

# Groovy & Grails 2.x update

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# Agenda

- What's new in Groovy 2?
- What's new in Grails 2.2?
- Grails Advanced Enterprise Integrations through examples



# Groovy

- Groovy is a **dynamic language** on and for the JVM
  - Fully interoperable with Java *at all levels*
- Goal is to **greatly simplify the life for developers**
- Release 2.0.6, December 2012 (started in 2004)



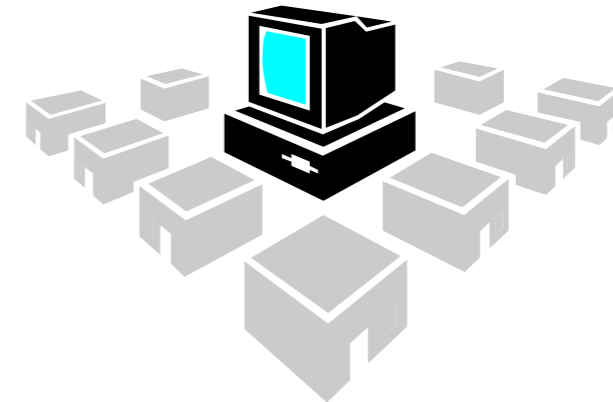
# Grails

- Full Stack, **Full Productivity** MVC Framework
- Built on a **solid, well-known foundation**
  - Spring, Hibernate, Sitemesh
- Conventions and defaults everywhere
- Release 2.2.0, December 2012 (started mid 2005)

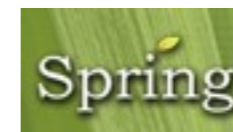


# Protect investment in the JavaEE platform

- Existing applications
- Existing APIs
- Existing 3rd party components
- Existing competence



JDBC



JNDI

# Groovy & Grails 1.x, 2011: What was the problem?



# Groovy 1.x, 2011: What was the problem?

- Dynamic languages are scary!
- Dynamic languages are slow!



# Grails 1.x, 2011: What was the problem?

- Immature Development environment
  - Bad IDE support
  - Bad build system support
  - Primitive dependency management





# Grails 1.x, 2011: What was the problem?

- Not well suited for test-driven development
  - Old-school unit test framework
  - Long round-trip startup time



# Grails 1.x, 2011: What was the problem?

- Immature plugins



# ... but things change ...





HIGHLIGHTS TV GUIDE

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- SAT
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- ALL CHANNELS
- LONDON HD
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Looney Tunes



Deadliest Catch



Jake and the Never Land Pirates



Frasier

7am

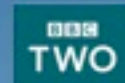
8am

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10am



101



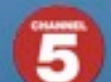
102



103



104



105

and weather from the BBC's Breakfast team. Also in HD. [S] Including regional news at 25 and 55... **Wanted Down Under** Families sample life down ... **Homes Under** Martin Roberts an

**s Under the Hammer** Roberts and Lucy Alexander ... **Saints and Scroun...** 19/20. Series looking at b... **Cowboy Trap** 3/20. Clive Holl... **Swing Time** Musical. When Lucky Garnett is late for his own wedding, the bri...

**Lorraine** Topical mix of entertainment, dis... **The Jeremy Kyle Show** Jeremy Kyle deals with more dilemmas,...

**Will & Grace** Crouching Fath... **Accordi...** The Bad Wo... **Everybody ...** Stefania Arrive... **Everybody ...** Humm Vac: Ma... **Frasier** And the Whimper ... **Frasier** Give Him the C... **Undercover B** Tony Braxton-Smi

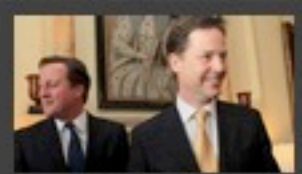
**Lit...** I Wa... **No...** Tessi... **Fifi...** Stin... **Tic...** Meas... **The Wright Stuff** Lively magazine show in which Matthew Wright a

**Brainiac: Science Abuse** **Dog The Bounty Hunter** **Ashley Banjo's Secret Stre...** **Ashley Banjo's**

# Sky Video Cuts BETA



## Latest videos from...



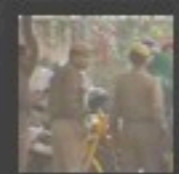
Jan 07, 2013  
070113 coalition Jones 0600



Jan 07, 2013  
Girl Dies In Police Chase Crash



Jan 07, 2013  
Charles Reveals Grandchild Thoughts



Jan 07, 20  
Delhi Gang Five Due In

## Latest videos from...



Jan 06, 2013  
Rhys' big moment



Jan 06, 2013  
Lukas stuns the judges



Jan 06, 2013  
Claire's search for stars



Jan 06, 20  
Hash Tap to reels

## Latest videos from...



Jan 04, 2013  
The Language Of Love: Episode 2



Jan 04, 2013  
Meet The Voice Of The Love Machine



Jan 04, 2013  
The Spa: Spotlight On Tim Healy



Jan 04, 20  
The Love Machine Back

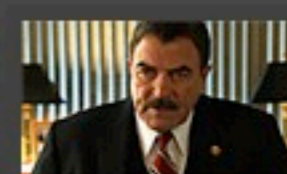
## Latest videos from...



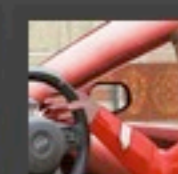
Jan 04, 2013  
Girls Season 2 Trailer



Dec 27, 2012  
The Following Teaser Trailer



Dec 27, 2012  
Blue Bloods Season 3 - On The Red Carpet



Dec 24, 20  
Uncle Worr Christmas C

## Latest videos from...



Sep 06, 2012



Sep 03, 2012

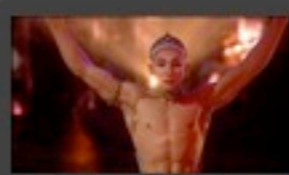


Aug 30, 2012



Aug 21, 20

## Latest videos from...



Dec 14, 2012



Dec 14, 2012



Dec 14, 2012



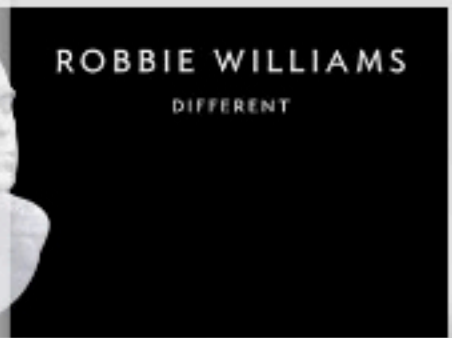
Dec 12, 20



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Kaartspel met Igor Stravinsky  
**Bataillie, Luc**  
2



