What's New in Spring 3.1

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Photos by Trish McGinity
http://mcginityphoto.com

Introductions

- Your experience with Spring? Spring MVC?
- Your experience with Java EE 6?
- What do you hope to learn today?
- Open Source experience: Guice, Maven, Eclipse, Hibernate, Tomcat, JBoss?
- Favorite IDE? Favorite OS?

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Who is **Matt Raible**?

Father, Skier, Cyclist

Web Framework Connoisseur

Founder of AppFuse

Blogger on raibledesigns.com

Clients and Open Source

LinkedIn

Evite

Time Warner Cable

overstock.com
shortcut: O.co

Taleo
Talent Drives Performance

Struts 2

displaytag

AppFuse

Roller

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Agenda

- Spring History
- Spring 2.5 and 3.0
- What's New in 3.1
- Summary
- Q and A
- Beer

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The Spring Framework

- Simplify J2EE
- Manage Dependencies
- Inversion of Control
- À la carte framework

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Spring Mission Statement

J2EE should be easier to use.

It's best to program to interfaces, rather than classes. Spring reduces the complexity of using interfaces to zero.

JavaBeans offer a great way of configuring applications.

Checked exceptions are overused in Java. A framework shouldn't force you to catch exceptions you're unlikely to recover from.

OO Design is more important than any implementation technology, such as J2EE.

Testability is essential, and a framework such as Spring should help make your code easier to test.

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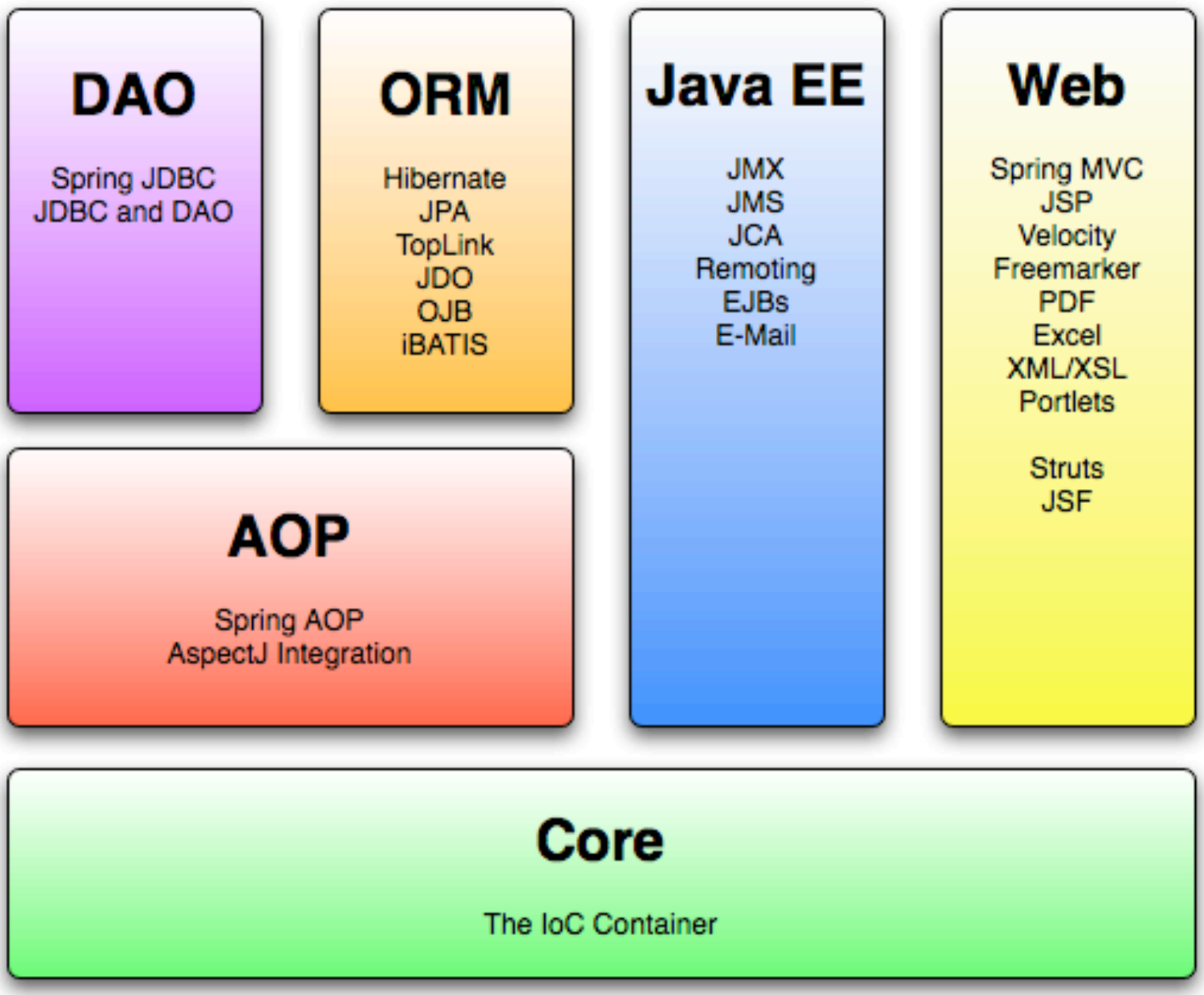
Spring Modules



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Spring Portfolio - Oct. 2009

SPRING.net
Application Framework

Acegi
SECURITY
SYSTEM
FOR SPRING

Spring
IDE

Spring 2.5

Spring Web Flow

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Spring Portfolio - Today

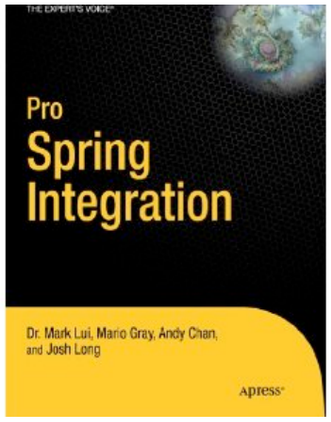
springsource TOOLSUITE

spring

CLOUD FOUNDRY™

springroo

GRAILS



eclipseRT Gemini Blueprint

Spring Web Flow

Other Spring Technologies

Spring Web Services

Spring Android

Spring Dynamic Modules

Spring Web Flow

Spring Social

Spring GemFire

Spring LDAP

Spring Security

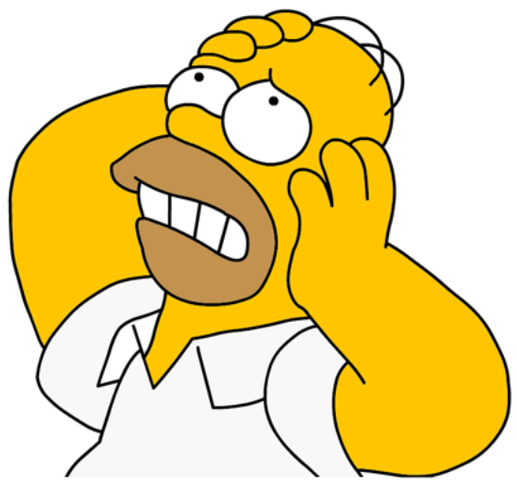
Spring GemFire for .NET

Spring Integration

Spring Batch

Spring IDE

Spring BlazeDS Integration



Spring.NET

Spring AMQP

Spring Roo

Spring Data

Spring AMQP.NET

Spring Python

SpringSource dm Server

http://www.springsource.org/download/community

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Release Timeline

- March 24, 2004 - Spring 1.0
- October 5, 2006 - Spring 2.0
- November 19, 2007 - Spring 2.5
- December 16, 2009 - Spring 3.0
- December 13, 2011 - Spring 3.1

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New in Spring 2.5

- Extended **Platform** Support
  - Java SE 6, Java EE 5 and OSGi
- Enhanced **AspectJ** support
- Comprehensive support for **Annotations**
  - Bean lifecycle
  - Autowiring
  - Spring MVC enhancements

