2): 2.5/2.7 MB | 344/379 kB
Progress (2): 2.5/2.7 MB | 348/379 kB
Progress (2): 2.5/2.7 MB | 352/379 kB
Progress (2): 2.5/2.7 MB | 352/379 kB
Progress (2): 2.6/2.7 MB | 352/379 kB
Progress (2): 2.6/2.7 MB | 352/379 kB
Progress (2): 2.6/2.7 MB | 356/379 kB
Progress (2): 2.6/2.7 MB | 360/379 kB
Progress (2): 2.6/2.7 MB | 365/379 kB
Progress (2): 2.6/2.7 MB | 369/379 kB
Progress (2): 2.6/2.7 MB | 373/379 kB
Progress (2): 2.6/2.7 MB | 377/379 kB
Progress (2): 2.6/2.7 MB | 379 kB
Progress (2): 2.6/2.7 MB | 379 kB
Progress (2): 2.6/2.7 MB | 379 kB
Progress (2): 2.6/2.7 MB | 379 kB

Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/sisu/org.eclipse.sisu.inject/0.3.4/org.eclipse.sisu.inject-0.3.4.jar (379 kB at 482 kB/s)
Progress (1): 2.6/2.7 MB
Progress (1): 2.7/2.7 MB
Progress (1): 2.7/2.7 MB
Progress (1): 2.7 MB

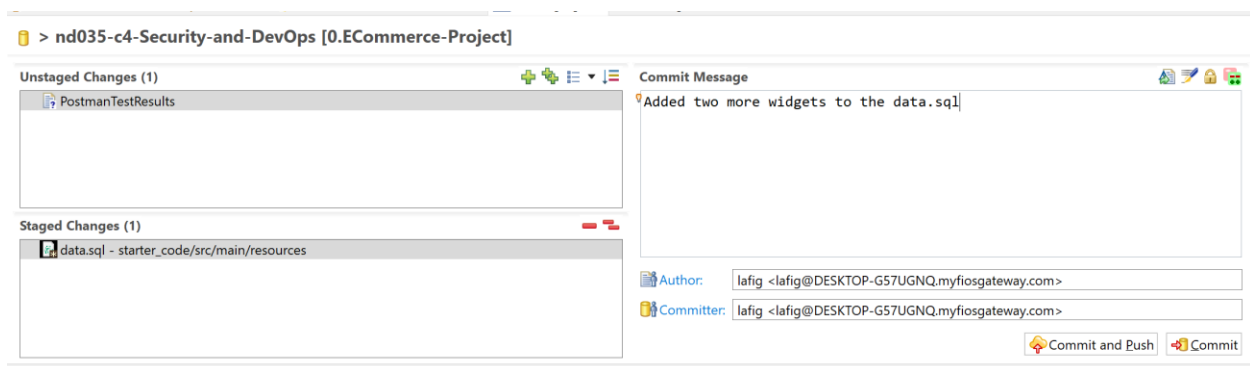
Downloaded from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna-platform/5.5.0/jna-platform-5.5.0.jar (2.7 MB at 2.8 MB/s)
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 33.120 s
[INFO] Finished at: 2021-03-26T20:25:46Z
[INFO] -----
Finished: SUCCESS
```

It worked!!

- Testing if I get build #3 if I make a change to the project...

I updated the data.sql – added two more widgets

```
insert into item (name, price, description) values ('Round Widget', 2.99, 'A widget that is round');
insert into item (name, price, description) values ('Square Widget', 1.99, 'A widget that is square');
insert into item (name, price, description) values ('Ellipse Widget', 2.99, 'A widget that is in the shape of an Ellipse');
insert into item (name, price, description) values ('Recorder Widget', 10.99, 'A widget that looks like a recorder');
```



I don't see the build occurring on its own.

## Splunk and Jenkins

I think I need to set up a hook with Github and enable a build Trigger:

**Build Triggers**

☐ Trigger builds remotely (e.g., from scripts) ?

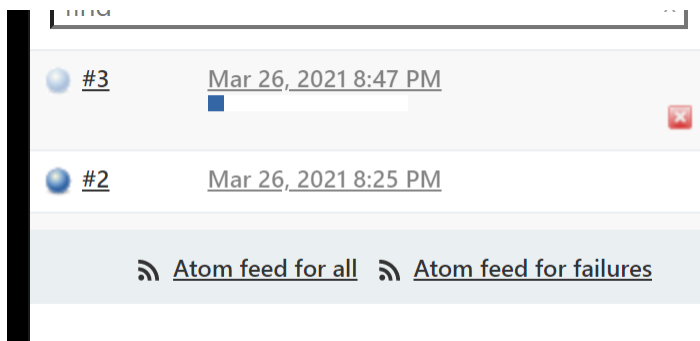
☐ Build after other projects are built ?

☐ Build periodically ?

☐ GitHub hook trigger for GITScm polling ?

☐ Poll SCM ?

None are set – so I guess I have to do “Build Now”



It worked fine:

