服务配置

极客时间

扫码试看/订阅

《玩转 Spring 全家桶》

基于 Git 的配置中心

Spring Cloud Config Server

目的

- 提供针对外置配置的 HTTP API　　默认localhost:8888

依赖

- spring-cloud-config-server
  - `@EnableConfigServer`　表示这个程序就是一个config-server
  - 支持 Git / SVN / Vault / JDBC …

使用 Git 作为后端存储

配置

- MultipleJGitEnvironmentProperties

  application.properties配置

  - spring.cloud.config.server.git.uri 告诉config server git的URI是什么

配置文件的要素

bootstrap.properties里面配置
spring.application.name=configserver 客户端起个名字

- {application}，即客户端的 spring.application.name
- {profile}，即客户端的 spring.profiles.active 不同Profile逗号分割
- {label}，配置文件的特定标签，默认 master

比如配置了waiter-service-dev.yml
访问localhost:8888/waiter-service/dev

访问localhost:8888/waiter-service/dev/master

使用 Git 作为后端存储

比如配置了一份waiter-service.yml在Git里面，启动后访问localhost:8888/waiter-service.yml即可。

如果再添加了一份waiter-service-dev.yml,访问localhost:8888/waiter-service-dev.yml会把两份配置合并，相同项以dev配置数据为准

访问配置内容

- HTTP 请求
  - `GET /{application}/{profile}[/{label}]` 获得不同branch下面
  - `GET /{application}-{profile}.yml`
  - `GET /{label}/{application}-{profile}.yml` 这个配置文件放到Git仓库里面
  - `GET /{application}-{profile}.properties`
  - `GET /{label}/{application}-{profile}.properties`

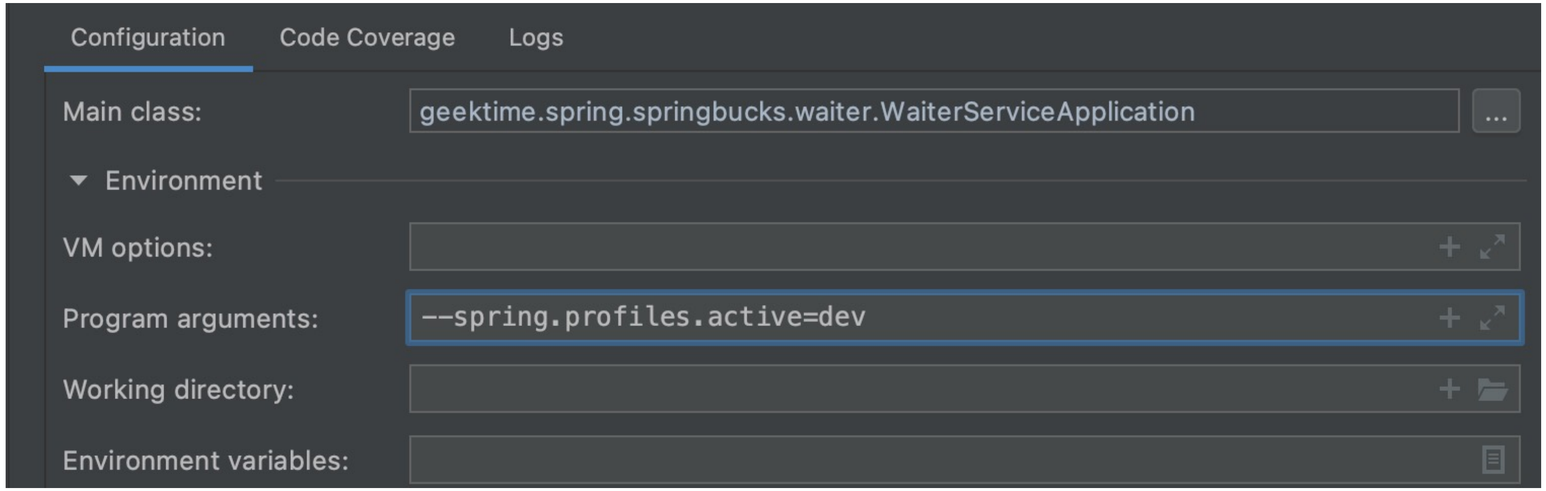
“Talk is cheap, show me the code.”

