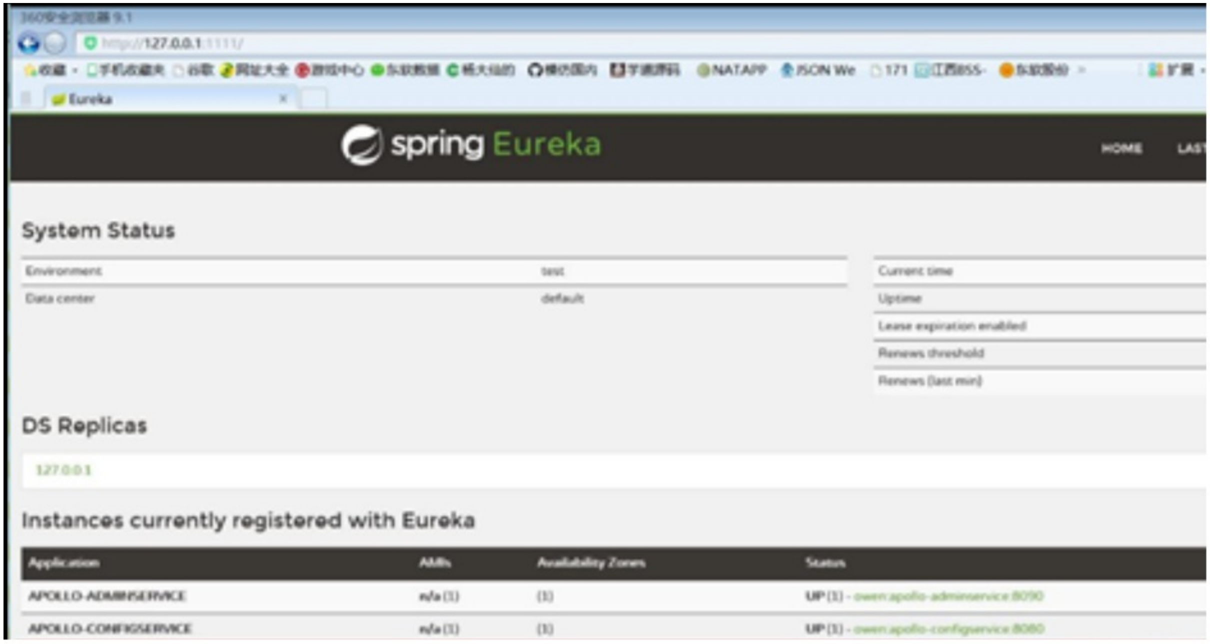
阿波罗配置中心详解

1. 前言
   携程 Apollo 配置中心 学习笔记， Windows 系统搭建基于携程Apollo配置中心分布式模式， 在此基础上，介绍如何使用阿波罗整合zuul实现动态路由。

2.环境搭建

- 效果预览



http://127.0.0.1:1111/

System Status

Environment	test
Data center	default

Current time
Uptime
Lease expiration enabled
Renews threshold
Renews (last min)

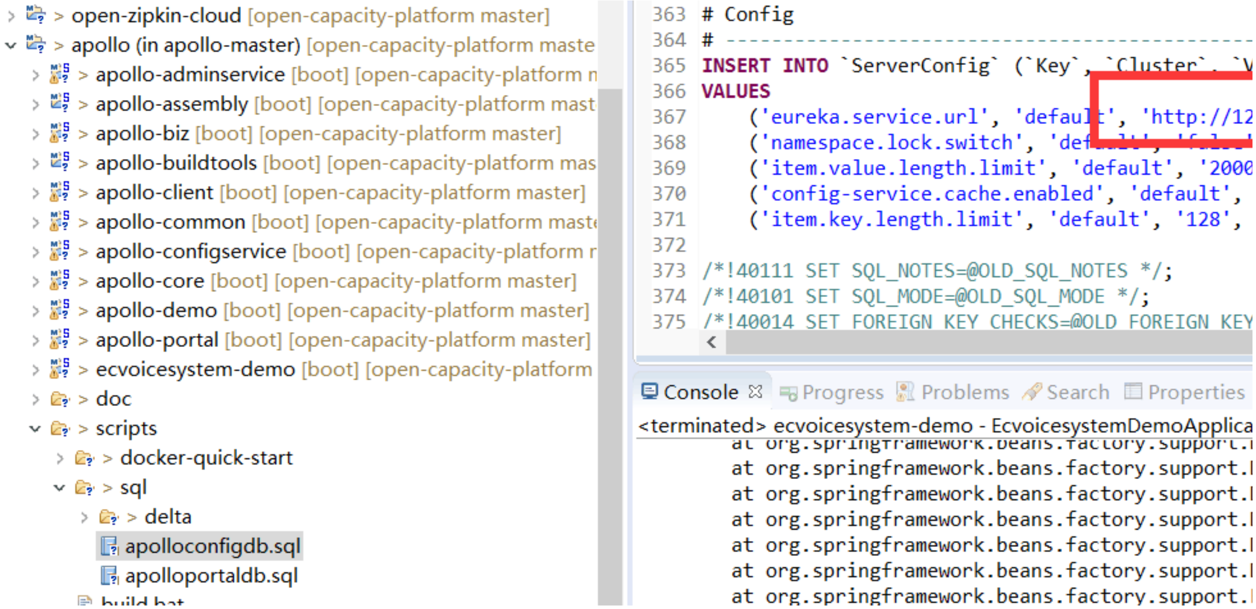
DS Replicas

127.0.0.1

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
APOLLO-ADMINSERVICE	n/a (1)	(1)	UP (1) - owen:apollo-adminservice:8090
APOLLO-CONFIGSERVICE	n/a (1)	(1)	UP (1) - owen:apollo-configservice:8080

- apollo-configservice
  修改如下配置将apollo-configservice 注册到已有的eureka服务器，同时提供提供配置的读取、推送等功能.

