# 学习SpringMVC——说说视图解析器

各位前排的，后排的，都不要走，咱趁热打铁，就这一股劲我们今天来说说spring mvc的视图解析器（不要抢，都有位子~~~）

相信大家在昨天那篇如何获取请求参数篇中都已经领略到了spring mvc注解的魅力和套路了。搭上@RequestMapping的便车，我们可以去到我们想去的地方（方法）去，借助@RequestParam、@PathVariable等我们可以得到请求中想要的参数值，最终还能够通过神奇的“return SUCCESS”到达我们的目的地。今天主要就来说说在达到目的地的路上，我们都经历了些什么！

## 在此之前

我们顺便说说@RequestHeader、请求参数类型为POJO（也就是Java对象类型）的情况以及ModelAndView

### 1. @RequestHeader

这个无需多说，还是原来的配方，还是一样的套路，只要举个例子，你就都明白了。

在SpringMVCTest中添加测试方法

```
@RequestMapping(value="/testRequestHeader")
public String testRequestHeader(@RequestHeader(value="Accept-Language") String language){
    System.out.println("testRequestHeader Accept-Languge:" + language);
    return SUCCESS;
}
```

我们知道一个请求如get请求或post都有请求头和响应头，这里我们想获取的是请求头中“Accept-Language”的具体信息，所以就用上了@RequestHeader注解来获取。

index.jsp中

```
<a href="springmvc/testRequestHeader">testRequestHeader</a><br/><br/>
```

启动服务器，点击超链接，我们得到了

```
testRequestHeader Accept-Languge:zh-CN
```

### 2. 请求参数为POJO

前面两篇，我们看到的请求类型都是一些字符串也就是某一个字段。那么如果现在有一个form表单，说夸张点，表单中有10个字段需要提交，行吧，还用原来的匹配的方式，你要用10个参数来接收，累不累？累！有没有办法？有！我们可以把这些要提交的字段封装在一个对象中，从而请求类型就是一个POJO。

这里我们新建一个类User

```
package com.jackie.springmvc.entities;

public class User {

    private Integer id;

    private String username;
    private String password;
    private String email;
    private int age;
    private Address address;

    public Integer getId() {
        return id;
    }
```

```java

    public void setId(Integer id) {
        this.id = id;
    }

    public String getUsername() {
        return username;
    }

    public void setUsername(String username) {
        this.username = username;
    }

    public String getPassword() {
        return password;
    }

    public void setPassword(String password) {
        this.password = password;
    }

    public String getEmail() {
        return email;
    }

    public void setEmail(String email) {
        this.email = email;
    }

    public int getAge() {
        return age;
    }

    public void setAge(int age) {
        this.age = age;
    }

    public Address getAddress() {
        return address;
    }

    public void setAddress(Address address) {
        this.address = address;
    }

    public User(String username, String password, String email, int age) {
        super();
        this.username = username;
        this.password = password;
        this.email = email;
        this.age = age;
    }

    public User(Integer id, String username, String password, String email, int age) {
        super();
        this.id = id;
        this.username = username;
        this.password = password;
        this.email = email;
        this.age = age;
    }

    @Override
    public String toString() {
        return "User [id=" + id + ", username=" + username + ", password=" + password + ", email=" + email + ", age="
                + age + "]";
    }
```

```
83
84      public User() {
85
86      }
87  }
```

还有一个Address类

```
1   package com.jackie.springmvc.entities;
2
3   public class Address {
4
5       private String province;
6       private String city;
7
8       public String getProvince() {
9           return province;
10      }
11
12      public void setProvince(String province) {
13          this.province = province;
14      }
15
16      public String getCity() {
17          return city;
18      }
19
20      public void setCity(String city) {
21          this.city = city;
22      }
23
24      @Override
25      public String toString() {
26          return "Address [province=" + province + ", city=" + city + "]";
27      }
28  }
```

同时我们还需要在SpringMVCTest中写一个testPojo的测试方法

```
1   @RequestMapping(value="/testPojo")
2   public String testPojo(User user){
3       System.out.println("testPojo: " + user);
4       return SUCCESS;
5   }
```