Chapter 14 / config-server

把config-server作为服务注册到consul里面：

```
<dependency>
    <groupId>org.springframework.cloud</groupId>
    <artifactId>spring-cloud-config-server</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.cloud</groupId>
    <artifactId>spring-cloud-starter-consul-discovery</artifactId>
</dependency>
```

切换active环境：



client获取server的配置

Spring Cloud Config Client

依赖

- spring-cloud-starter-config

发现配置中心

两种方式发现配置中心：
1.配置死地址
2.服务注册发现

- bootstrap.properties | yml
- `spring.cloud.config.fail-fast=true` 如果访问不上，做一个快速失败
- 通过配置 指定配置中心的URL
  - `spring.cloud.config.uri=http://localhost:8888`

Spring Cloud Config Client

发现配置中心

- bootstrap.properties | yml
- 通过服务发现
  - `spring.cloud.config.discovery.enabled=true`
  - `spring.cloud.config.discovery.service-id=configserver`

就是server中起的名字

配置刷新

- `@RefreshScope` 希望配置项可以刷新的话，把配置项写到bean里面，然后加上该注解
- Endpoint - `/actuator/refresh` 访问这个endpoint的时候，spring-cloud会刷新配置

```
curl -X POST http://localhost:8080/actuator/refresh
```

“Talk is cheap, show me the code.”

Chapter 14 / git-config-waiter-service

基于 Zookeeper 的配置中心

Spring Cloud Zookeeper Config

依赖

- spring-cloud-starter-zookeeper-config
- 注意 Zookeeper 版本

启用

- bootstrap.properties | yml　　配置zk注册信息
  - `spring.cloud.zookeeper.connect-string=localhost:2181`　zk地址
  - `spring.cloud.zookeeper.config.enabled=true`　默认就是true

Zookeeper 中的数据怎么存

配置项　根节点创建/config节点

create /config

- /config/应用名,profile/key=value　create /config/waiter-service/order.discount 60
- /config/application,profile/key=value　默认名

如何定制

- spring.cloud.zookeeper.config.root=config

配置默认上下文

- spring.cloud.zookeeper.config.default-context=application
- spring.cloud.zookeeper.config.profile-separator=','

应用名跟profile分隔符，默认是逗号

zk本身有节点更新功能，如果变化了可以推送到zk客户端，这样应用不用强制refresh也可以变化

“Talk is cheap, show me the code.”

Chapter 14 / zk-config-waiter-service

深入理解 Spring Cloud 的配置抽象

Spring Cloud Config

目标

- 在分布式系统中，提供外置配置支持

实现

- 类似于 Spring 应用中的 `Environment` 与 `PropertySource`
- 在上下文中增加 Spring Cloud Config 的 `PropertySource`

增加了propertySource抽象

Spring Cloud Config 的 PropertySource

PropertySource

- Spring Cloud Config Client - `CompositePropertySource`
- Zookeeper - `ZookeeperPropertySource`
- Consul - `ConsulPropertySource` / ConsulFilesPropertySource

