

** 入门 **

*** 后端 ***

千丁后端服务采用Java技术栈构建，应用Dubbo框架构建微服务体系，SpringCloud构建Rest服务对外

*** 命名规范 ***

- group命名 com.qding.\${业务线},不得使用简写，拼音，非特殊情况，不得省略\${业务线}。特殊情况包括：
 - 全局底层依赖，如，base project
 - 待补充
- artifact命名,不得使用简写，拼音，建议使用工程代号，单一单词
- version格式统一为四级，<主版本>.<次版本>.<增量版本>.<里程碑版本> 表示为\d.\d.\d[-\${qualifier}/\${buildnum}],初始版本号1..0.0-SNAPSHOT,常规情况，不建议使用里程碑版本
- package不得使用拼音
- class 参考编码规范
- method 参考编码规范
- field 参考编码规范

*** 创建工程 ***

**** 后台微服务项目 ****

1. 配置标准maven环境，修改setting.xml，增加千丁私有仓库。

```
<activeProfiles>
  <activeProfile>nexus</activeProfile>
</activeProfiles>

<profiles>
  <profile>
    <id>nexus</id>
    <repositories>
      <repository>
        <id>qding.snapshots</id>

<url>http://mvn2.qdingnet.com/nexus/content/repositories/snapshots</url>
        <releases>
          <enabled>>true</enabled>
          <updatePolicy>never</updatePolicy>
          <checksumPolicy>fail</checksumPolicy>
        </releases>
        <snapshots>
          <enabled>>true</enabled>
          <updatePolicy>always</updatePolicy>
          <checksumPolicy>fail</checksumPolicy>
        </snapshots>
      </repository>

      <repository>
```

```

    <id>qding.releases</id>
    <url>http://mvn2.qdingnet.com/nexus/content/groups/public/</url>
    <releases>
      <enabled>true</enabled>
      <updatePolicy>never</updatePolicy>
      <checksumPolicy>fail</checksumPolicy>
    </releases>
    <snapshots>
      <enabled>true</enabled>
      <updatePolicy>always</updatePolicy>
      <checksumPolicy>fail</checksumPolicy>
    </snapshots>
  </repository>

  <repository>
    <id>central</id>
    <url>http://maven.aliyun.com/nexus/content/groups/public</url>
    <releases>
      <enabled>true</enabled>
    </releases>
    <snapshots>
      <enabled>true</enabled>
    </snapshots>
  </repository>
</repositories>

<pluginRepositories>
  <pluginRepository>
    <id>central</id>
    <url>http://mvn2.qdingnet.com/nexus/content/repositories/public/</url>
    <releases>
      <enabled>true</enabled>
    </releases>
    <snapshots>
      <enabled>true</enabled>
    </snapshots>
  </pluginRepository>
</pluginRepositories>
</profile>
</profiles>