好了，这样，我们就可以在前台jsp页面上构造这样的表单数据了

```
1   <form action="springmvc/testPojo" method="post">
2       username: <input type="text" name="username"><br>
3       password: <input type="password" name="password"><br>
4       email: <input type="text" name="email"><br>
5       age: <input type="text" name="age"><br>
6       city: <input type="text" name="address.city"><br>
7       province: <input type="text" name="address.province"><br>
8       <input type="submit" value="submit">
9   </form><br/><br/>
```

至此，我们启动tomcat服务器，就可以发送一个POJO类型的参数了，并且我们成功了读取了这个请求参数


## 3. ModelAndView

ModelAndView是什么鬼？其实它是我们经常写在SpringMVCTest里测试方法的返回值类型，在方法体内我们可以通过ModelAndView对象来是像请求域中添加模型数据的，抽象？那就看例子吧~~~

SpringMVCTest中添加方法

```
@RequestMapping(value="/testModelAndView")
public ModelAndView testModelAndView(){
    String viewname = SUCCESS;
    ModelAndView modelAndView = new ModelAndView(viewname);
    modelAndView.addObject("time", new Date());
    return modelAndView;
}
```

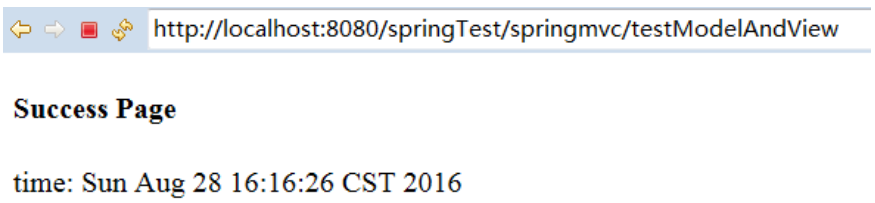
index.jsp中还是添加一个超链接

```
<a href="springmvc/testModelAndView">testModelAndView</a><br/><br/>
```

注意我们需要在结果页面中拿到这个放入请求域中的键值对，所以在success.jsp页面中添加

```
time: ${requestScope.time}<br><br>
```