```
2021-03-26 20:48:14.697 INFO 2411 --- [extShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-2 - Shi
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 27, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.1.1:jar (default-jar) @ auth-course ---
[INFO] Building jar: /var/jenkins_home/workspace/myFirstJob/starter_code/target/auth-course-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:2.3.2.RELEASE:repackage (repackage) @ auth-course ---
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 31.134 s
[INFO] Finished at: 2021-03-26T20:48:17Z
[INFO] -----
Finished: SUCCESS
```

## Deployment

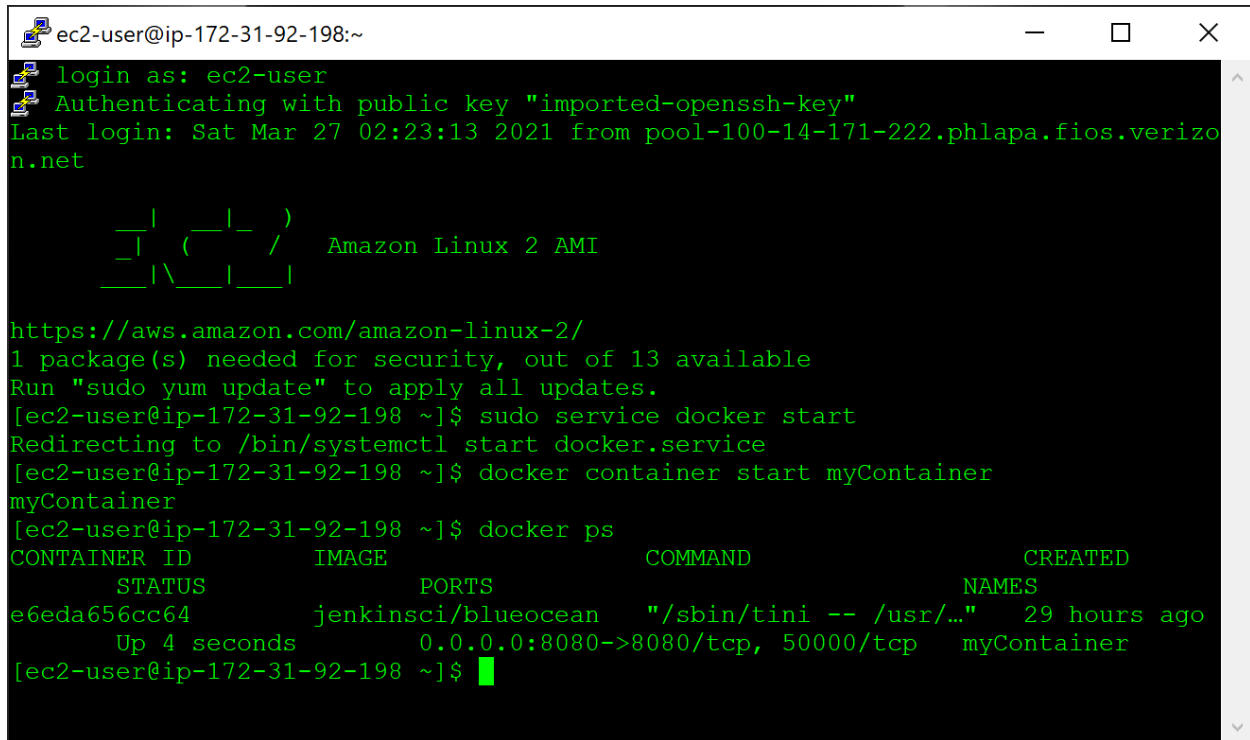
1. Start up the instance

Public Ip Address: 54.163.131.50

Private Ip Address: 172.31.92.198 (this does not change between instance stops and starts)

Public Ipv4 DNS: ec2-54-163-131-50.compute-1.amazonaws.com

2. Login using putty as ec1-user
3. Start docker, Start Jenkins container