```

2. 执行mvn archetype:generate, 选择 com.qding:service-archetype (千丁后端服务骨架工程)

```

9: internal -> org.apache.maven.archetypes:maven-archetype-site-simple (An archetype which contain
10: internal -> org.apache.maven.archetypes:maven-archetype-webapp (An archetype which contains a
11: local -> com.qding:service-archetype (千丁后端服务骨架工程)
Choose a number or apply filter (format: [groupId:]artifactId, case sensitive contains): 7: 11
Define value for property 'groupId': com.qding.qop
Define value for property 'artifactId': firstblood
[INFO] Using property: version = 1.0.0-SNAPSHOT
Define value for property 'package' com.qding.qop.firstblood: :
Confirm properties configuration:
groupId: com.qding.qop
artifactId: firstblood
version: 1.0.0-SNAPSHOT
package: com.qding.qop.firstblood
Y: :

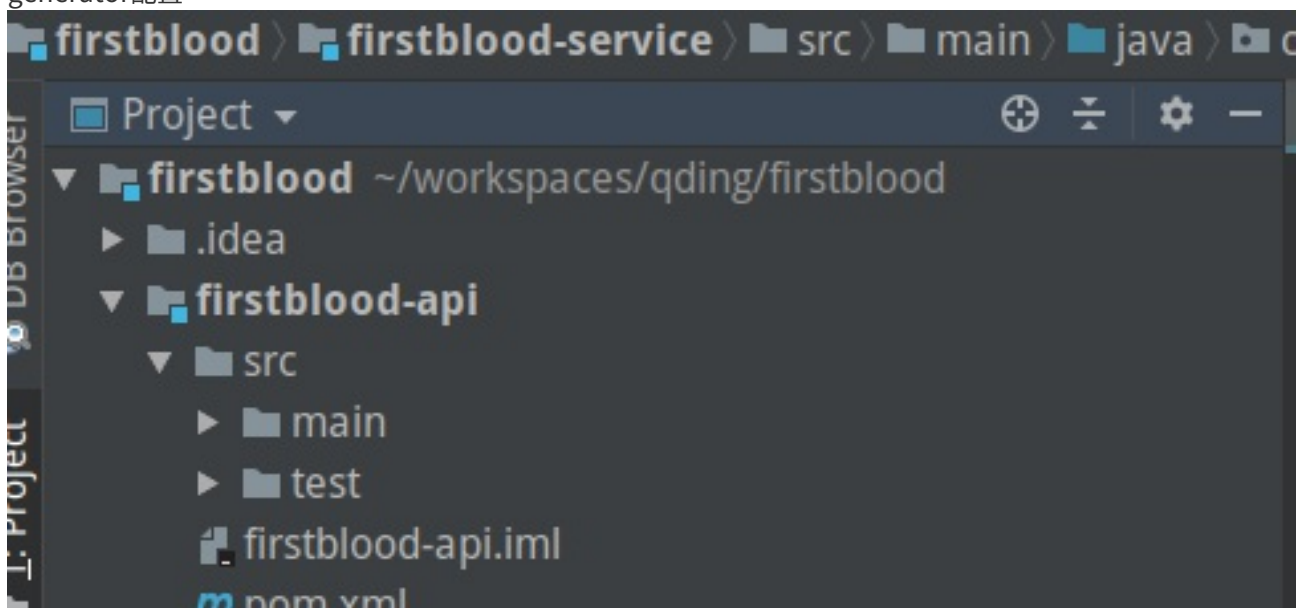
```

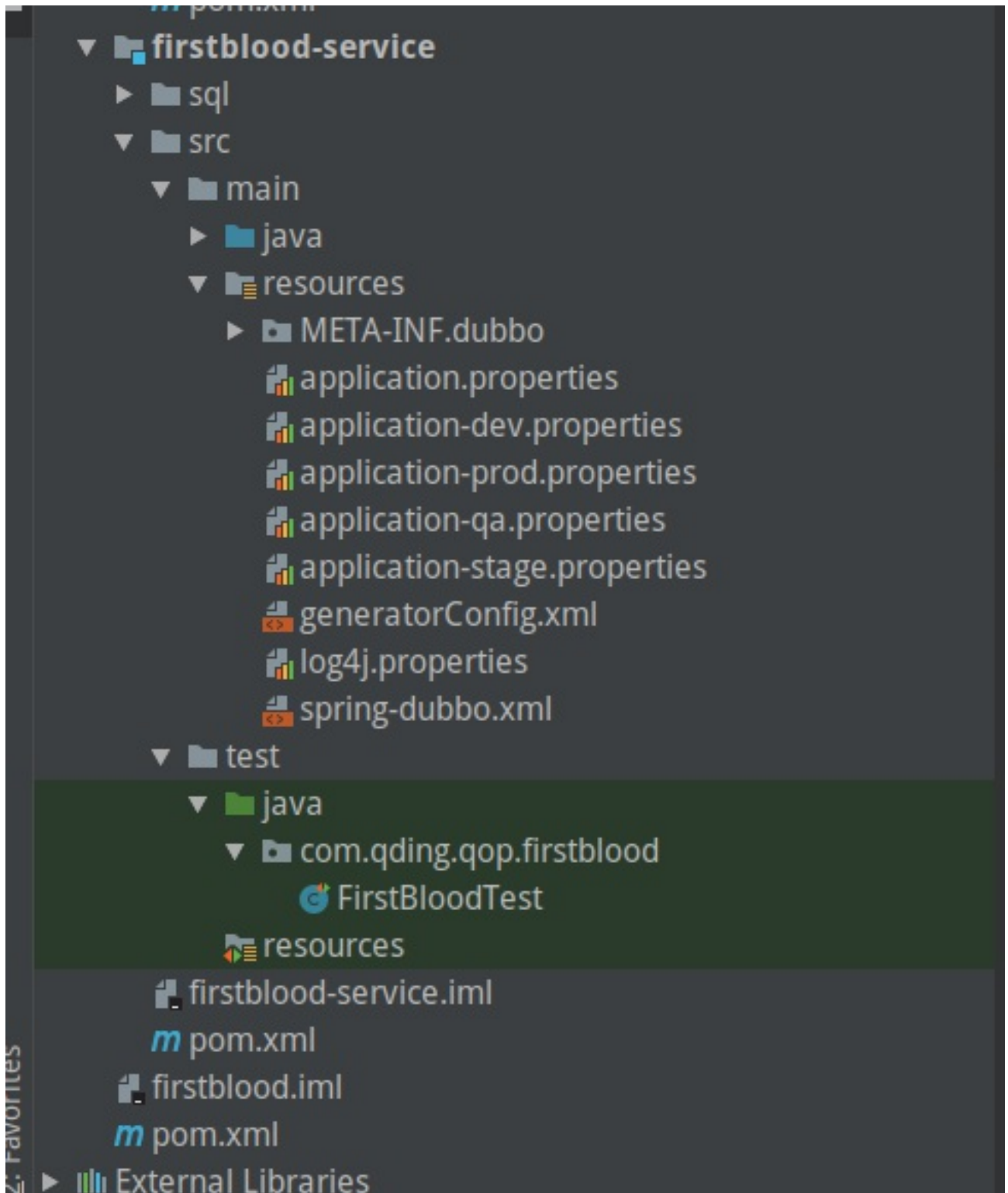
3. 变量说明:

