

# JavaEE examples java-ee-examples (0.0.1) [\[Build Status\]](#)

Maksim Kostromin

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# Introduction

This documentation contains some help to [examples from java-ee-examples repository](#). It's contains some JavaEE playground projects

*build run and test*

```
./gradlew clean build composeUp
```

```
http :8080/app/
```

```
http :8080/app/dwr/index.html
```

```
./gradlew composeDown
```

```
# or just
```

```
./gradlew build ; ./gradlew composeDown ; ./gradlew composeUp ; docker-compose -f  
docker-compose-gradle.yaml logs -f -t
```

# Chapter 1. jboss-eap-postgres

*jboss-eap-6.4/standalone/configuration/standalone.xml*

```
<!-- ... -->
</extensions>
<!-- TODO: CHANGE ME: https://access.redhat.com/solutions/3442891 -->
<system-properties>
  <property name="jackson.deserialization.whitelist.packages"
    value="org.kie,org.drools,daggerok"/>
</system-properties>
<!-- TODO: CHANGE ME END -->
<management>
  <!-- ... -->
  <!-- ... -->
  <subsystem xmlns="urn:jboss:domain:datasources:1.2">
    <datasources>
      <!-- TODO:
        CHANGE ME: https://access.redhat.com/documentation/en-
        us/red_hat_jboss_enterprise_application_platform/6.4/html-
        single/administration_and_configuration_guide/#sect-Example_Datasources
        https://www.redhat.com/cms/managed-
        files/eap_msa_ose3_0.pdf -->
      <datasource jndi-name="java:jboss/datasources/ExampleDS" pool-name=
        "ExampleDS" enabled="true" jta="true" use-java-context="true" use-ccm="false">
        <connection-url>jdbc:postgresql://${env.POSTGRES_HOST:postgres.my-
        app.com}:${env.POSTGRES_PORT:5432}/${env.POSTGRES_DB:db}</connection-url>
        <driver>postgresql</driver>
        <security>
          <user-name>${env.POSTGRES_USER:user}</user-name>
          <password>${env.POSTGRES_PASSWORD:password}</password>
        </security>
      </datasource>
    <drivers>
      <driver name="postgresql" module="org.postgresql">
        <xa-datasource-class>org.postgresql.xa.PGXADatasource</xa-
        datasource-class>
      </driver>
    </drivers>
      <!-- TODO: CHANGE ME END -->
    </datasources>
  </subsystem>
  <!-- ... -->
```

```
<?xml version="1.0" encoding="UTF-8"?>
<module xmlns="urn:jboss:module:1.1" name="org.postgresql">
  <resources>
    <resource-root path="postgresql-9.4-1206-jdbc4.jar"/>
  </resources>
  <dependencies>
    <module name="javax.api"/>
    <module name="javax.transaction.api"/>
    <module name="javax.servlet.api" optional="true"/>
  </dependencies>
</module>
```

*persistence.xml*

```
<?xml version="1.0" encoding="UTF-8"?>
<persistence version="2.0"
  xmlns="http://java.sun.com/xml/ns/persistence" xmlns:xsi=
"http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
http://java.sun.com/xml/ns/persistence/persistence_2_0.xsd">
  <persistence-unit name="" transaction-type="JTA">
    <jta-data-source>java:jboss/datasources/ExampleDS</jta-data-source>
    <properties>
      <property name="hibernate.hbm2ddl.auto" value="create"/>
      <property name="hibernate.show_sql" value="true"/>
      <property name="hibernate.format_sql" value="false"/>
      <!-- optionals: -->
      <!--<property name="hibernate.dialect"
value="org.hibernate.dialect.PostgreSQL82Dialect"/>-->
    </properties>
    <!--<provider>org.hibernate.ejb.HibernatePersistence</provider>-->
  </persistence-unit>
</persistence>
```

```

@Data
@Entity
@Table(name = "my_entities")
@NoArgsConstructor(access = PROTECTED)
@RequiredArgsConstructor(staticName = "of")
@NamedQueries({
    @NamedQuery(name = FIND_ANY, query = "SELECT me FROM MyEntity me WHERE LOWER(me.data) LIKE LOWER(CONCAT('%',:q,'%'))"),
    @NamedQuery(name = FIND_ALL, query = "SELECT me FROM MyEntity me ORDER BY me.createdAt DESC"),
    @NamedQuery(name = COUNT, query = "SELECT COUNT(me) FROM MyEntity me")
})
public class MyEntity implements Serializable {

    public static final String COUNT = "MyEntity.count";
    public static final String FIND_ALL = "MyEntity.findAll";
    public static final String FIND_ANY = "MyEntity.findAny";

    @Id
    @Setter(PRIVATE)
    @GeneratedValue(generator = "UUID2")
    @GenericGenerator(name = "UUID2", strategy = "org.hibernate.id.UUIDGenerator")
    private UUID id;

    @Column
    @NonNull
    String data;

    @Temporal(TIMESTAMP)
    @Column(name = "created")
    Date createdAt;

    @Temporal(TIMESTAMP)
    @Column(name = "updated")
    Date updatedAt;

    @PrePersist
    public void onCreate() {
        createdAt = new Date();
    }

    @PreUpdate
    public void onMerge() {
        final long time = new Date().getTime();
        createdAt = new Date(time);
        updatedAt = new Date(time);
    }
}