```
ec2-user@ip-172-31-92-198:~  
login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
Last login: Sat Mar 27 02:23:13 2021 from pool-100-14-171-222.phlapa.fios.verizon.net  
  
  _|_  ( _|_ )  
  _|_  ( _|_ ) Amazon Linux 2 AMI  
  _|_  ( _|_ )  
  _|_  ( _|_ )  
  
https://aws.amazon.com/amazon-linux-2/  
1 package(s) needed for security, out of 13 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-92-198 ~]$ sudo service docker start  
Redirecting to /bin/systemctl start docker.service  
[ec2-user@ip-172-31-92-198 ~]$ docker container start myContainer  
myContainer  
[ec2-user@ip-172-31-92-198 ~]$ docker ps  
CONTAINER ID        IMAGE               COMMAND             CREATED  
STATUS             PORTS              NAMES  
e6eda656cc64       jenkinsci/blueocean  "/sbin/tini -- /usr/..." 29 hours ago  
Up 4 seconds       0.0.0.0:8080->8080/tcp, 50000/tcp  myContainer  
[ec2-user@ip-172-31-92-198 ~]$
```

4. Downloaded Tomcat

```

ec2-user@ip-172-31-92-198:~
save          Save one or more images to a tar archive (streamed to STDOUT by default)
search        Search the Docker Hub for images
start         Start one or more stopped containers
stats         Display a live stream of container(s) resource usage statistics
stop          Stop one or more running containers
tag           Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top           Display the running processes of a container
unpause       Unpause all processes within one or more containers
update        Update configuration of one or more containers
version       Show the Docker version information
wait          Block until one or more containers stop, then print their exit codes

Run 'docker COMMAND --help' for more information on a command.

[ec2-user@ip-172-31-92-198 ~]$ docker ps
CONTAINER ID        IMAGE               COMMAND                  CREATED
STATUS             PORTS              NAMES
fa941d913a18       tomcat:jdk8        "catalina.sh run"       12 seconds ago
Up 11 seconds      0.0.0.0:8888->8080/tcp myTomcatServer
e6eda656cc64       jenkinsci/blueocean "/sbin/tini-- /usr/..." 30 hours ago
Up 42 minutes      0.0.0.0:8080->8080/tcp, 50000/tcp myContainer
[ec2-user@ip-172-31-92-198 ~]$

```

## 5. Update instance inbound rules

Inbound rules (7)				
Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	0.0.0.0/0	-
HTTP	TCP	80	::/0	-
Custom TCP	TCP	8888	0.0.0.0/0	-
Custom TCP	TCP	8888	::/0	-
Custom TCP	TCP	8080	0.0.0.0/0	-
Custom TCP	TCP	8080	::/0	-
SSH	TCP	22	0.0.0.0/0	-

6. Enter Tomcat container via bash
7. Copied all webapps.dist
8. Installed vim
9. Edit the file ./webapps/manager/META-INF/context.xml and tomcat-users.xml

```

ec2-user@ip-172-31-92-198:~
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The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License. You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
  "
      sameSiteCookies="strict" />
  <!-- <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" /> -->
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|
Long|Number|string)|org\.apache\.catalina\.filters\.CsrfPreventionFilter\$LruCac
he(?:\$\d)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
22,56-63 Bot

```

```

ec2-user@ip-172-31-92-198:~
Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
  version="1.0">

  <role rolename="admin-gui"/>
  <role rolename="manager-script"/>
  <role rolename="manager-gui"/>