Thirty Caprices: No 7  
**Cavalinni, Ernesto**  
4



De pantoffelheld  
**De Ryck, Erwin**  
3



Thirty Caprices: No 4  
**Cavalinni, Ernesto**  
4



Fallen angel  
**De Ryck, Erwin**  
3



Thirty Caprices: No 3  
**Cavalinni, Ernesto**  
4



Ezzemmesme  
**De Ryck, Erwin**  
1



8 Miniatures  
**Houwen, Frank**  
3



It's a lovely day  
**De Ryck, Erwin**  
4



Circusparade  
**Van Dorsseleer, Willy**  
1



Pepper and salt  
**De Ryck, Erwin**  
4

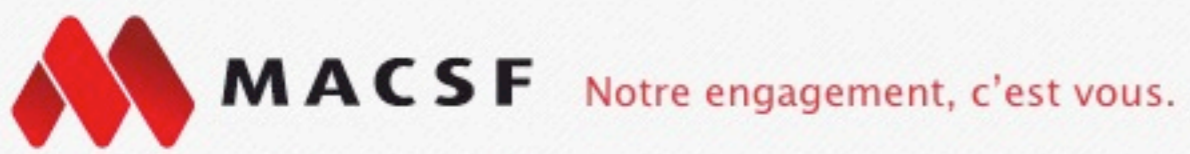


Little Fantasy  
**Hulshagen, Ludo**  
2

### Cart

### Category

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**INFORMATION IMPORTANTE** [Fermer]

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## Le panorama du risque médical

La MACSF publie son rapport d'activité 2011 qui compile toutes les déclarations de sinistres Responsabilité Civile Professionnelle et les décisions de justice

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1 av 1



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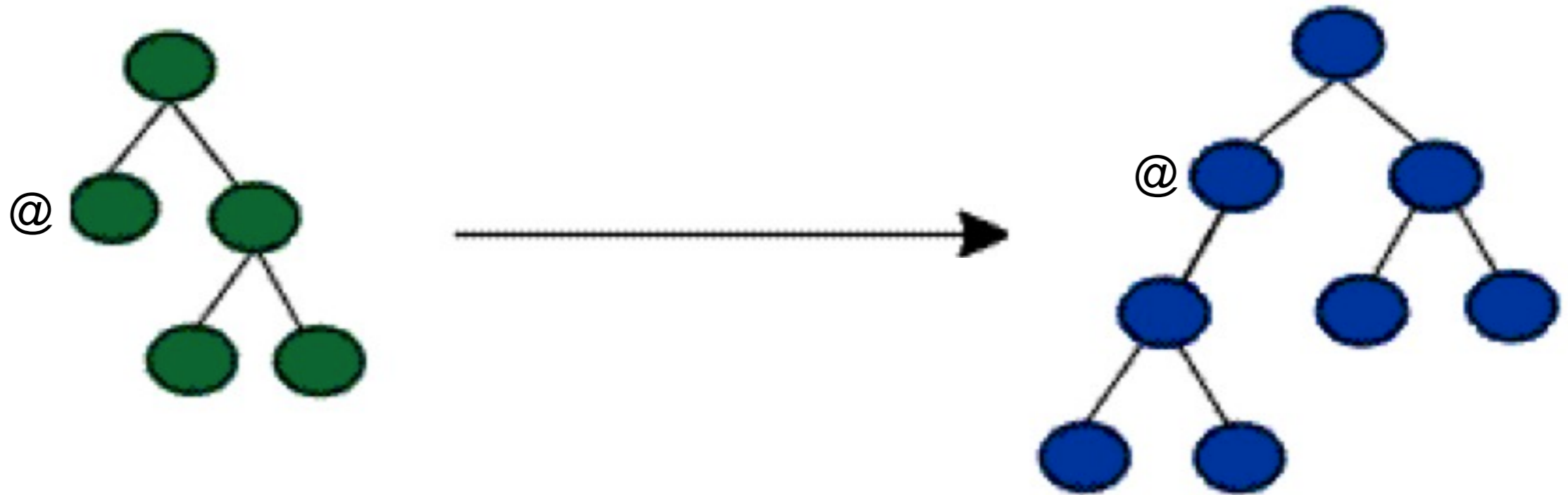
# Groovy, anno 2013



2013

# Groovy AST transformations

Also known as *compile-time metaprogramming*



# AST transformations: @Singleton

```
@Singleton(lazy = true)
```

```
class MyClass {}
```

```
MyClass.instance.someMethod()
```

# AST transformations: @Lazy

```
class Person {  
    @Lazy  
    List dnaProfile = { /* complex  
                        computation */ }  
}
```



# AST transformations: @Immutable

## @Immutable

```
final class Coordinates {  
    Double latitude, longitude  
}
```

# AST transformations: @Delegate

```
class Event {  
    @Delegate Date when  
    ...  
}
```

```
def cadec = new Event(...)  
def javaOne = new Event(...)  
assert cadec.before(javaOne.when)
```

# AST transformations: @Log

## @Log

```
class Employee {  
    Employee() {  
        log.info("Employee created")  
    }  
}
```

# AST transformations: @AutoClone

## @AutoClone

```
class Employee {  
    String firstName  
    String lastName  
    Assignment assignment  
}
```

# AST transformations: @ToString

## @ToString

```
class Employee {  
    String firstName  
    String lastName  
}
```

```
def e = new Employee(firstName:"Björn", lastName:"Beskow")  
assert e.toString == "Employee(Björn, Beskow) "
```

# AST transformations: **@EqualsAndHashCode**

## **@EqualsAndHashCode**

```
class Employee {  
    String firstName  
    String lastName  
    Assignment assignment  
}
```

# AST transformations: @InheritConstructors

## @InheritConstructors

```
class EmployeeException extends Exception {  
    EmployeeException(Assignment a) {...}  
}
```

# AST transformations: @Category

## @Category (Number)

```
class NumberCategory {  
    Distance getMeters() {  
        new Distance(number: this)  
    }  
}
```

```
use (NumberCategory) {  
    def dist = 300.meters  
}
```



# AST transformations: @TypeChecked

- Best of two worlds:
  - Brings *Static Typing* into the dynamic world of Groovy
- Compiler performs sophisticated *type inference*



```
package cadec

import groovy.xml.StreamingMarkupBuilder
class ExportService {

    def employeeService

    def exportEmployees() {
        new FileWriter("/tmp/employees.xml") << new StreamingMarkupBuilder().bind {
            employees {
                employeeService.getEmployees().each {emp ->
                    employee(FirstName:emp.firstName,
                        LastName:emp.lastName,
                        Email:emp.email)
                }
            }
        }
        println "Employees exported"
    }

    static exposes = ["jms"]
    static destination = "aQueue"
    def onMessage(message) {
        if (message == "export") {
            exportEmployees()
        } else {
            println "Unknown message '${message}' received"
        }
    }
}
```

# AST transformations: @CompileStatic

- One step further:
  - ***Statically compile*** a class or block of code, which makes the bytecode (almost) identical to corresponding compiled Java code, with ***identical performance***
  - Can prevent dynamic behavior to be inadvertently applied to a block of code (a.k.a. “Monkey Patching”)