```

```
/**
 * see https://stackoverflow.com/questions/51756761/jboss-eap-7-1-spring-data-jpa-cdi-
 * extension
 */
@Slf4j
@ApplicationScoped
public class CDIEntityManagerProducer {

    @Produces
    @Dependent
    @PersistenceUnit(unitName = "")
    EntityManagerFactory emf;

    @Produces
    @RequestScoped
    public EntityManager em() {
        final EntityManager em = emf.createEntityManager();
        log.debug("hi {}", em);
        return em;
    }

    public void close(@Disposes EntityManager em) {
        log.debug("bye {}", em);
        em.close();
    }
}
```

*build, run and test*

```
./mvnw ; ./mvnw -Pdocker docker-compose:up

http :8080/app/ data=ololo
http :8080/app/ data=trololo
http :8080/app/

./mvnw -Pdocker docker-compose:down
```

## 1.1. jax-rs-hateoas-links

*build*

```
./gradlew clean build composeUp

http :8080/app

./gradlew composeDown
```



*docker redeploy*

```
/gradlew war; bash ./gradle/redeploy.sh
```

links:

- [some rax-rs](#)
- [more jax-rs...](#)

Initially generated by using [generator-jvm](#) yeoman generator (java-ee)

## 1.2. aop-logger

*build run and test (required: docker)*

```
./gradlew composeUp  
  
http :8080/app/api/ping  
http :8080/app/api/pong  
  
# to see aop logger logs  
docker logs -f aop-logger_gradle-aop-logger-app_1  
  
./gradlew composeDown
```

## JAX-RS ping-pong resource

```
@Stateless
@Path("/api")
@Produces(APPLICATION_JSON)
public class HealthResource {

    static final Map<String, String> pingPongMap
        = HashMap.of("ping", "pong",
                     "pong", "ping")
                .toJavaMap();

    @Inject
    SomeBusinessLogic logic;

    @GET
    @Path("/{path: (ping|pong)}")
    public Response pingPong(@PathParam("path") final String path) {
        logic.doSomething();
        return Response.ok(Json.createObjectBuilder()
                        .add("status", pingPongMap.get(path))
                        .build())
                .build();
    }
}
```

## business service

```
@Stateless
@Interceptors(LoggerInterceptor.class)
public class SomeBusinessLogic {

    public void doSomething() {}
}
```

## interceptor

```
@Slf4j
public class LoggerInterceptor {

    @AroundInvoke
    public Object intercept(InvocationContext ic) throws Exception {
        log.info("intercepting: {} at: {}", ic.getContextData(), ic.getTimer());
        return ic.proceed();
    }
}
```

Initially generated by using [generator-jvm](#) yeoman generator (java-ee)

## 1.3. jax-rs-regex-path

*example, how to handle **ping**, **pong** and **health** paths by single resource method*

```
@Stateless
@Path("api")
@Produces(APPLICATION_JSON)
public class HealthResource {

    static final Map<String, String> pingPongMap
        = HashMap.of("ping", "pong",
                     "pong", "ping")
                .toJavaMap();

    @GET
    @Path("{path: (health|ping|pong)}")
    public Response health(@PathParam("path") final String path) {
        return Response.ok(Json.createObjectBuilder()
                        .add("status", pingPongMap.getOrDefault(path, "UP"))
                        .build())
                .build();
    }
}
```

Initially generated by using [generator-jvm](#) yeoman generator (java-ee)

# Chapter 2. Async

## 2.1. async-jax-rs-resources

*async resource*

```
@Stateless
@Path("items")
@Produces(APPLICATION_JSON)
class AppResource {

    @Context
    lateinit var uriInfo: UriInfo

    @Resource
    lateinit var mes: ManagedExecutorService

    @Inject
    lateinit var itemRepository: ItemRepository

    @GET
    @Path("async")
    fun getAllInAsync(@Suspended asyncResponse: AsyncResponse) = mes.execute {
        val result = itemRepository.findAll()
        asyncResponse.resume(result)
    }
}
```

*RESTEasy dto*

```
@Entity
@JsonIgnoreProperties(ignoreUnknown = true)
data class Item(
    @Id @GeneratedValue var id: Long? = null,
    var value: String? = null
) : Serializable
```

Initially generated by using [generator-jvm](#) yeoman generator (kotlin-ee)

## 2.2. porcupine-bulkhead-jee8

*build, run and test*

```
./gradlew composeUp

http :8080/app/async-items/write1 value=ololo
http :8080/app/async-items/write2 value=trololo

http :8080/app/async-items/read1/1
http :8080/app/async-items/read1

http :8080/app/async-items/read2/2
http :8080/app/async-items/read2
```