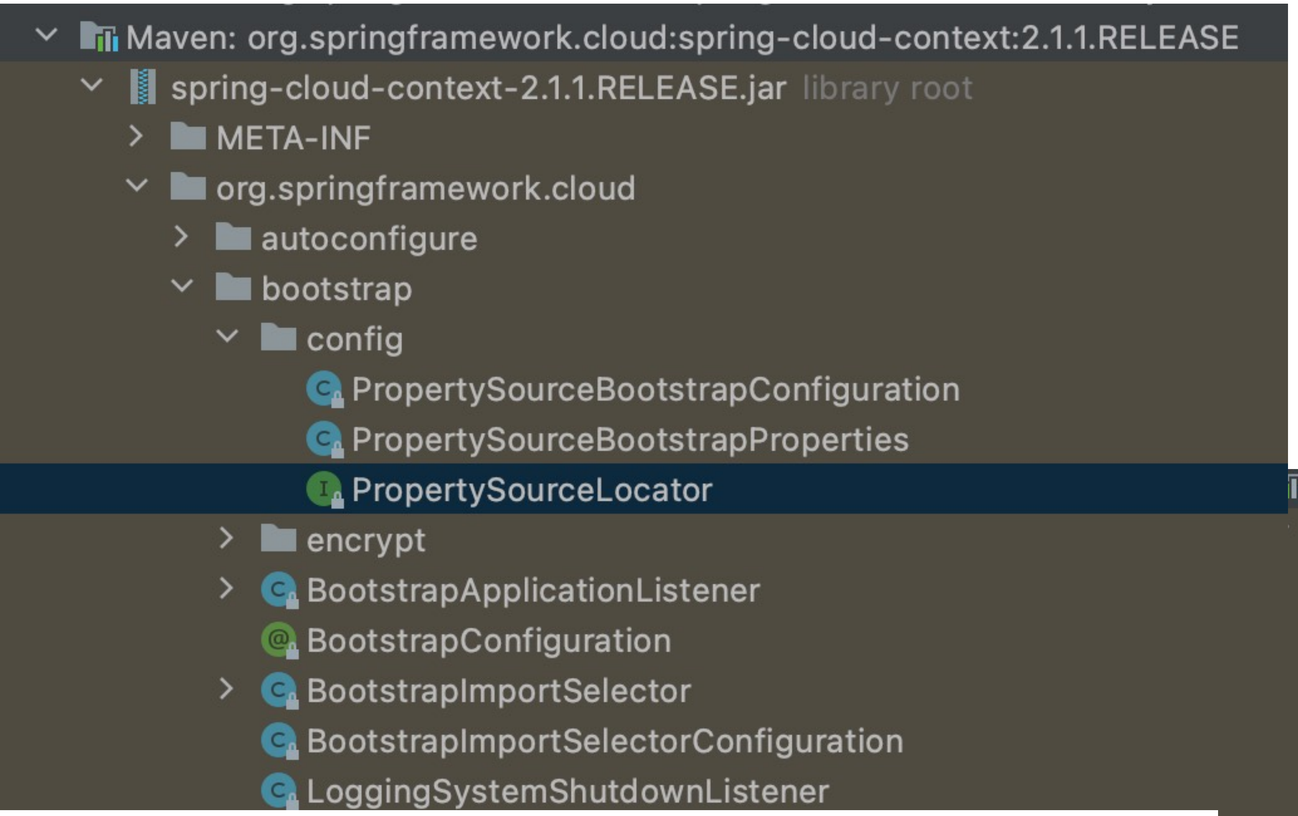
配置中心的PropertySource优先级大于Spring本身的PropertySource

PropertySourceLocator

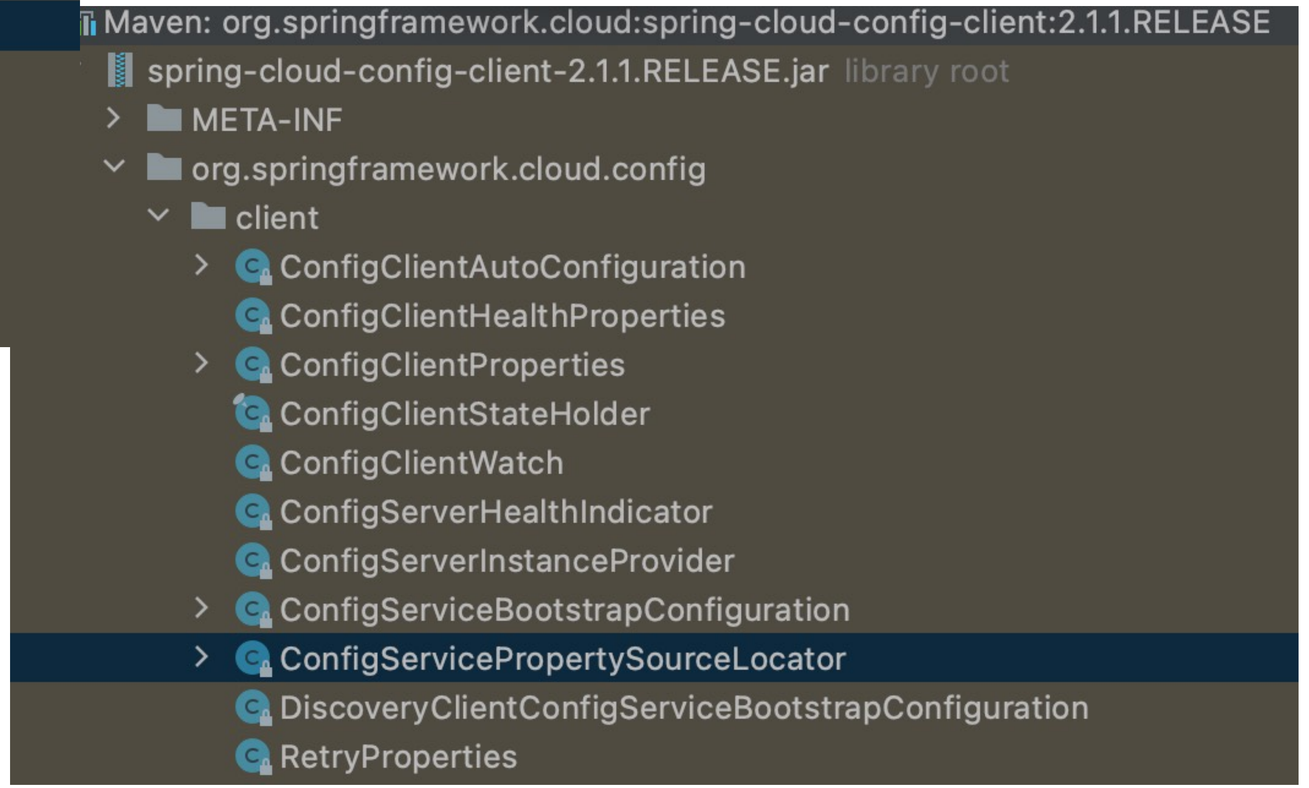
- 通过 `PropertySourceLocator` 提供 `PropertySource`