# Grails, anno 2013

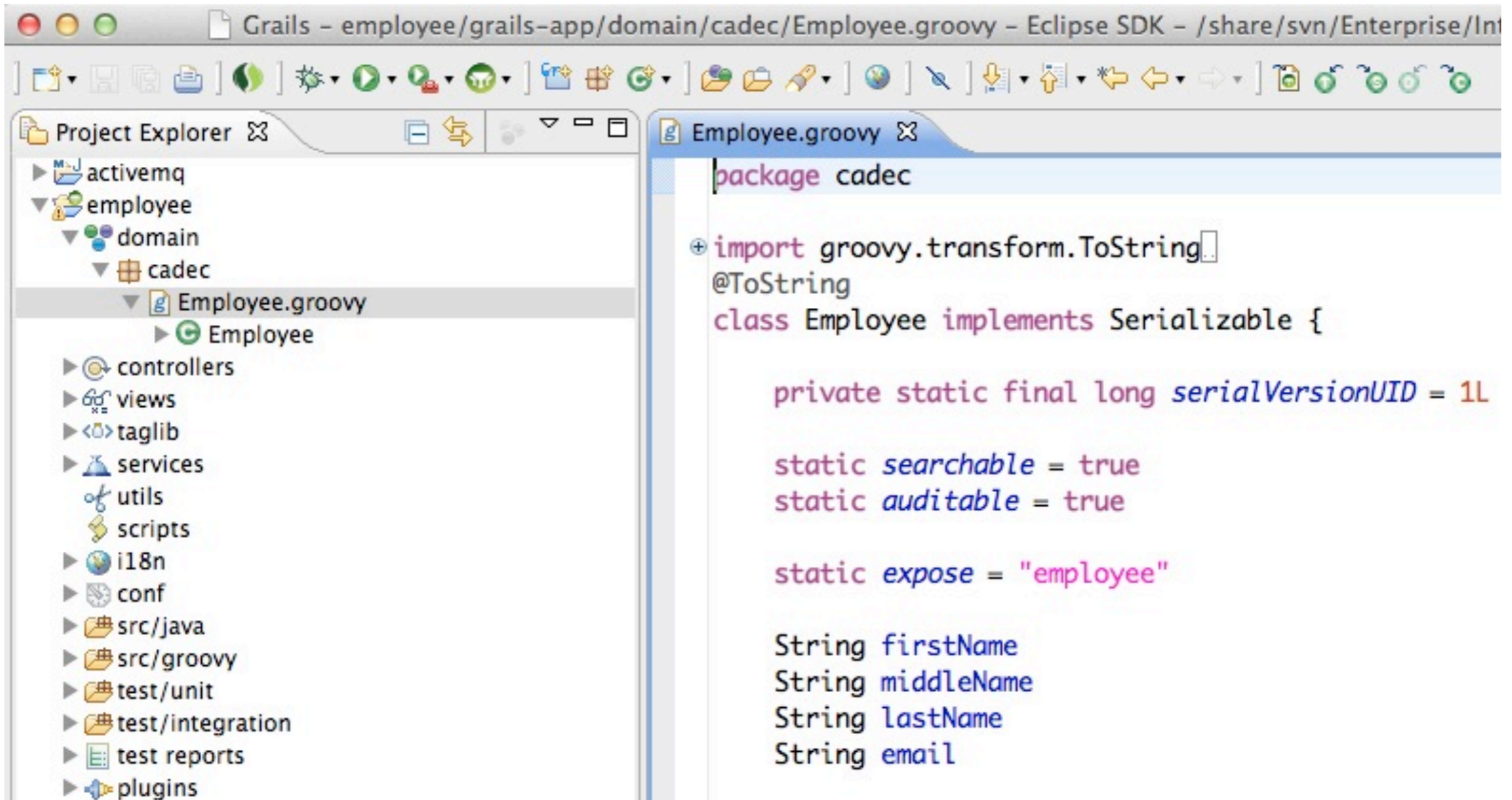
The year '2013' is rendered in a bold, 3D red font. The numbers have a slight shadow and a reflection on the surface below them, giving them a three-dimensional appearance.

# Grails, anno 2013

- IDE support that finally works
- Many high quality enterprise-grade plugins available
- Grails 2.2
  - Agent-based class reloading and interactive console
  - Native Maven support
  - NoSQL database support
  - DB Migrations
  - Cloud Deployments



# IDE support



The screenshot shows the Eclipse IDE interface. The top toolbar contains various icons for file operations and development tools. The Project Explorer on the left displays a project structure with folders like 'activemq', 'employee', 'domain', 'cadec', 'controllers', 'views', 'taglib', 'services', 'utils', 'scripts', 'i18n', 'conf', 'src/java', 'src/groovy', 'test/unit', 'test/integration', 'test reports', and 'plugins'. The main editor window shows the source code for 'Employee.groovy' in the 'cadec' package. The code includes an import for 'groovy.transform.ToString', an '@ToString' annotation, and a class 'Employee' that implements 'Serializable'. It also defines several static fields: 'serialVersionUID', 'searchable', 'auditable', and 'expose', along with instance variables for 'firstName', 'middleName', 'lastName', and 'email'.

```
package cadec

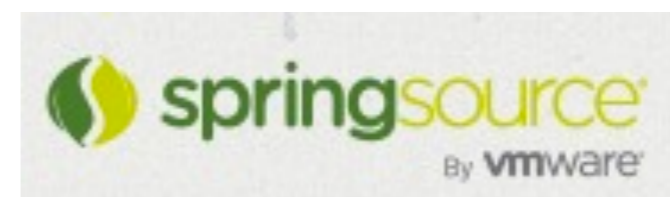
import groovy.transform.ToString
@ToString
class Employee implements Serializable {

    private static final long serialVersionUID = 1L

    static searchable = true
    static auditable = true

    static expose = "employee"

    String firstName
    String middleName
    String lastName
    String email
}
```



# Maven integration & dependency mgmt.

```
grails.project.dependency.resolution = {  
    // Retrieve dependencies from maven pom.xml  
    pom true  
    // inherit Grails' default dependencies  
    inherits("global") {  
        // specify dependency exclusions here;  
        // excludes 'ehcache'  
    }  
}
```

# TDD support

```
plugins {  
    test "build-test-data:2.0.3"  
    test "fixtures:1.2"  
  
    test "geb:0.9.0-RC-1"  
    test "spock:0.7"  
  
    test "auto-test:1.0.1"  
}
```



Project Explorer

- employee
  - domain
    - cadec
  - controllers
    - cadec
      - EmployeeController.groovy
        - EmployeeController
  - views
    - layouts
    - error.gsp
    - index.gsp
  - taglib
  - services
  - utils
  - scripts
  - i18n
  - conf
    - hibernate
    - spring
      - resources.groovy
    - ApplicationResources.groovy
    - Bootstrap.groovy
    - BuildConfig.groovy
      - BuildConfig
    - Config.groovy
      - Config
    - DataSource.groovy
    - UrlMappings.groovy

```

package cadec

import grails.buildtestdata.mixin.Build
@TestFor(Employee)
@Build(Employee)
class EmployeeTests {
    @Before
    public void setUp() {
        mockForConstraintsTests(Employee)
    }
    @Test
    void constraintsValidation() {
        Employee invalidEmail = Employee.buildWithoutSave(email:"invalid")
        assert !invalidEmail.validate()
        assert "email" == invalidEmail.errors["email"]
    }
    @Test
    void constraintsPass() {
        Employee valid = Employee.buildWithoutSave(email:"test@test.com")
        assert valid.validate()
    }
}

