Grails 开发之（Rest 教程）

开发环境：

| Grails Version: 3.1.5

| Groovy Version: 2.4.6

| JVM Version: 1.8.0_144

创建项目（略）

1、配置 build.gradle 配置：

```
buildscript {
   ext {
      grailsVersion = project.grailsVersion
   }
   repositories {
      mavenLocal()
      maven { url "https://repo.grails.org/grails/core" }
   }
   dependencies {
      classpath "org.grails:grails-gradle-plugin:$grailsVersion"
      classpath "com.bertramlabs.plugins:asset-pipeline-gradle:2.8.2"
      classpath "org.grails.plugins:hibernate4:5.0.5"
   }
}

version "0.1"
group "demo"
```

```
apply plugin:"eclipse"
apply plugin:"idea"
apply plugin:"war"
apply plugin:"org.grails.grails-web"
apply plugin:"org.grails.grails-gsp"
apply plugin:"asset-pipeline"

ext {
   grailsVersion = project.grailsVersion
   gradleWrapperVersion = project.gradleWrapperVersion
   springSecurityRestVersion = '2.0.0.M2'
}

repositories {
   mavenLocal()
   maven { url "https://repo.grails.org/grails/core" }
}

dependencyManagement {
   imports {
      mavenBom "org.grails:grails-bom:$grailsVersion"
   }
   applyMavenExclusions false
}

dependencies {
   compile "org.springframework.boot:spring-boot-starter-logging"
   compile "org.springframework.boot:spring-boot-autoconfigure"
   compile "org.grails:grails-core"
   compile "org.springframework.boot:spring-boot-starter-actuator"
```

```
    compile "org.springframework.boot:spring-boot-starter-tomcat"
    compile "org.grails:grails-dependencies"
    compile "org.grails:grails-web-boot"
    compile "org.grails.plugins:cache"
    compile "org.grails.plugins:scaffolding"
    compile "org.grails.plugins:hibernate4"
    compile "org.hibernate:hibernate-ehcache"
    console "org.grails:grails-console"
    profile "org.grails.profiles:web:3.1.5"
    runtime "com.bertramlabs.plugins:asset-pipeline-grails:2.8.2"
    runtime "com.h2database:h2"
    testCompile "org.grails:grails-plugin-testing"
    testCompile "org.grails.plugins:geb"
    testRuntime "org.seleniumhq.selenium:selenium-htmlunit-driver:2.47.1"
    testRuntime "net.sourceforge.htmlunit:htmlunit:2.18"

    //spring-security 依赖
    compile "org.grails.plugins:spring-security-core:3.0.0"
    //rest api 依赖
    compile "org.grails.plugins:spring-security-rest:${springSecurityRestVersion}"
    //rest api 存储 token 的依赖
    compile "org.grails.plugins:spring-security-rest-gorm:${springSecurityRestVersion}"

    //mysql 依赖
    compile "mysql:mysql-connector-java:5.1.38"
}

task wrapper(type: Wrapper) {
    gradleVersion = gradleWrapperVersion
}
```

```
assets {
    minifyJs = true
    minifyCss = true
}
```