*entity*

```
@Data
@Entity
@NoArgsConstructor
@AllArgsConstructor
@Accessors(chain = true)
public class Item implements Serializable {

    private static final long serialVersionUID = 1466287048756540922L;

    @Id
    @GeneratedValue
    Long id;

    String value;
}
```

```
@Stateful
@Transactional(NOT_SUPPORTED)
public class ItemRepository {

    @PersistenceContext
    EntityManager em;

    @Transactional(REQUIRES_NEW)
    public Item save(final Item item) {
        em.persist(item);
        return item;
    }

    public Item findOne(final Long id) {
        return em.find(Item.class, id);
    }

    public List<Item> findAll() {
        return em.createQuery("select i from Item i", Item.class)
            .getResultList();
    }
}
```

```
@Slf4j
@Stateless
@Path("async-items")
@Produces(APPLICATION_JSON)
public class WriteItemsResource {

    @Inject
    ItemRepository itemRepository;

    @Inject
    @Dedicated("write-async-items")
    ExecutorService writeExecutor;

    @POST
    @Path("write1")
    public void post1(@Valid @NotNull final Item item, @Suspended final AsyncResponse
    asyncResponse) {
        writeExecutor.execute(() -> {
            final Item result = itemRepository.save(item);
            asyncResponse.resume(result);
        });
    }

    @POST
    @Path("write2")
    public void post2(@Valid @NotNull final Item item, @Suspended final AsyncResponse
    asyncResponse) {
        CompletableFuture.supplyAsync(() -> itemRepository.save(item), writeExecutor)
            .thenAccept(asyncResponse::resume);
    }
}
```

```

@Slf4j
@Stateless
@Path("async-items")
@Produces(APPLICATION_JSON)
public class ReadItemsResource {

    @Inject
    ItemRepository itemRepository;

    @Inject
    @Dedicated("read-async-items")
    ExecutorService readExecutor;

    @GET
    @Path("read1")
    public void getAll1(@Suspended final AsyncResponse asyncResponse) {
        readExecutor.execute(() -> {
            final List<Item> result = itemRepository.findAll();
            asyncResponse.resume(result);
        });
    }

    @GET
    @Path("read2")
    public void getAll2(@Suspended final AsyncResponse asyncResponse) {
        CompletableFuture
            .supplyAsync(() -> itemRepository.findAll(), readExecutor)
            .thenAccept(asyncResponse::resume);
    }

    @GET
    @Path("read1/{id}")
    public void get1(@PathParam("id") final Long id, @Suspended final AsyncResponse
asyncResponse) {
        readExecutor.execute(() -> {
            final Item result = itemRepository.findOne(id);
            asyncResponse.resume(result);
        });
    }

    @GET
    @Path("read2/{id}")
    public void get2(@PathParam("id") final Long id, @Suspended final AsyncResponse
asyncResponse) {
        CompletableFuture.supplyAsync(() -> itemRepository.findOne(id), readExecutor)
            .thenAccept(asyncResponse::resume);
    }
}

```



Initially generated by using [generator-jvm](#) yeoman generator (kotlin-ee)

# Chapter 3. Micro Profile

*MicroProfile 1.0 (CDI + JAX-RS + JSON-P)*

```
<dependencyManagement>
  <dependencies>
    <dependency>
      <groupId>org.wildfly.swarm</groupId>
      <artifactId>bom-all</artifactId>
      <version>${version.wildfly.swarm}</version>
      <scope>import</scope>
      <type>pom</type>
    </dependency>
  </dependencies>
</dependencyManagement>
```

# Chapter 4. JBOSS 4 | JAX-RS

## *build*

```
./mvnw clean package com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down

./gradlew clean build composeUp
./gradlew composeDown
```

generated by [daggerok-fatjar](#) yeoman generator

in fucking progress...

1. [book](#)
2. [youtube](#)
3. [Github: sdaschner/scalable-coffee-shop](#)

## *kafka*

```
cd /tmp
wget -O kafka.jar https://github.com/daggerok/embedded-kafka/raw/mvn-
repo/daggerok/embedded-kafka/0.0.1/embedded-kafka-0.0.1.jar
java -jar kafka.jar
```

## *gradle*

```
./gradlew
bash build/libs/*jar

./gradlew build composeUp
./gradlew composeDown
```

# Chapter 5. maven is not working properly

actually working but with hack (see src/main/webapp/WEB-INF/classes/README)

*maven*

```
./mvnw  
java -jar target/*.jar  
  
./mvnw; ./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up  
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down
```

generated using [daggerok-fatjar](#) yeoman generator

inside:

1. java 8 based project
2. javaee 8.0 using wildfly-swarm micro-profile
3. kotlin support
4. lombok (slf4j + logback logging)
5. vavr (javaslang)
6. support maven
7. support gradle
8. supports testing junit 4 / 5
9. docker / docker-compose support

```
./gradlew  
bash build/libs/*.jar  
  
./gradlew build composeUp  
./gradlew composeDown
```

```
./mvnw  
java -jar target/*.jar  
  
./mvnw; ./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up  
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down
```

generated using [daggerok-fatjar](#) yeoman generator

inside:

1. java 8 based project

2. javaee 8.0
3. lombok (slf4j + logback logging)
4. vavr (javaslang)
5. support maven
6. support gradle
7. supports testing junit 4 / 5
8. docker / docker-compose support (JBoss EAP 7)

#### *build*

```
./mvnw clean package com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down

./gradlew clean build composeUp
./gradlew composeDown
```

# Chapter 6. JavaEE Wildfly-Swarm Micro-Profile using Gradle

## 6.1. wildfly-swarm-gradle

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example playground application

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/wildfly-swarm-gradle-swarm.jar
http :8080
```

*using docker*