```

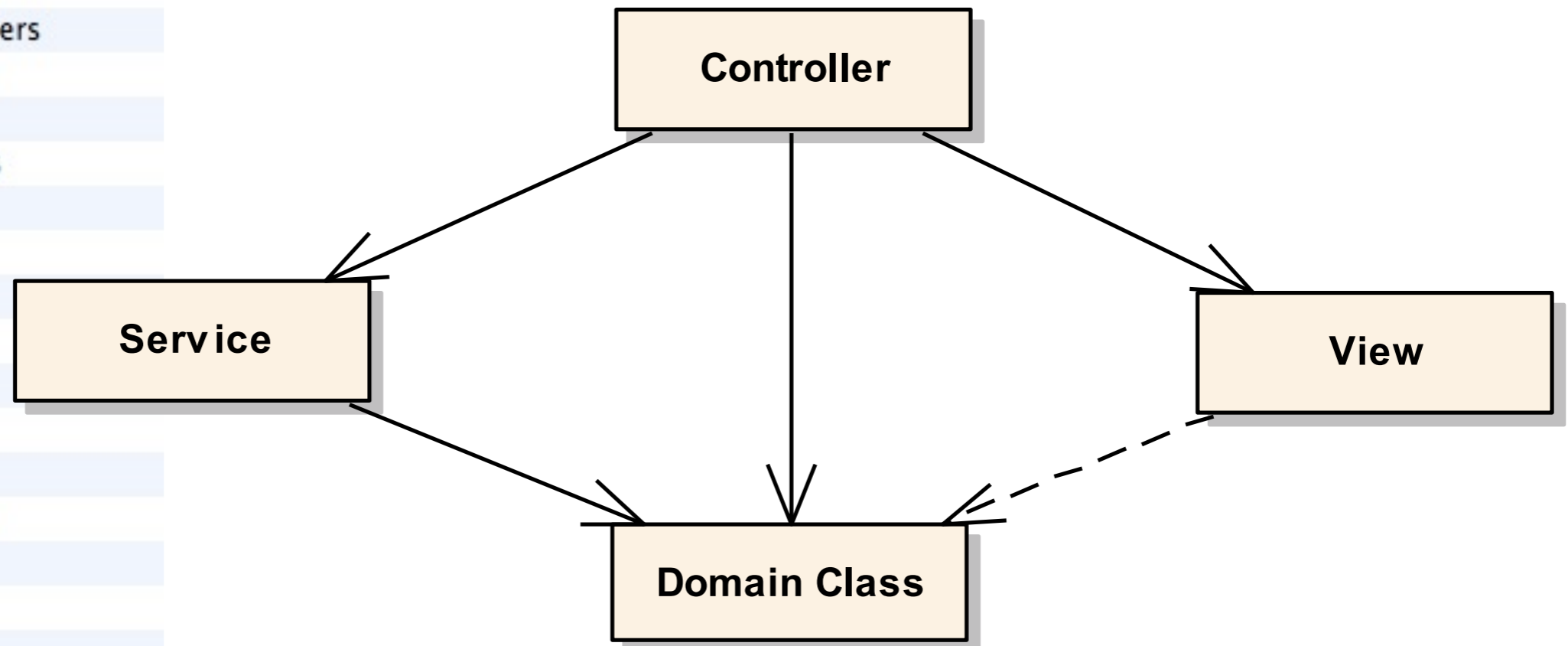
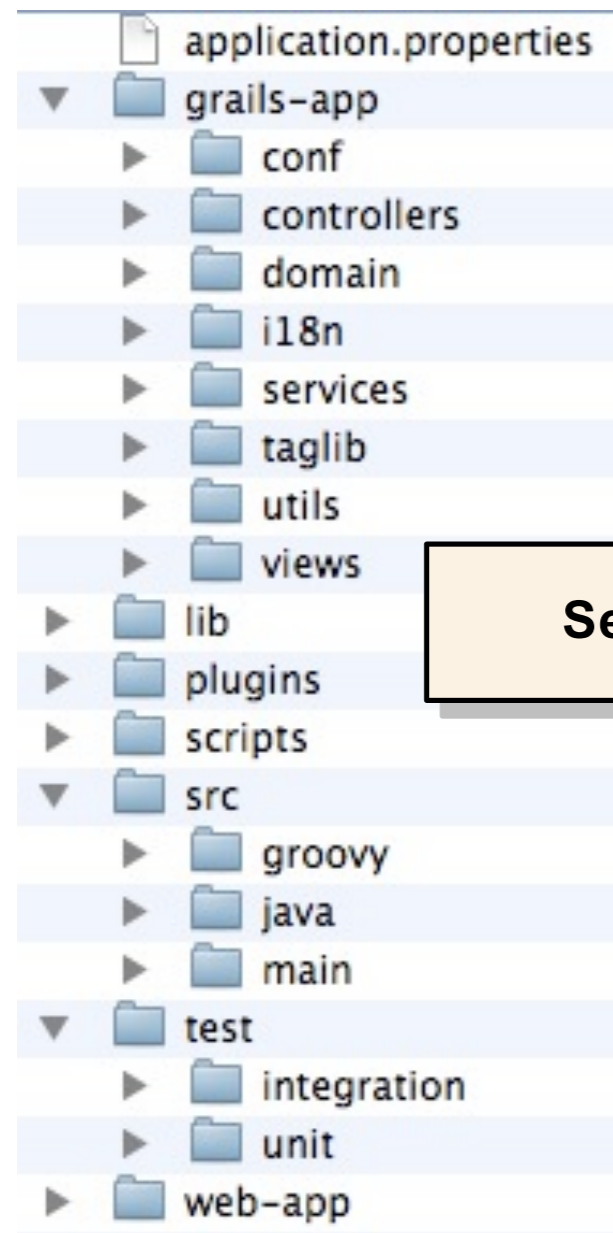
Servers

No servers available. Define a new server from the [new server wizard...](#)

Console Markers Progress

<terminated> EmployeeTests [JUnit] /Library/Java/JavaVirtualMachines/jdk1.7.0\_10.jdk/Contents/Home/bin/java (Dec 17, 2012 11:4)

# Grails: The Power of Convention



# Grails Plugins

- Grails Plugins turn Grails into an *extensible platform*
  - Exposes well-defined extension points
  - Low ceremony format makes writing plugins trivial
  - Active community, with well over 800 plugins available





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# Plugins

You can find out about all the publicly available Grails plugins.

Search for a plugin [Search]

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Interested in your own plugin appearing here? Take a look at the [Publishing Plugins Guide](#) and when you're ready, [please fill out this form](#). **NEW:** Get involved by voicing your opinion on new plugins waiting to be approved in the [Pending Plugin](#) portal.

## Neo4j GORM

Tags : [persistence](#), [gorm](#), [neo4j](#) | Latest : 1.0.0.M5 | Last Updated: 08 November 2012 | Grails version : 1.2 > \*

6 votes  
★★★★☆

A plugin that integrates the Neo4j graph database into Grails, providing a GORM API onto it [Read more](#)

```
Dependency :  
compile "neo4j:1.0.0.M5"
```

- Documentation
- Source
- Issues

### POPULAR TAGS

Security

# Plugins in action!

- DB migrations with Liquibase
- Cloud deployment to Cloud Foundry
- MongoDB integration
- Db-backed message translations
- Ajax-based Compass/Lucene search
- LDAP-based authorization
- Audit logging
- Application monitoring
- Quartz integration
- Mail integration
- JMS integration
- Spring Remoting with rich clients
- RESTful web services
- SOAP web services



# Quiz: How many lines of code?

- 30 lines?
- 75 lines?
- 150 lines?
- 750 lines?