2、在项目目录 grails-app/conf 下面创建脚本 application.groovy，配置 spring secruity 和 rest 相关配置

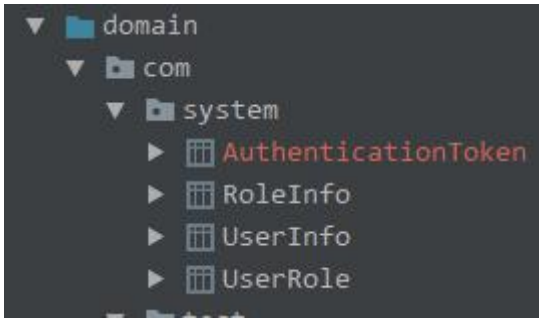
```
// 添加 spring-security 插件核心配置

grails.plugin.springsecurity.auth.loginFormUrl = '/'
grails.plugin.springsecurity.auth.ajaxLoginFormUrl = '/'
grails.plugin.springsecurity.failureHandler.defaultFailureUrl = '/'
grails.plugin.springsecurity.failureHandler.ajaxAuthFailUrl = '/'
//加密方式
grails.plugin.springsecurity.password.algoritham = 'SHA-256'

//用户类
grails.plugin.springsecurity.userLookup.userDomainClassName = 'com.system.UserInfo'

//用户角色类
grails.plugin.springsecurity.userLookup.authorityJoinClassName = 'com.system.UserRole'

//角色类
grails.plugin.springsecurity.authority.className = 'com.system.RoleInfo'

//角色集合字段，是 UserInfo 的 getAuthorities()
grails.plugin.springsecurity.authority.groupAuthorityNameField = 'authorities'

//是否使用组类进行管理，如果使用了 true，则必须配置组的相关东西
grails.plugin.springsecurity.useRoleGroups = false
```

```
//请求的 url 属性字段
grails.plugin.springsecurity.requestMap.urlField = 'url'

grails.plugin.springsecurity.relationalAuthorities='allRoles'



grails.plugin.springsecurity.filterChain.chainMap = [
   [pattern: '/api/**',
filters:'JOINED_FILTERS,-anonymousAuthenticationFilter,-exceptionTranslationFilter,-authenticationProcessingFilter,-securityContextPersistenceFilter'],
   [pattern: '/**', filters:'JOINED_FILTERS,-restTokenValidationFilter,-restExceptionTranslationFilter']
]

grails.plugin.springsecurity.controllerAnnotations.staticRules = [
      [pattern: '/',             access: ['permitAll']],
      [pattern: '/500',          access: ['permitAll']],
      [pattern: '/404',          access: ['permitAll']],
      [pattern: '/error',        access: ['permitAll']],
      [pattern: '/index',        access: ['permitAll']],
      [pattern: '/index.gsp',    access: ['permitAll']],
      [pattern: '/shutdown',     access: ['permitAll']],
      [pattern: '/assets/**',    access: ['permitAll']],
      [pattern: '/**/js/**',     access: ['permitAll']],
      [pattern: '/**/css/**',    access: ['permitAll']],
      [pattern: '/**/images/**',  access: ['permitAll']],
      [pattern: '/**/favicon.ico', access: ['permitAll']],
//      [pattern: '/j_spring_security_check', access: ['permitAll']],
      // block all other URL access
      [pattern: '/**', access: ['denyAll'], httpMethod: 'GET'],
      [pattern: '/**', access: ['denyAll'], httpMethod: 'POST'],
      [pattern: '/**', access: ['denyAll'], httpMethod: 'PUT'],
```

```
	[pattern: '/**', access: ['denyAll'], httpMethod: 'DELETE']
]

grails.plugin.springsecurity.filterChain.chainMap = [
	[pattern: '/assets/**',     filters: 'none'],
	[pattern: '/**/js/**',      filters: 'none'],
	[pattern: '/**/css/**',     filters: 'none'],
	[pattern: '/**/images/**',   filters: 'none'],
	[pattern: '/**/favicon.ico', filters: 'none'],
//	  [pattern: '/api/login',     filters: 'securityCorsFilter,restAuthenticationFilter'],
	//Stateless chain
	[
		pattern: '/api/**',
		filters:
'JOINED_FILTERS,-securityCorsFilter,-anonymousAuthenticationFilter,-exceptionTranslationFilter,-authenticationProcessingFilter,-securityContextPersistenceFilter,-rememb
erMeAuthenticationFilter'
	],

	//Traditional chain
	[
		pattern: '/**',
		filters: 'JOINED_FILTERS,-securityCorsFilter,-restTokenValidationFilter,-restExceptionTranslationFilter'
	]
]


//rest configuration
grails.plugin.springsecurity.rest.token.storage.useGorm = true // since using gorm for token storage
grails.plugin.springsecurity.rest.token.generation.useSecureRandom = true
grails.plugin.springsecurity.rest.login.active =true
```

```
grails.plugin.springsecurity.rest.login.useJsonCredentials = true // can use json a request parameter
grails.plugin.springsecurity.rest.login.usernamePropertyName = 'username' // field of username parameter
grails.plugin.springsecurity.rest.login.passwordPropertyName = 'password' // field of pasword parameter
grails.plugin.springsecurity.rest.login.useRequestParamsCredential = true

grails.plugin.springsecurity.rest.token.storage.gorm.tokenDomainClassName ='com.system.AuthenticationToken' // token class name with package
grails.plugin.springsecurity.rest.token.storage.gorm.tokenValuePropertyName = 'secretToken' // field name for token storage
grails.plugin.springsecurity.rest.token.storage.gorm.usernamePropertyName = 'loginName'

grails.plugin.springsecurity.rest.logout.endpointUrl = '/api/logout'
grails.plugin.springsecurity.rest.login.endpointUrl = '/api/login'
grails.plugin.springsecurity.rest.login.failureStatusCode = 401
//token validate
grails.plugin.springsecurity.rest.token.validation.active=true
grails.plugin.springsecurity.rest.token.generation.useUUID=false
grails.plugin.springsecurity.rest.token.validation.useBearerToken = true
grails.plugin.springsecurity.rest.token.validation.headerName = 'X-Auth-Token'
grails.plugin.springsecurity.rest.token.validation.endpointUrl='/api/validate'
//end of rest configuration
grails.plugin.springsecurity.logout.postOnly = false
```