- groupId, 建议com.qding.\${业务线}, 如com.qding.qop
- artifactId, 建议采用全局唯一的项目代号, 如firstblood

4. 项目结构如下图:

- api 工程 对外提供调用二方库, 服务接口
- common工程 共享对象, 工具包等
- service工程 核心服务代码
 - sql 数据库初始化, 以及变更脚本
 - domain 业务实体对象
 - service/impl 服务接口实现
 - dao 数据库操作接口, 继承于tk.mybatis通用Mapper, 一般由mybatis generator自动生成, 不需要手工编写
 - configuration 自定义的javaconfig风格的spring配置, 建议统一位于该路径
 - application-dev.properties 开发阶段需要修改该配置下datasource值, 否则需要单独配置mybatis generator配置





5. 初始化代码库，以及上传代码

```
git init
git remote add origin 工程git地址
git add .
git commit -m '初始化'
git push origin master
```

6. 数据库操作代码生成

```
cd ${artifactId}-service
mvn mybatis-generator:generate
```

```
tiger@linux ~/w/q/f/firstblood-service> mvn mybatis-generator:generate
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.qding.qop:firstblood-service >-----
[INFO] Building firstblood-service 1.0.0-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- mybatis-generator-maven-plugin:1.3.5:generate (default-cli) @ firstblood-service ---
[INFO] Connecting to the Database
[INFO] Introspecting table %
[INFO] Generating Record class for table heros
[INFO] Generating Mapper Interface for table heros
[INFO] Generating SQL Map for table heros
[INFO] Saving file HerosMapper.xml
[INFO] Saving file Heros.java
[INFO] Saving file HerosMapper.java
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.146 s
[INFO] Finished at: 2019-09-18T16:46:37+08:00
[INFO] -----
```