最终的效果图是这样的




没错，我们将当前时间信息写进了请求域，并通过视图展示出来。

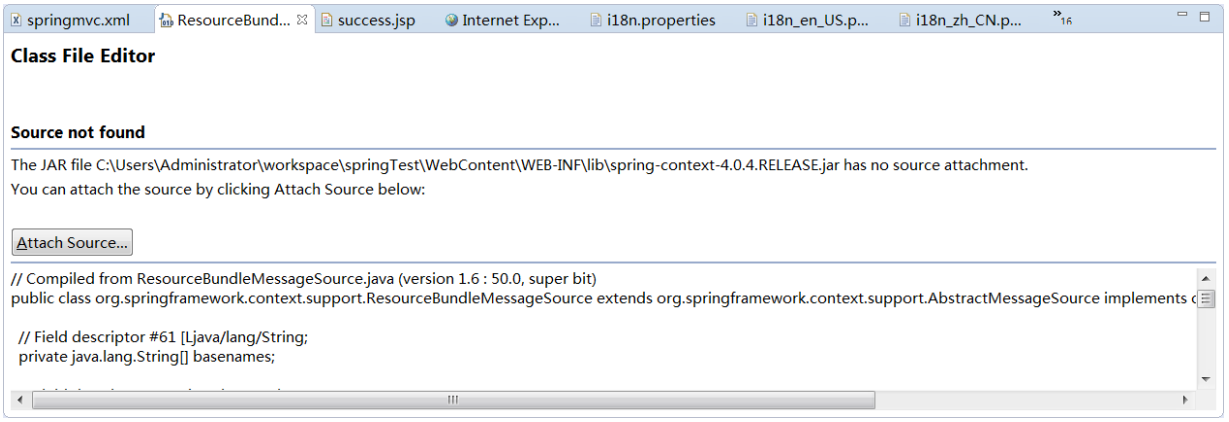
有了前面的小铺垫，现在我们来唠唠这视图解析器的事儿

# 视图解析器

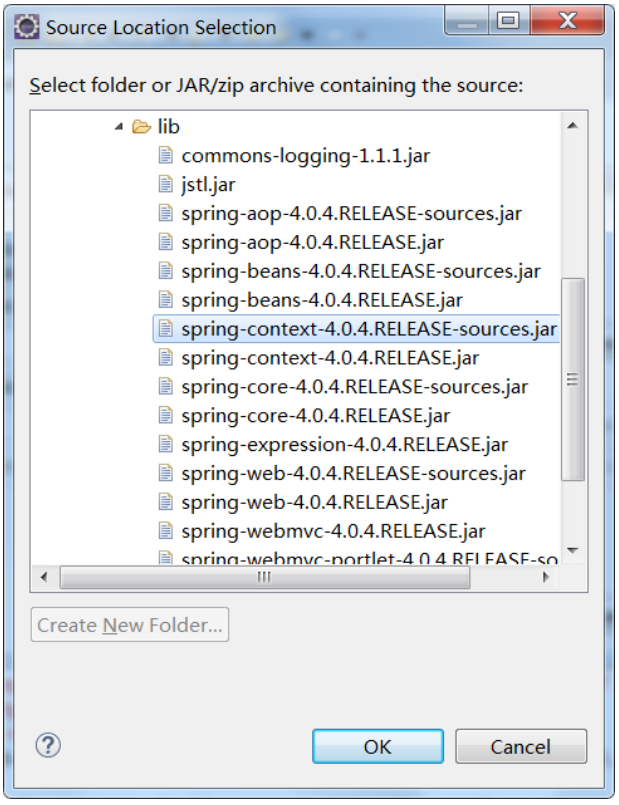
这里主要通过调试源代码看看spring mvc的handler是如何利用视图解析器找到并返回实际的物理视图的，别眨眼

## 1. 如何看源码

说到调试源码，我们就要有源码才行，那么如何看源码，相信这个页面大家已经看腻了吧




没错，这是因为你没有导入源码的jar包，程序没办法给你呈现源代码，还好，这个问题难不倒我们，在第一篇中我们有关于springframework所需要的功能jar包，javadoc以及源码包，那么来导入一波




选中前面提示的spring-context的source jar包，我们就可以一睹这个java文件的庐山真面目了

springmvc.xml | ResourceBund... | success.jsp | Internet Exp..

```
 2 * Copyright 2002-2013 the original author or authors.
16
17 package org.springframework.context.support;
18
19 import java.io.IOException;
20 import java.io.InputStream;
21 import java.io.InputStreamReader;
22 import java.net.URL;
23 import java.net.URLConnection;
24 import java.security.AccessController;
25 import java.security.PrivilegedActionException;
26 import java.security.PrivilegedExceptionAction;
27 import java.text.MessageFormat;
28 import java.util.HashMap;
29 import java.util.Locale;
30 import java.util.Map;
31 import java.util.MissingResourceException;
32 import java.util.PropertyResourceBundle;
```

484很开心~~~

## 2. 代码调试

为此我们写一个测试方法

```
1 @RequestMapping("/testViewAndViewResolver")
2 public String testViewAndViewResolver(){
3     System.out.println("testViewAndViewResolver");
4     return SUCCESS;
5 }
```

index.jsp加个链接

```
1 <a href="springmvc/testViewAndViewResolver">testViewAndViewResolver</a><br/><br/>
```

给testViewAndView方法体一个断点，我们进入调试状态，

SpringMVCTes... | index.jsp | AbstractView... | InternalReso... | DispatcherSe... | Insert title... | HiddenHttpMe...

```
27 @Controller
28 public class SpringMVCTest {
29
30     private static final String SUCCESS = "success";
31
32     @RequestMapping("/testViewAndViewResolver")
33     public String testViewAndViewResolver(){
34         System.out.println("testViewAndViewResolver");
35         return SUCCESS;
36     }
```

