Spring Portlet MVC Seminar

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Speaker Background

- Working in Java Enterprise Portals since 2001
- Spring committer since 2005
- Developed Portlet support for Spring MVC and Spring Security
- Advised Spring Web Flow on Portlet support
- Advised JSR 286 (Portlet 2.0) Expert Group on needs of web frameworks
- On Board of Directors for JASIG (governs the uPortal project)

Agenda

- Portlet & Spring Review
- The Spring MVC Framework
- Configuring Spring Portlet MVC
- View Resolver & Exception Resolver
- Internationalization & Localization
- Handler Mapping

Agenda

- Annotation-Based Controllers
- Interface-Based Controllers
- Handler Interceptors
- File Uploads
- Redirects
- Portlet 2.0 (JSR 286) Support
- Other Things

Portlet Review

A quick refresher

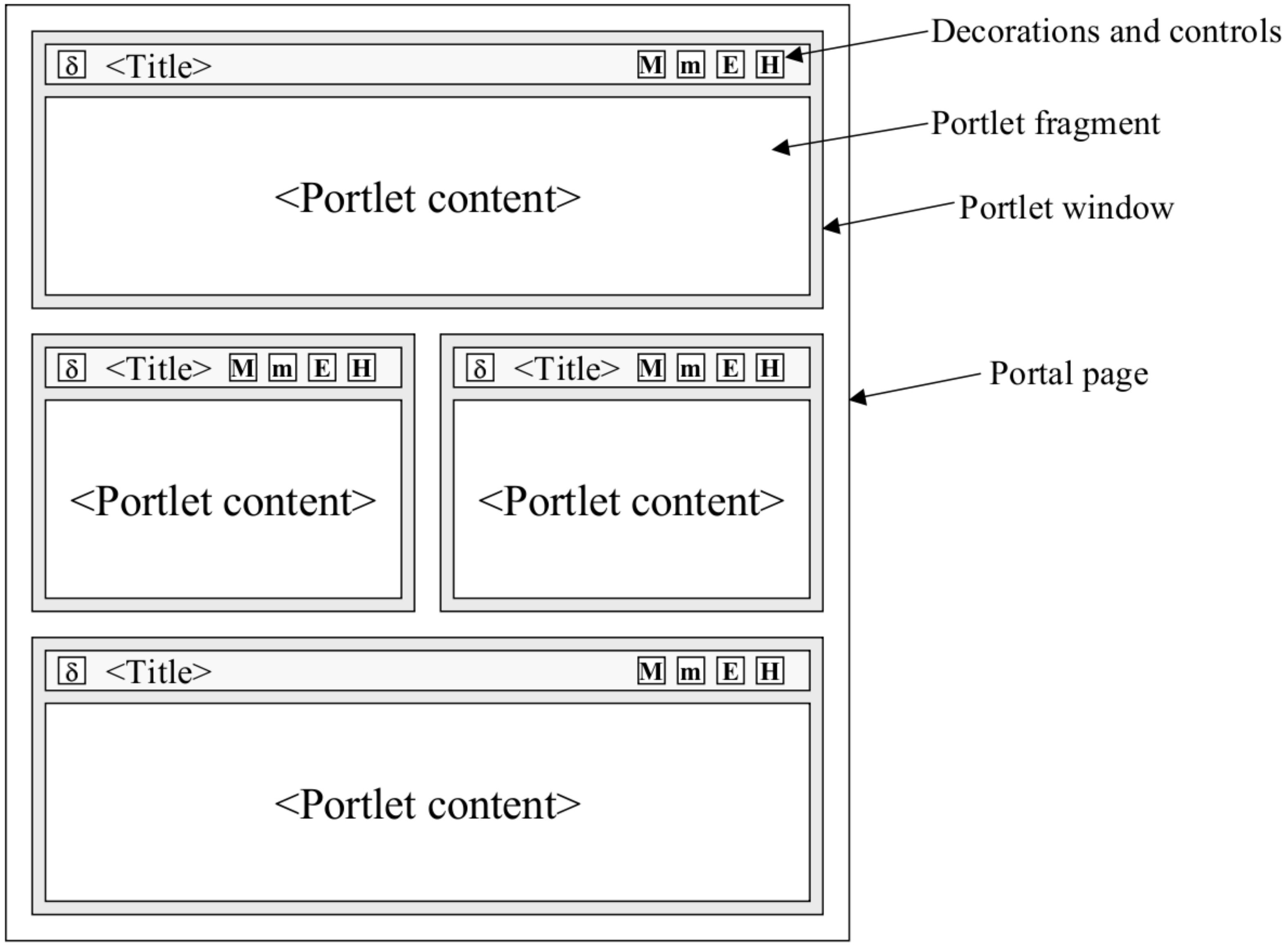


Diagram from Java™ Portlet Specification, Version 2.0

Java Portlet Standards

- **Java Portlet 1.0 Specification (JSR 168)**
  - **Started**: 29 January 2002
  - **Released**: 27 October 2003
  - **Reference Implementation**: Apache Pluto
  - Linked to WSRP 1.0 Specification
- **Java Portlet 2.0 Specification (JSR 286)**
  - **Started**: 29 November 2005
  - **Released**: 12 June 2008
  - **Reference Implementation**: Apache Pluto 2.0
  - Linked to WSRP 2.0 Specification

Portlets and Servlets

- Portlets and Servlets closely related, but no direct connection
- Portlets run in Portlet Container
- Portlet Container is an extension of a Servlet Container
- Portlet Application is an extension of a Web Application
  - `web.xml` & `portlet.xml` Deployment Descriptors
- Can have Portlets and Servlets together in the same Web App

Multiple Request Phases

- Action Requests
  - Executed only once
  - Used to change system state (e.g. form post)
  - No markup produced
- Render Requests
  - Executed at least once
  - May be executed repeated
  - Produces the fragment markup
  - Results can be cached
- Portlet 2.0 adds Event Requests and Resource Requests (now we have four!)

