**Deploying ELK Stack on Docker Container**

**Create Spring REST Project**

package com.example.howtodoinjava.hellodocker;

import java.util.Date;

import org.springframework.boot.SpringApplication; import org.springframework.boot.autoconfigure.SpringBootApplication; import org.springframework.web.bind.annotation.PathVariable; import org.springframework.web.bind.annotation.RequestMapping; import org.springframework.web.bind.annotation.RestController;

@SpringBootApplication

public class HelloDockerApplication {

public static void main(String[] args) {

SpringApplication.run(HelloDockerApplication.class, args);

}

}

@RestController class HelloDockerRestController { @RequestMapping("/hello/{name}") public String helloDocker(@PathVariable(value = "name") String name) {

String response = "Hello " + name + " Response received on : " + new Date();

System.out.println(response); return response;

}

}

**application.properties :**

server.port = 9080

**Dockerfile**

FROM openjdk:8-jdk-alpine

VOLUME /tmp

ADD target/hello-docker-0.0.1-SNAPSHOT.jar hello-docker-app.jar

ENV JAVA\_OPTS=""

ENTRYPOINT [ "sh", "-c", "java $JAVA\_OPTS -

Djava.security.egd=file:/dev/./urandom -jar /hello-docker-app.jar" ]

**pom.xml**

<plugin>

<groupId>com.spotify</groupId>

<artifactId>dockerfile-maven-plugin</artifactId>

<version>1.3.4</version>

<configuration>

<repository>${docker.image.prefix}/${project.artifactId}</repository>

</configuration>

</plugin>

<plugin>

<groupId>org.apache.maven.plugins</groupId>

<artifactId>maven-dependency-plugin</artifactId>

<executions>

<execution>

<id>unpack</id>

<phase>package</phase>

<goals>

<goal>unpack</goal>

</goals>

<configuration>

<artifactItems>

<artifactItem>

<groupId>${project.groupId}</groupId>

<artifactId>${project.artifactId}</artifactId>

<version>${project.version}</version>

</artifactItem>

</artifactItems>

</configuration>

</execution>

</executions>

</plugin>

# SpringBootDemoApplication.java

import java.util.Arrays; import org.springframework.boot.SpringApplication; import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.boot.autoconfigure.security.SecurityAutoConfiguration; import org.springframework.context.ApplicationContext;

@SpringBootApplication (exclude = SecurityAutoConfiguration.class) public class SpringBootDemoApplication { public static void main(String[] args)

{

ApplicationContext ctx =

SpringApplication.run(SpringBootDemoApplication.class, args);

String[] beanNames = ctx.getBeanDefinitionNames(); Arrays.sort(beanNames); for (String beanName : beanNames)

{

System.out.println(beanName);

}

}

}

# EmployeeController.java

import java.util.ArrayList; import java.util.List; import org.springframework.web.bind.annotation.RequestMapping; import org.springframework.web.bind.annotation.RestController; import com.howtodoinjava.demo.model.Employee;

@RestController public class EmployeeController

{

@RequestMapping("/") public List<Employee> getEmployees()

{

List<Employee> employeesList = new ArrayList<Employee>();

employeesList.add(new

Employee(1,"lokesh","gupta","howtodoinjava@gmail.com")); return employeesList;

}

}

Employee.java public class Employee { public Employee() {

}

public Employee(Integer id, String firstName, String lastName, String email) {

super(); this.id = id; this.firstName = firstName; this.lastName = lastName; this.email = email;

} private Integer id; private String firstName; private String lastName; private String email; //getters and setters

@Override public String toString() { return "Employee [id=" + id + ", firstName=" + firstName

+ ", lastName=" + lastName + ", email=" + email + "]";

}

}

# **ElkExampleSpringBootApplication.java**

package com.example.howtodoinjava.elkexamplespringboot;

import java.io.PrintWriter; import java.io.StringWriter; import java.util.Date; import org.apache.log4j.Level; import org.apache.log4j.Logger; import org.springframework.beans.factory.annotation.Autowired; import org.springframework.boot.SpringApplication; import org.springframework.boot.autoconfigure.SpringBootApplication; import org.springframework.context.annotation.Bean; import org.springframework.core.ParameterizedTypeReference; import org.springframework.http.HttpMethod; import org.springframework.web.bind.annotation.RequestMapping; import org.springframework.web.bind.annotation.RestController; import org.springframework.web.client.RestTemplate;

@SpringBootApplication

public class ElkExampleSpringBootApplication {

public static void main(String[] args) {

SpringApplication.run(ElkExampleSpringBootApplication.class, args); }

}

@RestController class ELKController {

private static final Logger LOG =

Logger.getLogger(ELKController.class.getName());

@Autowired

RestTemplate restTemplete;