Problems | Javadoc | Declaration | Search | Console | Servers | Debug | Expressions | Call Hierarchy

```
Daemon Thread [http-nio-8080-exec-5] (Suspended (breakpoint at line 34 in SpringMVCTest))
    owns: NioChannel  (id=67)
    SpringMVCTest.testViewAndViewResolver() line: 34
    NativeMethodAccessorImpl.invoke0(Method, Object, Object[]) line: not available [native method]
    NativeMethodAccessorImpl.invoke(Object, Object[]) line: 62
    DelegatingMethodAccessorImpl.invoke(Object, Object[]) line: 43
    Method.invoke(Object, Object...) line: 497
    AnnotationMethodHandlerAdapter$ServletHandlerMethodInvoker(HandlerMethodInvoker).invokeHandlerMethod(Method, Object, NativeWebRequest
    AnnotationMethodHandlerAdapter.invokeHandlerMethod(HttpServletRequest, HttpServletResponse, Object) line: 446
    AnnotationMethodHandlerAdapter.handle(HttpServletRequest, HttpServletResponse, Object) line: 434
    DispatcherServlet.doDispatch(HttpServletRequest, HttpServletResponse) line: 938
    DispatcherServlet.doService(HttpServletRequest, HttpServletResponse) line: 870
    DispatcherServlet(FrameworkServlet).processRequest(HttpServletRequest, HttpServletResponse) line: 961
    DispatcherServlet(FrameworkServlet).doGet(HttpServletRequest, HttpServletResponse) line: 852
    DispatcherServlet(HttpServlet).service(HttpServletRequest, HttpServletResponse) line: 622
    DispatcherServlet(FrameworkServlet).service(HttpServletRequest, HttpServletResponse) line: 837
    DispatcherServlet(HttpServlet).service(ServletRequest, ServletResponse) line: 729
    ApplicationFilterChain.internalDoFilter(ServletRequest, ServletResponse) line: 292
    ApplicationFilterChain.doFilter(ServletRequest, ServletResponse) line: 207
```

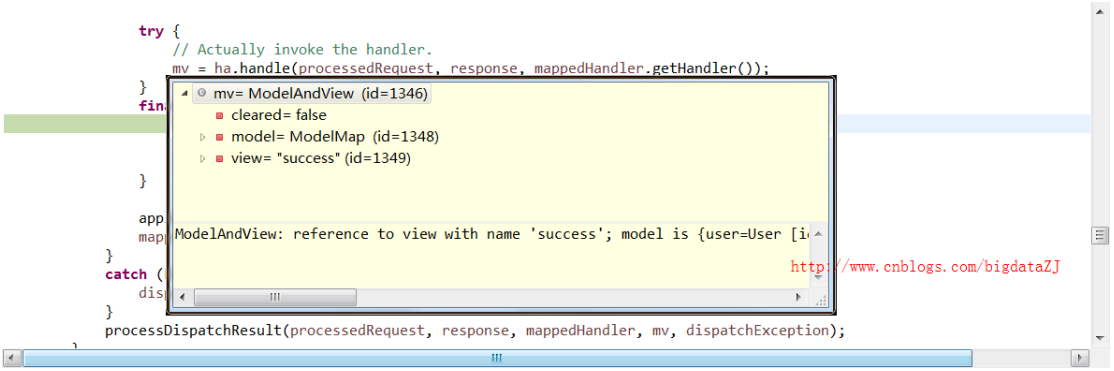


程序停在断点处，在调试的上下文中，我们找到DispatcherServlet.doDispaatch方法，以此为入口，来看看视图解析器

### （1） 进入DispatcherServlet.doDispaatch

定位到

```
mv = ha.handle(processedRequest, response, mappedHandler.getHandler());
```




可以看到这里有个mv对象，实际上就是ModelAndView，通过调试我们发现这里的mv中包括了model和view，view的指向就是success，而model这里之所以有值是因为在SpringMVCTest中有一个getUser方法，且加上了@ModelAttribute注解，从而初始化了model。

### （2）执行processDispatchResult方法

在doDispatch中继续执行，直到

```
processDispatchResult(processedRequest, response, mappedHandler, mv, dispatchException);
```

进入该方法进行视图渲染

```
private void processDispatchResult(HttpServletRequest request, HttpServletResponse response,
            HandlerExecutionChain mappedHandler, ModelAndView mv, Exception exception) throws Exception {

        boolean errorView = false;

        if (exception != null) {
            if (exception instanceof ModelAndViewDefiningException) {
                logger.debug("ModelAndViewDefiningException encountered", exception);
                mv = ((ModelAndViewDefiningException) exception).getModelAndView();
            }
            else {
                Object handler = (mappedHandler != null ? mappedHandler.getHandler() : null);
                mv = processHandlerException(request, response, handler, exception);
                errorView = (mv != null);
            }
        }

        // Did the handler return a view to render?
        if (mv != null && !mv.wasCleared()) {
            render(mv, request, response);
            if (errorView) {
                WebUtils.clearErrorRequestAttributes(request);
            }
        }
        else {
            if (logger.isDebugEnabled()) {
                logger.debug("Null ModelAndView returned to DispatcherServlet with name '" + getServletName() +
                        "': assuming HandlerAdapter completed request handling");
            }
        }

        if (WebAsyncUtils.getAsyncManager(request).isConcurrentHandlingStarted()) {
            // Concurrent handling started during a forward
            return;
```

```
        }

        if (mappedHandler != null) {
            mappedHandler.triggerAfterCompletion(request, response, null);
        }
    }
```