同构Locator找PropertySource

接口定义



服务端接口实现



Spring Cloud Config Server

EnvironmentRepository 支持多个backened

- Git / SVN / Vault / JDBC … Spring cloud Config server 文档观看

功能特性

- SSH、代理访问、配置加密 …

配置刷新

- `/actuator/refresh` 如果集群很大，每台机器刷新不现实
- Spring Cloud Bus - `RefreshRemoteApplicationEvent`

这个事件可以对整个集群刷新

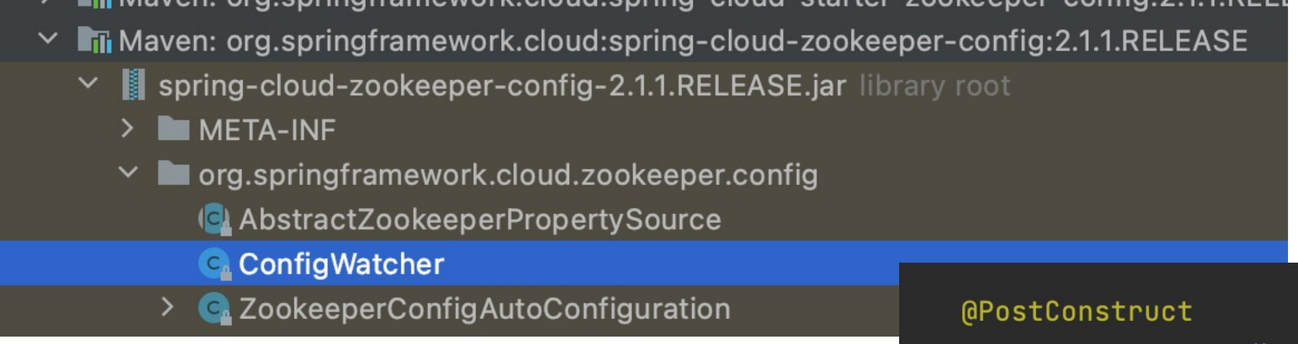
Spring Cloud Config Zookeeper

ZookeeperConfigBootstrapConfiguration

- 注册 ZookeeperPropertySourceLocator
    - 提供 ZookeeperPropertySource

ZookeeperConfigAutoConfiguration

- 注册 ConfigWatcher　监听配置节点，配置项发生变化通过这个刷新




```java
@PostConstruct
public void start() {
    if (this.running.compareAndSet( expectedValue: false,  newValue: true)) {
        this.caches = new HashMap();
        Iterator var1 = this.contexts.iterator();

        while(var1.hasNext()) {
            String context = (String)var1.next();
            if (!context.startsWith("/")) {
                context = "/" + context;
            }

            try {
                TreeCache cache = TreeCache.newBuilder(this.source, context).build();
                cache.getListenable().addListener( t: this);
                cache.start();
                this.caches.put(context, cache);
            } catch (NoNodeException var4) {
            } catch (Exception var5) {
                log.error( message: "Error initializing listener for context " + context, var5);
            }
        }
    }

}
```