# Database migrations

```
plugins {  
    runtime ":database-migration:1.2.2"  
}
```

LIQUI  BASE

Project Explorer

- employee
  - domain
  - controllers
  - views
  - taglib
  - services
  - utils
  - scripts
  - i18n
  - conf
    - hibernate
    - spring
    - ApplicationResources.groovy
    - Bootstrap.groovy
    - BuildConfig.groovy
      - BuildConfig
    - Config.groovy
    - DataSource.groovy
    - UrlMappings.groovy
  - src/java
  - src/groovy
  - test/unit
  - test/integration
  - test reports
  - plugins
  - classpath
  - application.properties
  - fixtures

```
package cadec

class Employee {

    String firstName
    String lastName
    String email

    static constraints = {
        lastName()
        firstName(blank:false)
        email(email:true, unique:true)
    }
}
```

No consoles to display at this time.



# One-click Cloud Deployment

```
plugins {  
    compile "cloud-foundry:1.2.3"  
}
```





**Project Explorer**

- employee
  - domain
  - controllers
  - views
  - taglib
  - services
  - utils
    - scripts
  - i18n
  - conf
  - src/java
  - src/groovy
  - test/unit
  - test/integration
  - test reports
  - plugins
  - classpath
    - application.properties
  - fixtures
  - grails-app
    - lib
  - target
  - web-app
    - caldecott.log
    - pom.xml
    - prodDb.h2.db
    - stacktrace.log



Console Markers Progress JUnit

No consoles to display at this time.

**Servers**

- VMware Cloud Foundry [Stopped]

# NoSQL Database support

```
plugins {  
    compile "org.mongodb:mongodb-driver:1.1.0.GA"  
}
```



{name: "mongo", type: "DB"}



# NoSQL Database support

```
class Employee implements Serializable {  
    static mapWith = "mongo"  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```

EMPLOYEE

- Employee List
- + Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# I18n

```
plugins {
```

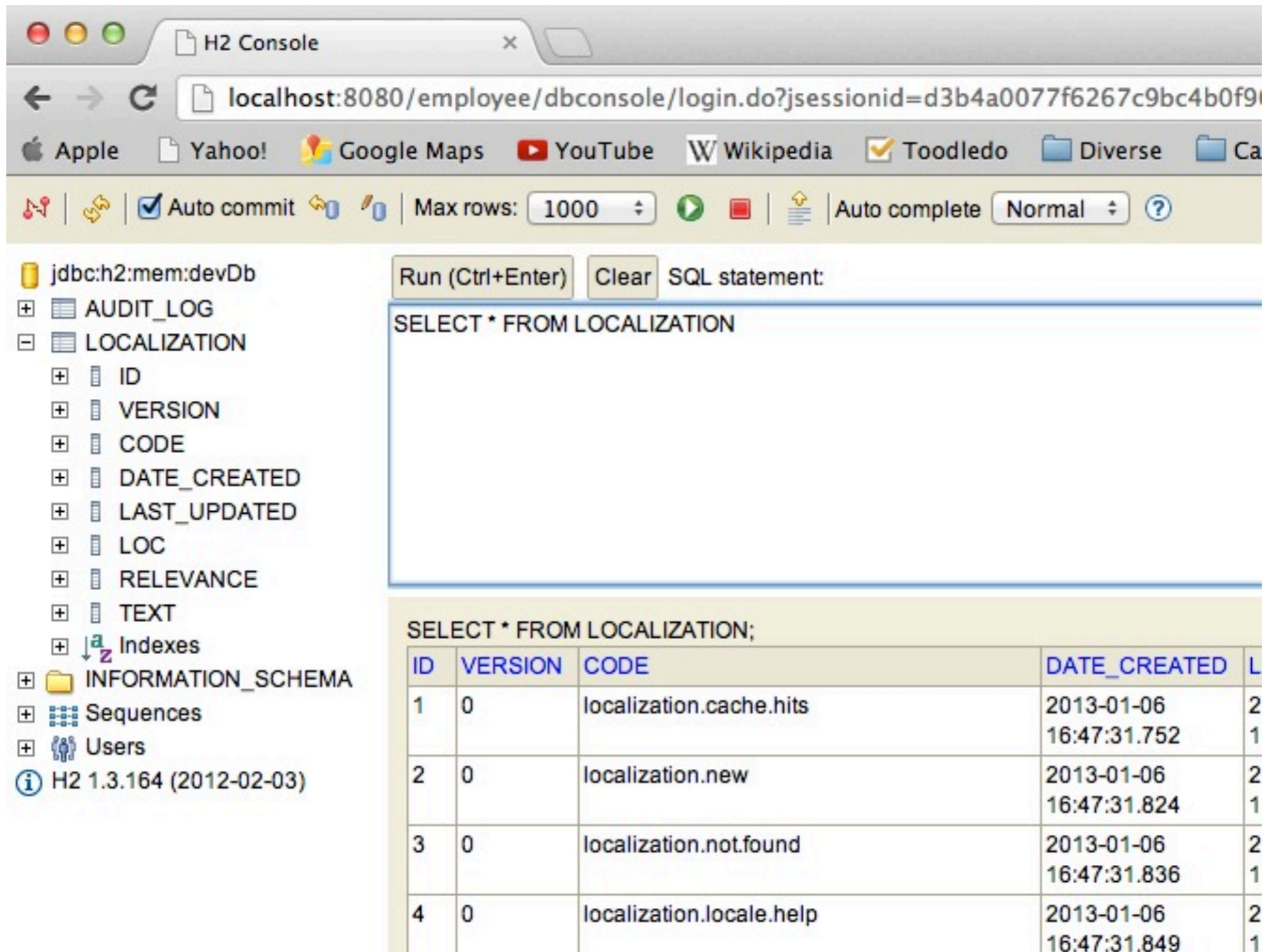
```
    runtime "org.springframework.boot:spring-boot-starter-localization:1.4.4.6"
```