3、创建 domain



3.1 AuthenticationToken

```
package com.system

class AuthenticationToken {

   String secretToken // field to store the token used for accessing api end point
   String loginName // login name of the user

   static mapping = {
      version false
   }
}
```

3.2 UserInfo

```
package com.system

import groovy.transform.EqualsAndHashCode
import groovy.transform.ToString

/**
 * 用户
 */
@EqualsAndHashCode(includes='username')
@ToString(includes='username', includeNames=true, includePackage=false)
class UserInfo implements Serializable {

  private static final long serialVersionUID = 1

  transient springSecurityService

  String username
  String password
```

```
  boolean enabled = true
  boolean accountExpired
  boolean accountLocked
  boolean passwordExpired

  UserInfo(String username, String password) {
     this()
     this.username = username
     this.password = password
  }

  Set<RoleInfo> getAuthorities() {
     UserRole.findAllByUser(this)*.role as Set<RoleInfo>
  }

// Set<RoleGroup> getAuthorities() {
//    def authorities = (UserRoleGroup.findAllByUserInfo(this) as List<UserRoleGroup>)*.roleGroup as Set<RoleGroup>
//    authorities
// }

  def beforeInsert() {
     encodePassword()
  }

  def beforeUpdate() {
     if (isDirty('password')) {
        encodePassword()
     }
  }
```

```
  protected void encodePassword() {
     password = springSecurityService?.passwordEncoder ? springSecurityService.encodePassword(password) : password
  }

  static transients = ['springSecurityService']

  static constraints = {
     password blank: false, password: true
     username blank: false, unique: true
  }

  static mapping = {
     password column: '`password`'
  }
}
```

3.3 RoleInfo

```
package com.system

import groovy.transform.EqualsAndHashCode
import groovy.transform.ToString

@EqualsAndHashCode(includes='authority')
@ToString(includes='authority', includeNames=true, includePackage=false)
class RoleInfo implements Serializable {

  private static final long serialVersionUID = 1

  RoleInfo(String authority, String authorityName) {
     this.authority = authority
     this.authorityName = authorityName
```

```
    }

    String authority    //权限标识
    String authorityName //权限名称

    static constraints = {
        authority blank: false, unique: true
    }

    static mapping = {
        cache true
    }



    @Override
    public String toString() {
        "${authorityName}(${authority})"
    }
}
```