  <user username="admin" password="admin123" roles="admin-gui,manager-scri
pt,manager-gui"/>
<!--
NOTE: By default, no user is included in the "manager-gui" role required
to operate the "/manager/html" web application. If you wish to use this app,
you must define such a user - the username and password are arbitrary. It is
strongly recommended that you do NOT use one of the users in the commented out
28,90-97 37%

```

10. Start the Tomcat server
11. Navigate to the app home page



## Splunk and Jenkins


<http://54.163.131.50:8888/>

Not secure | 54.163.131.50:8888

Home Documentation Configuration Examples Wiki Mailing Lists Find Help

### Apache Tomcat/9.0.44

If you're seeing this, you've successfully installed Tomcat. Congratulations!

 Recommended Reading:  
[Security Considerations How-To](#)  
[Manager Application How-To](#)  
[Clustering/Session Replication How-To](#)

Server Status  
Manager App  
Host Manager

#### Developer Quick Start

[Tomcat Setup](#) [Realms & AAA](#) [Examples](#) [Servlet Specifications](#)  
[First Web Application](#) [JDBC DataSources](#) [Tomcat Versions](#)

#### Managing Tomcat

For security, access to the [manager.webapp](#) is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 9.0 access to the manager application is split between different users.  
[Read more...](#)

[Release Notes](#)  
[Changelog](#)  
[Migration Guide](#)  
[Security Notices](#)

#### Documentation

[Tomcat 9.0 Documentation](#)  
[Tomcat 9.0 Configuration](#)  
[Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

[Tomcat 9.0 Bug Database](#)  
[Tomcat 9.0 JavaDocs](#)  
[Tomcat 9.0 Git Repository at GitHub](#)



#### Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

- [tomcat-announce](#)  
Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#)  
User support and discussion
- [taglibs-user](#)  
User support and discussion for [Apache Taglibs](#)
- [tomcat-dev](#)  
Development mailing list, including commit messages

## 12. Logged into manager side

### Tomcat Web Application Manager

Message:  OK

**Manager**

[List Applications](#) [HTML Manager Help](#) [Manager Help](#) [Server Status](#)

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes

**Deploy**

Deploy directory or WAR file located on server

Context Path:

Version (for parallel deployment):

WAR Configuration File:

## 13. Restarted Tomcat server

## 14. Go to Jenkins

## 15. Install "Deploy to container" (did not restart Jenkins)

## 16. Install Maven Integration – did restart Jenkins

## 17. Did Global Configurations:

- JDK

### b. Maven

Use default maven global settings

JDK

JDK installations

Add JDK

JDK

Name

jdk1.8

JAVA\_HOME

/opt/java/openjdk

☐ Install automatically

?

Delete JDK

Maven

Maven installations

Add Maven

Maven

Name

Maven 3.6.3

☒ Install automatically

?

Install from Apache

Version

3.6.3

Add Installer

Delete Installer

Delete Maven

18. Go to configure myFirstJob

19. Update to get branch that creates WAR file

### Source Code Management

☐ None  
☒ Git

#### Repositories

Repository URL

Credentials  
 Add

Advanced...  
Add Repository

#### Branches to build

Branch Specifier (blank for 'any') X

Add Branch

## 20. Added build trigger

### Build Triggers



☐ Trigger builds remotely (e.g., from scripts)  
☐ Build after other projects are built  
☐ Build periodically  
☐ GitHub hook trigger for GITScm polling  
☒ Poll SCM


Schedule


No schedules so will only run due to SCM changes if triqquered by a post-commit hook

## 21. Configure Post-build Actions



**Post-build Actions**

 **Deploy war/ear to a container** 


WAR/EAR files 


Context path 

Containers

 **Tomcat 9.x Remote** 

Credentials

 Add

Tomcat URL 

Advanced...

Add Container


☐ Deploy on failure


Add post-build action


Note: Using PRIVATE IP , Also successfully added Tomcat credential (not shown above)


## 22. Build Now


## Splunk and Jenkins


 Workspace


 Build Now


 Configure


 Delete Project


 Favorite

 Git Polling Log


 Open Blue Ocean


 Rename

 **Build History** trend ^


 [#4](#)

[Mar 27, 2021 6:37 PM](#)





 [#3](#)

[Mar 26, 2021 8:47 PM](#)

 [#2](#)

[Mar 26, 2021 8:25 PM](#)

 [Atom feed for all](#)  [Atom feed for failures](#)

#4 failed with build error

I changed branch back to: \*/0.ECommerce-Project

## Splunk and Jenkins

1. Create new project using the same project demoed in the Deployment section.
2. Did a mvn clean package on my desktop

```
<terminated> starter_code [Maven Build] D:\jdk-15.0.1\bin\javaw.exe (Mar 27, 2021, 10:20:57 PM – 10:21:09 PM)
[INFO]
[INFO] --- spring-boot-maven-plugin:2.1.5.RELEASE:repackage (repackage) @ auth-course ---
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 10.831 s
[INFO] Finished at: 2021-03-27T22:21:09-04:00
[INFO] -----
```

- ### 3. Start Instance

Public IPv4 address: 34.201.60.139

Private IPv4 address: 172.31.92.198

Public IPv4 DNS: ec2-34-201-60-139.compute-1.amazonaws.com

- #### 4. Set up connection using Putty