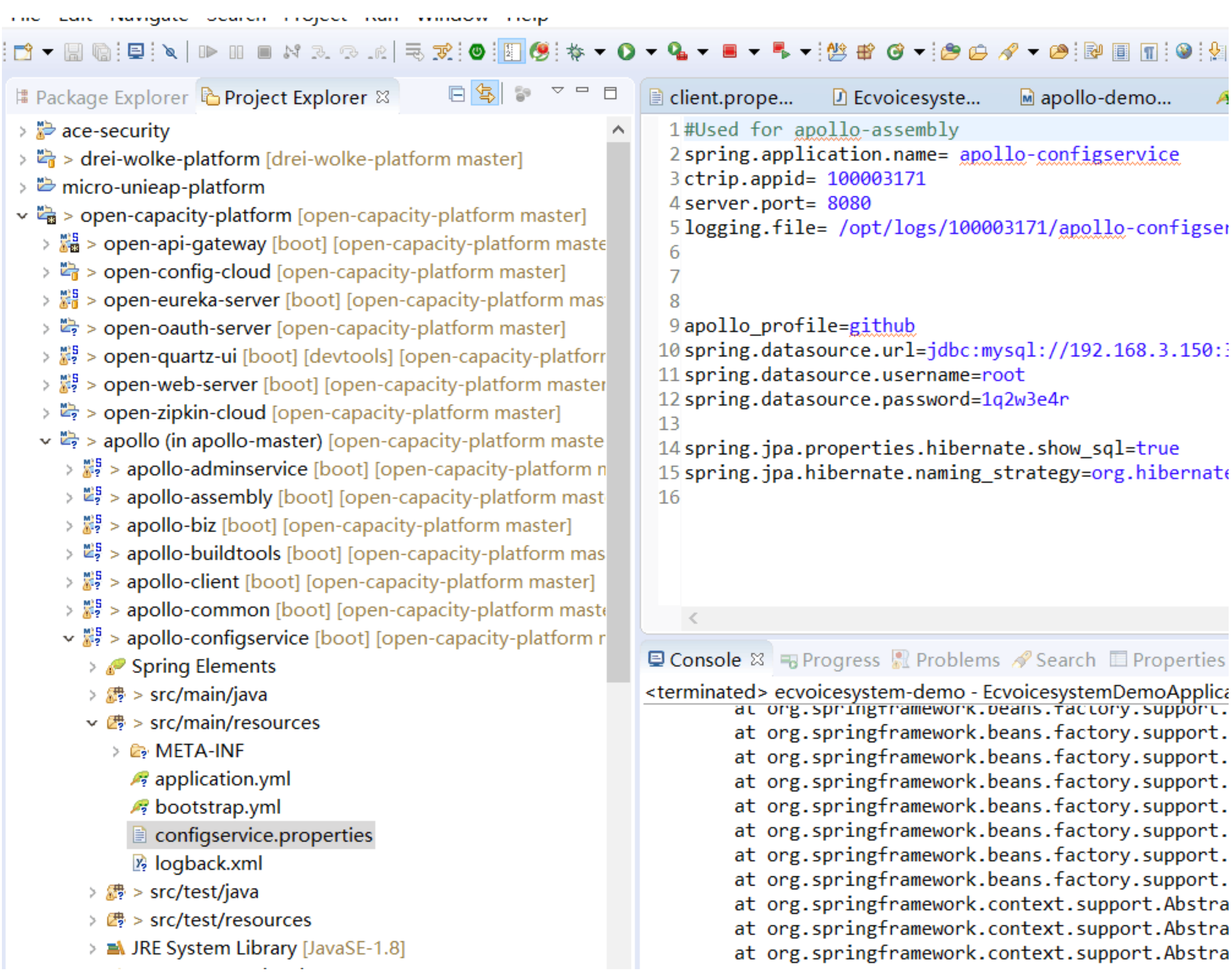


```
> open-zipkin-cloud [open-capacity-platform master]
v > apollo (in apollo-master) [open-capacity-platform maste
  > apollo-adminservice [boot] [open-capacity-platform m
  > apollo-assembly [boot] [open-capacity-platform mast
  > apollo-biz [boot] [open-capacity-platform master]
  > apollo-buildtools [boot] [open-capacity-platform mas
  > apollo-client [boot] [open-capacity-platform master]
  > apollo-common [boot] [open-capacity-platform maste
  > apollo-configservice [boot] [open-capacity-platform r
  > apollo-core [boot] [open-capacity-platform master]
  > apollo-demo [boot] [open-capacity-platform master]
  > apollo-portal [boot] [open-capacity-platform master]
  > ecvoicesystem-demo [boot] [open-capacity-platform
  > doc
  v scripts
    > docker-quick-start
    v sql
      > delta
        apolloconfigdb.sql
        apolloportaldb.sql
      build.bat
```

```
# Config
# ------------------------------------------------------------
INSERT INTO `ServerConfig` (`Key`, `Cluster`, `V
VALUES
    ('eureka.service.url', 'default', 'http://12
    ('namespace.lock.switch', 'default', 'false'
    ('item.value.length.limit', 'default', '2000
    ('config-service.cache.enabled', 'default',
    ('item.key.length.limit', 'default', '128',

/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY
```

```
<terminated> ecvoicesystem-demo - EcvoicesystemDemoApplica
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
    at org.springframework.beans.factory.support.
```