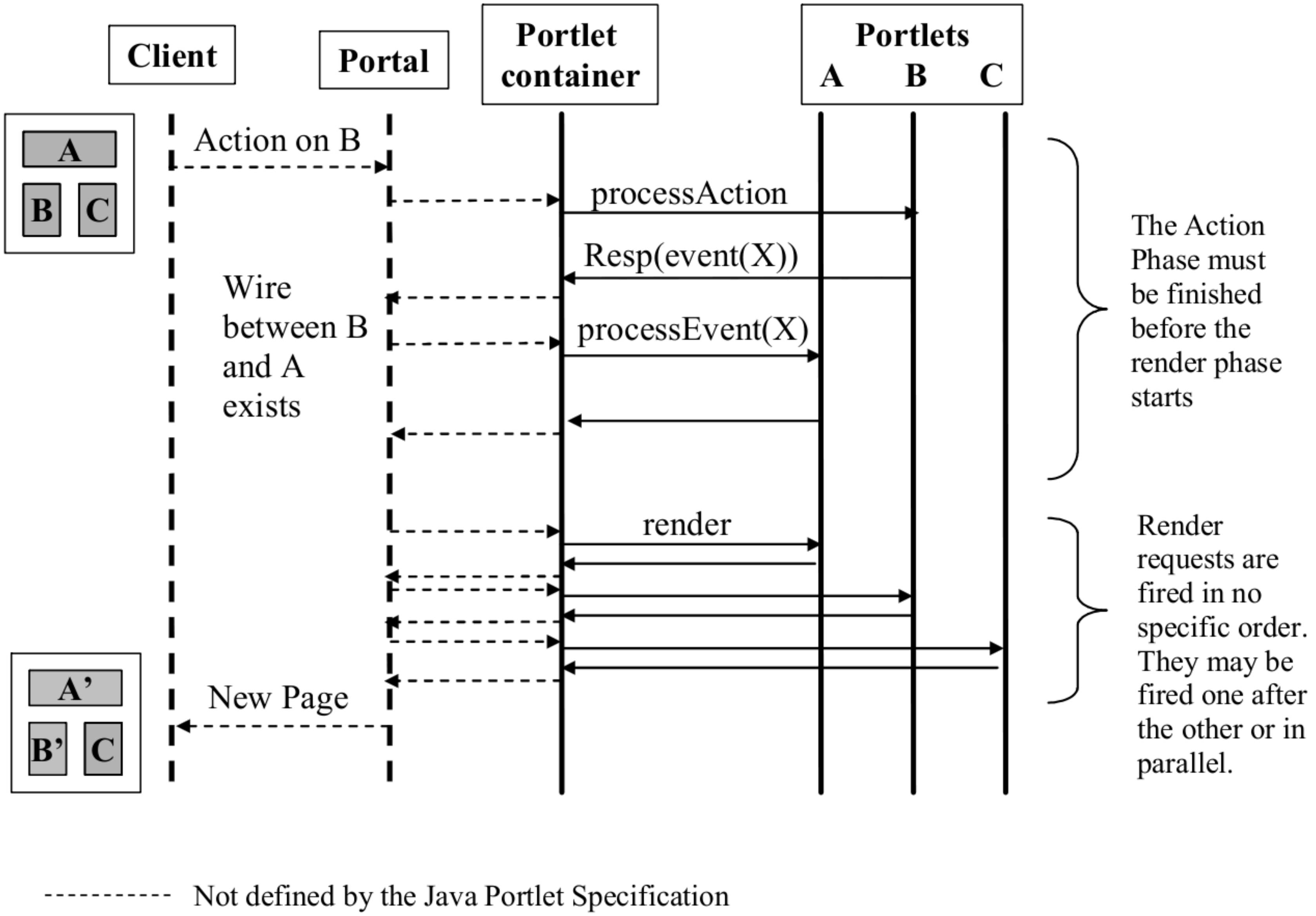

Client
Portal
Portlet container
Portlets
A
B
C
A
B
C
Action on B
processAction
Resp(event(X))
Wire between B and A exists
processEvent(X)
render
New Page
A'
B'
C
The Action Phase must be finished before the render phase starts
Render requests are fired in no specific order. They may be fired one after the other or in parallel.
---------- Not defined by the Java Portlet Specification

Diagram from Java™ Portlet Specification, Version 2.0

Portlet Modes

- Control state of portlet from portal-provided navigation controls
- Three standard modes:
  - **VIEW**: Normal display of Portlet
  - **EDIT**: Configure the Portlet (e.g. Preferences)
  - **HELP**: Show documentation about Portlet
- Portals can have additional custom modes (several suggested modes in the specs)
- Portlets can change their own mode

Portlet Window States

- Control level of detail of portlet from portal-provided navigation controls
- Three standard window states:
  - **NORMAL**: Standard view, probably combined with a number of other portlets in the page
  - **MAXIMIZED**: Largest view, likely the only portlet in the page or at least the primary one
  - **MINIMIZED**: Smallest view, either no content at all or a very small representation
- Portals can have additional custom states
- Portlets can change their own window state

Portlet URL Handling

- Portals are in control of actual URLs
- Portlets must use specific APIs for generating URLs and setting parameters
- Multiple types of URLs corresponding to request types (Action and Render)
- Must treat URLs as opaque Objects – don't think of them as Strings
- No concept of “path” for the portlet – must use Portlet Mode, Window State, and Request Parameters for navigation

Spring Review

Another quick refresher

What Is Spring?