**** 后台REST服务项目 ****

Rest服务项目仅在需要聚合多后台微服务场景下，向前端提供接口用。一般情况，直接利用网关封装dubbo微服务即可。

1. 配置标准maven环境
2. 执行mvn archetype:generate，选择 com.qding:rest-archetype (千丁REST服务骨架工程)


```

tiger@linux ~/w/qding> mvn archetype:generate -DarchetypeCatalog=local -DgroupId=com.qding.qop -DartifactId=arena
[INFO] Scanning for projects...
[INFO] -----< org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO]
[INFO] >>> maven-archetype-plugin:3.1.2:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< maven-archetype-plugin:3.1.2:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO]
[INFO] --- maven-archetype-plugin:3.1.2:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Interactive mode
[INFO] No archetype defined. Using maven-archetype-quickstart (org.apache.maven.archetypes:maven-archetype-quickstart:1.0)
Choose archetype:
1: local -> com.qding:service-archetype (千丁后端服务骨架工程)
2: local -> com.qding:rest-archetype (千丁Rest服务骨架工程)
3: local -> com.qding:utils-archetype (千丁工具类骨架工程)
Choose a number or apply filter (format: [groupId:]artifactId, case sensitive contains): : 2
Downloading from qding.snapshots: http://mvn2.qdingnet.com/nexus/content/repositories/snapshots/com/qding/rest-archetype/1.0.0-SNAPSHOT
Downloading from qding.releases: http://mvn2.qdingnet.com/nexus/content/groups/public/com/qding/rest-archetype/1.0.0-SNAPSHOT/maven-metadata.xml
[INFO] Using property: groupId = com.qding.qop
[INFO] Using property: artifactId = arena
[INFO] Using property: version = 1.0.0-SNAPSHOT
Define value for property 'package' com.qding.qop.arena: :
Confirm properties configuration:
groupId: com.qding.qop
artifactId: arena

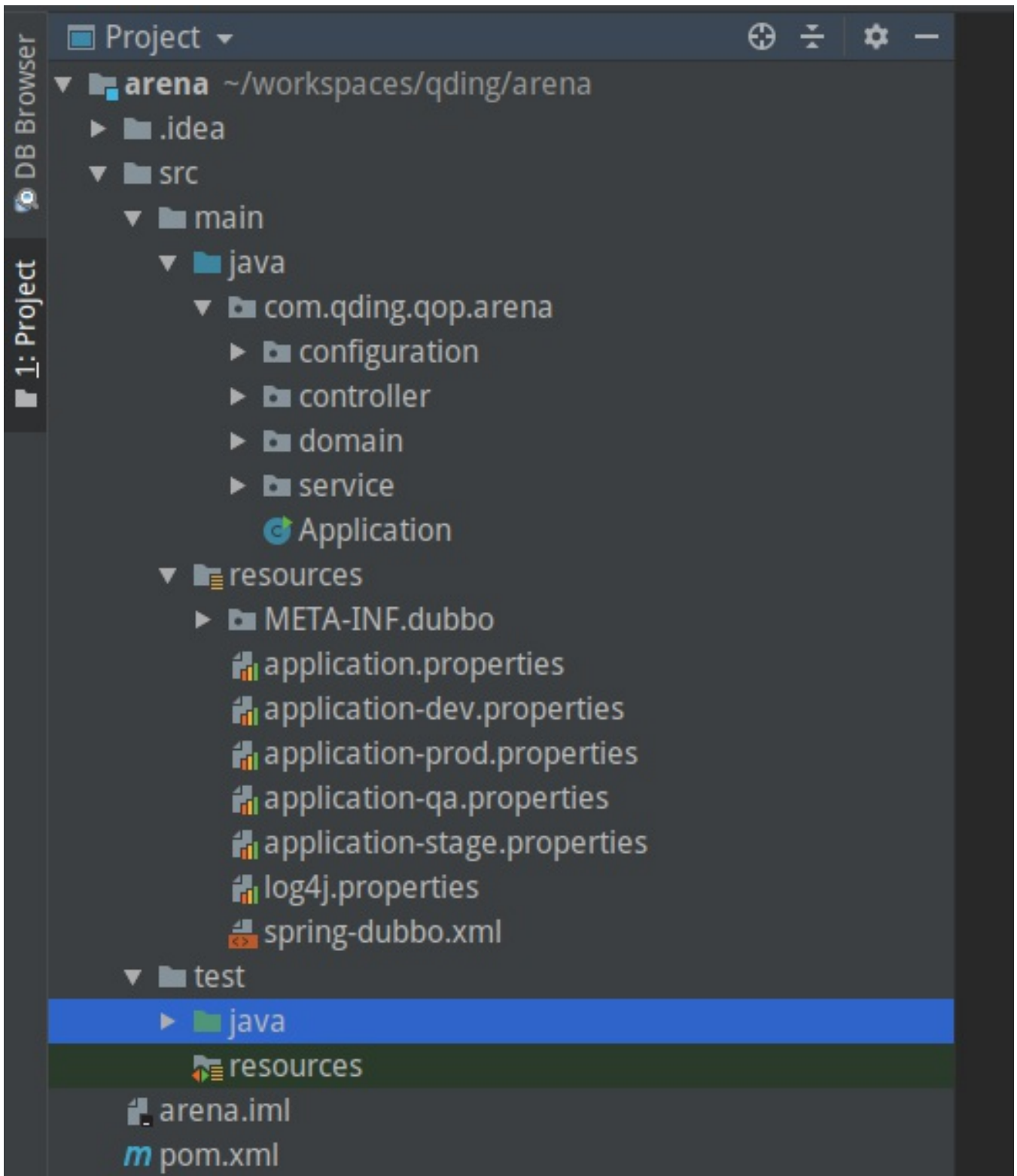
```