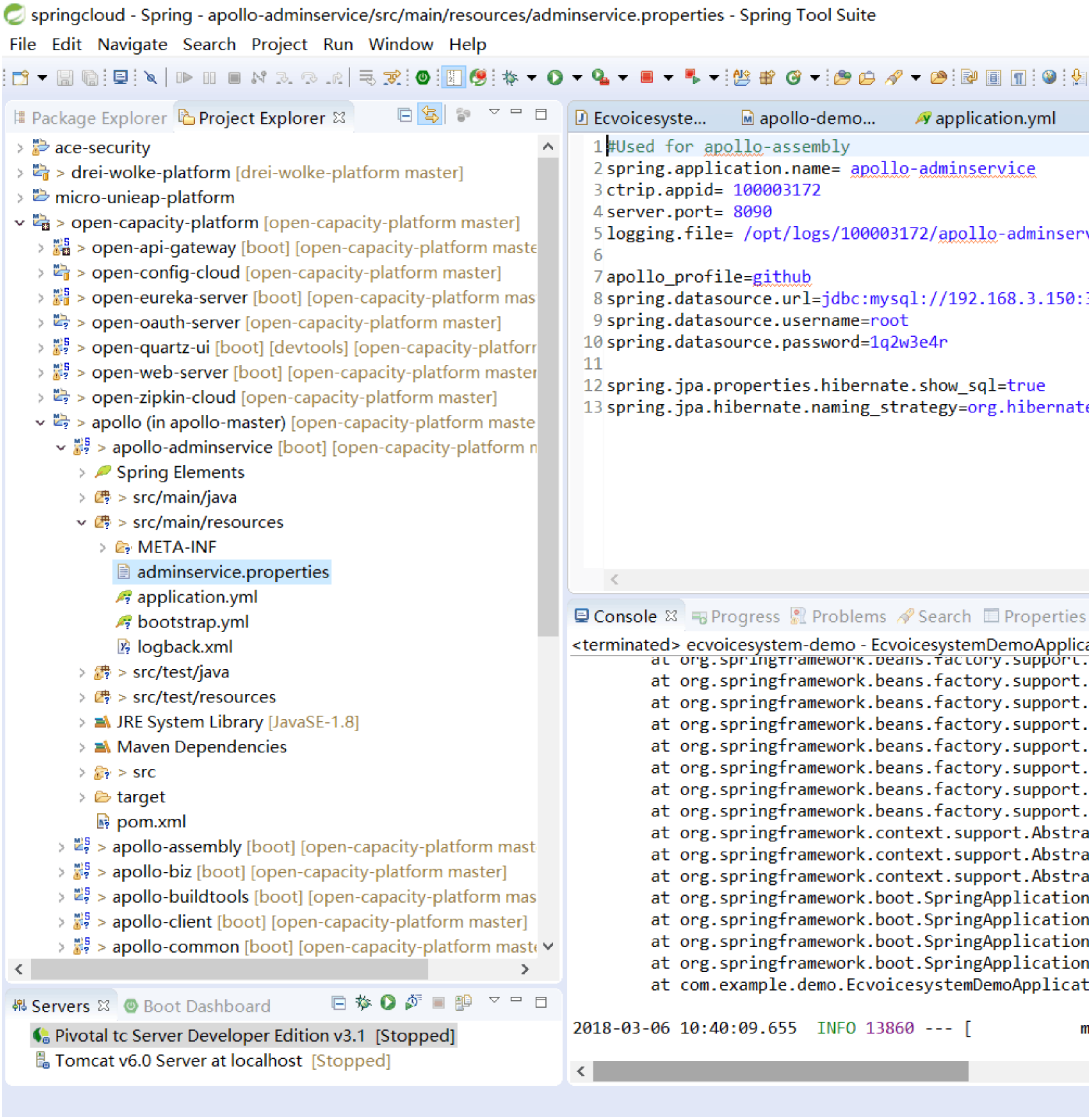
修改apollo-configservice的数据源


Package Explorer
Project Explorer
client.prope...
Ecvoicesyste...
apollo-demo...
ace-security
> drei-wolke-platform [drei-wolke-platform master]
micro-unieap-platform
> open-capacity-platform [open-capacity-platform master]
> open-api-gateway [boot] [open-capacity-platform maste
> open-config-cloud [open-capacity-platform master]
> open-eureka-server [boot] [open-capacity-platform mas
> open-oauth-server [open-capacity-platform master]
> open-quartz-ui [boot] [devtools] [open-capacity-platforr
> open-web-server [boot] [open-capacity-platform master
> open-zipkin-cloud [open-capacity-platform master]
> apollo (in apollo-master) [open-capacity-platform maste
> apollo-adminservice [boot] [open-capacity-platform n
> apollo-assembly [boot] [open-capacity-platform mast
> apollo-biz [boot] [open-capacity-platform master]
> apollo-buildtools [boot] [open-capacity-platform mas
> apollo-client [boot] [open-capacity-platform master]
> apollo-common [boot] [open-capacity-platform maste
> apollo-configservice [boot] [open-capacity-platform r
Spring Elements
> src/main/java
> src/main/resources
META-INF
application.yml
bootstrap.yml
configservice.properties
logback.xml
> src/test/java
> src/test/resources
JRE System Library [JavaSE-1.8]
Console
Progress
Problems
Search
Properties

```
#Used for apollo-assembly
spring.application.name= apollo-configservice
ctrip.appid= 100003171
server.port= 8080
logging.file= /opt/logs/100003171/apollo-configser



apollo_profile=github
spring.datasource.url=jdbc:mysql://192.168.3.150:
spring.datasource.username=root
spring.datasource.password=1q2w3e4r

spring.jpa.properties.hibernate.show_sql=true
spring.jpa.hibernate.naming_strategy=org.hibernate
```

```
<terminated> ecvoicesystem-demo - EcvoicesystemDemoApplica
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
```