```
docker build --force-rm -f ./docker/src/Dockerfile -t docker-java-ee-examples .
docker run -d -p 8080:8080 --rm --name wildfly-swarm-gradle docker-java-ee-examples
http :8080
docker rm -f -v wildfly-swarm-gradle
```

*using docker-compose*

```
docker-compose -f ./docker/src/docker-compose.yml up -d
http :8080
docker-compose -f ./docker/src/docker-compose.yml down -v
```

## *using docker swarm stack deploy*

```
docker swarm init
docker service create --detach=false --name registry --publish 5000:5000 registry:2
docker build -f ./docker/src/Dockerfile -t 127.0.0.1:5000/app .
docker push 127.0.0.1:5000/app
#docker-compose -f ./docker/src/stack-deploy.yml build --force-rm --no-cache --pull
#docker-compose -f ./docker/src/stack-deploy.yml push
docker stack deploy --compose-file ./docker/src/stack-deploy.yml java-ee
docker stack services --filter name="java-ee_app" --format="{{.Name}} {{.Replicas}}"
java-ee
docker service scale --detach=false java-ee_app=2

sleep 15
docker stack services java-ee

http :8080

docker swarm leave --force
docker system prune -af
```

links:

1. [Eclipse MicroProfile](#)
2. [Wildfly Swarm Micro-Profile](#)
3. [Wildfly Swarm Book](#)
4. [wildfly-swarm fails on travis-ci](#)
5. [wildfly-swarm gradle plugin](#)

# Chapter 7. JavaEE Wildfly-Swarm Micro-Profile using Maven

## 7.1. wildfly-swarm-maven

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example playground application

*using maven*

```
mvn -Djava.net.preferIPv4Stack=true wildfly-swarm:run  
http :8080
```

*using wildfly swarm microprofile*

```
mvn clean package  
java -Djava.net.preferIPv4Stack=true -jar target/java-ee-examples-0.0.0-swarm.jar  
http :8080
```

*using docker*

```
docker build --force-rm -f ./docker/src/Dockerfile -t docker-java-ee-examples .  
docker run -d -p 8080:8080 --rm --name wildfly-swarm-maven docker-java-ee-examples  
http :8080  
docker stop wildfly-swarm-maven
```

*using docker-compose*

```
docker-compose -f ./docker/src/docker-compose.yml up -d  
http :8080  
docker-compose -f ./docker/src/docker-compose.yml down -v
```



### *using docker swarm stack deploy*

```
docker swarm init
docker service create --detach=false --name registry --publish 5000:5000 registry:2
docker build -f ./docker/src/Dockerfile -t 127.0.0.1:5000/app .
docker push 127.0.0.1:5000/app
#docker-compose -f ./docker/src/stack-deploy.yml build --force-rm --no-cache --pull
#docker-compose -f ./docker/src/stack-deploy.yml push
docker stack deploy --compose-file ./docker/src/stack-deploy.yml java-ee
docker stack services --filter name="java-ee_app" --format="{{.Name}} {{.Replicas}}"
java-ee
docker service scale --detach=false java-ee_app=2

sleep 30
docker stack services java-ee

http :8080

docker swarm leave --force
docker system prune -af
```

links:

1. [Eclipse MicroProfile](#)
2. [Wildfly Swarm Micro-Profile](#)
3. [Wildfly Swarm Book](#)
4. [wildfly-swarm fails on travis-ci](#)

# Chapter 8. Kumuluzee MicroProfile 1.0

## 8.1. kumuluzee-microprofile-1.0

This repository contains simple JavaEE Wildfly Swarm Micro-profile example - serving static content

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/wildfly-swarm-gradle-swarm.jar
http :8080
```

# Chapter 9. JavaEE Kubernetes

## 9.1. java-kube-ee

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example playground application

*prepare kubernetes cluster, build docker image, push into local registry*

```
minikube start --cpus=4 --memory=4096
eval (minikube docker-env)
docker run -d --rm --name registry -p 5000:5000 registry:2
docker build -t 127.0.0.1:5000/app -f ./docker/src/Dockerfile .
docker push 127.0.0.1:5000/app
```

*create kubernete yaml file*

```
vim ./docker/k8s/app.yml

kubectl apply -f ./docker/k8s/app.yml --validate=false

kubectl get svc -o wide
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
SELECTOR
app           NodePort      10.0.0.189    <none>         8080:32464/TCP   3m           app=app

curl 192.168.99.100:32464
# or
http (minikube service app --url)
22:21:09

[
  "one",
  "two",
  "three",
  "kubeee"
]
```

now update code and redeploy app

*deploy app*

```
bash gradlew clean build
docker build -t 127.0.0.1:5000/app:v2 -f ./docker/src/Dockerfile .
docker push 127.0.0.1:5000/app:v2
vim ./docker/k8s/app.yml # update image: 127.0.0.1:5000/app:v2
kubectl apply -f ./docker/k8s --validate=false
```

*terminal 1*

```
kubectl get pods -w                23:59:35
NAME                                READY    STATUS    RESTARTS   AGE
app-1515935557-411m1               1/1     Running   0           10m
app-1515935557-4d3gf               1/1     Terminating   0           4m
app-1515935557-4d3gf               0/1     Terminating   0           4m
app-3366916455-bw6m9               0/1     Pending       0           0s
app-3366916455-bw6m9               0/1     ContainerCreating   0           0s
app-3366916455-bw6m9               1/1     Running       0           1s
```