3. 变量说明:

- groupId, 建议com.qding.\${业务线}, 如com.qding.qop
- artifactId, 建议采用全局唯一的项目代号, 如arena

4. 项目结构如下图:

- domian包 业务域对象
- service包 业务逻辑聚合
- controller包 rest接口实现
- configuration 自定义的javaconfig风格的spring配置, 建议统一位于该路径



**** 工具类型项目 ****

工具类项目，仅在提供独立三方库时候创建，如千丁通用日志，字符串处理工具等

1. 配置标准maven环境
2. 执行mvn archetype:generate, 选择 com.qding:utils-archetype (千丁工具类骨架工程)

```

tiger@linux ~/w/qding> mvn archetype:generate -DarchetypeCatalog=local -DgroupId=com.qding.qop -DartifactId=gungnir
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO]
[INFO] >>> maven-archetype-plugin:3.1.2:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< maven-archetype-plugin:3.1.2:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO] --- maven-archetype-plugin:3.1.2:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Interactive mode
[INFO] No archetype defined. Using maven-archetype-quickstart (org.apache.maven.archetypes:maven-archetype-quickstart:1.0)
Choose archetype:
1: local -> com.qding:service-archetype (千丁后端服务骨架工程)
2: local -> com.qding:rest-archetype (千丁Rest服务骨架工程)
3: local -> com.qding:utils-archetype (千丁工具类骨架工程)
Choose a number or apply filter (format: [groupId:]artifactId, case sensitive contains): : 3
Downloading from qding.releases: http://mvn2.qdingnet.com/nexus/content/groups/public/com/qding/utils-archetype/1.0.0-SNAPSHOT/m
Downloading from qding.snapshots: http://mvn2.qdingnet.com/nexus/content/repositories/snapshots/com/qding/utils-archetype/1.0.0-S
[INFO] Using property: groupId = com.qding.qop
[INFO] Using property: artifactId = gungnir
[INFO] Using property: version = 1.0.0-SNAPSHOT
Define value for property 'package' com.qding.qop.gungnir: :
Confirm properties configuration:
groupId: com.qding.qop
artifactId: gungnir
version: 1.0.0-SNAPSHOT
package: com.qding.qop.gungnir

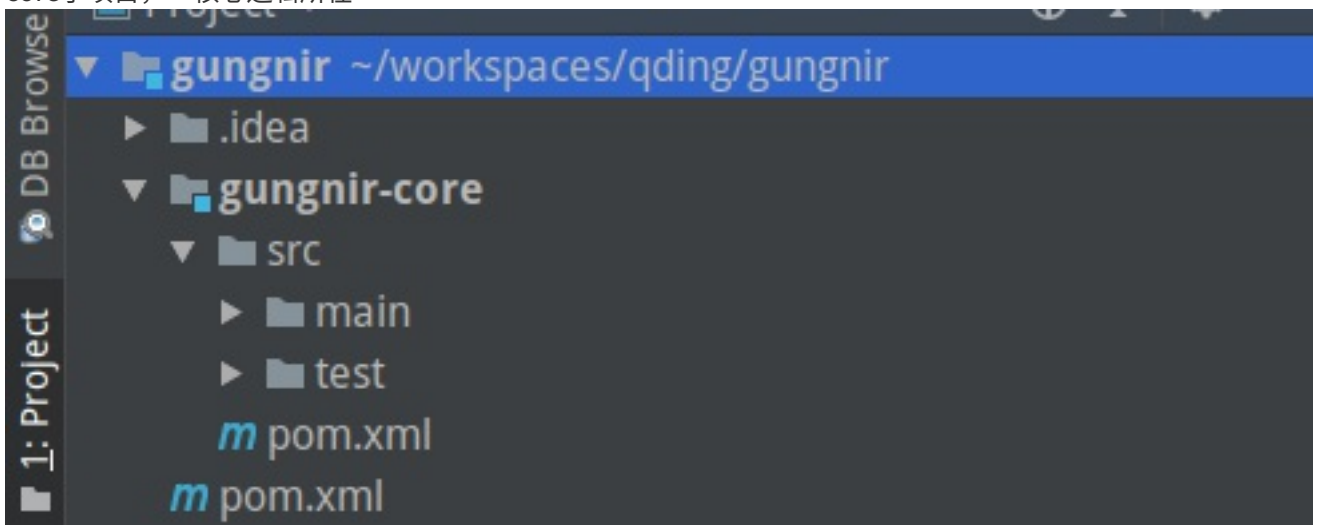
```