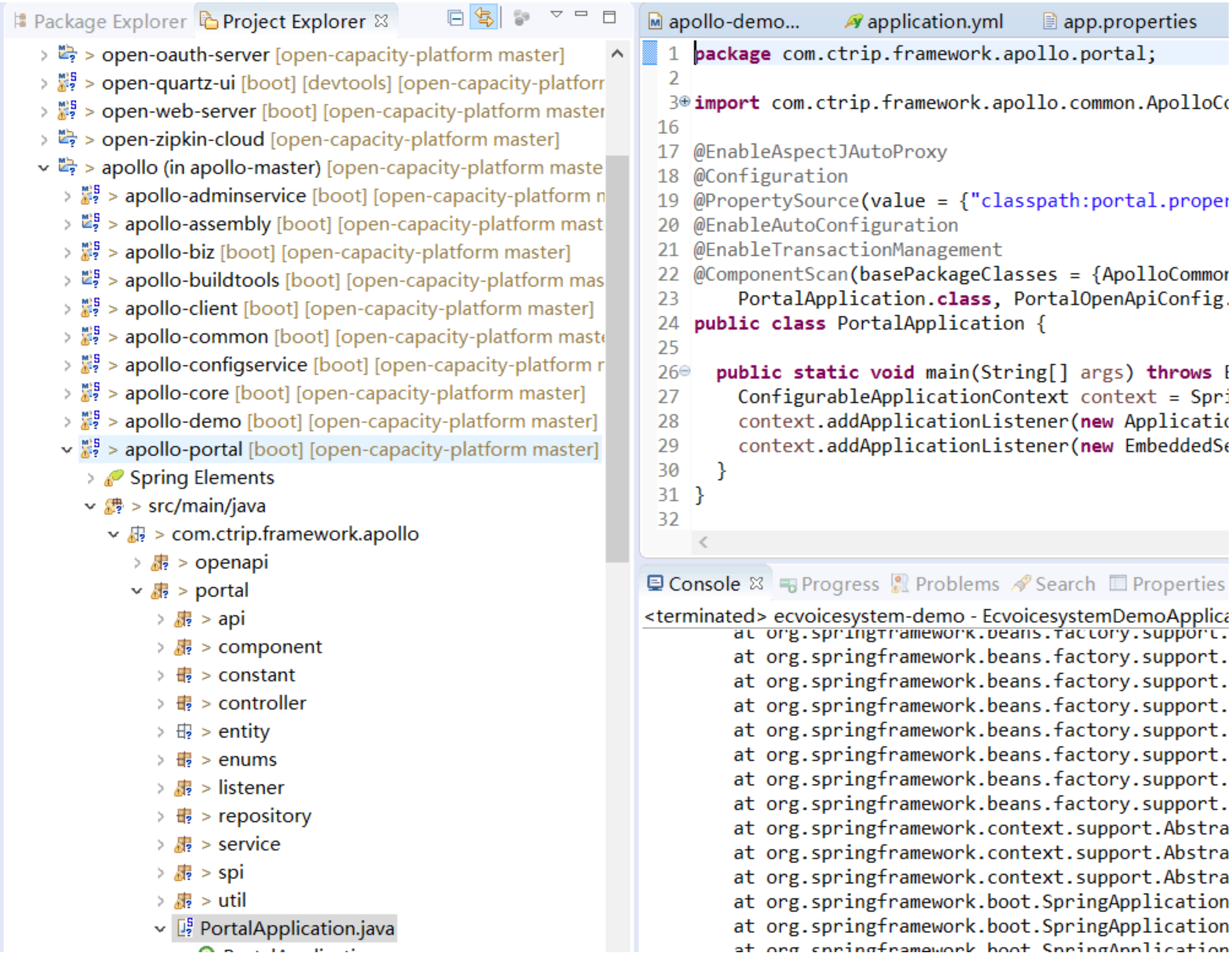
- apollo-adminservice
  修改apollo-adminservice的数据源


springcloud - Spring - apollo-adminservice/src/main/resources/adminservice.properties - Spring Tool Suite
File Edit Navigate Search Project Run Window Help
Package Explorer
Project Explorer
ace-security
> drei-wolke-platform [drei-wolke-platform master]
micro-unieap-platform
> open-capacity-platform [open-capacity-platform master]
> open-api-gateway [boot] [open-capacity-platform maste
> open-config-cloud [open-capacity-platform master]
> open-eureka-server [boot] [open-capacity-platform mas
> open-oauth-server [open-capacity-platform master]
> open-quartz-ui [boot] [devtools] [open-capacity-platforr
> open-web-server [boot] [open-capacity-platform master
> open-zipkin-cloud [open-capacity-platform master]
> apollo (in apollo-master) [open-capacity-platform maste
> apollo-adminservice [boot] [open-capacity-platform n
Spring Elements
> src/main/java
> src/main/resources
META-INF
adminservice.properties
application.yml
bootstrap.yml
logback.xml
> src/test/java
> src/test/resources
JRE System Library [JavaSE-1.8]
Maven Dependencies
> src
target
pom.xml
> apollo-assembly [boot] [open-capacity-platform mast
> apollo-biz [boot] [open-capacity-platform master]
> apollo-buildtools [boot] [open-capacity-platform mas
> apollo-client [boot] [open-capacity-platform master]
> apollo-common [boot] [open-capacity-platform maste
Servers
Boot Dashboard
Pivotal tc Server Developer Edition v3.1 [Stopped]
Tomcat v6.0 Server at localhost [Stopped]
Ecvoicesyste...
apollo-demo...
application.yml
Console
Progress
Problems
Search
Properties

```
#Used for apollo-assembly
spring.application.name= apollo-adminservice
ctrip.appid= 100003172
server.port= 8090
logging.file= /opt/logs/100003172/apollo-adminserv

apollo_profile=github
spring.datasource.url=jdbc:mysql://192.168.3.150:
spring.datasource.username=root
spring.datasource.password=1q2w3e4r

spring.jpa.properties.hibernate.show_sql=true
spring.jpa.hibernate.naming_strategy=org.hibernate
```

```
<terminated> ecvoicesystem-demo - EcvoicesystemDemoApplica
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
        at org.springframework.boot.SpringApplication
        at org.springframework.boot.SpringApplication
        at org.springframework.boot.SpringApplication
        at org.springframework.boot.SpringApplication
        at com.example.demo.EcvoicesystemDemoApplicat

2018-03-06 10:40:09.655  INFO 13860 --- [            m
```