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Annotation Examples

```
@Repository(value = "userDao")
public class UserDaoHibernate implements UserDao {
    HibernateTemplate hibernateTemplate;

    @Autowired
    public UserDaoHibernate(SessionFactory sessionFactory) {
        this.hibernateTemplate = new HibernateTemplate(sessionFactory);
    }

    public List getUsers() {
        return hibernateTemplate.find("from User");
    }

    @Transactional
    public void saveUser(User user) {
        hibernateTemplate.saveOrUpdate(user);
    }
}
```

```
@Service(value = "userManager")
public class UserManagerImpl implements UserManager {
    @Autowired UserDao dao;

    public List getUsers() {
        return dao.getUsers();
    }
}
```

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Annotation Examples

```
@Repository(value = "userDao")
public class UserDaoHibernate implements UserDao {
    HibernateTemplate hibernateTemplate;

    @Autowired
    public UserDaoHibernate(SessionFactory sessionFactory) {
        this.hibernateTemplate = new HibernateTemplate(sessionFactory);
    }

    public List getUsers() {
        return hibernateTemplate.find("from User");
    }

    @Transactional
    public void saveUser(User user) {
        hibernateTemplate.saveOrUpdate(user);
    }
}
```

```
@Service(value = "userManager")
public class UserManagerImpl implements UserManager {
    @Autowired UserDao dao;

    public List getUsers() {
        return dao.getUsers();
    }
}
```

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XML Configuration

Annotation Scanning

```
<!-- Replaces ${...} placeholders with values from a properties file -->
<!-- (in this case, JDBC-related settings for the dataSource definition below) -->
<context:property-placeholder location="classpath:jdbc.properties"/>

<!-- Enable @Transactional support -->
<tx:annotation-driven/>

<!-- Enable @AspectJ support -->
<aop:aspectj-autoproxy/>

<!-- Scans for @Repository, @Service and @Component -->
<context:component-scan base-package="org.appfuse"/>
```

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XML Configuration

Declarative Transactions

```
<aop:config>
    <aop:advisor id="managerTx" advice-ref="txAdvice"
                 pointcut="execution(* *..service.*Manager.*(..))"/>
</aop:config>

<tx:advice id="txAdvice">
    <tx:attributes>
        <tx:method name="get*" read-only="true"/>
        <tx:method name="*"/>
    </tx:attributes>
</tx:advice>
```

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Testing and JUnit 4

```
package org.appfuse.service;

import org.appfuse.model.User;
import static org.junit.Assert.*;
import org.junit.Test;
import org.junit.runner.RunWith;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.test.context.ContextConfiguration;
import org.springframework.test.context.junit4.SpringJUnit4ClassRunner;
import org.springframework.transaction.annotation.Transactional;

@RunWith(SpringJUnit4ClassRunner.class)
@ContextConfiguration
public class UserManagerTest {
    @Autowired
    UserManager userManager;

    @Test
    @Transactional
    public void testGetUsers() {

    }
}
```

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Spring MVC Improvements

```
@Controller
public class UserController {
    @Autowired
    UserManager userManager;

    @RequestMapping("/users")
    public String execute(ModelMap model) {
        model.addAttribute(userManager.getUsers());
        return "userList";
    }
}
```

```
<!-- Activates mapping of @Controller -->
<context:component-scan base-package="org.appfuse.web"/>

<!-- Activates @Autowired for Controllers -->
<context:annotation-config/>

<!-- View Resolver for JSPs -->
<bean id="viewResolver"
    class="org.springframework.web.servlet.view.InternalResourceViewResolver">
    <property name="viewClass"
              value="org.springframework.web.servlet.view.JstlView"/>
    <property name="prefix" value="/"/>
    <property name="suffix" value=".jsp"/>
</bean>
```

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ModelMap Naming

- Automatically generates a key name
  - o.a.m.User ➟ ‘user’
  - java.util.HashMap ➟ ‘hashMap’
  - o.a.m.User[] ➟ ‘userList’
  - ArrayList, HashSet ➟ ‘userList’

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@RequestMapping

- Methods with @RequestMapping are allowed very flexible signatures
- Arguments supported:
  - ServletRequest and ServletResponse
  - HttpSession
  - Locale
  - ModelMap

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New in Spring 3.0

- Java 5+
- Spring Expression Language
- New Spring MVC Features
  - REST
  - Ajax
  - Declarative Validation
- Backwards compatible with Spring 2.5

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Spring Expression Language

- Unified EL++
  - Deferred evaluation of expressions
  - Support for expressions that can set values and invoke methods
  - Pluggable API for resolving Expressions
  - Unified Expression Language: http://is.gd/2xqF
  - Spring 3.0 allows usage in XML files and @Value annotations

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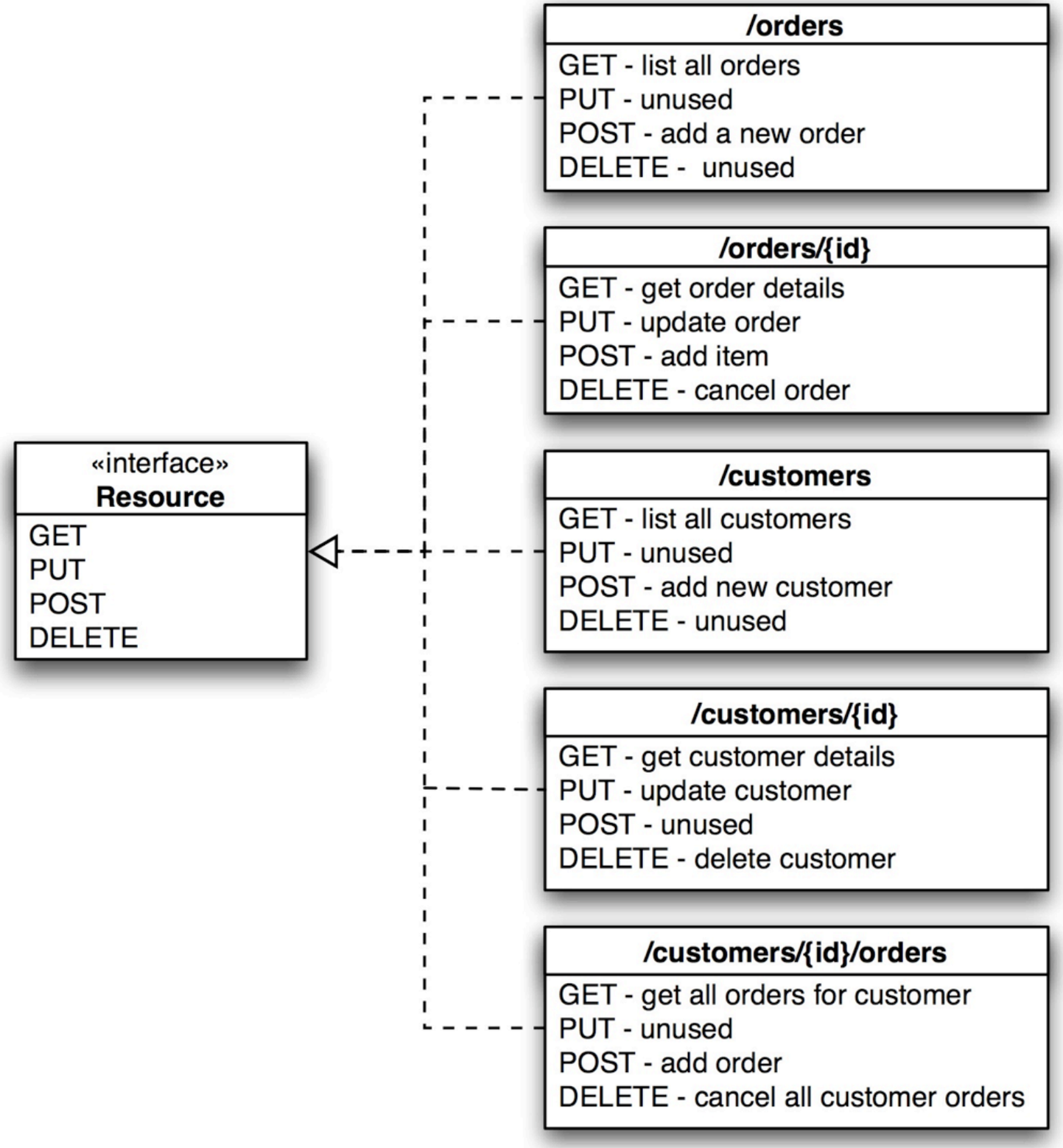
REST Support



http://infoq.com/articles/rest-introduction

REST with @PathParam

http://myserver/myapp/show/123

```
@RequestMapping(method = RequestMethod.GET)
public User show(@PathParam Long id) {
    return userManager.getUser(id);
}
```