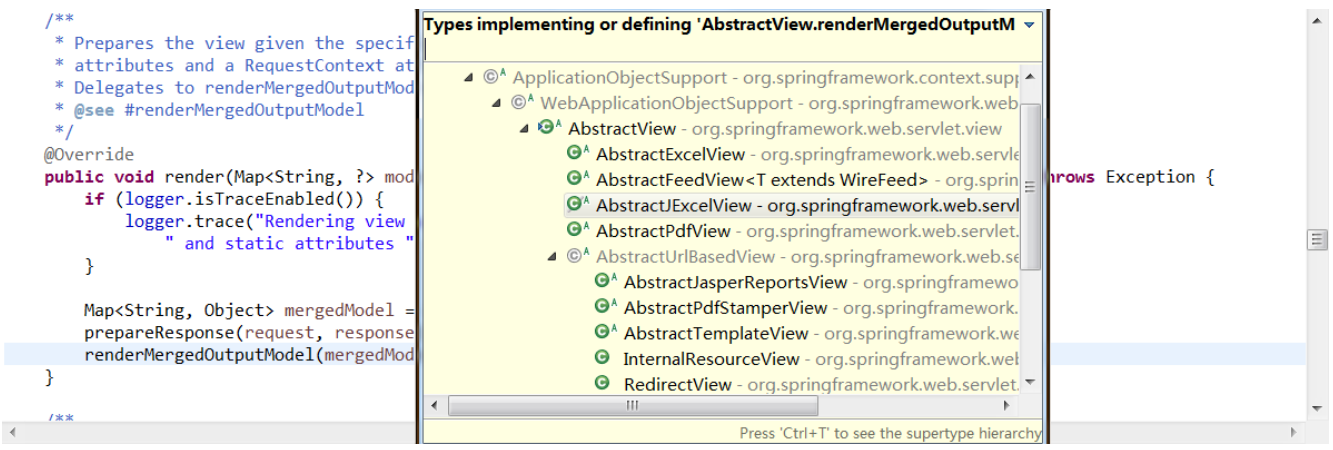
这里我们着重看下render方法，然后得到视图的名字，即运行到view = resolveViewName(mv.getViewName(), mv.getModelInternal(), locale, request);进入到该方法后，我们可以看到整个方法如下：

```
protected View resolveViewName(String viewName, Map<String, Object> model, Locale locale,
            HttpServletRequest request) throws Exception {

        for (ViewResolver viewResolver : this.viewResolvers) {
            View view = viewResolver.resolveViewName(viewName, locale);
            if (view != null) {
                return view;
            }
        }
        return null;
    }
```

这里用到了视图解析器即this.viewResolvers。而真正的渲染视图在DispatcherServlet的view.render(mv.getModelInternal(), request, response);点击进入这里的render方法，我们选择AbstractView这个抽象类中的该方法