3. 变量说明:

- groupId, 建议com.qding.\${业务线}, 如com.qding.qop
- artifactId, 建议采用全局唯一的项目代号, 如gungnir

4. 项目结构如下图: 该工程仅创建核心子项目, 其它子模块, 需开发者手动创建, 合理分配模块, 一般以引用是否是强依赖作为参考

- core子项目, 核心逻辑所在



** 灰度发布以及多环境增强 **

1. 调整dubbo的服务提供者配置，确保group和version定义一定在服务层上（由于dubbo本身的bug，全局的version和group定义不生效，ClusterUtils合并parameters方法可修复）
2. 修改dubbo服务消费者的配置，group属性定义为通配符*
3. 提交路由脚本

具体路由脚本示例，可利用JUnit执行注册，默认路由逻辑为选择group名称最末一位字符为数字的，且数字值最大的组：

```
@Test
public void addScriptRouter() {
    RegistryFactory registryFactory =
    ExtensionLoader.getExtensionLoader(RegistryFactory.class).getAdaptiveExtension();
    Registry registry =
    registryFactory.getRegistry(URL.valueOf("zookeeper://10.37.253.31:2181"));
    registry.register(routerScriptUrl());
}

@Test
public void removeScriptRouter(){
    RegistryFactory registryFactory =
    ExtensionLoader.getExtensionLoader(RegistryFactory.class).getAdaptiveExtension();
    Registry registry =
    registryFactory.getRegistry(URL.valueOf("zookeeper://10.37.253.31:2181"));
    registry.unregister(routerScriptUrl());
}

URL routerScriptUrl() {

    return URL.valueOf("script://0.0.0.0/com.qding.qop.firstblood.FirstBlood?
category=routers&group=*&version=*&dynamic=false&rule=" + URL.encode(
        "" +
        "var imports = new
JavaImporter(com.alibaba.dubbo.rpc.cluster.support.wrapper);" +
        "with (imports){" +
        //      "if('10.20.33.44' == context.getLocalHost()) {"
        "if(invokers.size()>1&&invokers.get(0) instanceof
MockClusterInvoker){" +
        "var groups = new Array();" +
        "var index = 0;" +
        "var ri=new Array(0,0);" +
        "for each (var inv in invokers){" +
        "var url = inv.getUrl();" +
        "var c = String(url.getParameter('group')).slice(-1);" +
        "if(!isNaN(c)&&Number(c)>ri[1]){ri[0]=index;ri[1]=Number(c)}" +
        "index++;" +
        "}" +
        "var result = new java.util.ArrayList();" +
        "result.add(invokers.get(ri[0]));" +
        "result" +
        //      "}"else invokers;"
        "}"else invokers;"
        + "}" +
        ""
    );
}
```

```
    ));  
}
```

注意，修改上述 z k 地址。