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REST with RestController

```
@Controller
public class ResumesController implements RestController<Resume, Long> {
```

GET http://myserver/myapp/resumes

```
    public List<Resume> index() {}
```

POST http://myserver/myapp/resumes

```
    public void create(Resume resume) {}
```

GET http://myserver/myapp/resumes/1

```
    public Resume show(Long id) {}
```

DELETE http://myserver/myapp/resumes/1

```
    public void delete(Long id) {}
```

PUT http://myserver/myapp/resumes/1

```
    public void update(Resume resume) {}
}
```

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Dropping Support For...

- Commons Attributes
- TopLink (EclipseLink instead)
- MVC Controller hierarchy
- JUnit 3.8 Test classes

```
import org.springframework.test.AbstractTransactionalDataSourceSpringContextTests;

public class UserManagerTest extends AbstractTransactionalDataSourceSpringContextTests {
    private UserManager userManager;

    public void setUserManager(UserManager userManager) {
        this.userManager = userManager;
    }

    protected String[] getConfigLocations() {
        setAutowireMode(AUTOWIRE_BY_NAME);
        return new String[] {"classpath*:/WEB-INF/applicationContext*.xml"};
    }

    protected void onSetUpInTransaction() throws Exception {
        deleteFromTables(new String[] {"app_user"});
    }
```

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What's New in Spring 3.1

- Java 7 Support
- Hibernate 4 Support
- Servlet 3.0 Support
- Cache Abstraction
- Java Configuration
- Environments and Profiles
- Test Context Support for Configuration Classes and Profiles

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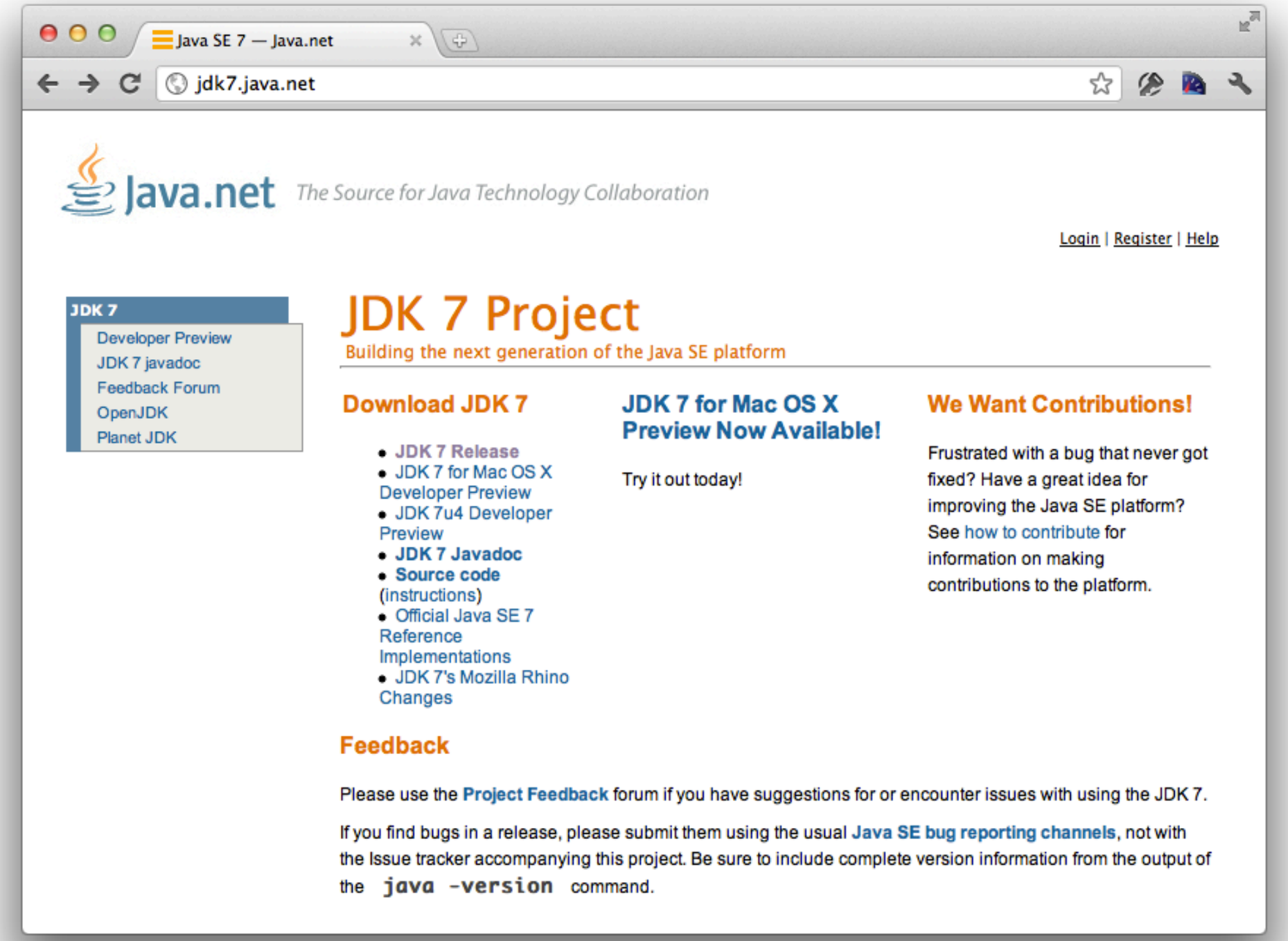
Installing Java 7



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Java 7 on OS X

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Java 7 Support

- Fork/join support
- JDBC 4.1
  - Try-with-resources
  - RowSet 1.1
- Multicatch and final rethrow
- String in switch statement support

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What's New in Hibernate 4?

- Move to Gradle for builds
- SessionFactory building
- Initial osgi-fication
- Java 6 / JDBC 4 as baseline
- Multi-tentant database support
- Migration to i18n logging framework

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Hibernate 4

```
<!DOCTYPE hibernate-configuration PUBLIC "-//Hibernate/Hibernate Configuration DTD 3.0//EN"
    "http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">

<hibernate-configuration>
    <session-factory>
        <mapping class="org.appfuse.model.User"/>
        <mapping class="org.appfuse.model.Role"/>
    </session-factory>
</hibernate-configuration>
```

```
[INFO] ------------------------------------------------------------------------
[INFO] BUILD FAILURE
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 1.269s
[INFO] Finished at: Tue Jan 31 09:25:26 MST 2012
[INFO] Final Memory: 6M/81M
[INFO] ------------------------------------------------------------------------
[ERROR] Failed to execute goal org.codehaus.mojo:hibernate3-maven-plugin:2.2:hbm2ddl (default) on project appfuse-h
bernate: Execution default of goal org.codehaus.mojo:hibernate3-maven-plugin:2.2:hbm2ddl failed: Could not parse co
figuration: file:/Users/mraible/dev/appfuse/data/hibernate/src/test/resources/hibernate.cfg.xml: www.hibernate.org
ested exception: www.hibernate.org -> [Help 1]
```