- "Full-stack Java/JEE application framework"
- Lightweight
  - Born out of frustration with EJB
- Core focus is on Inversion of Control (IoC)
  - aka Dependency Injection (DI)
- Builds on top of core container to provide all needed application components / services

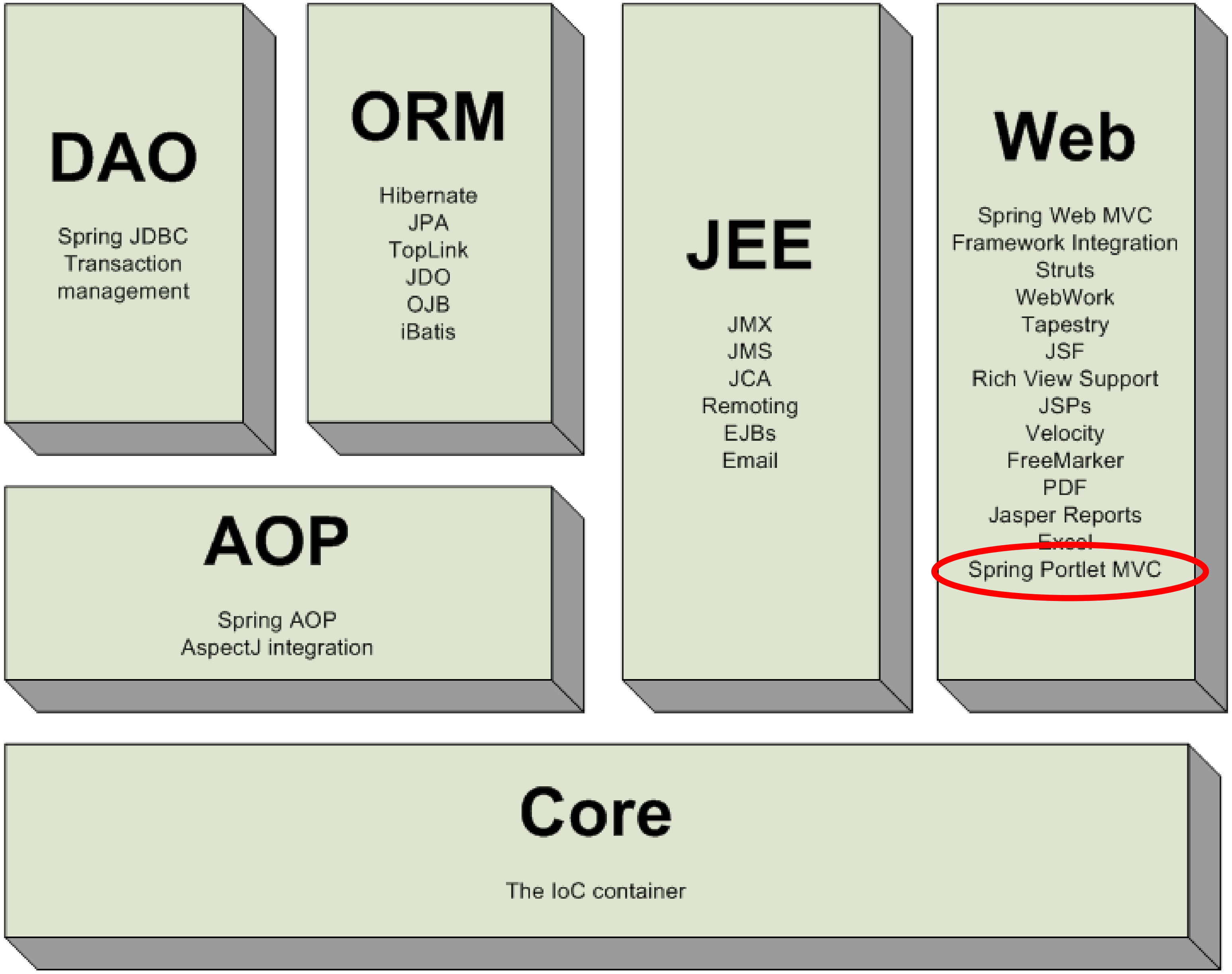


Diagram from Spring Framework Reference Documentation

Dependency Injection

- The core of Spring is based on techniques to externalize the creation and management of component dependencies
- This Inversion of Control principle has been defined as Dependency Injection