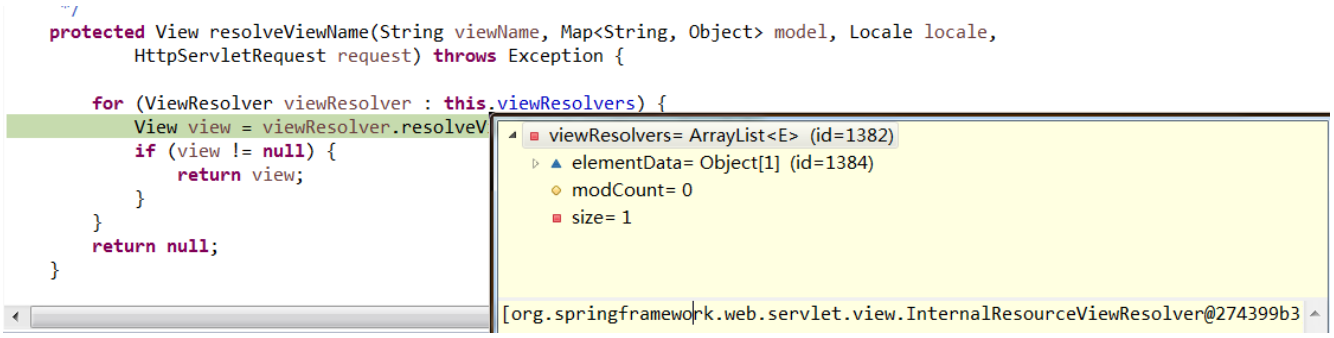
```
/**
     * Prepares the view given the specified model, merging it with static
     * attributes and a RequestContext attribute, if necessary.
     * Delegates to renderMergedOutputModel for the actual rendering.
     * @see #renderMergedOutputModel
     */
    @Override
    public void render(Map<String, ?> model, HttpServletRequest request, HttpServletResponse response) throws Exception {
        if (logger.isTraceEnabled()) {
            logger.trace("Rendering view with name '" + this.beanName + "' with model " + model +
                " and static attributes " + this.staticAttributes);
        }

        Map<String, Object> mergedModel = createMergedOutputModel(model, request, response);
        prepareResponse(request, response);
        renderMergedOutputModel(mergedModel, request, response);
    }
```

该方法负责针对具体的Model呈现具体的view，这时候再进入到renderMergedOutputMode的具体实现类

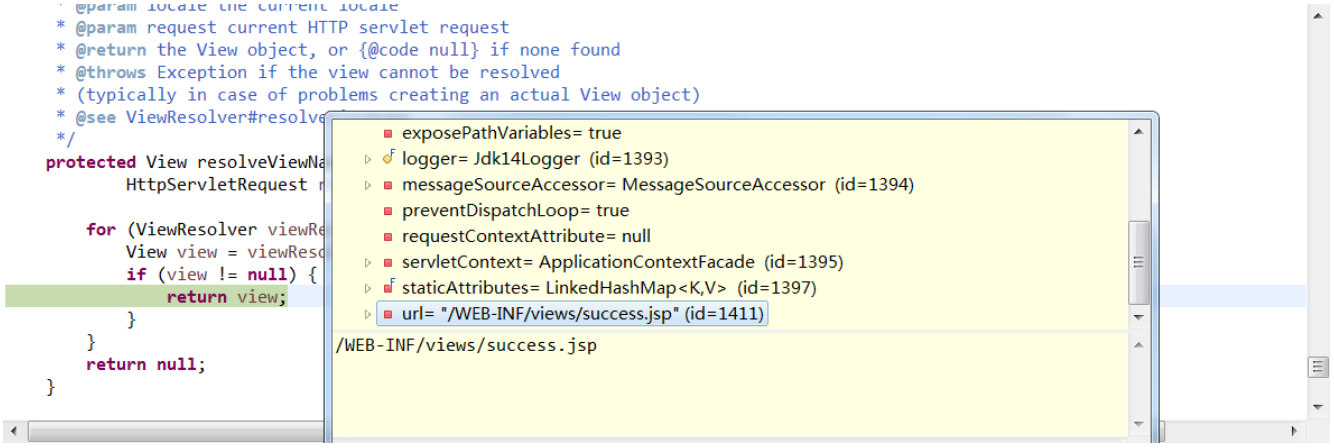


点击后，我们发现对此方法多个类都有实现，那么到底是哪个呢，实际上是InternalResourceView这个类，为什么定位到这个类，笔者是根据之前在springmvc.xml中配置的视图解析器的线索找到的，当时我们配的是InternalResourceViewResolver这个解析器，所以相应的，这里应该是InternalResourceView类，同时通过加断点，更加验证了这一想法~~~

此外在调试DispatcherServlet的resolveViewName方法时，发现，这里的viewResolver正是我们配置的视图解析器InternalResourceViewResolver




同时发现这里返回的view就是/WEB-INF/views/success.jsp




至此，我们就完成了ModelAndView的逻辑路径向这里"/WEB-INF/views/success.jsp"的物理路径的转化，大致了了解了视图解析器的工作机制（感觉还是没有说清楚--！）。

来源： http://www.cnblogs.com/bigdataZJ/p/5815467.html