Changing to hibernate.sourceforge.net allows you to work offline

```
<!DOCTYPE hibernate-configuration PUBLIC "-//Hibernate/Hibernate Configuration DTD 3.0//EN"
    "http://hibernate.sourceforge.net/hibernate-configuration-3.0.dtd">
```

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Hibernate 3

```
<bean class="org.springframework.dao.annotation.PersistenceExceptionTranslationPostProcessor"/>

<!-- Hibernate SessionFactory -->
<bean id="sessionFactory"
    class="org.springframework.orm.hibernate3.annotation.AnnotationSessionFactoryBean">
    <property name="dataSource" ref="dataSource"/>
    <property name="configLocation" value="classpath:hibernate.cfg.xml"/>
    <property name="hibernateProperties">
        <value>
            hibernate.dialect=${hibernate.dialect}
            hibernate.query.substitutions=true 'Y', false 'N'
            hibernate.cache.use_second_level_cache=true
            hibernate.cache.provider_class=org.hibernate.cache.EhCacheProvider
        </value>
        <!-- Turn batching off for better error messages under PostgreSQL -->
        <!-- hibernate.jdbc.batch_size=0 -->
    </property>
</bean>

<!-- Transaction manager for a single Hibernate SessionFactory (alternative to JTA) -->
<bean id="transactionManager" class="org.springframework.orm.hibernate3.HibernateTransactionManager">
    <property name="sessionFactory" ref="sessionFactory"/>
</bean>
```

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Hibernate 4

```
<bean class="org.springframework.dao.annotation.PersistenceExceptionTranslationPostProcessor"/>

<bean id="hibernateExceptionTranslator"
      class="org.springframework.orm.hibernate4.HibernateExceptionTranslator"/>

<!-- Hibernate SessionFactory -->
<bean id="sessionFactory" class="org.springframework.orm.hibernate4.LocalSessionFactoryBean">
    <property name="dataSource" ref="dataSource"/>
    <property name="configLocation" value="classpath:hibernate.cfg.xml"/>
    <property name="hibernateProperties">
        <value>
            hibernate.dialect=${hibernate.dialect}
            hibernate.query.substitutions=true 'Y', false 'N'
            hibernate.cache.use_second_level_cache=true
            hibernate.cache.provider_class=org.hibernate.cache.EhCacheProvider
        </value>
        <!-- Turn batching off for better error messages under PostgreSQL -->
        <!-- hibernate.jdbc.batch_size=0 -->
    </property>
</bean>

<!-- Transaction manager for a single Hibernate SessionFactory (alternative to JTA) -->
<bean id="transactionManager" class="org.springframework.orm.hibernate4.HibernateTransactionManager">
    <property name="sessionFactory" ref="sessionFactory"/>
</bean>
```

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Hibernate 4

```
<bean class="org.springframework.dao.annotation.PersistenceExceptionTranslationPostProcessor"/>

<bean id="hibernateExceptionTranslator"
      class="org.springframework.orm.hibernate4.HibernateExceptionTranslator"/>

<!-- Hibernate SessionFactory -->
<bean id="sessionFactory" class="org.springframework.orm.hibernate4.LocalSessionFactoryBean">
    <property name="dataSource" ref="dataSource"/>
    <property name="packagesToScan" value="org.appfuse.model"/>
    <property name="hibernateProperties">
        <value>
            hibernate.dialect=${hibernate.dialect}
            hibernate.query.substitutions=true 'Y', false 'N'
            hibernate.cache.use_second_level_cache=true
            hibernate.cache.provider_class=org.hibernate.cache.EhCacheProvider
        </value>
        <!-- Turn batching off for better error messages under PostgreSQL -->
        <!-- hibernate.jdbc.batch_size=0 -->
    </property>
</bean>

<!-- Transaction manager for a single Hibernate SessionFactory (alternative to JTA) -->
<bean id="transactionManager" class="org.springframework.orm.hibernate4.HibernateTransactionManager">
    <property name="sessionFactory" ref="sessionFactory"/>
</bean>
```

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Spring + Hibernate 3

```
@Autowired
@Required
public void setSessionFactory(SessionFactory sessionFactory) {
    this.sessionFactory = sessionFactory;
    this.hibernateTemplate = new HibernateTemplate(sessionFactory);
}

public List<T> getAll() {
    return hibernateTemplate.loadAll(this.persistentClass);
}

public T get(PK id) {
    T entity = hibernateTemplate.get(this.persistentClass, id);
    if (entity == null) {
        log.warn("Uh oh, '" + this.persistentClass + "' object with id '" + id + "' not found...");
        throw new ObjectRetrievalFailureException(this.persistentClass, id);
    }

    return entity;
}

public T save(T object) {
    return hibernateTemplate.merge(object);
}

public void remove(PK id) {
    hibernateTemplate.delete(this.get(id));
}
```

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Hibernate 4

```
@Autowired
@Required
public void setSessionFactory(SessionFactory sessionFactory) {
    this.sessionFactory = sessionFactory;
}

public List<T> getAll() {
    return sessionFactory.getCurrentSession().createQuery("from " + this.persistentClass).list();
}

public T get(PK id) {
    T entity = (T) sessionFactory.getCurrentSession().get(this.persistentClass, id);
    if (entity == null) {
        log.warn("Uh oh, '" + this.persistentClass + "' object with id '" + id + "' not found...");
        throw new ObjectRetrievalFailureException(this.persistentClass, id);
    }

    return entity;
}

public T save(T object) {
    return (T) sessionFactory.getCurrentSession().merge(object);
}

public void remove(PK id) {
    sessionFactory.getCurrentSession().delete(this.get(id));
}
```

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JPA with Spring 2.0

```
<bean id="customerRepository" class="spring.kickstart.repository.CustomerRepositoryImpl"/>
<bean id="productRepository" class="spring.kickstart.repository.ProductRepositoryImpl"/>

<bean id="customerService" class="spring.kickstart.domain.CustomerServiceImpl" autowire="byName"/>

<bean id="transactionManager" class="org.springframework.orm.jpa.JpaTransactionManager">
    <property name="entityManagerFactory" ref="entityManagerFactory"/>
</bean>

<bean class="org.springframework.dao.annotation.PersistenceExceptionTranslationPostProcessor"/>
<bean class="org.springframework.orm.jpa.support.PersistenceAnnotationBeanPostProcessor"/>

<tx:annotation-driven/>

<bean id="entityManagerFactory" depends-on="database"
      class="org.springframework.orm.jpa.LocalContainerEntityManagerFactoryBean">
    <property name="dataSource" ref="dataSource"/>
    <property name="persistenceUnitName" value="kickstart"/>
    <property name="jpaVendorAdapter">
        <bean class="org.springframework.orm.jpa.vendor.HibernateJpaVendorAdapter">
            <property name="showSql" value="true"/>
            <property name="generateDdl" value="false"/>
            <property name="database" value="HSQL"/>
        </bean>
    </property>
</bean>
```

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JPA with Spring 3.1

```
<!-- Activates scanning of @Autowired -->
<context:annotation-config/>

<!-- Activates scanning of @Repository and @Service -->
<context:component-scan base-package="spring.kickstart"/>

<bean id="transactionManager" class="org.springframework.orm.jpa.JpaTransactionManager">
    <property name="entityManagerFactory" ref="entityManagerFactory"/>
</bean>

<tx:annotation-driven/>

<bean id="entityManagerFactory"
      class="org.springframework.orm.jpa.LocalContainerEntityManagerFactoryBean">
    <property name="dataSource" ref="dataSource"/>
    <property name="packagesToScan" value="spring.kickstart"/>
    <property name="jpaVendorAdapter">
        <bean class="org.springframework.orm.jpa.vendor.HibernateJpaVendorAdapter">
            <property name="showSql" value="true"/>
            <property name="generateDdl" value="true"/>
            <property name="database" value="HSQL"/>
        </bean>
    </property>
</bean>

<jdbc:embedded-database id="dataSource">
    <jdbc:script location="classpath:schema.sql"/>
    <jdbc:script location="classpath:test-data.sql"/>
</jdbc:embedded-database>
```