*terminal 2*

```
while true; curl (minikube service app --url); echo""; sleep 1; end
["one","two","three","kubeee"]
["one","two","three","kubeee"]
Waiting, endpoint for service is not ready yet...
["one","two","three","kubeee","2017-10-02T21:12:34.095Z"]
["one","two","three","kubeee","2017-10-02T21:12:36.182Z"]
```

second test but using ip, not minikube service

*redploy app prev version*

```
vim ./docker/k8s/app.yml # update image: 127.0.0.1:5000/app
kubectl apply -f ./docker/k8s --validate=false
```

*terminal 1*

```
kubectl get pods -w                23:59:35
NAME                                READY    STATUS    RESTARTS   AGE
app-1515935557-411m1               1/1     Running   0           10m
...
app-1515935557-4d3gf               1/1     Terminating   0           4m
app-1515935557-4d3gf               0/1     Terminating   0           4m
...
app-3366916455-bw6m9               0/1     Pending       0           0s
app-3366916455-bw6m9               0/1     ContainerCreating   0           0s
app-3366916455-bw6m9               1/1     Running       0           1s
```

*terminal 2*

```
while true; curl 192.168.99.100:32161; echo""; sleep 1; end
["one","two","three","kubeee"]
["one","two","three","kubeee"]
Waiting, endpoint for service is not ready yet...
["one","two","three","kubeee","172.17.0.5"]
["one","two","three","kubeee","172.17.0.6"]
```

*autoscale*

```
kubectl autoscale deployment app --min=2 --max=3
```

*scale down*

```
kubectl scale deployment app --replicas=3
```

*cleanup*

```
kubectl delete all -l name=app
# or
kubectl delete service app; kubectl delete deployment app

minikube stop; minikube delete
```

## 9.2. old

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/java-kube-ee-swarm.jar
http :8080
```

*e2e tests using bash scripts)*

```
bash ./docker/bin/test-dockerfile.bash      # docker
bash ./docker/bin/test-docker-compose.bash  # docker compose
bash ./docker/bin/test-stack-deploy.bash    # docker swarm cluster
```

links

1. [like so](#)

# Chapter 10. JavaEE using Kotlin

## 10.1. java-kube-ee

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example playground application

*prepare kubernetes cluster, build docker image, push into local registry*

```
minikube start --cpus=4 --memory=4096
eval $(minikube docker-env)
docker run -d --rm --name registry -p 5000:5000 registry:2
docker build -t 127.0.0.1:5000/app -f ./docker/src/Dockerfile .
docker push 127.0.0.1:5000/app
```

*create kubernete yaml file*

```
vim ./docker/k8s/app.yml

kubectl apply -f ./docker/k8s/app.yml --validate=false

kubectl get svc -o wide
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
SELECTOR
app           NodePort      10.0.0.189    <none>         8080:32464/TCP   3m           app=app

curl 192.168.99.100:32464
# or
http (minikube service app --url)
22:21:09

[
  "one",
  "two",
  "three",
  "kubeee"
]
```

now update code and redeploy app

*deploy app*

```
bash gradlew clean build
docker build -t 127.0.0.1:5000/app:v2 -f ./docker/src/Dockerfile .
docker push 127.0.0.1:5000/app:v2
vim ./docker/k8s/app.yml # update image: 127.0.0.1:5000/app:v2
kubectl apply -f ./docker/k8s --validate=false
```

*terminal 1*

```
kubectl get pods -w                23:59:35
NAME                                READY    STATUS    RESTARTS   AGE
app-1515935557-411m1               1/1     Running   0           10m
app-1515935557-4d3gf               1/1     Terminating   0           4m
app-1515935557-4d3gf               0/1     Terminating   0           4m
app-3366916455-bw6m9               0/1     Pending       0           0s
app-3366916455-bw6m9               0/1     ContainerCreating   0           0s
app-3366916455-bw6m9               1/1     Running       0           1s
```

*terminal 2*

```
while true; curl (minikube service app --url); echo""; sleep 1; end
["one","two","three","kubeee"]
["one","two","three","kubeee"]
Waiting, endpoint for service is not ready yet...
["one","two","three","kubeee","2017-10-02T21:12:34.095Z"]
["one","two","three","kubeee","2017-10-02T21:12:36.182Z"]
```

second test but using ip, not minikube service

*redploy app prev version*

```
vim ./docker/k8s/app.yml # update image: 127.0.0.1:5000/app
kubectl apply -f ./docker/k8s --validate=false
```

*terminal 1*

```
kubectl get pods -w                23:59:35
NAME                                READY    STATUS    RESTARTS   AGE
app-1515935557-411m1               1/1     Running   0           10m
...
app-1515935557-4d3gf               1/1     Terminating   0           4m
app-1515935557-4d3gf               0/1     Terminating   0           4m
...
app-3366916455-bw6m9               0/1     Pending       0           0s
app-3366916455-bw6m9               0/1     ContainerCreating   0           0s
app-3366916455-bw6m9               1/1     Running       0           1s
```

*terminal 2*