3.4 UserRole

```
/**
 * 用户-角色关联表
 * */

package com.system

import grails.gorm.DetachedCriteria
import groovy.transform.ToString
import org.apache.commons.lang.builder.HashCodeBuilder
```

```
@ToString(cache=true, includeNames=true, includePackage=false)
class UserRole implements Serializable {

   private static final long serialVersionUID = 1

   UserInfo user
   RoleInfo role

   UserRole(UserInfo u, RoleInfo r) {
      this()
      user = u
      role = r
   }

   @Override
   boolean equals(other) {
      if (!(other instanceof UserRole)) {
         return false
      }

      other.user?.id == user?.id && other.role?.id == role?.id
   }

   @Override
   int hashCode() {
      def builder = new HashCodeBuilder()
      if (user) builder.append(user.id)
      if (role) builder.append(role.id)
      builder.toHashCode()
```

```
}

static UserRole get(long userId, long roleId) {
    criteriaFor(userId, roleId).get()
}

static boolean exists(long userId, long roleId) {
    criteriaFor(userId, roleId).count()
}

private static DetachedCriteria criteriaFor(long userId, long roleId) {
    UserRole.where {
        user == UserInfo.loaa(userId) &&
                role == RoleInfo.loaa(roleId)
    }
}

static UserRole create(UserInfo user, RoleInfo role, boolean flush = false) {
    def instance = new UserRole(user: user, role: role)
    instance.save(flush: flush, insert: true)
    instance
}

static boolean remove(UserInfo u, RoleInfo r, boolean flush = false) {
    if (u == null || r == null) return false

    int rowCount = UserRole.where { user == u && role == r }.deleteAll()

    if (flush) { UserRole.withSession { it.flush() } }
```

```
        rowCount
    }

    static boolean removeAll(UserInfo u, boolean flush = false) {
        if (u == null) return false

        UserRole.where { user == u }.deleteAll()

        if (flush) { UserRole.withSession { it.flush() } }
        return true
    }

    static void removeAll(RoleInfo r, boolean flush = false) {
        if (r == null) return

        UserRole.where { role == r }.deleteAll()

        if (flush) { UserRole.withSession { it.flush() } }
    }

    static constraints = {
        role validator: { RoleInfo r, UserRole ur ->
            if (ur.user == null || ur.user.id == null) return
            boolean existing = false
            UserRole.withNewSession {
                existing = UserRole.exists(ur.user.id, r.id)
            }
            if (existing) {
                return 'userRole.exists'
            }
```

```
        }
    }

    static mapping = {
        id composite: ['user', 'role']
        version false
    }
}
```

4、添加一个测试 domain 类 Product

```
package com.test

import com.system.RoleInfo
import com.system.UserInfo
import grails.rest.Resource

@Resource(readOnly = false, formats = ['json', 'xml'])
class Product {

    String prodName
    String prodDesc
    Double prodPrice
    Date createDate = new Date()

    static belongsTo = [user:UserInfo,role:RoleInfo]

    static constraints = {
        user nullabled:true
        role nullabled:true
    }
}
```

5、创建 controller，用于测试

```
package com.test

import grails.converters.JSON
import grails.rest.RestfulController
import org.springframework.security.access.annotation.Secured

@Secured("ROLE_ADMIN")
class ProductController extends RestfulController<Product> {

    def tokenStorageService
    static responseFormats = ['json', 'xml']

    ProductController() {
        super(Product)
    }

    def list() {
        render ([result:true, message: "操作成功"]) as JSON
    }
}
```

6、在 grails-app/init/bootstrap.groovy 中添加启动任务

```
import com.system.RoleInfo
import com.system.UserInfo
import com.system.UserRole
import com.test.Product
import grails.plugin.springsecurity.SecurityFilterPosition
import grails.plugin.springsecurity.SpringSecurityUtils

class BootStrap {
```

```groovy
def init = { servletContext ->

    //注册注销过滤器，如果不添加则注销不起作用
    SpringSecurityUtils.clientRegisterFilter('restLogoutFilter', SecurityFilterPosition.LOGOUT_FILTER.order - 1)

    //建立默认用户权限
    def superadminRoleInfo = new RoleInfo('ROLE_SUPERADMIN', '超级管理员').save()
    def adminRoleInfo = new RoleInfo('ROLE_ADMIN', '管理员').save()
    def userRoleInfo = new RoleInfo('ROLE_USER', '用户').save()



    def superUser = new UserInfo('sys', 'sys9988').save()
    UserRole.create superUser, superadminRoleInfo, true

    def user = new UserInfo('admin', 'admin9988').save()
    UserRole.create user, adminRoleInfo, true

    def testUser = new UserInfo('tom', 'tom9988').save()
    UserRole.create testUser, userRoleInfo, true



    def prod1 = new Product(prodName:"iPhone 7",prodDesc:"New iPhone 7 32GB",prodPrice:780).save flush:true
    def prod2 = new Product(prodName:"iPhone 7 Plus",prodDesc:"New iPhone 7 Plus 128GB",prodPrice:990).save flush:true
    def prod3 = new Product(prodName:"iPhone 7 SE",prodDesc:"New iPhone 7 SE 64GB",prodPrice:520).save flush:true
}

def destroy = {
```