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Spring Data

Spring Data makes it easier to build Spring-powered applications that use new data access technologies such as non-relational databases, map-reduce frameworks, and cloud based data services as well as provide improved support for relational database technologies.

http://www.springsource.org/spring-data

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Plain JPA :: Before

```
/**
 * Service interface for {@link Customer}s.
 *
 * @author Oliver Gierke
 */
public interface CustomerService {

    Customer findById(Long id);

    Customer save(Customer customer);

    List<Customer> findAll();

    List<Customer> findAll(int page, int pageSize);

    List<Customer> findByLastname(String lastname, int page, int pageSize);
}
```

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Plain JPA :: Before

```
/**
 * Plain JPA implementation of {@link CustomerService}.
 *
 * @author Oliver Gierke
 */
@Repository
@Transactional(readOnly = true)
public class CustomerServiceImpl implements CustomerService {

    @PersistenceContext
    private EntityManager em;

    @Override
    public Customer findById(Long id) {
        return em.find(Customer.class, id);
    }

    @Override
    public List<Customer> findAll() {

        return em.createQuery("select c from Customer c", Customer.class).getResultList();
    }

    @Override
    @Transactional
    public Customer save(Customer customer) {
        if (customer.getId() == null) {
            em.persist(customer);
            return customer;
        } else {
            return em.merge(customer);
        }
    }
```

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JPA with Spring Data :: After

```
/**
 * Repository to manage {@link Customer} instances.
 *
 * @author Oliver Gierke
 */
public interface CustomerRepository extends
        CrudRepository<Customer, Long>, JpaSpecificationExecutor<Customer> {

    Page<Customer> findByLastname(String lastname, Pageable pageable);
}
```

https://github.com/SpringSource/spring-data-jpa-examples

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What's New in Servlet 3.0

- Programmatic definition of filters, servlets, listeners and URL patterns
  - @WebServlet, @WebFilter, @WebListener
  - @WebInitParam
  - @MultipartConfig
- Web Fragments
- Asynchronous Servlet and Comet Support

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Hardest thing about Servlet 3?

Is getting the Maven dependency right ...

```
<!-- Servlet 3.0 -->
<!-- http://stackoverflow.com/questions/1979957/maven-dependency-for-servlet-3-0-api -->
<dependency>
    <groupId>org.glassfish</groupId>
    <artifactId>javax.servlet</artifactId>
    <version>3.0</version>
    <scope>provided</scope>
</dependency>
```

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Spring + Servlet 3.0

- WebApplicationInitializer for programmatic configuration
- Instead of:

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

<servlet-mapping>
    <servlet-name>kickstart</servlet-name>
    <url-pattern>*.htm</url-pattern>
</servlet-mapping>
```

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Servlet 3.0

- WebApplicationInitializer for programmatic configuration
- You use:

```
import org.springframework.web.WebApplicationInitializer;
import org.springframework.web.servlet.DispatcherServlet;

import javax.servlet.ServletContext;
import javax.servlet.ServletRegistration;

public class KickstartWebAppInitializer implements WebApplicationInitializer {

    @Override
    public void onStartup(ServletContext container) {

        ServletRegistration.Dynamic dispatcher =
                container.addServlet("dispatcher", new DispatcherServlet());
        dispatcher.setLoadOnStartup(1);
        dispatcher.addMapping("*.htm");
    }

}
```

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Servlet 3.0

- WebApplicationInitializer with XmlApplicationContext

```
import org.springframework.web.WebApplicationInitializer;
import org.springframework.web.context.support.XmlWebApplicationContext;
import org.springframework.web.servlet.DispatcherServlet;

import javax.servlet.ServletContext;
import javax.servlet.ServletRegistration;

public class KickstartWebAppInitializer implements WebApplicationInitializer {

    @Override
    public void onStartup(ServletContext container) {
        XmlWebApplicationContext appContext = new XmlWebApplicationContext();
        appContext.setConfigLocation("/WEB-INF/applicationContext.xml");

        ServletRegistration.Dynamic dispatcher =
                container.addServlet("dispatcher", new DispatcherServlet());
        dispatcher.setLoadOnStartup(1);
        dispatcher.addMapping("*.htm");
    }
}
```

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Servlet 3.0

- WebApplicationInitializer with JavaConfig

```
public class KickstartWebAppInitializer implements WebApplicationInitializer {

    @Override
    public void onStartup(ServletContext container) {
        // Create the 'root' Spring application context
        AnnotationConfigWebApplicationContext rootContext =
                new AnnotationConfigWebApplicationContext();
        rootContext.register(AppConfig.class);

        // Manage the lifecycle of the root application context
        container.addListener(new ContextLoaderListener(rootContext));

        // Create the dispatcher servlet's Spring application context
        AnnotationConfigWebApplicationContext dispatcherContext =
                new AnnotationConfigWebApplicationContext();
        dispatcherContext.register(DispatcherConfig.class);

        // Register and map the dispatcher servlet
        ServletRegistration.Dynamic dispatcher =
                container.addServlet("dispatcher",
                    new DispatcherServlet(dispatcherContext));
        dispatcher.setLoadOnStartup(1);
        dispatcher.addMapping("/");
    }
}
```

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@MVC Resources

```
<!-- View Resolver for JSPs -->
<beans:bean id="viewResolver"
            class="org.springframework.web.servlet.view.InternalResourceViewResolver">
    <beans:property name="viewClass" value="org.springframework.web.servlet.view.JstlView"/>
    <beans:property name="prefix" value="/WEB-INF/pages/"/>
    <beans:property name="suffix" value=".jsp"/>
</beans:bean>

<beans:bean id="messageSource"
            class="org.springframework.context.support.ResourceBundleMessageSource">
    <beans:property name="basename" value="messages"/>
    <beans:property name="useCodeAsDefaultMessage" value="true"/>
</beans:bean>

<context:component-scan base-package="spring.kickstart"/>

<!-- Enables the Spring MVC @Controller programming model -->
<annotation-driven/>

<resources mapping="/resources/**" location="/resources/"/>

<!-- Maps '/' requests to the 'index' view -->
<view-controller path="/" view-name="index"/>
```

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@MVC Resources

```
<link rel="stylesheet" type="text/css"
      href="${ctx}/resources/styles/deliciouslyblue/theme.css" title="default" />
<link rel="alternate stylesheet" type="text/css"
      href="${ctx}/resources/styles/deliciouslygreen/theme.css" title="green" />