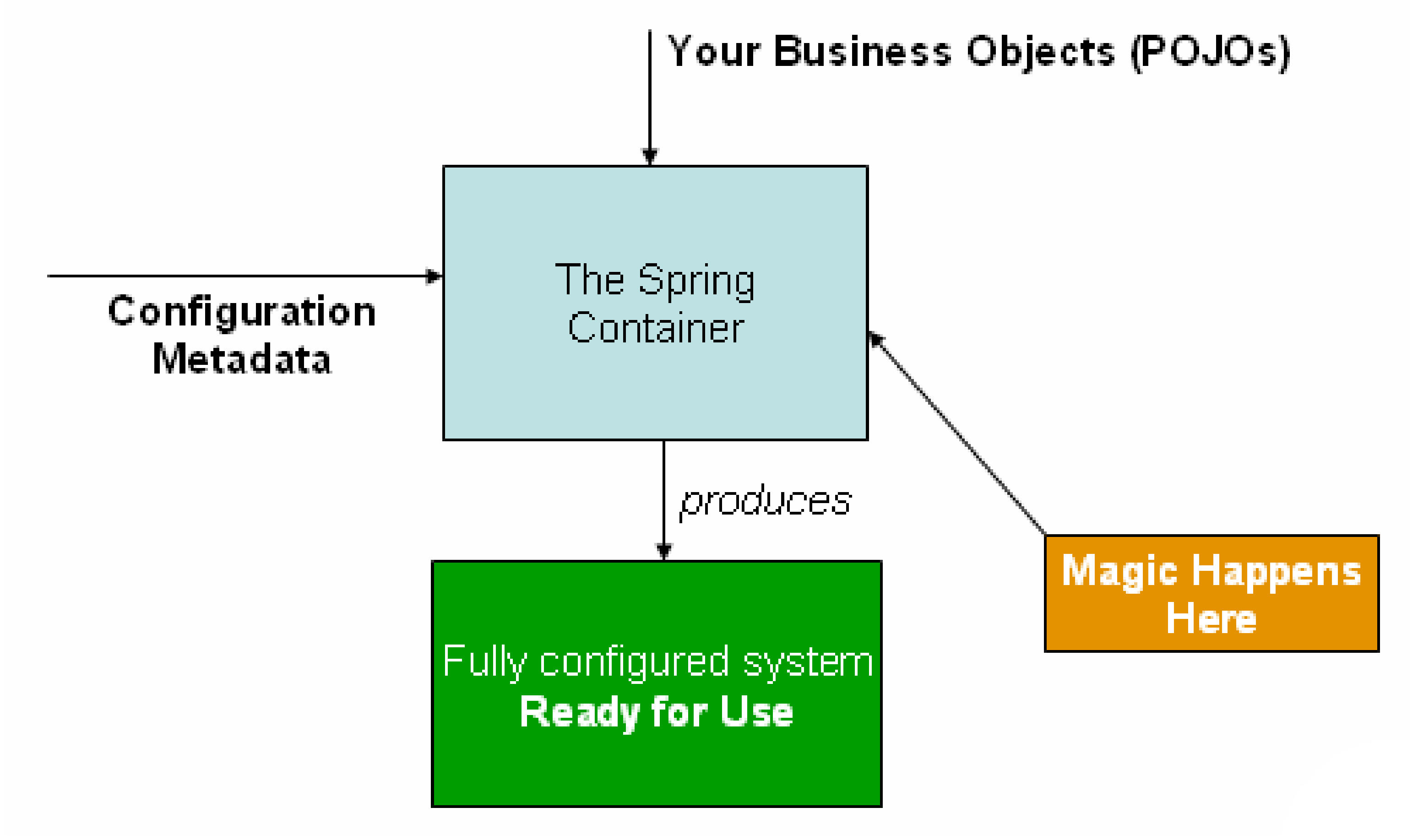


Diagram from Spring Framework Reference Documentation

Spring Beans

- The central part of Spring’s IoC container is the BeanFactory / ApplicationContext
- Responsible for managing components and their dependencies
- In Spring the term “Bean” is used to refer to any component managed by the container
- The term “Bean” implies some conformance to the JavaBean standard
- The BeanFactory / ApplicationContext is typically configured with a configuration file

Spring Bean Definition

- Using XML Schema Definitions:

```
<beans
    xmlns="http://www.springframework.org/schema/beans"...>

    <bean id=“logger”
        class=“com.logging.StandardOutLogger”/>

    <bean id=“doIt” class=“com.do.DoIt”>
        <property name=“log”>
            <ref local=“logger”/>
        </property>
    </bean>

</beans>
```

The Spring MVC Framework

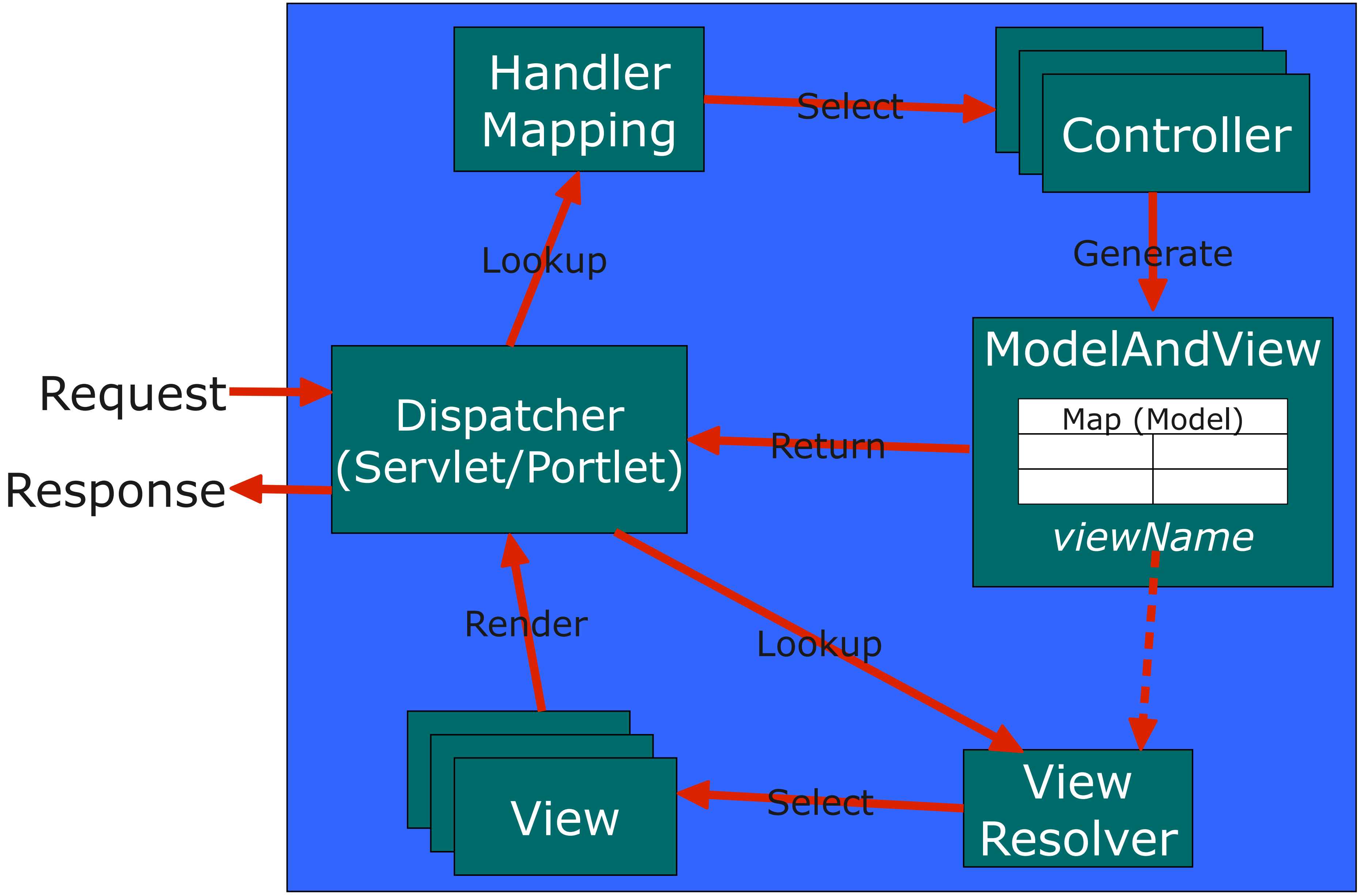
The Spring module for building web application

Using A Framework

- Why use a framework to write Portlets?
- Do you write Servlets from scratch?
  Why not?
- Frameworks take care of infrastructure and let you focus on *your unique functionality*
- Coding Portlets from scratch is of course an option, but let's go to the frameworks...