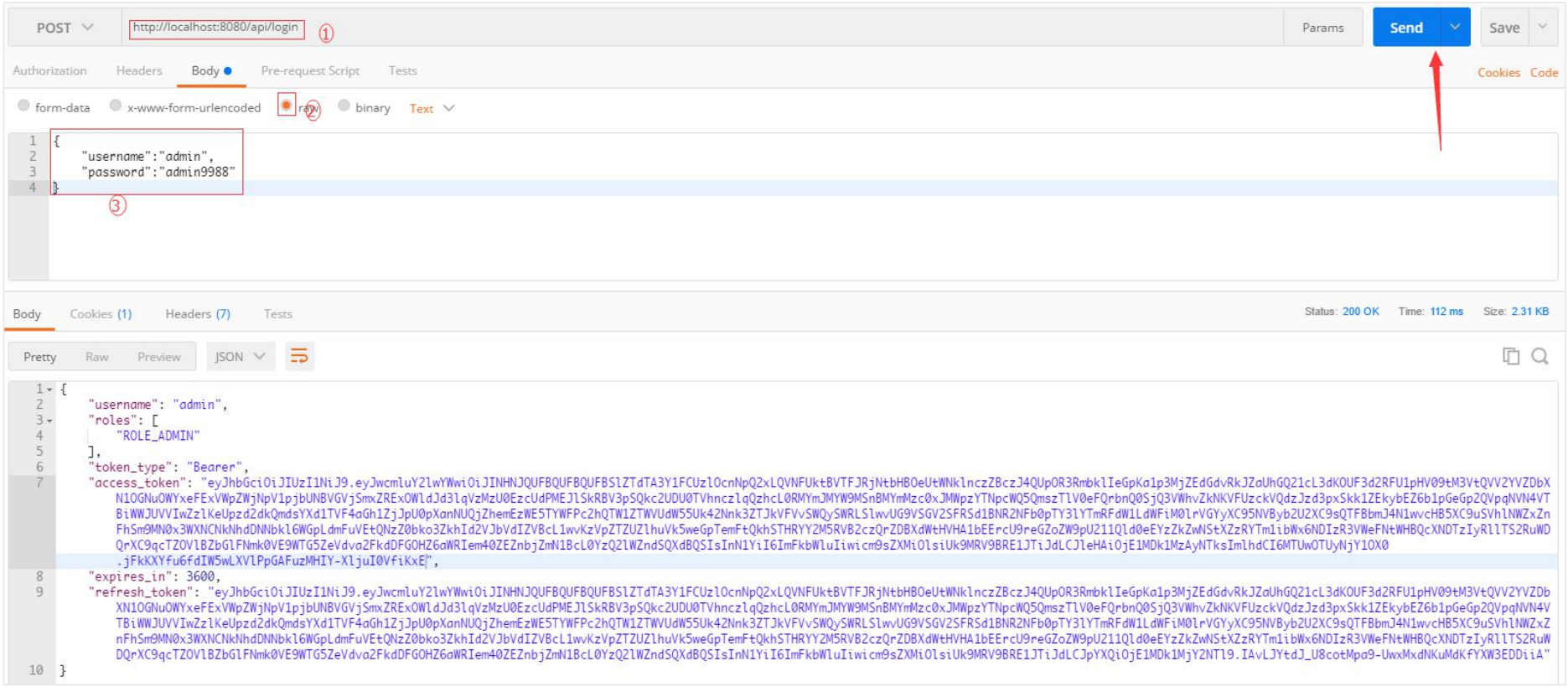
```
    }
}
```

7、通过 PostMan 接口测试工具进行测试

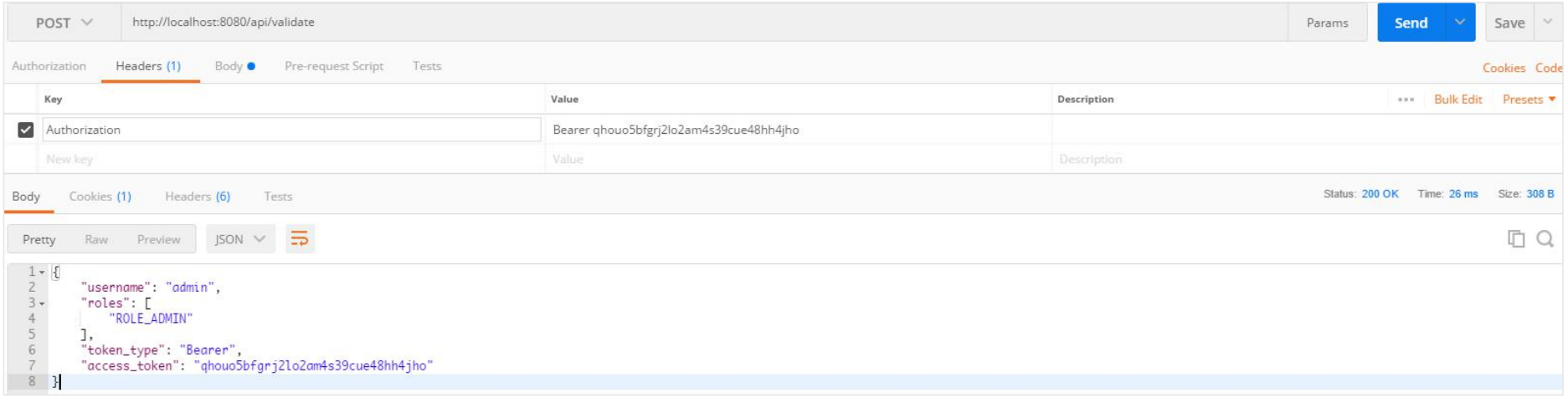
7.1

首先测试登录，

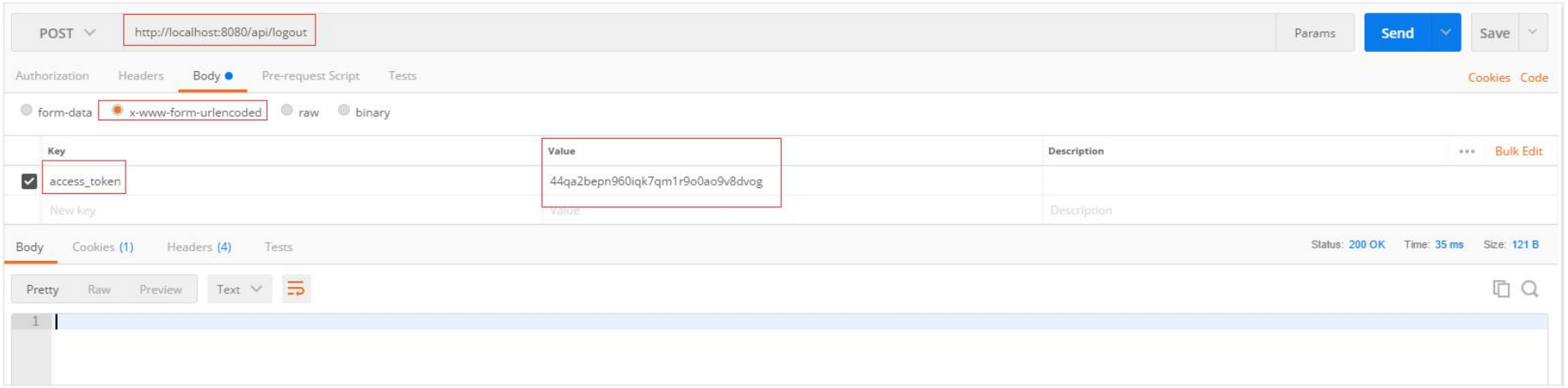
url:http://localhost:8080/api/login



7.2 验证 token 是否有效，url 为：http://localhost:8080/api/validate，参数 key 为 Authorization，value 为：Bearer+空格+access_token，空格一定不能丢



7.3 测试注销登录，url 为：http://localhost:8080/api/logout



7.4 测试接口数据返回，url: http://localhost:8080/product/list


POST
http://localhost:8080/product/list
Params
Send
Save
Authorization
Headers (1)
Body
Pre-request Script
Tests
Cookies
Code
Key
Value
Description
Bulk Edit
Presets
Authorization
Bearer I5adonst72oioj0efq9ab8nbjdeid0l5
New key
Value
Description
Body
Cookies (1)
Headers (6)
Tests
Status: 200 OK
Time: 17 ms
Size: 250 B
Pretty
Raw
Preview
HTML
1
['result':true, 'message':'操作成功']