<script type="text/javascript" src="http://code.jquery.com/jquery-1.7.1.min.js"></script>
<script type="text/javascript" src="${ctx}/resources/scripts/application.js"></script>
```

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Web Performance Best Practices

- Optimizing caching
- Minimizing round-trip times
- Minimizing request overhead
- Minimizing payload size
- Optimizing browser rendering
- Optimizing for mobile

http://code.google.com/speed/page-speed/docs/rules_intro.html

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Wro4j

- Open Source Java project for optimization of web resources
- Provides concatenation and minimization of JS and CSS
- Gzip, YUI Compressor, JsHint, JsHint, CssLint, LESS, SASS, CoffeeScript, Dojo Shrinksafe

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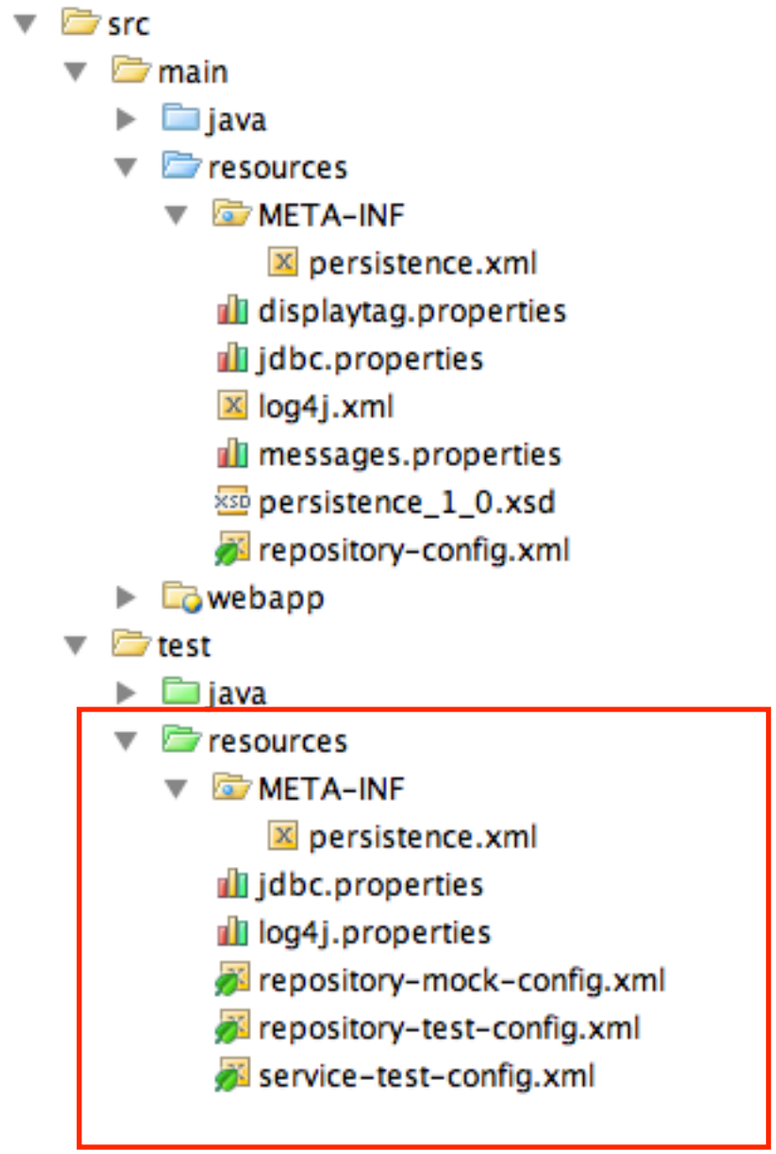
Profiles



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XML Profiles

- Profiles allow for environment-specific bean definitions
- Activated with:
  - -Dspring.profiles.active=test
  - ctx.getEnvironment().setActiveProfiles("dev")
  - <init-param> spring.profiles.active in web.xml
  - @Profile("prod") with @Configuration

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Wro4j and Profiles

```
<group name="scripts">
    <js>http://code.jquery.com/jquery-1.7.1.min.js</js>
    <js>/resources/scripts/application.js</js>
</group>
```

```
<filter-mapping>
    <filter-name>wro4j</filter-name>
    <url-pattern>/assets/*</url-pattern>
</filter-mapping>
```

```
<% if ("dev".equals(System.getProperty("spring.profiles.active"))) { %>
<script type="text/javascript" src="http://code.jquery.com/jquery-1.7.1.min.js"></script>
<script type="text/javascript" src="${ctx}/resources/scripts/application.js"></script>
<% } else { %>
<script type="text/javascript" src="${ctx}/assets/scripts.js"></script>
<% } %>
```

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XML Profiles

```
<beans profile="dev">
    <jdbc:embedded-database id="dataSource">
        <jdbc:script location="classpath:schema.sql"/>
        <jdbc:script location="classpath:test-data.sql"/>
    </jdbc:embedded-database>
</beans>

<beans profile="test">
    <jdbc:embedded-database id="dataSource">
        <jdbc:script location="classpath:schema.sql"/>
    </jdbc:embedded-database>
</beans>
```

```
<beans profile="jndi">
    <jee:jndi-lookup id="dataSource" jndi-name="java:comp/env/jdbc/kickstart"/>
</beans>

<beans profile="prod">
    <context:property-placeholder location="classpath:jdbc.properties"/>
    <bean id="dataSource" class="org.apache.commons.dbcp.BasicDataSource" destroy-method="close">
        <property name="driverClassName" value="${jdbc.driverClassName}"/>
        <property name="url" value="${jdbc.url}"/>
        <property name="username" value="${jdbc.username}"/>
        <property name="password" value="${jdbc.password}"/>
        <property name="maxActive" value="100"/>
        <property name="maxWait" value="1000"/>
        <property name="poolPreparedStatements" value="true"/>
        <property name="defaultAutoCommit" value="true"/>
    </bean>
</beans>
```

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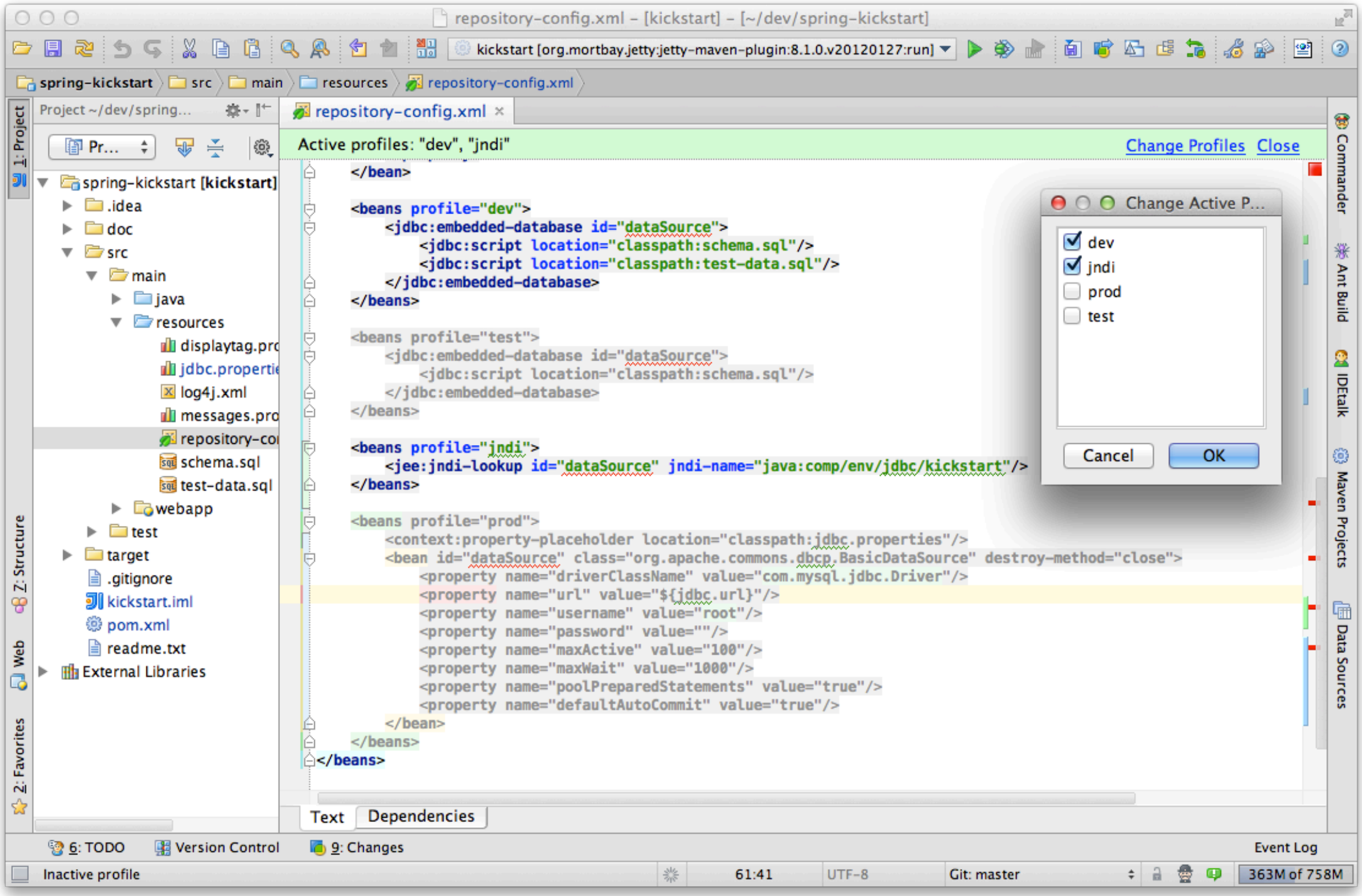
IntelliJ Profile Activation



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@Profile