Spring MVC

- Flexible and Lightweight
- Request-Oriented Web Framework
- Implements Classic MVC Pattern
  - **Model**
    - Information to be presented
    - Contract between Controller and View
  - **View**
    - User interface definition
    - Used to render the Model for display
  - **Controller**
    - Handles the request and assembles the Model
    - Delegates to service layer for business logic



Request
Response
Handler Mapping
Lookup
Dispatcher (Servlet/Portlet)
Select
Controller
Generate
ModelAndView
Map (Model)
viewName
Return
Lookup
Render
View
Select
View Resolver

Spring Views

- Includes support for numerous common view technologies:
  - JSP & JSTL, XSLT, Velocity, FreeMarker, Tiles, PDF Docs, Excel Docs, JasperReports
- Easy to implement new View technologies
- View technology all usable in both Servlets and Portlets
  - Although only ones capable of producing HTML markup fragments generally useful in Portlets
- JSP & JSTL is the most common View technology for Portlets

Spring Controllers

- Basic interfaces handle requests and potentially return a *ModelAndView*
- Many useful abstract classes for common Controller patterns
- All easily extensible for your custom handling
- (Stay tuned for information about Annotation-based Controllers in Spring 2.5)

Other MVC Features

- Interceptors for wrapping other concerns around Controller execution
- Exception Resolvers to catch Exceptions coming out of Controllers and mapping to appropriate Views
- Data Binding to take request properties and bind them directly to Domain Objects
- Data Validation to test validity of bound Domain Objects
- Multipart Handling to bind file uploads

Spring Web MVC Resources

- Spring Framework Reference Manual

  Chapter 13: Web MVC Framework

  http://static.springframework.org/spring/docs/2.5.x/reference/mvc.html
- Spring Framework Java Docs

  Package org.springframework.web

  http://static.springframework.org/spring/docs/2.5.x/api/
- Expert Spring MVC and Web Flow

  Apress book by Seth Ladd

  http://www.springframework.org/node/235
- Community Support Forums

  http://forum.springframework.org/
- Spring MVC Step-By-Step Tutorial

  http://www.springframework.org/docs/Spring-MVC-step-by-step/

Spring Portlet MVC Resources

- Spring Framework Reference Manual

  Chapter 16: Portlet MVC Framework

  http://static.springframework.org/spring/docs/2.5.x/reference/portlet.html

- Spring Framework Java Docs

  Package org.springframework.web.portlet

  http://static.springframework.org/spring/docs/2.5.x/api/

- Spring Portlet Wiki Site

  News, Downloads, Sample Apps, FAQs, etc.

  http://opensource.atlassian.com/confluence/spring/display/JSR168/

- Community Support Forums

  http://forum.springframework.org/

Configuring Spring Portlet MVC

What you do to your web application

web.xml: ContextLoaderLister

- Load the parent *ApplicationContext* with *ContextLoaderListener* in *web.xml*
- Shared by all Portlets (and Servlets) within the Web Application / Portlet Application

```
<listener>

   <listener-class>
      org.springframework.web.context.ContextLoaderListener
   </listener-class>

</listener>
```

No different from Servlet Spring Web MVC

web.xml: contextConfigLocation

- Also in *web.xml*, set *contextConfigLocation* parameter to list bean definition file(s) for *ContextLoaderListener*

```
<context-param>

    <param-name>contextConfigLocation</param-name>

    <param-value>
        /WEB-INF/service-context.xml
        /WEB-INF/data-context.xml
    </param-value>

</context-param>
```

No different from Servlet Spring Web MVC

web.xml: ViewRendererServlet

- Add the *ViewRendererServlet* to *web.xml*:

```
<servlet>
    <servlet-name>view-servlet</servlet-name>
    <servlet-class>
        org.springframework.web.servlet.ViewRendererServlet
    </servlet-class>
    <load-on-startup>1</load-on-startup>
</servlet>

<servlet-mapping>
    <servlet-name>view-servlet</servlet-name>
    <url-pattern>/WEB-INF/servlet/view</url-pattern>
</servlet-mapping>
```

ViewRendererServlet

- *DispatcherPortlet* uses this to dispatch the actual view rendering into a Servlet context
- Acts as a bridge between a Portlet request and a Servlet request
- Allows Portlet application to leverage the full capabilities of Spring MVC for creating, defining, resolving, and rendering views
- Therefore, you are able to use the same *ViewResolver* and *View* implementations for both Portlets and Servlets

portlet.xml

```xml
<portlet>
   <portlet-name>example</portlet-name>
   <portlet-class>
        org.springframework.web.portlet.DispatcherPortlet
    </portlet-class>
    <init-param>
        <name>contextConfigLocation</name>
        <value>/WEB-INF/context/example-portlet.xml</value>
    </init-param>
   <supports>
        <mime-type>text/html</mime-type>
        <portlet-mode>view</portlet-mode>
        <portlet-mode>edit</portlet-mode>
        <portlet-mode>help</portlet-mode>
    </supports>
    <portlet-info>
        <title>Example Portlet</title>
    </portlet-info>
</portlet>
```

DispatcherPortlet

- Front controller for each Portlet
- Portlet-specific bean definitions specified in an individual application context
- Bean definitions shared between Portlets or with other Servlets go in the parent application context
- Uses *HandlerMappings* to determine which *Controller* should handle each request
- Autodetects certain bean definitions:
  - *HandlerMappings*
  - *HandlerExceptionResolvers*
  - *MultipartResolvers*

Sample Portlet Application

- Things we need to do:
  - Get development environment installed
  - Setup Pluto as a Server in Eclipse & start it
  - Import 'spring-portlet-sample' application
  - Create Maven task to build & deploy
  - Build & deploy the sample application
  - Verify that it works in Pluto

    http://localhost:8080/pluto/portal
  - Explore the *web.xml* and *portlet.xml* files

View Resolver & Exception Resolver

Finding view definitions and dealing with exceptions

Resolving Views

- Instead of building Views ourselves, refer to them by name and have them loaded for us

```
<bean id="viewResolver"
    class="org.springframework.web.servlet.view.
    InternalResourceViewResolver">

    <property name="cache" value="false" />

    <property name="viewClass"
    value="org.springframework.web.servlet.view.JstlView" />

    <property name="prefix" value="/WEB-INF/jsp/" />

    <property name="suffix" value=".jsp" />

</bean>
```