```
while true; curl 192.168.99.100:32161; echo""; sleep 1; end
["one","two","three","kubeee"]
["one","two","three","kubeee"]
Waiting, endpoint for service is not ready yet...
["one","two","three","kubeee","172.17.0.5"]
["one","two","three","kubeee","172.17.0.6"]
```

*autoscale*

```
kubectl autoscale deployment app --min=2 --max=3
```

*scale down*

```
kubectl scale deployment app --replicas=3
```

*cleanup*

```
kubectl delete all -l name=app
# or
kubectl delete service app; kubectl delete deployment app

minikube stop; minikube delete
```

## 10.2. old

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/java-kube-ee-swarm.jar
http :8080
```

*e2e tests using bash scripts)*

```
bash ./docker/bin/test-dockerfile.bash      # docker
bash ./docker/bin/test-docker-compose.bash  # docker compose
bash ./docker/bin/test-stack-deploy.bash    # docker swarm cluster
```

links

1. [like so](#)

## 10.3. kotlin-plugins-java-ee

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example using Kotlin

```
bash gradlew clean build
bash build/libs/*-swarm.jar

http :8080
http :8080/max
```



## 10.4. main-swarm-rest-api

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example playground application

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/wildfly-swarm-gradle-swarm.jar
http :8080
http :8080/api
http :8080/api/max
```

## 10.5. main-swarm-static-content

This repository contains simple JavaEE Wildfly Swarm Micro-profile example - serving static content

*using gradle / java microprofile*

```
bash gradlew clean build
java -Djava.net.preferIPv4Stack=true -jar build/libs/wildfly-swarm-gradle-swarm.jar
http :8080
```

## 10.6. kotlin-java-ee-payara-docker

This repository contains simple JavaEE JAX-RS Wildfly Swarm Micro-profile example using Kotlin

```
./gradlew clean war
docker-compose up --force-recreate --build --remove-orphans
http :8080/payara-app/
http :8080/payara-app/max
docker-compose down -v
```

## 10.7. kotlin-javaee-cdi-h2

*according to default \${JBOSS\_HOME}/standalone/configuration/standalone.xml*

```
<!-- skepped... -->
<datasource jndi-name="java:jboss/datasources/ExampleDS" pool-name="ExampleDS"
enabled="true" use-java-context="true">
<!-- skepped... -->
```

### *build and test*

```
docker-compose down -v; ./gradlew; ./mvnw; docker-compose up --build --force-recreate
--remove-orphans
# gradle
http get  :8080/kotlin-ee/
http get  :8080/kotlin-ee/get-all
http post :8080/kotlin-ee/save-some
http get  :8080/kotlin-ee/get-all
# maven
http get  :8081/kotlin-ee/
http get  :8081/kotlin-ee/get-all
http post :8081/kotlin-ee/save-some
http get  :8081/kotlin-ee/get-all
```

### *Just JBoss EAP in Docker*

# Chapter 11. JBoss EAP in Docker

## 11.1. faces

*build*

```
./mvnw clean package com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down

http :8080/app/

./gradlew clean build composeUp
./gradlew composeDown
```

links:

1. [facelets oracle tutorial](#)
2. [JAX-RS redirect](#)
3. [Java Platform, Enterprise Edition \(Java EE\) 8 The Java EE Tutorial](#)
4. [Java Platform, Enterprise Edition \(Java EE\) 8 Your First Cup: An Introduction to the Java EE Platform](#)

generated by [daggerok-fatjar](#) yeoman generator === facelets-example

*build*

```
./mvnw clean package com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:up
./mvnw com.dkanejs.maven.plugins:docker-compose-maven-plugin:1.0.1:down

http :8080/app/
http :8080/app/health
http :8080/app/faces/index.xhtml

./gradlew clean build composeUp
./gradlew composeDown
```

links:

1. [facelets oracle tutorial](#)
2. [JAX-RS redirect](#)
3. [Java Platform, Enterprise Edition \(Java EE\) 8 The Java EE Tutorial](#)
4. [Java Platform, Enterprise Edition \(Java EE\) 8 Your First Cup: An Introduction to the Java EE Platform](#)

generated by [daggerok-fatjar](#) yeoman generator

## 11.2. jboss-eap-ext.js

packaging two WARs into jboss AS

*Using JBoss EAP 6.4 in docker*

```
./mvnw clean install -U -T 4; docker-compose up --build --force-recreate  
  
open localhost:8080/ui/  
  
docker-compose down -v
```

## 11.3. xmlrpc

Apache XML-RPC (org.apache.xmlrpc)

variations:

1. [monolith](#)
2. [micro-server](#)
3. [micro-client](#)

*build and test*

```
docker-compose down -v; ./mvnw clean package; docker-compose up --build
```

## 11.4. ear

*build*

```
./mvnw clean package -U
```

*docker*

```
docker-compose up --build --force-recreate --remove-orphans  
docker-compose down -v  
# docker rm -f -v (docker ps -a|grep -v CONTAINER|awk '{print $1}')
```

*testing*

```
http :8080/module-1/  
http :8080/module-2/  
http :8080/module-3/  
http :8080/module-4/
```

*lombok for java 7 (maven)*

```
<dependency>
  <groupId>org.projectlombok</groupId>
  <artifactId>lombok</artifactId>
  <version>1.14.2</version>
  <scope>provided</scope>
</dependency>
```

*lombok for java 7 (gradle)*