```
import org.springframework.context.annotation.Profile;

import java.lang.annotation.ElementType;
import java.lang.annotation.Retention;
import java.lang.annotation.RetentionPolicy;
import java.lang.annotation.Target;

@Target(ElementType.TYPE)
@Retention(RetentionPolicy.RUNTIME)
@Profile("dev")
public @interface Dev {
}
```

```
@Repository
@Dev
@Transactional(readOnly = true)
public class CustomerRepositoryImpl implements CustomerRepository {

    @PersistenceContext
    private EntityManager em;
```

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Cache Abstraction

- Not an implementation, but an abstraction
- Frees you from writing logic, but does not provide stores
  - JDK ConcurrentMap
  - EhCache
- @Cacheable and @CacheEvict
- Can use Spring EL for “key” and “condition” attributes
- Annotations triggered by <cache:annotation-driven/>

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Test Support for JavaConfig and Profiles

- Spring 3.0 added @Configuration (JavaConfig)
- TestContext Framework provides annotation-driven testing support
- Spring 3.1 adds “loader” attribute to @ContextConfiguration for @Configuration

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Spring 2.0 Testing

```
public class CustomerRepositoryTest extends AbstractJpaTests {

    private CustomerRepository customerRepository;
    private EntityManagerFactory emf;

    public void setCustomerRepository(CustomerRepository customerRepository) {
        this.customerRepository = customerRepository;
    }

    public void setEntityManagerFactory(EntityManagerFactory emf) {
        this.emf = emf;
    }

    protected String[] getConfigLocations() {
        return new String[] {"repository-test-config.xml"};
    }

    protected void onSetUpInTransaction() throws Exception {
        EntityManager em = EntityManagerFactoryUtils.getTransactionalEntityManager(emf);
        Customer c = new Customer();
        c.setName("Test");
        c.setCustomerSince(new Date());
        em.persist(c);

        super.onSetUpInTransaction();
    }

    public void testAddCustomer() {
        Customer c = new Customer();
        ...
```

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TestContext with XML

```
@RunWith(SpringJUnit4ClassRunner.class)
@ContextConfiguration(locations = {"/repository-config.xml"})
@Transactional
@TransactionConfiguration(transactionManager = "transactionManager", defaultRollback = false)
public class CustomerRepositoryTest {

    @PersistenceContext
    private EntityManager em;
    @Autowired
    private CustomerRepository customerRepository;

    @Before
    @Transactional
    public void onSetUpInTransaction() {
        Customer c = new Customer();
        c.setName("Test");
        c.setCustomerSince(new Date());

        em.persist(c);
    }

    @Test
    public void testAddCustomer() {
        Customer c = new Customer();
        c.setName("New");
        c.setCustomerSince(new Date());
        customerRepository.save(c);
        List<Customer> customers = customerRepository.findAll();
        assertTrue(customers.contains(c));
    }
```

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TestContext with @Configuration

```
@RunWith(SpringJUnit4ClassRunner.class)
@ContextConfiguration(loader = AnnotationConfigContextLoader.class)
@Transactional
@TransactionConfiguration(transactionManager = "transactionManager", defaultRollback = false)
public class CustomerRepositoryTest {

    @Configuration
    static class ContextConfiguration {
        @Bean
        public CustomerRepository customerRepository() {
            return new CustomerRepositoryImpl();
        }
    }

    @PersistenceContext
    private EntityManager em;
    @Autowired
    private CustomerRepository customerRepository;

    @Before
    @Transactional
    public void onSetUpInTransaction() {
        Customer c = new Customer();
        c.setName("Test");
        c.setCustomerSince(new Date());