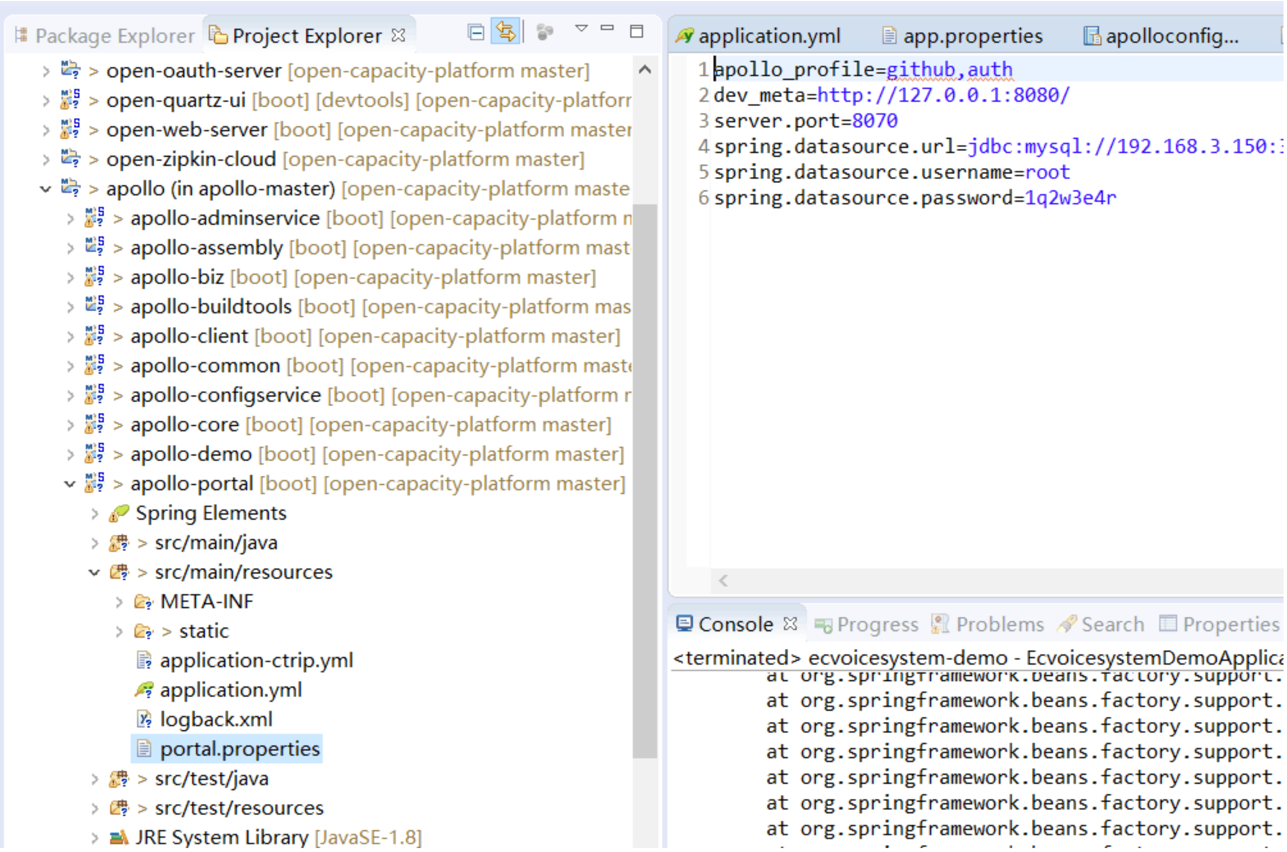
- apollo-portal
  修改apollo-portal代码及数据源



```
> open-oauth-server [open-capacity-platform master]
> open-quartz-ui [boot] [devtools] [open-capacity-platforr
> open-web-server [boot] [open-capacity-platform master
> open-zipkin-cloud [open-capacity-platform master]
> apollo (in apollo-master) [open-capacity-platform maste
  > apollo-adminservice [boot] [open-capacity-platform n
  > apollo-assembly [boot] [open-capacity-platform mast
  > apollo-biz [boot] [open-capacity-platform master]
  > apollo-buildtools [boot] [open-capacity-platform mas
  > apollo-client [boot] [open-capacity-platform master]
  > apollo-common [boot] [open-capacity-platform maste
  > apollo-configservice [boot] [open-capacity-platform r
  > apollo-core [boot] [open-capacity-platform master]
  > apollo-demo [boot] [open-capacity-platform master]
  > apollo-portal [boot] [open-capacity-platform master]
    Spring Elements
    > src/main/java
      > com.ctrip.framework.apollo
        > openapi
        > portal
          > api
          > component
          > constant
          > controller
          > entity
          > enums
          > listener
          > repository
          > service
          > spi
          > util
          PortalApplication.java
```

```java
package com.ctrip.framework.apollo.portal;

import com.ctrip.framework.apollo.common.ApolloC

@EnableAspectJAutoProxy
@Configuration
@PropertySource(value = {"classpath:portal.proper
@EnableAutoConfiguration
@EnableTransactionManagement
@ComponentScan(basePackageClasses = {ApolloCommor
    PortalApplication.class, PortalOpenApiConfig.
public class PortalApplication {

  public static void main(String[] args) throws E
    ConfigurableApplicationContext context = Spri
    context.addApplicationListener(new Applicatio
    context.addApplicationListener(new EmbeddedSe
  }
}
```

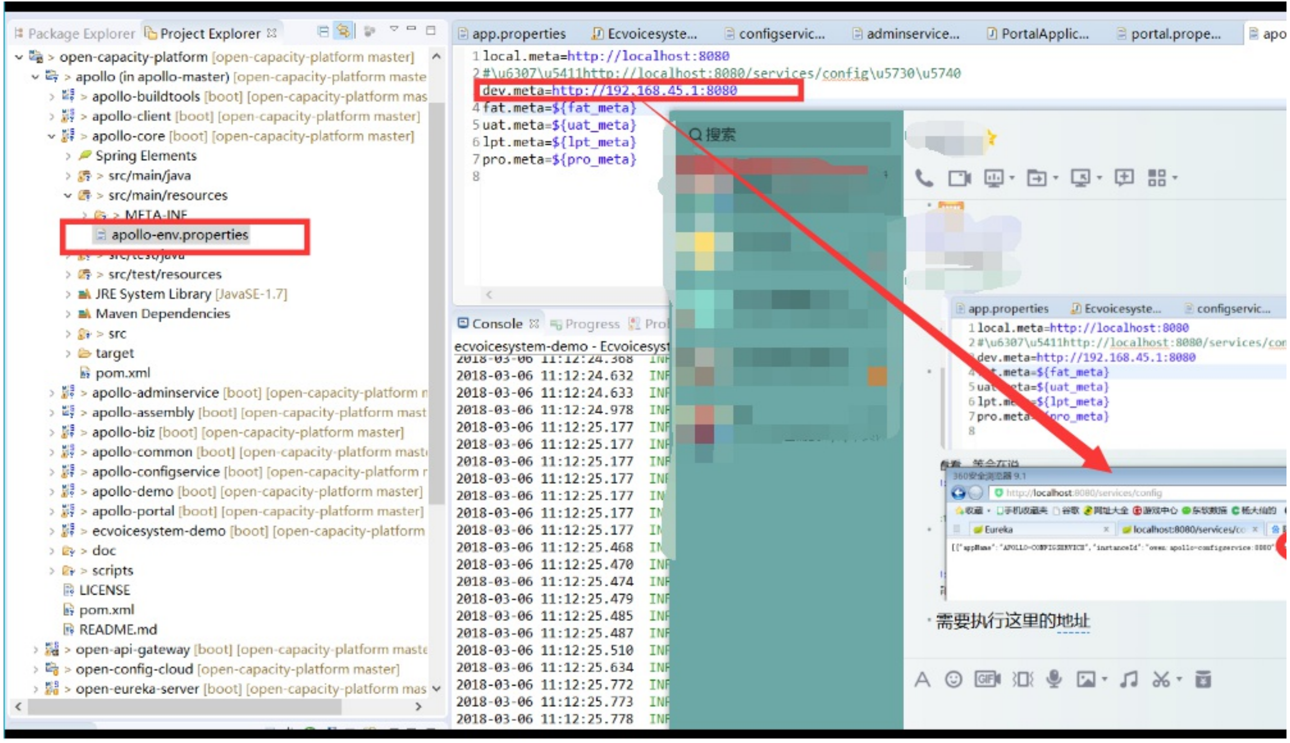
```
<terminated> ecvoicesystem-demo - EcvoicesystemDemoApplica
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
        at org.springframework.context.support.Abstra
        at org.springframework.boot.SpringApplication
        at org.springframework.boot.SpringApplication
        at org.springframework.boot.SpringApplication
```