```
ec2-user@ip-172-31-92-198:~  
login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
Last login: Sat Mar 27 19:28:43 2021 from pool-100-14-171-222.phlapa.fios.verizon.net  
  
  _ | _ | _ )  
  _ | ( _ | /  Amazon Linux 2 AMI  
  _ | \ _ | _ |  
  
https://aws.amazon.com/amazon-linux-2/  
1 package(s) needed for security, out of 13 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-92-198 ~]$
```

5. Start docker
6. Started Jenkins

## Splunk and Jenkins

```
[ec2-user@ip-172-31-92-198 ~]$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS            PORTS              NAMES
e6eda656cc64       jenkinsci/blueocean "/sbin/tini -- /usr/..." 39 hours ago
Up 7 seconds      0.0.0.0:8080->8080/tcp, 50000/tcp  myContainer
[ec2-user@ip-172-31-92-198 ~]$
```

7. Open in browser <http://34.201.60.139:8080>
8. Sign in to browser
9. Check myFirstJob configuration

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

☐ None

☒ Git

Repositories

Repository URL

https://github.com/nyguerrillagirl/nd035-c4-Security-and-DevOps

Credentials

root (Private key for AWS instance)

Add

Advanced...

Add Repository

Branches to build

Branch Specifier (blank for 'any')

\*/master

Build

Invoke top-level Maven targets

Maven Version

(Default)

Goals

clean compile package

Advanced...

Add build step

### Post-build Actions

**Deploy war/ear to a container**
X

WAR/EAR files

?

Context path

?

Containers

**Tomcat 9.x Remote**
X

Credentials

Add

Tomcat URL

?

#### 10. Start Tomcat container

```

ec2-user@ip-172-31-92-198:~
1 package(s) needed for security, out of 13 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-92-198 ~]$ sudo service docker start
Redirecting to /bin/systemctl start docker.service
[ec2-user@ip-172-31-92-198 ~]$ systemctl show --property ActiveState docker
ActiveState=active
[ec2-user@ip-172-31-92-198 ~]$ docker container start myContainer
myContainer
[ec2-user@ip-172-31-92-198 ~]$ ls
[ec2-user@ip-172-31-92-198 ~]$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS            PORTS              NAMES
e6eda656cc64       jenkinsci/blueocean "/sbin/tini -- /usr/..." 39 hours ago
Up 7 seconds      0.0.0.0:8080->8080/tcp, 50000/tcp  myContainer
[ec2-user@ip-172-31-92-198 ~]$ docker container start myTomcatServer
myTomcatServer
[ec2-user@ip-172-31-92-198 ~]$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS            PORTS              NAMES
fa941d913a18       tomcat:jdk8        "catalina.sh run"    9 hours ago
Up 4 seconds      0.0.0.0:8888->8080/tcp  myTomcatServer
e6eda656cc64       jenkinsci/blueocean "/sbin/tini -- /usr/..." 39 hours ago
Up 12 minutes     0.0.0.0:8080->8080/tcp, 50000/tcp  myContainer
[ec2-user@ip-172-31-92-198 ~]$
  
```

#### 11. Check Tomcat is up



## Splunk and Jenkins

**Tomcat Web Application Manager**

Message:

**Manager**

[List Applications](#) [HTML Manager Help](#) [Manager Help](#) [Server Status](#)

**Applications**


Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes

**Deploy**



Deploy directory or WAR file located on server

12. Start Build

13. Jenkins gets stuck

 **Build History** [trend](#) ^

X

 **#7** [Mar 28, 2021 2:41 AM](#) 

**Problem:** I have tried several times to build but Jenkins get stuck, my Tomcat is stuck and my putty session gets stuck. It fails consistently with an error message unrelated to my project. I don't know if it is a lack of resources – that would be my educated guess.

Note: I do use a CI/CD pipeline at my job and it is usually a piece of cake to do a build of course sometimes things don't work and we have to re-try but usually issues around resources is handled by someone else. I am submitting this as-is, since my subscription runs out by Mar 31, 2021. I hope I have done enough to pass the course.