```
dependencies {
  compileOnly 'org.projectlombok:lombok:1.14.2'
}
```

## 11.5. ejb-2

*build*

```
./mvnw clean package -U
```

*docker*

```
docker-compose up --build --force-recreate --remove-orphans
docker-compose down -v
# docker rm -f -v (docker ps -a|grep -v CONTAINER|awk '{print $1}')
```

1. Classic EJB 2.1 Local + Remote interfaces:
  1. ejb-modules/greeter-impl
  2. ejb-modules/greeter-local-api
  3. ejb-modules/greeter-remote-api
  4. client-modules/greeter-remote-client
2. Using remote EJB interface only:
  1. ejb-modules/remote-only-api
  2. ejb-modules/remote-only-impl
  3. client-modules/remote-only-client
3. Access EJB locally:
  1. ejb-modules/goodbyer-impl
  2. ejb-modules/goodbyer-local-api
  3. client-modules/goodbyer-local-client

*testing (remote ejb call)*

```
http :8080/greeter-remote-client/  
http :8080/remote-only-client/  
http :8080/goodbye-local-client/
```

links:

1. [EJB 2.1 deployment descriptor](#)

## 11.6. timer

*build and test*

```
docker-compose down -v; ./mvnw; docker-compose up --build  
http :8080/client/start  
http :8080/client/stop
```

## 11.7. timer-async-ejb

*build and test*

```
docker-compose down -v; ./mvnw; docker-compose up --build  
http :8080/client/start; sleep 3; http :8080/client/stop  
http :8080/client/max\?name=bax  
http :8080/client/max  
http :8080/client
```

## 11.8. ejb-3-java-ee-7

*build and test*

```
docker-compose down -v; ./mvnw; docker-compose up --build  
http :8080/client/start; sleep 3; http :8080/client/stop  
http :8080/client/fax\?name=max  
http :8080/client/bax  
http :8080/client
```

## 11.9. ejb-stateful-singleton

*build and test*

```
docker-compose down -v; ./mvnw; docker-compose up --build
http :8080/client/
http :8080/client/get?key=EJB
http post :8080/client/set?key=EJB&value=some-value
http :8080/client/get?key=EJB
http post :8080/client/counter/increment
http post :8080/client/counter/decr
http post :8080/client/counter/incr
http :8080/client/get?key=EJB
http post :8080/client/reset
```

## 11.10. jboss-eap-h2-ejb

according to default `${JBOSS_HOME}/standalone/configuration/standalone.xml`

```
<!-- skepped... -->
<datasource jndi-name="java:jboss/datasources/ExampleDS" pool-name="ExampleDS"
enabled="true" use-java-context="true">
<!-- skepped... -->
```

*build and test*

```
docker-compose down -v; ./mvnw; docker-compose up --build --force-recreate --remove
-orphans
http post :8080/client/update/max
http post :8080/client/update/maxp
http post :8080/client/update/amaxp
http :8080/client/
http post :8080/client/update/max?remove=true
http :8080/client/
```

links:

1. [eap 6](#)

## 11.11. plain HTTP Servlet

JBoss EAP 7.1

### *build and run using docker*

```
docker-compose down -v; ./mvnw clean package; ./gradlew clean build; docker-compose up --build --force-recreate --remove-orphans
```

```
http :8081/plain-http-servlet/  
http :8082/plain-http-servlet/
```

### *project structure*

```
mkdir -p src/main/java/daggerok \  
        src/main/webapp/WEB-INF  
  
touch src/main/java/daggerok/AppServlet.java \  
        src/main/webapp/WEB-INF/web.xml \  
        build.gradle \  
        pom.xml
```

### *vim src/main/java/daggerok/AppServlet.java*

```
@WebServlet("/")  
public class AppServlet extends HttpServlet {  
  
    @Override  
    public void service(final ServletRequest req, final ServletResponse res) throws  
ServletException, IOException {  
        final PrintWriter writer = res.getWriter();  
        writer.println("<b>hi!</b>");  
        writer.close();  
    }  
}
```

### *vim src/main/webapp/WEB-INF/web.xml*

```
<?xml version="1.0" encoding="UTF-8"?>  
<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"  
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
        xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee  
http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"  
        version="3.1">  
</web-app>
```



*vim build.gradle*

```
plugins {  
    id "war"  
}  
  
group "daggerok"  
version "0.0.1"  
description "ololo trololo"  
sourceCompatibility = targetCompatibility = JavaVersion.VERSION_1_7  
  
war {  
    archiveName = "${project.name}.war"  
}  
  
repositories {  
    mavenCentral()  
}  
  
dependencies {  
    providedCompile "javax.servlet:javax.servlet-api:3.1.0"  
}
```

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns=
"http://maven.apache.org/POM/4.0.0"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>

    <groupId>daggerok</groupId>
    <artifactId>plain-http-servlet</artifactId>
    <version>0.0.1</version>
    <packaging>war</packaging>

    <name>plain-http-servlet</name>
    <description>ololo trololo</description>

    <properties>
        <maven.compiler.source>1.7</maven.compiler.source>
        <maven.compiler.target>1.7</maven.compiler.target>
        <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
    </properties>

    <dependencies>
        <dependency>
            <groupId>javax.servlet</groupId>
            <artifactId>javax.servlet-api</artifactId>
            <version>3.1.0</version>
            <optional>true</optional>
        </dependency>
    </dependencies>

    <build>
        <finalName>${project.artifactId}</finalName>
        <defaultGoal>clean package</defaultGoal>

        <plugins>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-war-plugin</artifactId>
                <version>2.5</version>
                <configuration>
                    <failOnMissingWebXml>>false</failOnMissingWebXml>
                </configuration>
            </plugin>
        </plugins>
    </build>
</project>
```