Package Explorer
Project Explorer
application.yml
app.properties
apolloconfig...
open-oauth-server [open-capacity-platform master]
open-quartz-ui [boot] [devtools] [open-capacity-platform
open-web-server [boot] [open-capacity-platform master
open-zipkin-cloud [open-capacity-platform master]
apollo (in apollo-master) [open-capacity-platform maste
apollo-adminservice [boot] [open-capacity-platform n
apollo-assembly [boot] [open-capacity-platform mast
apollo-biz [boot] [open-capacity-platform master]
apollo-buildtools [boot] [open-capacity-platform mas
apollo-client [boot] [open-capacity-platform master]
apollo-common [boot] [open-capacity-platform maste
apollo-configservice [boot] [open-capacity-platform r
apollo-core [boot] [open-capacity-platform master]
apollo-demo [boot] [open-capacity-platform master]
apollo-portal [boot] [open-capacity-platform master]
Spring Elements
src/main/java
src/main/resources
META-INF
static
application-ctrip.yml
application.yml
logback.xml
portal.properties
src/test/java
src/test/resources
JRE System Library [JavaSE-1.8]
Console
Progress
Problems
Search
Properties

```
apollo_profile=github,auth
dev_meta=http://127.0.0.1:8080/
server.port=8070
spring.datasource.url=jdbc:mysql://192.168.3.150:
spring.datasource.username=root
spring.datasource.password=1q2w3e4r
```

```
<terminated> ecvoicesystem-demo - EcvoicesystemDemoApplica
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
        at org.springframework.beans.factory.support.
```

- apollo-core
  修改开发环境环境读取配置文件的地址，填入apollo-configservice注册到eureka服务器的地址，如果apollo-configservice启动多台，可以引入nginx负载均衡


Package Explorer
Project Explorer
app.properties
Ecvoicesyste...
configservic...
adminservice...
PortalApplic...
portal.prope...
apo
open-capacity-platform [open-capacity-platform master]
apollo (in apollo-master) [open-capacity-platform maste
apollo-buildtools [boot] [open-capacity-platform mas
apollo-client [boot] [open-capacity-platform master]
apollo-core [boot] [open-capacity-platform master]
Spring Elements
src/main/java
src/main/resources
META-INF
apollo-env.properties
src/test/java
src/test/resources
JRE System Library [JavaSE-1.7]
Maven Dependencies
src
target
pom.xml
apollo-adminservice [boot] [open-capacity-platform r
apollo-assembly [boot] [open-capacity-platform mast
apollo-biz [boot] [open-capacity-platform master]
apollo-common [boot] [open-capacity-platform mast
apollo-configservice [boot] [open-capacity-platform r
apollo-demo [boot] [open-capacity-platform master]
apollo-portal [boot] [open-capacity-platform master]
ecvoicesystem-demo [boot] [open-capacity-platform
doc
scripts
LICENSE
pom.xml
README.md
open-api-gateway [boot] [open-capacity-platform maste
open-config-cloud [open-capacity-platform master]
open-eureka-server [boot] [open-capacity-platform mas
Console
Progress
搜索
360安全浏览器 9.1
http://localhost:8080/services/config
Eureka
localhost:8080/services/co

```
local.meta=http://localhost:8080
#\u6307\u5411http://localhost:8080/services/config\u5730\u5740
dev.meta=http://192.168.45.1:8080
fat.meta=${fat_meta}
uat.meta=${uat_meta}
lpt.meta=${lpt_meta}
pro.meta=${pro_meta}
```

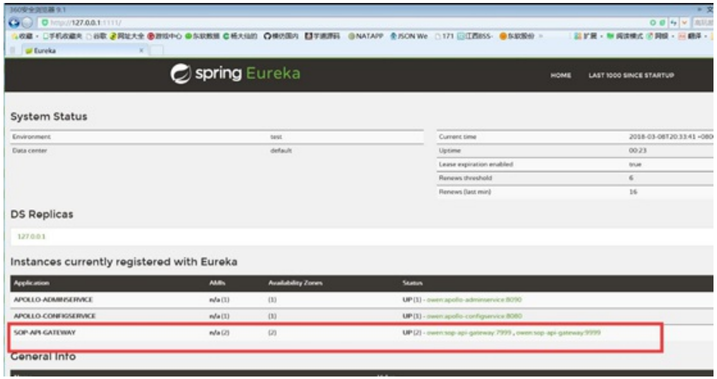
```
ecvoicesystem-demo - Ecvoicesyst
2018-03-06 11:12:24.632  INF
2018-03-06 11:12:24.633  INF
2018-03-06 11:12:24.978  INF
2018-03-06 11:12:25.177  INF
2018-03-06 11:12:25.177  INF
2018-03-06 11:12:25.177  INF
2018-03-06 11:12:25.177  INF
2018-03-06 11:12:25.177  IN
2018-03-06 11:12:25.177  IN
2018-03-06 11:12:25.177  IN
2018-03-06 11:12:25.468  IN
2018-03-06 11:12:25.470  INF
2018-03-06 11:12:25.474  INF
2018-03-06 11:12:25.479  INF
2018-03-06 11:12:25.485  INF
2018-03-06 11:12:25.487  INF
2018-03-06 11:12:25.510  INF
2018-03-06 11:12:25.634  INF
2018-03-06 11:12:25.772  INF
2018-03-06 11:12:25.773  INF
2018-03-06 11:12:25.778  INF
```

```
[{"appName":"APOLLO-CONFIGSERVICE","instanceId":"oven:apollo-configservice:8080"
```

需要执行这里的地址

3.阿波罗整合zuul服务注册中心

- 效果预览



System Status

Environment	test
Data center	default

Current time	2018-03-08T20:33:41 +080
Uptime	00:23
Lease expiration enabled	true
Renews threshold	6
Renews (last min)	16