Can be shared between multiple portlets & servlets

Resolving Exceptions

- Manage Exceptions escaping out of Handlers

```
<bean id="exceptionResolver"
    class="org.springframework.web.portlet.handler.
        SimpleMappingExceptionResolver">

    <property name="defaultErrorView" value="error"/>

    <property name="exceptionMappings">

        <value>
            javax.portlet.PortletSecurityException=unauthorized
            javax.portlet.UnavailableException=unavailable
        </value>

    </property>

</bean>
```

Map **Exceptions** to **View Names** (used by View Resolver)

More on Resolvers

- Can use multiple *ViewResolver*s and *ExceptionResolver*s
- *DispatcherPortlet* finds them by type, so the name of the beans doesn't matter
- Priority is controlled by the *Ordered* interface and the 'order' property

Resolver Example

- *src/main/webapp/*
  - WEB-INF/context/applicationContext.xml
  - WEB-INF/context/portlet/myBooks.xml

Internationalization & Localization

Reaching a wider audience

Internationalization

- Put all user visible text into a properties file:

```
button.home = Home
button.edit = Edit
button.next = Next
button.previous = Previous
button.finish = Finish
button.cancel = Cancel

exception.notAuthorized.title = Access Not Permitted
exception.notAuthorized.message = You do not have
permission to access this area.
```

MessageSource

- Define a Spring MessageSource that uses Resource Bundles by giving it the basename of the bundle (i.e. the basename of your properties file):

```
<bean id="messageSource"
    class="org.springframework.context.support.
        ResourceBundleMessageSource">
    <property name="basenames">
        <list>
            <value>messages</value>
        </list>
    </property>
</bean>
```

Using Messages in Views

- In your Views, use the appropriate mechanism to retrieve the messages from the MessageSource by their identifier.
- JSP example:

```
<%@ taglib prefix="spring"
   uri="http://www.springframework.org/tags" %>

...

<p><spring:message code="exception.contactAdmin"/></p>
```

Localization

- After creating the default file (e.g. “messages.properties”), create files for each supported Locale and translate contents accordingly:
  - messages_de.properties (German)
  - messages_fr.properties (French)
  - messages_fr_CA.properties (French – Canadian)
  - …

I18n & L10n Sample

- *src/main/webapp/*
  - WEB-INF/context/applicationContext.xml
  - WEB-INF/jsp/myBooks.jsp
- *src/main/resources/*
  - messages.properties
  - messages_de.properties

Handler Mapping

Where should the request go?

Annotation-Based HandlerMapping

```
<context:annotation-config/>

<bean class="org.springframework.web.portlet.mvc.
    annotation.DefaultAnnotationHandlerMapping"/>

<bean class="org.sample.MyViewController"/>

<bean class="org.sample.MyEditController"/>

<bean class="org.sample.MyHelpController"/>
```

Interface-Based HandlerMappings

- *PortletModeHandlerMapping*
  - Map to a Controller based on current *PortletMode*
- *ParameterHandlerMapping*
  - Map to a Controller based on a Parameter value
- *PortletModeParameterHandlerMapping*
  - Map to a Controller based on current *PortletMode* and a Parameter value

These will be deprecated in Spring 3.0 because the Annotation-Based HandlerMapping is now preferred

- Or create your own custom *HandlerMapping*

PortletModeHandlerMapping

```
<bean id="portletModeHandlerMapping"
    class="org.springframework.web.portlet.handler.
        PortletModeHandlerMapping">
   <property name="portletModeMap">
      <map>
         <entry key="view" value-ref="viewController"/>
         <entry key="edit" value-ref="editController"/>
         <entry key="help" value-ref="helpController"/>
      </map>
   </property>
</bean>
<bean id="viewController" class="ViewController"/>
...
```

ParameterHandlerMapping

- Can optionally set the *parameterName* property – the default value is ‘action’

```
<bean id="handlerMapping‶
    class="org.springframework.web.portlet.handler.
        ParameterHandlerMapping">

   <property name="parameterMap">

      <map>

         <entry key="add" value-ref="addHandler"/>

         <entry key="remove" value-ref="removeHandler"/>

      </map>

   </property>

</bean>
```

PortletModeParameterHandlerMapping

```
<bean id="handlerMapping"
    class="…PortletModeParameterHandlerMapping">

    <property name="portletModeParameterMap">

        <map>

            <entry key="view">
                <map>
                    <entry key="add" value-ref="addHandler"/>
                    <entry key="remove" value-ref="removeHandler"/>
                </map>
            </entry>

            <entry key="edit">
                <map>
                    <entry key="prefs” value-ref="prefsHandler"/>
                </map>
            </entry>

        </map>

    </property>

</bean>
```

More on *HandlerMapping*

- Can use multiple *HandlerMappings*, controlled by the *order* property to set the chain
- Can apply *HandlerInterceptors* to requests by including them in the mapping definition – very useful since Portlets don't have Filters

Mapping and Portlet Lifecycle

- For an Action Request, the handler mapping will be consulted twice – once for the action phase and again for the render phase
- During the action phase, you can manipulate the criteria used for mapping (such as a request parameter)
- This can result in the render phase getting mapped to a different Controller – a great technique since there is no portlet redirect

Handler Mapping Sample

- *src/main/webapp/*
  - WEB-INF/context/portlet/books.xml

Annotation-Based Controllers

Where to put the logic

Annotation-Based Controllers

- New in Spring Framework 2.5!
- Eliminates need for complex *HandlerMapping* configuration to deal with navigation via Portlet Modes and Request Parameters
- Allows related logic to be combined into a single Controller class
- Will replace the entire *Controller* hierarchy – most capability already supported

Annotation-Based Controller Beans

```
<context:annotation-config/>

<bean class="org.springframework.web.portlet.mvc.
    annotation.DefaultAnnotationHandlerMapping"/>

<bean class="org.sample.MyViewController"/>

<bean class="org.sample.MyEditController"/>

<bean class="org.sample.MyHelpController"/>
```