收到信息后

```
public void childEvent(CuratorFramework client, TreeCacheEvent event) throws Exception {
    Type eventType = event.getType();
    if (eventType == Type.NODE_ADDED || eventType == Type.NODE_REMOVED || eventType == Type.NODE_UPDATED) {
        this.publisher.publishEvent(new RefreshEvent( source: this, event, this.getEventDesc(event)));
    }

}
```

```
public void handle(RefreshEvent event) {
    if (this.ready.get()) { // don't handle events before app is ready
        log.debug("Event received " + event.getEventDesc());
        Set<String> keys = this.refresh.refresh();
        log.info("Refresh keys changed: " + keys);
    }
}
```

配置的组合顺序

以 yml 为例

配置加载顺序

- 应用名-profile.yml
- 应用名.yml
- application-profile.yml
- application.yml

基于 Consul 的配置中心

Spring Cloud Consul Config

依赖

- spring-cloud-starter-consul-config

启用

- bootstrap.properties | yml
  - `spring.cloud.consul.host=localhost`
  - `spring.cloud.consul.port=8500`
  - `spring.cloud.consul.config.enabled=true` 默认就是true

Consul 中的数据怎么存

配置项

- spring.cloud.consul.config.format= 数据存储形式
  KEY_VALUE | YAML | PROPERTIES | FILES
- /config/应用名,profile/data 优先加载应用名对应的，比如config/waiter-service/data
- /config/application,profile/data

启动后点击consul前台Key/Value，直接配置数据

Consul 中的数据怎么存

如何定制

- spring.cloud.consul.config.data-key=data
- spring.cloud.consul.config.root=config
- spring.cloud.consul.config.default-context=application
- spring.cloud.consul.config.profile-separator=',' 分隔符

配置项变更

自动刷新配置

zk有监听配置，consul没有

- spring.cloud.consul.config.watch.enabled=true
- spring.cloud.consul.config.watch.delay=1000

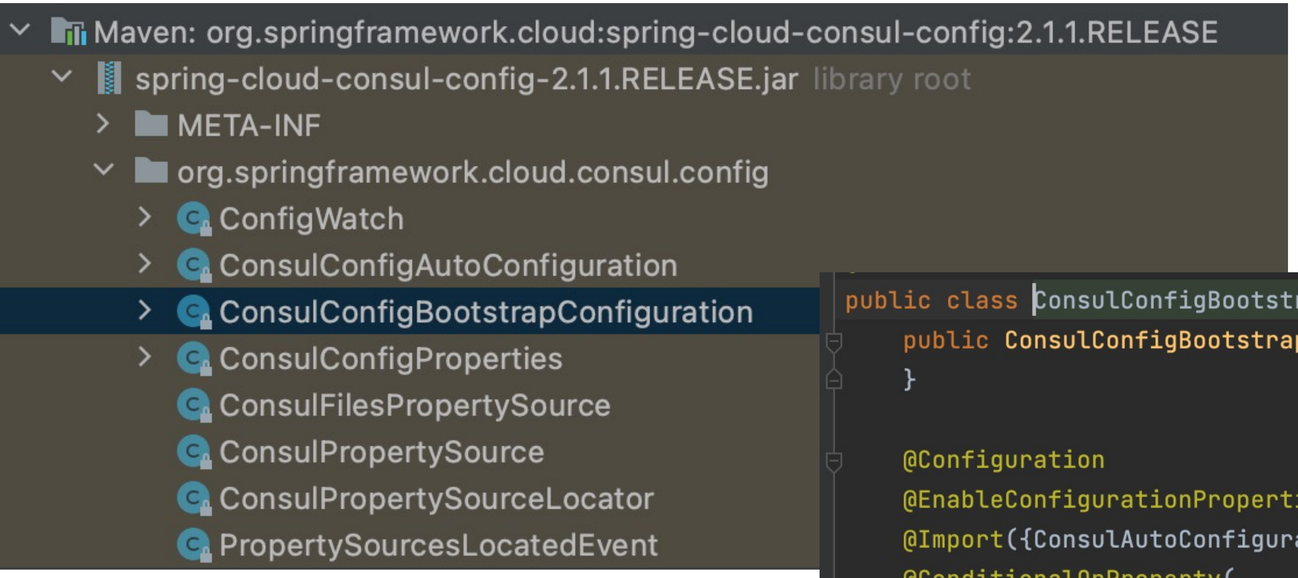
一秒检测一次有无变化，有变化就发出一个event

实现原理

- 单线程 ThreadPoolTaskScheduler
- ConsulConfigAutoConfiguration.CONFIG_WATCH_TASK_SCHEDULER_NAME

“Talk is cheap, show me the code.”