DS Replicas

127.0.0.1

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
APOLLO-ADMINSERVICE	n/a (1)	(1)	UP (1) - owen:apollo-adminservice:8090
APOLLO-CONFIGSERVICE	n/a (1)	(1)	UP (1) - owen:apollo-configservice:8080
SOP-API-GATEWAY	n/a (2)	(2)	UP (2) - owen:sop-api-gateway:7999 , owen:sop-api-gateway:9999

General Info

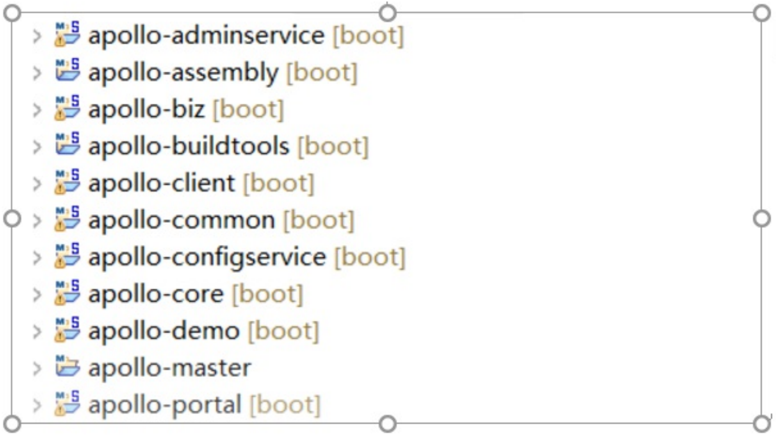
访问http://127.0.0.1:9999/test163即可读取阿波罗页面配置参数，页面修改后可刷新所有阿波罗客户端

- apollo-zuul
  apollo-zuul项目用的是Eureka作为服务注册与发现，因此这里我加入了Eureka Client的依赖，同时需要加入zuul网关的依赖实现微服务的路由
  pom.xml文件加入以下依赖

```
 <dependencies>
     <dependency>
          <groupId>org.springframework.cloud</groupId>
          <artifactId>spring-cloud-starter-eureka</artifactId>
     </dependency>
     <dependency>
          <groupId>com.ctrip.framework.apollo</groupId>
          <artifactId>apollo-client</artifactId>
          <version>0.10.0-SNAPSHOT</version>
     </dependency>

     <dependency>
          <groupId>org.springframework.boot</groupId>
          <artifactId>spring-boot-starter-test</artifactId>
          <scope>test</scope>
     </dependency>

     <dependency>
          <groupId>org.springframework.boot</groupId>
          <artifactId>spring-boot-starter-actuator</artifactId>
          <scope>true</scope>
     </dependency>
     <dependency>
         <groupId>org.springframework.cloud</groupId>
              <artifactId>spring-cloud-starter-zuul</artifactId>
     </dependency>
</dependencies>
```

3.1.1 下载项目

在官方github项目中，把项目下载下来 https://github.com/ctripcorp/apollo，导入到Eclipse工程中。如下图



```
apollo-adminservice [boot]
apollo-assembly [boot]
apollo-biz [boot]
apollo-buildtools [boot]
apollo-client [boot]
apollo-common [boot]
apollo-configservice [boot]
apollo-core [boot]
apollo-demo [boot]
apollo-master
apollo-portal [boot]
```

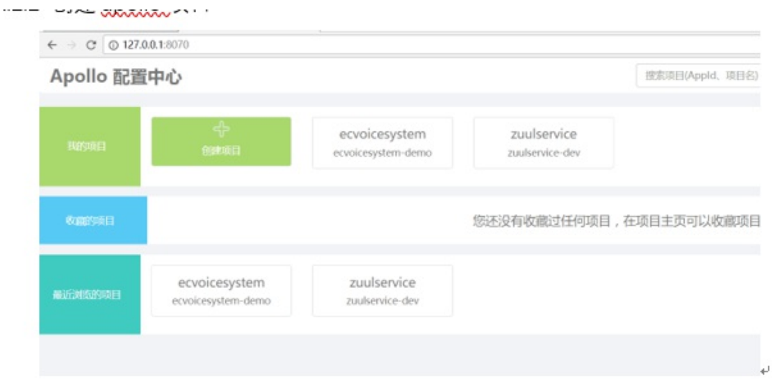
由于官方给出的分布式搭建需要加入很多启动参数，过于繁琐，可以考虑https://gitee.com/234gdfgsdf/open-capacity-platform/tree/master/apollo-master下载
项目组织结构(功能)[端口]
apollo -- 阿波罗配置中心

apollo-configservice (提供配置的修改、发布等功能，服务对象是Apollo Portal) [8080]
apollo-adminservice (提供配置的读取、推送等功能，服务对象是Apollo客户端)[8090]
apollo-portal (管理界面) [8070]
apollo-zuul (阿波罗整合zuul网关)
open-eureka-server (服务注册中心)[1111]

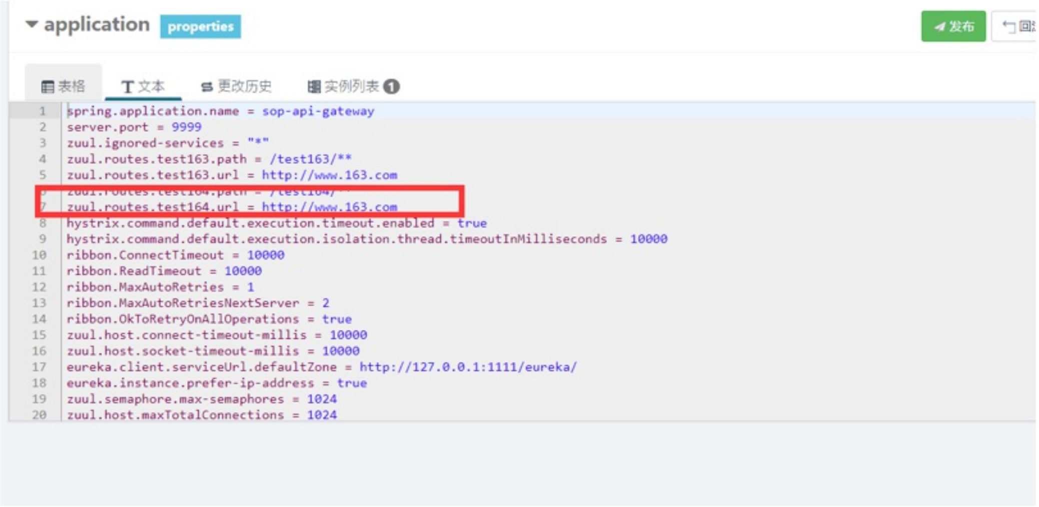
3.2 application.properties 配置写入到Apollo配置中心 3.2.1 application.properties 如下原本是写在spring boot 工程中的配置信息，接下来写入到配置中心中。

```
spring.application.name=sop-api-gateway
server.port=9999
zuul.ignored-services="*"
```