Spring MVC Controller Annotations

- **@Controller** – class stereotype for controller classes so they can be found and mapped
- **@SessionAttributes** – list model attributes to be stored in the session (command object)
- **@RequestMapping** – class/method mapping to requests (mode, parameters, etc.)
- **@RequestParam** – bind method params to request params
- **@ModelAttribute** – bind method params or return values to model attributes
- **@InitBinder** – method to setup binder for putting form submission into command obj

Annotation-Based Controller Examples

```
@Controller
@RequestMapping("VIEW")
@SessionAttributes("item")
public class MyViewController {

    @RequestMapping
    public String listItems(Model model) {
        model.addAttribute("items",
            this.itemService.getAllItems());
        return "itemList";
    }

    @RequestMapping(params="action=view")
    public String viewPet(
        @RequestParam("item") int itemId, Model model) {
        model.addAttribute("item",
            this.itemService.getItem(itemId));
        return "itemDetails";
    }   ...
```

Annotation-Based Controller Examples

```
...

@ModelAttribute("dateFormat")
protected String dateFormat(PortletPreferences prefs) {
    return preferences.getValue("dateFormat",
        itemService.DEFAULT_DATE_FORMAT);
}

@InitBinder
public void initBinder(PortletRequestDataBinder binder,
        PortletPreferences preferences) {
    String format = preferences.getValue("dateFormat",
        ItemService.DEFAULT_DATE_FORMAT);
    SimpleDateFormat dateFormat =
        new SimpleDateFormat(formatString);
    binder.registerCustomEditor(Date.class,
        new CustomDateEditor(dateFormat, true));
}

...
```

Annotation-Based Controller Sample

- *src/main/java/*
  - sample/portlet/MyBooksController.java
  - sample/portlet/BooksController.java

Interface-Based Controllers

Where to put the logic
(The Old Way)

Interface-Based Controllers

- *Controller* (The Interface)
- *AbstractController*
- *SimpleFormController*
- *AbstractWizardFormController*
- Several others!

These will all be deprecated in Spring 3.0 because the Annotation-Based Controllers are now preferred

The Controller Interface

```
public interface Controller {
   ModelAndView handleRenderRequest (
      RenderRequest request, RenderResponse response)
      throws Exception;
   void handleActionRequest (
      ActionRequest request, ActionResponse response)
      throws Exception;
}
```

PortletModeNameViewController

- Simply returns the current *PortletMode* as the view name so that a view can be resolved and rendered.
- Example:
  PortletMode.HELP would result in a *viewName* of “help” and *InternalResourceViewResolver* can use /WEB-INF/jsp/help.jsp as the View
- This means you can use JSP in a portlet with no Java classes to write at all!

AbstractController

- An example of the Template Method pattern
- Implement one or both of:
  - *handleActionRequestInternal(..)*
  - *handleRenderRequestInternal(..)*
- Provides common properties (with defaults):
  - *requiresSession* (false)
  - *cacheSeconds* (-1, uses container settings)
  - *renderWhenMinimized* (false)

Command Controllers

- All start with *BaseCommandController*
- Powerful data-binding to graphs of domain objects
  - Uses *PortletRequestDataBinder*
  - Extensible via Property Editors for converting between Strings and Objects
- Pluggable validation with a simple *Validator* interface that is not web-specific
- The Form Controllers build on this functionality and add workflow (display, bind+validate, process)

SimpleFormController

- Handles form processing workflow:
  - display of the formView
  - binding and validation of submitted data
  - handle successfully validated form submission
- By defining the command class, a form view and a success view, no code is required except to customize behavior

SimpleFormController Form

Some methods for controlling the form:

- *formBackingObject(..)* – the default implementation simply creates a new instance of the command Class
- *initBinder(..)* – register custom property editors
- *referenceData(..)* – provide additional data to the model for use in the form
- *showForm(..)* – the default implementation renders the formView

SimpleFormController Submit

Some methods for controlling processing of the form submission:

- *onBind(..)* & *onBindAndValidate(..)* – callback for post-processing after binding / validating
- *onSubmitAction(..)* & *onSubmitRender(..)* – callbacks for successful submit with no binding or validation errors

Several others, including ones inherited from AbstractFormController and from BaseCommandController

AbstractWizardFormController

- Wizard-style workflow with multiple form views and multiple actions:
  - **finish**: trying to leave the wizard performing final action – must pass complete validation
  - **cancel**: leave the wizard without performing final action – ignore validity of current state
  - **page change**: show another wizard page (next, previous, etc.)
- Specify action via submit parameter names (e.g. HTML button): *_finish*, *_cancel*, or *_targetX* (with X as desired page number)

More AbstractWizardFormController

- Most of the same methods as *SimpleFormController* for controlling the form and the submission.
- A few additional methods:
  - *validatePage(...)* - perform partial validation of the command object based on what page was submitted
  - *processFinish(...)* - perform the final action based on a successful submit
  - processCancel(...) - cleanup after a cancel

Handler Interceptors

Pre/post processing
the requests and responses

HandlerInterceptor

- *HandlerInterceptor* opportunity to pre-process and post-process the request and response as it flows through the *HandlerMapping*
- Critical for portlets since we don't have Portlet Filters in JSR 168
- Can also use any *WebRequestInterceptor* in Spring (shared between Portlet and Servlet)
  - Includes “Open Session In View” Interceptors for JPA, JDO, and Hibernate so that you can lazily access persistent objects during view rendering

HandlerInterceptor Interface

```
public interface HandlerInterceptor {

    boolean preHandleAction(
        ActionRequest request, ActionResponse response,
        Object handler) throws Exception;

    void afterActionCompletion(
        ActionRequest request, ActionResponse response,
        Object handler, Exception ex) throws Exception;

    boolean preHandleRender(
        RenderRequest request, RenderResponse response,
    Object handler) throws Exception;

    void postHandleRender(
        RenderRequest request, RenderResponse response,
        Object handler, ModelAndView modelAndView) throws Exception;

    void afterRenderCompletion(
        RenderRequest request, RenderResponse response,
        Object handler, Exception ex) throws Exception;

}
```

Useful Portlet Interceptors

- *ParameterMappingInterceptor* – Used to forward a request parameter from the Action request to the Render request – helps w/ HandlerMapping based on request params
- *UserRoleAuthorizationInterceptor* – Simple security mechanism to enforce roles from PortletRequest.isUserInRole