# Chapter 12. TomEE in Docker

## 12.1. tomee-ext.js

packaging two WARs in TomEE in Docker

*Using TomEE in docker*

```
./mvnw clean package -U -T 2
docker-compose up --build

open localhost:8080/ui/
open localhost:8080/rest-api/health

docker-compose down -v
```

# Chapter 13. Glassfisg in Docker

## 13.1. glassfish-ext.js

packaging two WARs in glassfish in Docker

*Using Glassfish 5.0 in docker (alpine)*

```
./mvnw clean package -U -T 2
docker-compose up --build --force-recreate --remove-orphans
http :8080/ui/
docker-compose down -v
```

# Chapter 14. JBoss WildFly (mvnw / gradlew) in Docker

## 14.1. forge-ws

*init new maven project using forge cli*

```
forge
project-new \
  --named forge-ws2 \
  --top-level-package daggerok \
  --final-name forge-ws \
  --type war
```

*add maven wrapper*

```
cd maven-forge-project/
mvn -N io.takari:maven:wrapper
```

*build*

```
./mvnw clean package -U -T 4
```

*docker - see docker-compose and src/main/docker/Dockerfile*

```
docker-compose up --build --force-recreate --remove-orphans
docker-compose down -v
# docker rm -f -v $(docker ps -a|grep -v CONTAINER|awk '{print $1}')
```

*testing*

```
http :8080/app/v1/api
http :8080/app/UserService?wsdl
curl -XPOST http://localhost:8080/app/User --header "content-type:text/xml" -d
@./src/test/resources/empty-request.xml | xmllint --format -
curl -XPOST http://localhost:8080/app/User --header "content-type:text/xml" -d
@src/test/resources/named-request.xml | xmllint --format -
```

### *lombok for java 7 (maven)*

```
<dependency>
  <groupId>org.projectlombok</groupId>
  <artifactId>lombok</artifactId>
  <version>1.14.2</version>
  <scope>provided</scope>
</dependency>
```

### *lombok for java 7 (gradle)*

```
dependencies {
  compileOnly 'org.projectlombok:lombok:1.14.2'
}
```

### links:

1. [jax-ws oracle tutorial](#)
2. [JBoss Forge 2, Java EE easily, so easily](#)

# Chapter 15. JBoss forge / WildFly Java EE 6 / JAX-WS

## 15.1. forge-javaee-6-ws

*up and running*

```
./mvnw clean package -U -T 2; docker-compose up --build --force-recreate --remove-orphans
```

```
http :8080/app/health  
http :8080/app/AppEndpoint\?wsdl
```

```
curl -XPOST http://localhost:8080/app/AppEndpoint --header "content-type:text/xml" -d  
@request.xml | xmllint --format -
```

*MicroProfile 1.1.0 (CDI + JAX-RS + JSON-P)*

TODO

*MicroProfile 1.2 (CDI + JAX-RS + JSON-P)*

# Chapter 16. Kumuluzee MicroProfile 2.0 (config.yaml)

## 16.1. kumuluzee-config

[see rpc-app module](#)



# Chapter 17. Kumuluzee MicroProfile 2.0 (JAX-WS)

## 17.1. kumuluzee-mp-2.0-jax-ws

in progress...

*up and running*

```
./mvnw clean package -U; java -jar target/*.jar

http :8000
http :8000/api/v1/ws
http :8000/api/v1/ws?WSDL

curl -XPOST http://localhost:8000/api/v1/ws --header "content-type: text/xml" -d
@./request.xml | xmllint --format -
```

*docker / docker-compose*

```
./mvnw
docker-compose up --force-recreate --remove-orphans

http :8000
http :8000/api/v1/ws
http :8000/api/v1/ws?WSDL

curl -XPOST http://localhost:8000/api/v1/ws --header "content-type: text/xml" -d
@./request.xml | xmllint --format -

docker-compose down -v
```

# Chapter 18. TODO

- [JBoss](#) / [JMS](#) / [MDB](#)

# Chapter 19. links

1. [Java Platform, Enterprise Edition \(Java EE\) 8 The Java EE Tutorial](#)
2. [Java Platform, Enterprise Edition \(Java EE\) 8 Your First Cup: An Introduction to the Java EE Platform](#)
3. [Reactive JavaEE \(Vert.x / KumuluzEE\)](#)
4. [KumuluzEE tutorials](#)
5. [KumuluzEE samples](#)
6. [Configuration beyond Java EE 8](#)
7. [Unit Testing for Java EE](#)
8. [Interfaces on Demand with CDI and EJB 3.1](#)
9. [The Java EE 6 Tutorial](#)
10. [Asciidoctor attributes](#)

## Chapter 20. Enjoy! :)