Chapter 14 / consul-config-waiter-service




```java
public class ConsulConfigBootstrapConfiguration {
    public ConsulConfigBootstrapConfiguration() {
    }

    @Configuration
    @EnableConfigurationProperties
    @Import({ConsulAutoConfiguration.class})
    @ConditionalOnProperty(
        name = {"spring.cloud.consul.config.enabled"},
        matchIfMissing = true
    )
    protected static class ConsulPropertySourceConfiguration {
        @Autowired
        private ConsulClient consul;

        protected ConsulPropertySourceConfiguration() {
        }

        @Bean
        @ConditionalOnMissingBean
        public ConsulConfigProperties consulConfigProperties() { return new ConsulConfigProperties(); }

        @Bean
        public ConsulPropertySourceLocator consulPropertySourceLocator(ConsulConfigProperties consulConfigProperties) {
            return new ConsulPropertySourceLocator(this.consul, consulConfigProperties);
        }
    }
}
```

```java
public class ConsulConfigAutoConfiguration {
    public static final String CONFIG_WATCH_TASK_SCHEDULER_NAME = "configWatchTaskScheduler";

    public ConsulConfigAutoConfiguration() {
    }

    @Configuration
    @ConditionalOnClass({RefreshEndpoint.class})
    protected static class ConsulRefreshConfiguration {
        protected ConsulRefreshConfiguration() {
        }

        @Bean
        @ConditionalOnProperty(
            name = {"spring.cloud.consul.config.watch.enabled"},
            matchIfMissing = true
        )
        public ConfigWatch configWatch(ConsulConfigProperties properties, ConsulPropertySourceLocator locator, ConsulClient consul, @Qualifier("configWatchTaskSchedule
            return new ConfigWatch(properties, consul, locator.getContextIndexes(), taskScheduler);
        }

        @Bean(
            name = {"configWatchTaskScheduler"}
        )
        @ConditionalOnProperty(
            name = {"spring.cloud.consul.config.watch.enabled"},
            matchIfMissing = true
        )
```

基于 Nacos 的配置中心

Spring Cloud Alibaba Nacos Config

依赖

- spring-cloud-starter-alibaba-nacos-config
- spring-cloud-alibaba-dependencies:~~0.9.0~~ 2.1.2.RELEASE
  - 注意 Spring Cloud 与 Spring Boot 的对应版本

本地访问：http://localhost:8848/nacos/

启用

- bootstrap.properties | yml
  - `spring.cloud.nacos.config.server-addr=127.0.0.1:8848`
  - `spring.cloud.nacos.config.enabled=true` 有依赖默认就是true

当Spring Boot是2.x版本时候，请引用：

```
<dependency>
    <groupId>com.alibaba.cloud</groupId>
    <artifactId>spring-cloud-alibaba-dependencies</artifactId>
    <version>${spring-cloud-alibaba.version}</version>
    <type>pom</type>
    <scope>import</scope>
</dependency>
```

```
<dependency>
    <groupId>com.alibaba.cloud</groupId>
    <artifactId>spring-cloud-starter-alibaba-nacos-config</artifactId>
</dependency>
```

<spring-cloud-alibaba.version>2.1.2.RELEASE</spring-cloud-alibaba.version>

Nacos 中的数据怎么存

配置项

- dataId　在dataId配置的值
  - ${prefix}-${spring.profile.active}.${file-extension}
    - 应用名
    - dev
    - yaml,properties…
  - spring.cloud.nacos.config.prefix
  - spring.cloud.nacos.config.file-extension
- spring.cloud.nacos.config.group

“Talk is cheap, show me the code.”