Configuring Interceptors

```
<context:annotation-config/>

<bean id="parameterMappingInterceptor"
    class="org.springframework.web.portlet.handler.
    ParameterMappingInterceptor" />

<bean class="org.springframework.web.portlet.mvc.
    annotation.DefaultAnnotationHandlerMapping">

    <property name="interceptors">

        <bean class="org.springframework.web.portlet.handler.
            ParameterMappingInterceptor"/>

    </property>

</bean>
```

Configuring Interceptors

```
<bean id="parameterMappingInterceptor"
   class="org.springframework.web.portlet.handler.
   ParameterMappingInterceptor" />

<bean id="portletModeParameterHandlerMapping"
   class="org.springframework.web.portlet.handler.
   PortletModeParameterHandlerMapping">

   <property name="interceptors">
      <list>
         <ref bean="parameterMappingInterceptor"/>
      </list>
   </property>

   <property name="portletModeParameterMap">
      ...
   </property>

</bean>
```

File Uploads

Pre/post processing
the requests and responses

Handling File Uploads

- Just specify a *MultipartResolver* bean and *DispatcherPortlet* will automatically detect it

```
<bean id="portletMultipartResolver"
    class="org.springframework.web.portlet.multipart.
        CommonsPortletMultipartResolver">
    <property name="maxUploadSize“ value=“2048”/>
</bean>
```

- Two ways to use this:
  - *ActionRequest* wrapped as *MultipartActionRequest*, which has methods for accessing the files
  - Bind directly to Command objects using *PropertyEditors* for *MultipartFiles*:

    ByteArrayMultipartFileEditor, StringMultipartFileEditor

MultipartResolver Sample

- *src/main/webapp/*
  - WEB-INF/context/portlet/books.xml
  - WEB-INF/jsp/bookAdd.jsp
  - WEB-INF/jsp/bookEdit.jsp
- *src/main/java/*
  - sample/portlet/BooksController.java

Redirects

Going to a new website via HTTP redirect

Performing Redirects

- We can perform an HTTP redirect during the using *ActionResponse.sendRedirect(...)*
- Have to make sure we **haven't** set any *renderParameters*, the *portletMode*, or the *windowState* before we call it
  - This includes *HandlerInterceptor*s like *ParameterMappingInterceptor*

Redirect Sample

- *src/main/webapp/*
  - WEB-INF/context/portlet/books.xml
  - WEB-INF/jsp/bookView.jsp
- *src/main/java/*
  - sample/portlet/BooksController.java

Portlet 2.0 (JSR 286) Support

The next generation portlet framework

Major Changes in Portlet 2.0

- Portlet Events *(New lifecycle phase!)*
- Resource Serving *(New lifecycle phase!)*
- Public Render Parameters
- Portlet Filters
- Caching Changes

Lots of other minor changes...

Portlet 2.0 In Spring 3.0

- Support for new features of Portlet 2.0 planned as part of Spring 3.0
- Primary work in Spring 3.0 M2 should be done in Q1 2009
- Spring 3.0 release should be in Q2 2009
- Primary need is support for four phases:
  - ActionRequest / ActionResponse
  - EventRequest / EventResponse (new!)
  - RenderRequest / RenderResponse
  - ResourceRequest / ResourceResponse (new!)

Annotations for Portlet 2.0 Support

- **@ActionMapping**

  Elements: name, params
- **@EventMapping**

  Elements: name, qname, params
- **@RenderMapping**

  Elements: windowState, params
- **@ResourceMapping**

  Elements: id, params

Portlet 2.0 Examples

```
@ActionMapping(”delete”)
public void deleteItem(...) { ... }
@EventMapping(”reload”)
public void reloadData(...) { ... }
@RenderMapping("maximized",
   params="action=search")
public String displaySearch(...) { ... }
@ResourceMapping(”picklist”)
public ModelAndView pickList (...) {...}
```

Other Things to Look At

More stuff that works w/ Spring Portlets

Portlets & Servlets Sharing Session

- Possible according to JSR 168 (PLT 15.4)
  - Must be in the same webapp
  - Portlet must use **`APPLICATION_SCOPE`**
  - Serious security implications (use Spring Security)
- Sometime tricky in practice
  - Portlet requests go thru Portal webapp URL
  - Servlet requests go thru Portlet webapp URL
  - Session tracking via **`JSESSIONID`** Cookie usually uses URL path to webapp – not shared!

Tomcat 5.5.4 +

On **`<Connector>`** element set **`emptySessionPath=true`**

Adapting Other Frameworks

- Spring Web MVC can adapt other frameworks
- *DispatcherPortlet/DispatcherServlet* and *HandlerMapping* can dispatch requests to any Class (that's why we call them *Handlers*)
- Simply create implementation of *HandlerAdapter* interface that adapts requests to the given framework
- Or use Annotations to create a Controller
- Allows framework objects to be created as Spring Beans and inject dependencies

Reuse Existing Portlets

- Two mechanisms for using existing Portlets as Handlers inside Spring MVC:
  - *SimplePortletHandlerAdapter* adapts a Portlet into a Handler for use with HandlerMappings
  - *PortletWrappingController* wraps a Portlet as a Spring MVC Controller – allows for specifying Portlet *init-parameters*
- Useful for:
  - Applying Interceptors to existing Portlets
  - Use dependency injection for initialization

Spring Security

- Powerful, flexible security framework for enterprise software
- Emphasis on applications using Spring
- Comprehensive authentication, authorization, and instance-based access control
- Avoids security code in your business logic – treats security as a cross-cutting concern
- Built-in support for a wide variety of authentication and integration standards
- Full Portlet support built on JSR 168 security

Spring Web Flow

- Higher-level rich web development framework
- Built on top of Spring MVC
- DSL for controller modules called flows
- Controller engine for managing conversational state
- Good AJAX and JSF support
- Limited Portlet support

Spring JavaScript

- Abstraction framework for JavaScript
- Progressively enhance web page behavior
- Public API & Implementation built on Dojo
- Good w/ Spring Web MVC and Web Flow
- Limited Portlet support

Questions & Answers

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