@Bean

RestTemplate restTemplate() {

return new RestTemplate();

}

@RequestMapping(value = "/elkdemo")

public String helloWorld() {

String response = "Hello user ! " + new Date();

LOG.log(Level.INFO, "/elkdemo - &gt; " + response);

return response;

}

@RequestMapping(value = "/elk")

public String helloWorld1() {

String response = restTemplete.exchange("http://localhost:8080/elkdemo",

HttpMethod.GET, null, new ParameterizedTypeReference() {

}).getBody();

LOG.log(Level.INFO, "/elk - &gt; " + response);

try {

String exceptionrsp =

restTemplete.exchange("http://localhost:8080/exception", HttpMethod.GET, null, new ParameterizedTypeReference() {

}).getBody();

LOG.log(Level.INFO, "/elk trying to print exception - &gt; " + exceptionrsp);

response = response + " === " + exceptionrsp;

} catch (Exception e) {

// exception should not reach here. Really bad practice :)

}

return response;

}

@RequestMapping(value = "/exception")

public String exception() { String rsp = ""; try {

int i = 1 / 0;

// should get exception } catch (Exception e) { e.printStackTrace();

LOG.error(e);

StringWriter sw = new StringWriter(); PrintWriter pw = new PrintWriter(sw); e.printStackTrace(pw);

String sStackTrace = sw.toString(); // stack trace as a string

LOG.error("Exception As String :: - &gt; "+sStackTrace);

rsp = sStackTrace;

}

return rsp;

} }

**application.properties**

logging.file=elk-example.log spring.application.name = elk-example Logstash Configuration

input { file { type => "java" path => "F:/Study/eclipse\_workspace\_mars/elk-example-spring-boot/elkexample.log" codec => multiline {

pattern => "^%{YEAR}-%{MONTHNUM}-%{MONTHDAY} %{TIME}.\*" negate => "true"

what => "previous"

}

}

}

filter {

#If log line contains tab character followed by 'at' then we will tag that entry as stacktrace if [message] =~ "\tat" {

grok {

match => ["message", "^(\tat)"]

add\_tag => ["stacktrace"]

}

}

grok {

match => [ "message",

"(?<timestamp>%{YEAR}-%{MONTHNUM}-%{MONTHDAY}

%{TIME}) %{LOGLEVEL:level} %{NUMBER:pid} --- \[(?<thread>[A-Za-z09-]+)\] [A-Za-z0-9.]\*\.(?<class>[A-Za-z0-9#\_]+)\s\*:\s+(?<logmessage>.\*)",

"message",

"(?<timestamp>%{YEAR}-%{MONTHNUM}-%{MONTHDAY} %{TIME}) %{LOGLEVEL:level} %{NUMBER:pid} --- .+?

:\s+(?<logmessage>.\*)"

]

}

date { match => [ "timestamp" , "yyyy-MM-dd HH:mm:ss.SSS" ]

}

}

output {

stdout {

codec => rubydebug

}

# Sending properly parsed log events to elasticsearch

elasticsearch {

hosts => ["localhost:9200"]

} }

# Kibana Configuration

|  |  |
| --- | --- |
|  | pipeline { agent { docker {  image 'maven:3-alpine'  args '-v /root/.m2:/root/.m2'  } } stages { |
| stage('Build') { | |
|  | steps { sh 'mvn -B -DskipTests clean package'  }  } |
| } | |
|  | } |

test stage to your Pipeline

stage('Test') {

steps {

sh 'mvn test'

}

post {

always {

junit 'target/surefire-reports/\*.xml'

}

}

}

|  |
| --- |
| pipeline { agent { docker { image 'maven:3-alpine'  args '-v /root/.m2:/root/.m2'  } } stages { stage('Build') { steps { sh 'mvn -B -DskipTests clean package'  } }  stage('Test') { steps { sh 'mvn test'  } post { always { junit 'target/surefire-reports/\*.xml' }  }  }  }  } |

Test stage of your Jenkinsfile:

1. stage('Deliver') {
2. steps {

|  |  |
| --- | --- |
| 1. sh './jenkins/scripts/deliver.sh' 2. } | |
|  | } |

and add a skipStagesAfterUnstable option so that you end up with:

|  |
| --- |
| pipeline { agent { docker { image 'maven:3-alpine'  args '-v /root/.m2:/root/.m2'  } } options { skipStagesAfterUnstable()  } stages { stage('Build') { steps { sh 'mvn -B -DskipTests clean package'  } }  stage('Test') { steps {  sh 'mvn test'  } post { always { junit 'target/surefire-reports/\*.xml'  }  } }  stage('Deliver') {  steps { sh './jenkins/scripts/deliver.sh' }  }  }  } |