Chapter 14 / nacos-config-waiter-service

Configuration Details

* **Data ID:** waiter-service.yaml

* **Group:** DEFAULT_GROUP

Advanced Options

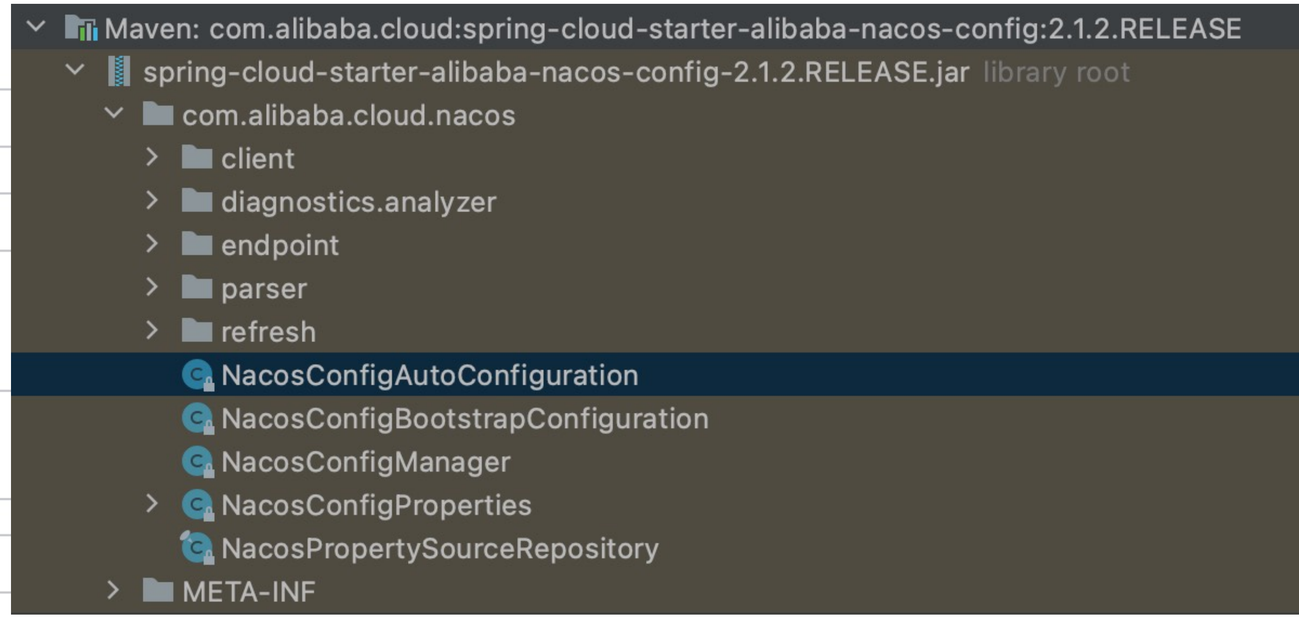
Description:

* **MD5:** 429b2c182a11053a44fd5b80fa845090

* **Configuration Content:**

```yaml
order:
 discount: 75
 waiterPrefix: geektime-

```



```java
public class NacosConfigAutoConfiguration {
    public NacosConfigAutoConfiguration() {
    }

    @Bean
    public NacosConfigProperties nacosConfigProperties(ApplicationContext context) {
        return context.getParent() != null && BeanFactoryUtils.beanNamesForTypeIncludingAncestors(context.getParent(), NacosConfigProperties.class).length > 0 ? (Nacos
    }

    @Bean
    public NacosRefreshProperties nacosRefreshProperties() { return new NacosRefreshProperties(); }

    @Bean
    public NacosRefreshHistory nacosRefreshHistory() { return new NacosRefreshHistory(); }

    @Bean
    public NacosConfigManager nacosConfigManager(NacosConfigProperties nacosConfigProperties) {
        return new NacosConfigManager(nacosConfigProperties);
    }

    @Bean
    public NacosContextRefresher nacosContextRefresher(NacosConfigManager nacosConfigManager, NacosRefreshHistory nacosRefreshHistory) {
        return new NacosContextRefresher(nacosConfigManager, nacosRefreshHistory);
    }
}
```

SpringBucks 实战项目进度小结

本章小结

几种不同的配置中心

- Spring Cloud Config Server
  - Git / SVN / RDBMS / Vault
- Zookeeper
- Consul
- Nacos

SpringBucks 进度小结

waiter-service

- 增加了订单金额与折扣
- 增加了 Waiter 名称
- 使用了不同的配置中心
  - Spring Cloud Config Client
  - 使用 Zookeeper
  - 使用 Consul
  - 使用 Nacos

携程 Apollo

官方地址

- https://github.com/ctripcorp/apollo

特性

- 统一管理不同环境、不同集群的配置
- 配置修改实时生效（热发布）
- 版本发布管理
- 灰度发布
- 权限管理、发布审核、操作审计
- 客户端配置信息监控
- 提供开放平台API

Apollo
A reliable configuration management system

极客时间

扫码试看/订阅

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