```
}
```

# I18n

```
messages_sv.properties
default.doesnt.match.message=Attributet [{0}] för klassen [{1}] med värde [{2}] matchar
default.invalid.url.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är inte
default.invalid.creditCard.message=Attributet [{0}] för klassen [{1}] med värde [{2}] ä
default.invalid.email.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är int
default.invalid.range.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är int
default.invalid.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] har en
default.invalid.max.message=Attributet [{0}] för klassen [{1}] med värde [{2}] överskri
default.invalid.min.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är mindr
default.invalid.max.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] öve
default.invalid.min.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är
default.invalid.validator.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är
default.not.inlist.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är inte g
default.blank.message=Attributet [{0}] för klassen [{1}] får inte vara tomt
default.not.equal.message=Attributet [{0}] för klassen [{1}] med värde [{2}] får inte v
default.null.message=Attributet [{0}] för klassen [{1}] får inte vara tomt
default.not.unique.message=Attributet [{0}] för klassen [{1}] med värde [{2}] måste var
```

# I18n



The screenshot shows the H2 Console web interface. The browser address bar displays the URL: `localhost:8080/employee/dbconsole/login.do?jsessionId=d3b4a0077f6267c9bc4b0f9...`. The interface includes a navigation menu on the left with the following items: `jdbc:h2:mem:devDb`, `AUDIT_LOG`, `LOCALIZATION` (expanded to show `ID`, `VERSION`, `CODE`, `DATE_CREATED`, `LAST_UPDATED`, `LOC`, `RELEVANCE`, `TEXT`, and `Indexes`), `INFORMATION_SCHEMA`, `Sequences`, `Users`, and `H2 1.3.164 (2012-02-03)`. The main area contains a SQL statement input field with the text `SELECT * FROM LOCALIZATION` and a `Run (Ctrl+Enter)` button. Below the input field, the query results are displayed in a table format. The table has columns for `ID`, `VERSION`, `CODE`, `DATE_CREATED`, and `L`. The results are as follows:

ID	VERSION	CODE	DATE_CREATED	L
1	0	localization.cache.hits	2013-01-06 16:47:31.752	2 1
2	0	localization.new	2013-01-06 16:47:31.824	2 1
3	0	localization.not.found	2013-01-06 16:47:31.836	2 1
4	0	localization.locale.help	2013-01-06 16:47:31.849	2 1



### APPLICATION STATUS

App version: 0.1  
Grails version: 2.2.0  
Groovy version: 2.0.5  
JVM version: 1.7.0\_10  
Reloading active: true  
Controllers: 14  
Domains: 3  
Services: 19  
Tag Libraries: 25

### INSTALLED PLUGINS

logging - 2.2.0  
core - 2.2.0  
dataSource - 2.2.0  
servlets - 2.2.0  
urlMappings - 2.2.0  
i18n - 2.2.0  
dynamicController - 0.4  
controllers - 2.2.0  
codecs - 2.2.0  
filters - 2.2.0  
appInfo - 1.0.2  
databaseMigration - 1.2.2  
fields - 1.3  
resources - 1.1.6  
localizations - 1.4.4.6  
axis2 - 0.7.0  
cloudSupport - 1.0.11  
appInfoHibernate - 0.2

# Welcome to Grails

Congratulations, you have successfully started your first Grails application! At the moment this is the default page, feel free to modify it to either redirect to a controller or display whatever content you may choose.

# Searching

```
plugins {  
    runtime ":searchable:0.6.4"  
}
```

```
class Employee {  
    static searchable = true  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```



Compass

*Lucene*

EMPLOYEE

- Employee List
- + Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén		Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# Ajax-based incremental searching

```
plugins {  
  
    runtime ":jquery:1.8.3"  
  
}
```

```
<div id="header">  
  <h1><a href="http://grails.org/Searchable+Plugin" target="_blank">Grails <span>Searchable</span></h1>  
  <g:form url='[controller: "searchable", action: "index"]' id="searchableForm" name="searchableForm">  
    <g:remoteField name="q" id="q" value="${params.q}" size="50" paramName="q" update="main"></g:remoteField>  
  </g:form>  
  <div style="clear: both; display: none;" class="highlight" style="border: 1px solid red; padding: 5px; margin: 5px 0 0 0; width: fit-content; text-align: center; font-size: 0.8em; font-weight: bold; color: red; background-color: #ffe0e0; border-radius: 5px; float: right; margin-left: 20px; margin-top: -10px; margin-bottom: 10px 0 0 0;"><a href="http://lucene.apache.org/j</a>  
</div>  
<div id="main">  
  <g:render template="searchResult"></g:render>  
</div>
```



# Authentication

```
plugins {  
  
    runtime ":spring-security-core:1.2.7.3"  
    runtime ":spring-security-ldap:1.0.6"  
  
}
```

```
grails.plugins.springsecurity.ldap.context.server = 'ldap://localhost:10389'  
grails.plugins.springsecurity.ldap.search.base = 'ou=users,dc=example,dc=com'
```

```
@Secured(['ROLE_USERS'])  
class EmployeeController {
```



LDAP Browser

DIT

- Root DSE (4)
  - dc=example,dc=com (2)
    - ou=groups
    - ou=users (2)
      - uid=bbe
      - uid=superuser
    - ou=schema
    - ou=system

Searches

Bookmarks

EmployeeController.g uid=bbe,ou=users,dc=example,dc=com

DN: uid=bbe,ou=users,dc=example,dc=com

Attribute Description	Value
objectClass	inetOrgPerson (structural)
objectClass	organizationalPerson (structural)
objectClass	person (structural)
objectClass	top (abstract)
cn	Björn Beskow
sn	Beskow
displayName	Björn Beskow
uid	bbe
userPassword	SHA hashed password

Outline

- uid=bbe,ou=users,dc=example,dc=com
  - uid (1)
  - sn (1)
  - cn (1)
  - userPassword (1)
  - objectClass (4)
  - displayName (1)

Connections

ApacheDS

Modification Logs

Search Logs

Progress

No operations to display at this time

# Audit Logging

```
plugins {  
    runtime ":audit-logging:0.5.4"  
}
```

```
@ToString  
class Employee {  
    static auditable = true  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```

EMPLOYEE

- Employee List
- + Create Employee

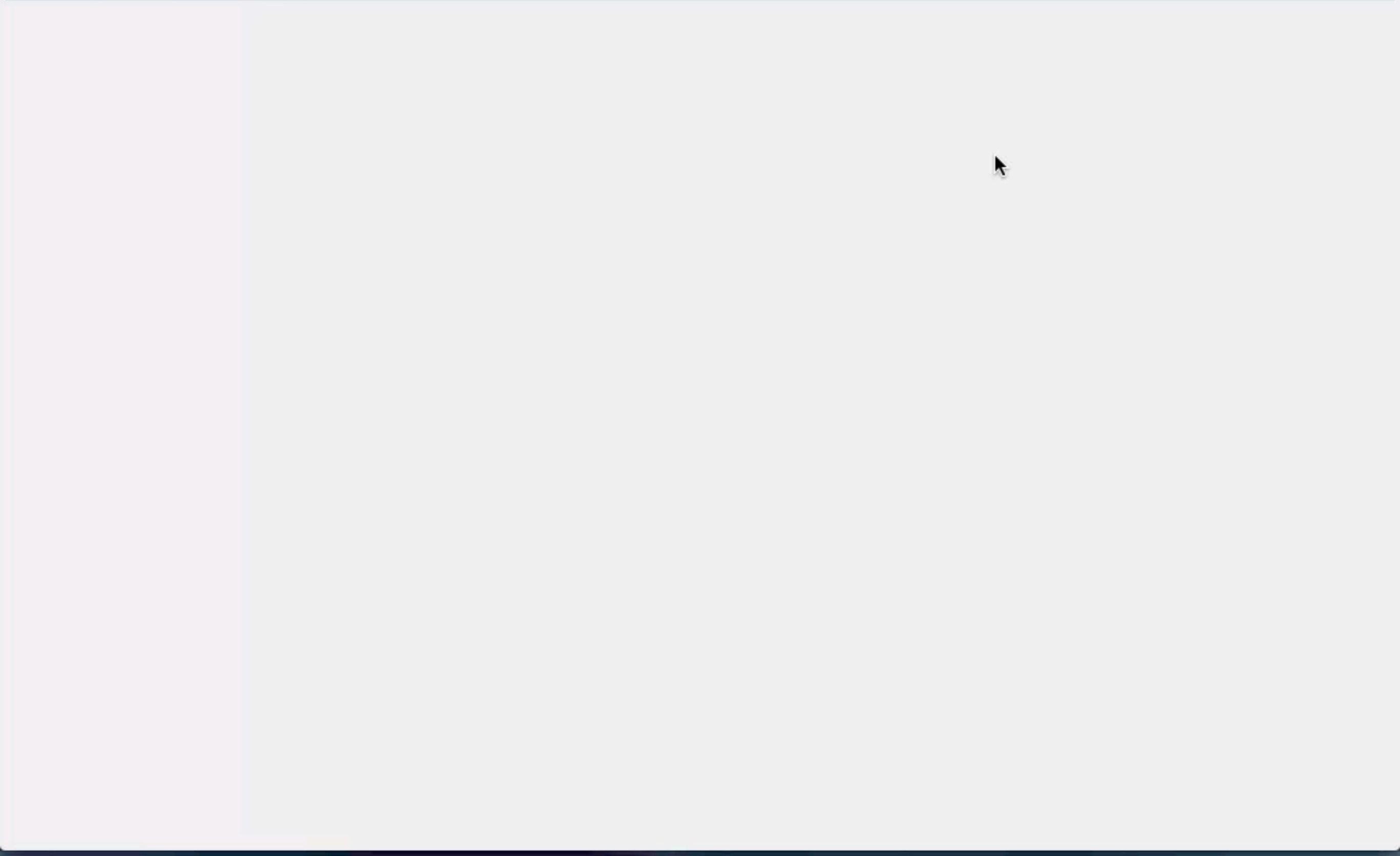
# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén		Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »



# Monitoring