3.2.2 创建apollo项目

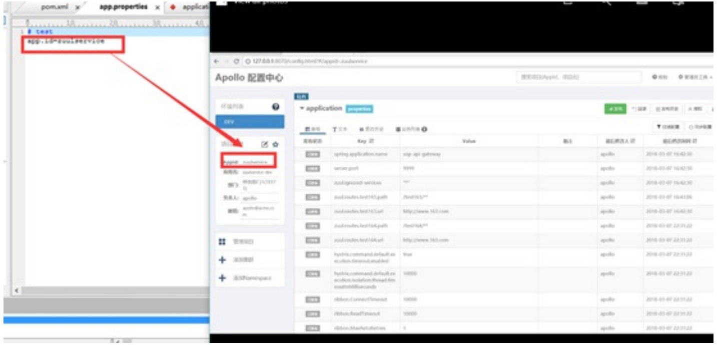


这里我已经创建好了，就不做过多演示了。



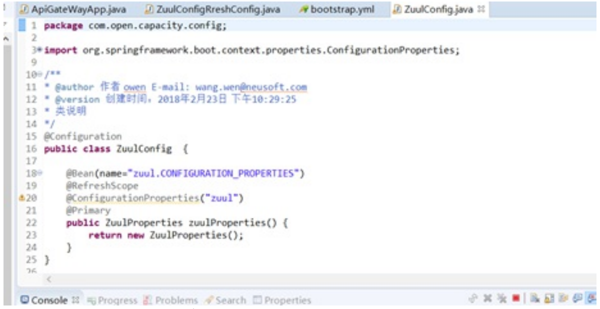
```
spring.application.name = sop-api-gateway
server.port = 9999
zuul.ignored-services = "*"
zuul.routes.test163.path = /test163/**
zuul.routes.test163.url = http://www.163.com
zuul.routes.test164.path = /test164/**
zuul.routes.test164.url = http://www.163.com
hystrix.command.default.execution.timeout.enabled = true
hystrix.command.default.execution.isolation.thread.timeoutInMilliseconds = 10000
ribbon.ConnectTimeout = 10000
ribbon.ReadTimeout = 10000
ribbon.MaxAutoRetries = 1
ribbon.MaxAutoRetriesNextServer = 2
ribbon.OkToRetryOnAllOperations = true
zuul.host.connect-timeout-millis = 10000
zuul.host.socket-timeout-millis = 10000
eureka.client.serviceUrl.defaultZone = http://127.0.0.1:1111/eureka/
eureka.instance.prefer-ip-address = true
zuul.semaphore.max-semaphores = 1024
zuul.host.maxTotalConnections = 1024
```

将信息上传写入到配置文件中，然后在把工程中的application.properties文件删除。 3.2.3 新建app.properties文件



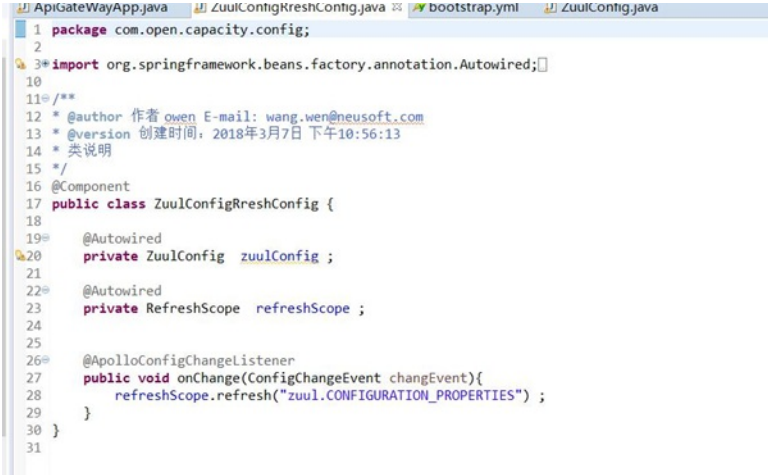
```
# test
app.id=zuulservice
```

3.2.4 配置刷新zuul配置



```
package com.open.capacity.config;

import org.springframework.boot.context.properties.ConfigurationProperties;

/**
 * @author 作者 owen E-mail: wang.wen@neusoft.com
 * @version 创建时间：2018年2月23日 下午10:29:25
 * 类说明
 */
@Configuration
public class ZuulConfig  {

    @Bean(name="zuul.CONFIGURATION_PROPERTIES")
    @RefreshScope
    @ConfigurationProperties("zuul")
    @Primary
    public ZuulProperties zuulProperties() {
        return new ZuulProperties();
    }
}
```

配置页面发布即时更新zuul配置



```
package com.open.capacity.config;

import org.springframework.beans.factory.annotation.Autowired;

/**
 * @author 作者 owen E-mail: wang.wen@neusoft.com
 * @version 创建时间：2018年3月7日 下午10:56:13
 * 类说明
 */
@Component
public class ZuulConfigRreshConfig {

    @Autowired
    private ZuulConfig  zuulConfig ;

    @Autowired
    private RefreshScope  refreshScope ;


    @ApolloConfigChangeListener
    public void onChange(ConfigChangeEvent changeEvent){
        refreshScope.refresh("zuul.CONFIGURATION_PROPERTIES") ;
    }
}
```

application.java启动类

```
@RestController
@EnableZuulProxy
@EnableApolloConfig
@EnableDiscoveryClient
@SpringBootApplication
public class ApiGateWayApp {

  public static void main(String[] args) {
        SpringApplication.run(ApiGateWayApp.class, args);
  }

}
```

注意加注解。
然后直接启动即可。。。。。。。