        em.persist(c);
    }

    @Test
    public void testAddCustomer() {
        Customer c = new Customer();
```

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Summary

- Spring 3.1 has a lot of new stuff
  - @Cacheable
  - Profiles
  - Servlet 3.0 Support
  - Better Testing Support

- Compilation errors when upgrading?
  - mvn dependency:tree | grep spring

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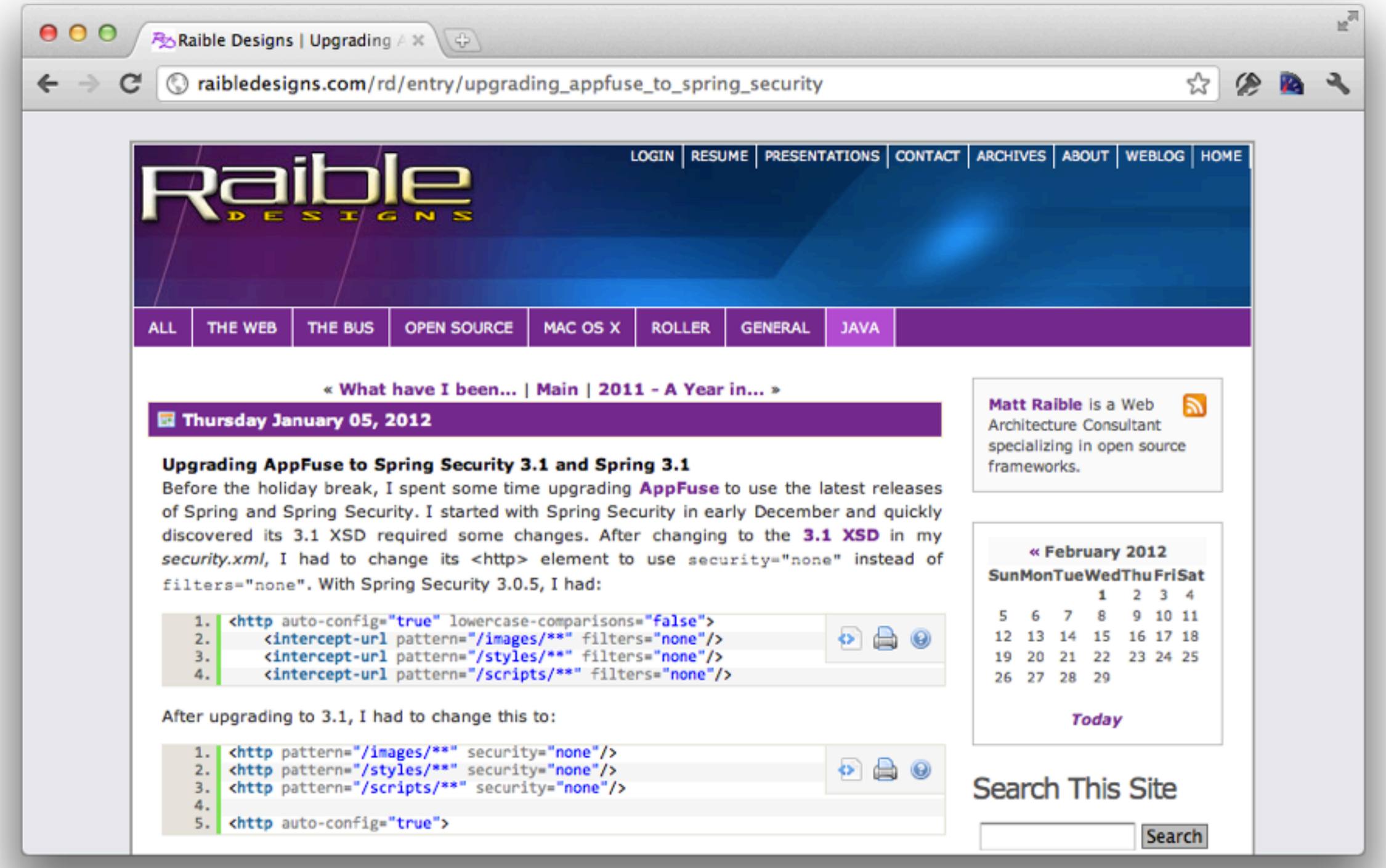
My Upgrade Story



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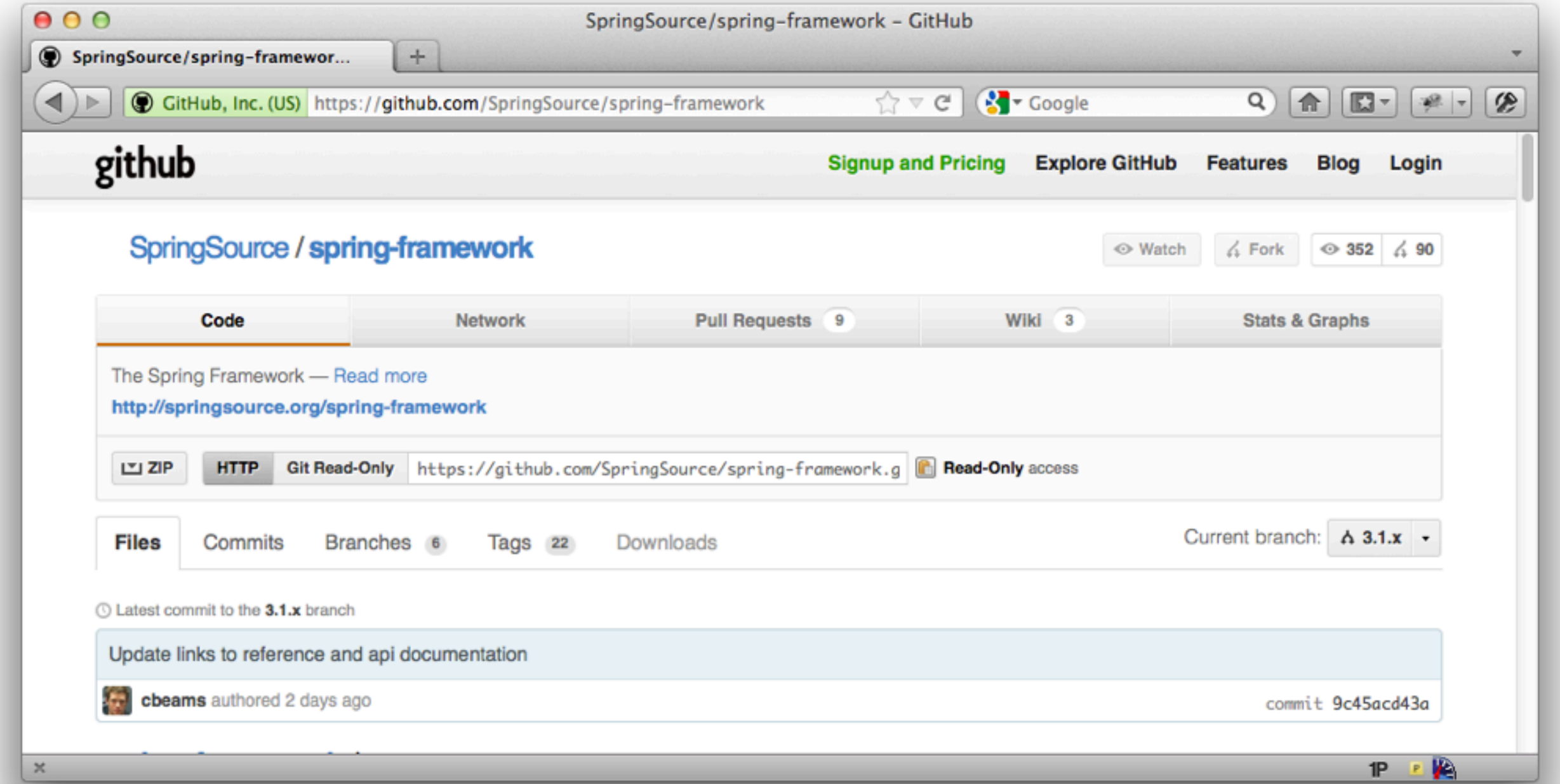
Get the Source



https://github.com/SpringSource/spring-framework

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Learn More

- This Week in Spring on springsource.org
- blog.springsource.com
- SpringSource Developer Channel on YouTube
- Stackoverflow.com
- Google it!

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heroku

Heroku for Java

by Adam - Aug 25, 2011

We're pleased to announce the public beta of Heroku for Java. Java is the fourth official language available on the **Cedar** stack.

Java is, by **many measures**, the world's most popular programming language. In addition to its large and diverse developer base, it offers a huge ecosystem of libraries and tools, an extremely well-tuned VM for fast and reliable runtime performance, and an accessible C-like syntax.

But there are also many criticisms commonly leveled against the language. We'll take a closer look at Java's strengths and weaknesses in a moment, but first:

Heroku for Java in 2 minutes

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Questions?

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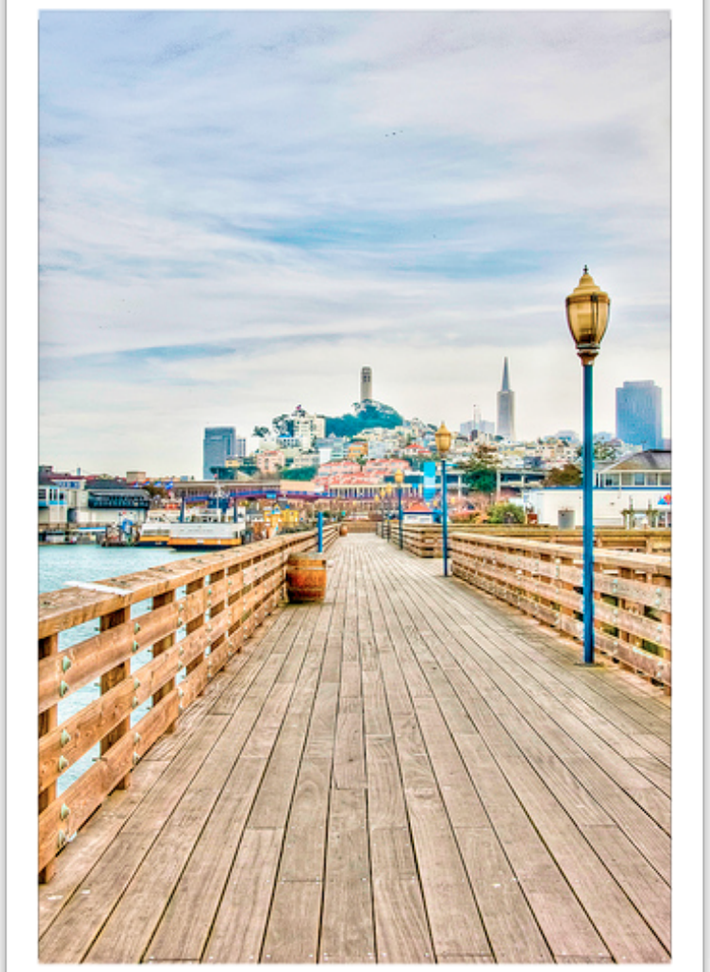

My Presentations

- http://slideshare.net/mraible
- http://raibledesigns.com/rd/page/publications

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