```
plugins {  
  
    runtime ':app-info:1.0.2'  
    runtime ':app-info-hibernate:0.2'  
  
}
```



# Scheduling

```
plugins {  
  
    runtime ":quartz:1.0-RC2"  
    runtime ":quartz-monitor:0.2"  
  
}
```



# Scheduling



```
class ExportJob {

    def exportService

    static triggers = {
        cron cronExpression: "0 0 0 * * ?"
    }

    def execute() {
        exportService.exportEmployees()
    }
}
```



# Scheduling

[Home](#) [Employee](#) [Search](#) [Login](#)

[Home](#)

## Quartz Jobs

Sunday, January 6, 2013

11:40:44 AM

Name	Last Run	Next Scheduled Run	Actions
cadec.ExportJob 	Sun Jan 06 11:39:47 CET 2013	12:19:16	  

© Callista Enterprise 2013



# Mail

```
plugins {  
    runtime ":mail:1.0.1"  
}
```

# Mail

```
class EmployeeController {  
  def mailService  
  
  static scaffold = true  
  
  def create() {  
    switch (request.method) {  
      case 'GET':  
        [employeeInstance: new Employee(params)]  
        break  
      case 'POST':  
        def employeeInstance = new Employee(params)  
        if (!employeeInstance.save(flush: true)) {  
          render view: 'create', model: [employeeInstance: employeeInstance]  
          return  
        }  
        mailService.sendMail {  
          to employeeInstance.email  
          subject "Employed"  
          body "You are now a Callista Employee!"  
        }  
    }  
  }  
}
```

EMPLOYEE

- Employee List
- + Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »



# JMS

```
plugins {  
    runtime ":jms:1.2"  
}
```

```
beans = {  
    jmsConnectionFactory(SingleConnectionFactory) {  
        targetConnectionFactory = { ActiveMQConnectionFactory cf ->  
            brokerURL = 'tcp://localhost:61616'  
        }  
    }  
}
```

# JMS

```
class SenderController {  
  
    def jmsService  
  
    def send(String message) {  
        jmsService.send(queue: "aQueue", message, "standard", null)  
        render "Message '${message}' sent"  
    }  
}
```

# JMS


```
class ExportService {  
  
    def employeeService  
  
    static exposes = ["jms"]  
    static destination = "aQueue"  
    @TypeChecked  
    def onMessage(message) {  
        if (message == "export") {  
            exportEmployees()  
        } else {  
            println "Unknown message '${message}' received"  
        }  
    }  
  
    def exportEmployees() {  
        new FileWriter("/tmp/employees.xml") << new StreamingMarkupBuilder().bind {  
            employees {  
                employeeService.getEmployees().each {emp ->  
                    employee(FirstName:emp.firstName,  
                        LastName:emp.lastName,  
                        Email:emp.email)  
                }  
            }  
        }  
        println "Employees exported"  
    }  
}
```

Project Explorer

- activemq
  - target
  - activemq.launch
  - pom.xml
- employee
- EmployeeSwingClient
- jms-sender
- testa

SenderController.gro | jms-sender | activemq/pom.xml | activemq.launch

http://localhost:8888/jms-sender/sender/index



Message:  |

Send

Servers

No servers available. Define a new server from the [new server wizard...](#)

Console

```

employee (run-app) [Grails] /Library/Java/JavaVirtualMachines/jdk1.7.0_10.jdk/Contents/Home/bin/java (6 Jan 2013 14:13:15)
| Compiling 2 source files.....
| Running Grails application
Configuring Spring Security Core ...
... finished configuring Spring Security Core
Configuring Spring Security LDAP ...
... finished configuring Spring Security LDAP
| Server running. Browse to http://localhost:8080/employee
  
```

# Remoting

```
plugins {  
    runtime ":remoting:1.3"  
}
```

```
class EmployeeService implements IEmployeeService {  
    static expose = ['httpinvoker']  
  
    Employee getEmployee(String id) {  
        return Employee.get(id)  
    }  
  
    List<Employee> getEmployees() {  
        return Employee.list()  
    }  
}
```

The logo for the Spring Framework, featuring a green leaf icon above the text "Spring Framework" in a white serif font, set against a green background with a leaf-like pattern.

Project Explorer

- ▶ activemq
- ▶ employee
- ▶ EmployeeSwingClient
- ▶ jms-sender
- ▶ testa

```

package cadec

class EmployeeService implements IEmployeeService {

    static expose = ['httpinvoker']

    Employee getEmployee(String id) {
        return Employee.get(id)
    }

    List<Employee> getEmployees() {
        return Employee.list()
    }

}

```

Servers

No servers available. Define a new server from the [new server wizard](#)...

Console

```

employee (run-app) [Grails] /Library/Java/JavaVirtualMachines/jdk1.7.0_10.jdk/Contents/Home/bin/java (6 jan 2013 14:13:15)
| Running Grails application
Configuring Spring Security Core ...
... finished configuring Spring Security Core
Configuring Spring Security LDAP ...
... finished configuring Spring Security LDAP
| Server running. Browse to http://localhost:8080/employee
Employees exported
| Compiling 3 source files.

```

# Restful Web Services

```
plugins {  
    runtime ":json-rest-api:1.0.11"  
}
```

```
class Employee implements Serializable {  
    static expose = "employee"  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```

**APPLICATION STATUS**

App version: 0.1  
Grails version: 2.2.0  
Groovy version: 2.0.5  
JVM version: 1.7.0\_10  
Reloading active: true  
Controllers: 14  
Domains: 3  
Services: 19  
Tag Libraries: 25

**INSTALLED PLUGINS**

logging - 2.2.0  
core - 2.2.0  
dataSource - 2.2.0  
urlMappings - 2.2.0  
i18n - 2.2.0  
codecs - 2.2.0  
appInfo - 1.0.2  
databaseMigration - 1.2.2  
fields - 1.3  
resources - 1.1.6  
localizations - 1.4.4.6  
axis2 - 0.7.0  
cloudSupport - 1.0.11  
appInfoHibernate - 0.2  
jsonRestApi - 1.0.11  
dynamicController - 0.4  
mail - 1.0.1  
webxml - 1.4.1

# Welcome to Grails

Congratulations, you have successfully started your first Grails application! At the moment this is the default page, feel free to modify it to either redirect to a controller or display whatever content you may choose.



# Restful Web Services

```
class EmployeeController {  
  
    def employeeService  
  
    def show() {  
        def employeeInstance = employeeService.getEmployee(params.id)  
        if (!employeeInstance) {  
            flash.message = message(code: 'default.not.found.message', args: [message])  
            redirect(action: "list")  
            return  
        }  
        withFormat {  
            html employeeInstance: employeeInstance  
            xml { render employeeInstance as XML }  
            json { render employeeInstance as JSON }  
        }  
    }  
}
```

EMPLOYEE

- Employee List
- + Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# SOAP Web Services

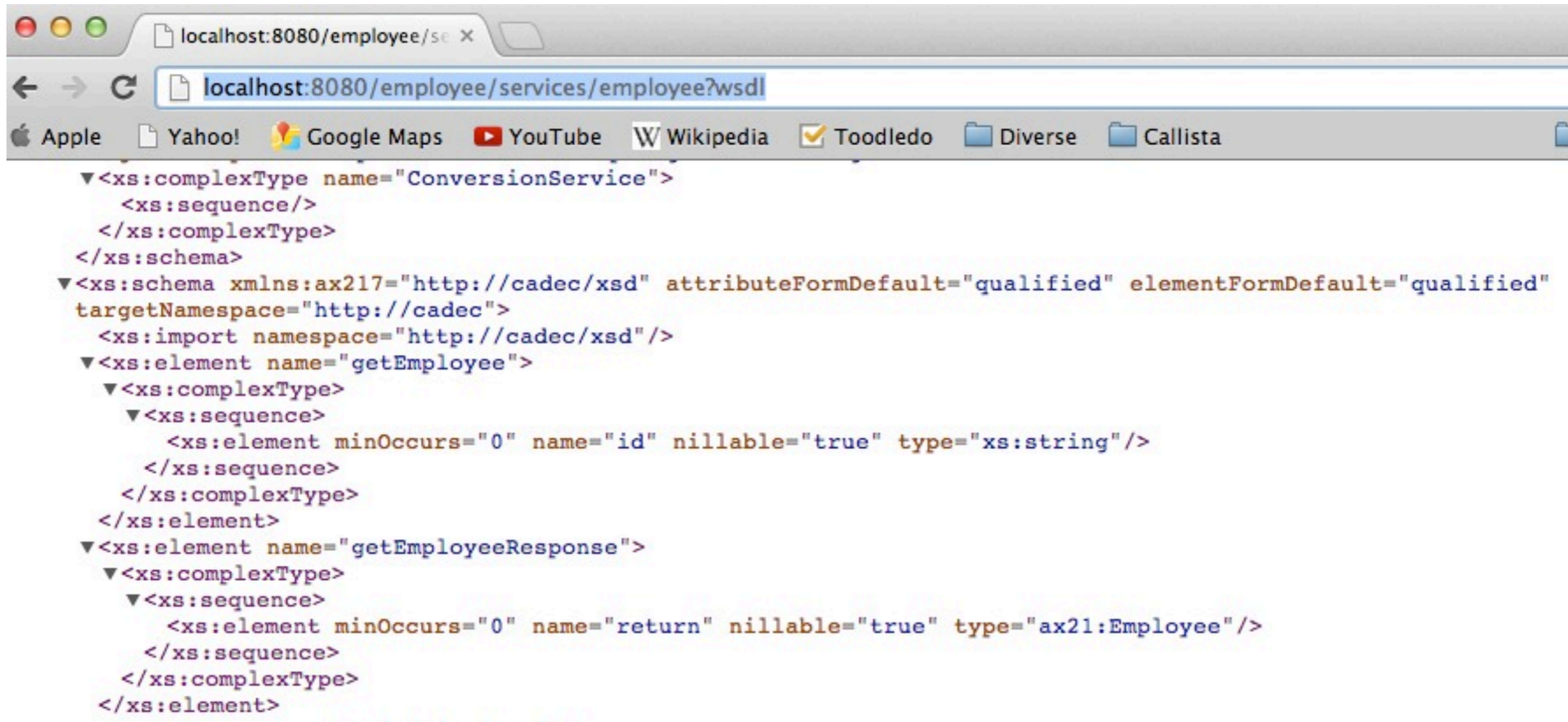
```
plugins {  
    runtime ":axis2:0.7.0"  
}
```

```
class EmployeeService implements IEmployeeService {  
    static expose = ['axis2']  
  
    Employee getEmployee(String id) {  
        return Employee.get(id)  
    }  
  
    List<Employee> getEmployees() {  
        return Employee.list()  
    }  
}
```



**Apache CXF**

# SOAP Web Services



```
▼<xs:complexType name="ConversionService">
  <xs:sequence/>
</xs:complexType>
</xs:schema>
▼<xs:schema xmlns:ax217="http://cadec/xsd" attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://cadec">
  <xs:import namespace="http://cadec/xsd"/>
  ▼<xs:element name="getEmployee">
    ▼<xs:complexType>
      ▼<xs:sequence>
        <xs:element minOccurs="0" name="id" nillable="true" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  ▼<xs:element name="getEmployeeResponse">
    ▼<xs:complexType>
      ▼<xs:sequence>
        <xs:element minOccurs="0" name="return" nillable="true" type="ax21:Employee"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
```

# Plugins used ([grails.org/plugins](http://grails.org/plugins))



- build-test-data
- fixtures
- auto-test
- database-migration
- cloud-foundry
- mongodb
- searchable
- localizations
- spring-security-core,  
spring-security-ldap
- audit-logging
- app-info,  
app-info-hibernate
- quartz, quartz-monitor
- mail
- jms
- remoting
- json-rest-api
- axis2

# Quiz: How many lines of code?

- Migrations: 1 line
- CloudForge deploy: 1 line
- MongoDB: 2 lines
- I18n: 1 line
- Searching: 2 lines
- Ajax-based search: 16 lines
- LDAP auth: 5
- Audit logging: 2 lines
- AppServer monitoring: 2 lines
- Quartz scheduling: 11 lines
- SMTP mail: 6 lines
- JMS sender: 7 lines
- JMS message-driven service: 9 lines
- Remoting: 2 lines
- Rest-API: 2 lines
- Rest-based controller: 4 lines
- Axis2 service: 2 line
- **Total: 75 lines**

# Conclusions



- Groovy & Grails provides an extremely productive extension to Java & JavaEE
- Many shortcomings in the tooling and plugins portfolio have been addressed recently
  - remains to be seen if it is enough to lead to more general adoption

# Questions

