

canoo

› your provider for business web solutions ›

A Very Groovy Birthday

Hamlet D'Arcy
Canoo Engineering AG
@HamletDRC

canoo

› your provider for business web solutions ›

A Very Groovy Birthday

Geneva JUG – 2 Years

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A Very Groovy Birthday

Geneva JUG – 2 Years

Groovy – 10th Year

Hamlet D'Arcy

Canoo Engineering AG

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2003

2003



2003



Closure

“Refactored CompositeString
to be called _____ :)”

2003



Closure

GString

2003



Closure

GString

Range

2003  Closure GString Range MarkupBuilder

```
new groovy.xml.MarkupBuilder().root() {  
    (1..3).each {  
        child(id: "child$it")  
    }  
}
```

```
new groovy.xml.MarkupBuilder().root() {  
    (1..3).each {  
        child(id: "child$it")  
    }  
}
```

```
<root>  
  <child id='child1' />  
  <child id='child2' />  
  <child id='child3' />  
</root>
```

2003



Closure

GString

Range

MarkupBuilder

2004

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

```
def text = '''Dear $person,  
So nice to meet you in <% print city %>.  
Sincerely,  
$signed'''
```

```
def vars = [person: 'JUG', city: 'Geneva', signed: 'Hamlet']  
def engine = new groovy.text.SimpleTemplateEngine()  
engine.createTemplate(text).make(vars)
```



```
def text = '''Dear $person,  
So nice to meet you in <% print city %>.  
Sincerely,  
$signed'''
```

```
def vars = [person: 'JUG', city: 'Geneva', signed: 'Hamlet']  
def engine = new groovy.text.SimpleTemplateEngine()  
engine.createTemplate(text).make(vars)
```

Dear JUG,
So nice to meet you in Geneva.
Sincerely,
Hamlet

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

XmlSlurper

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

XmlSlurper



2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

XmlSlurper



2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

XmlSlurper



2006

2003



Closure

GString

Range

MarkupBuilder

2004

JSR-241

SimpleTemplateEngine

2005

XmlSlurper







2006





Duration





MockFor









0.1-0.3








2003		Closure	GString	Range	MarkupBuilder
2004		JSR-241		SimpleTemplateEngine	
2005		XmlSlurper			
2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3









2003		Closure	GString	Range	MarkupBuilder
2004		JSR-241		SimpleTemplateEngine	
2005		XmlSlurper			
2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3
2007					











2003		Closure	GString	Range	MarkupBuilder
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2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3
2007		1.0, 1.5			











```
String.class.metaClass.default = { self ->  
    self ? : '<unknown>'  
}  
  
' '.default()
```











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2004		JSR-241		SimpleTemplateEngine	
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2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3
2007		1.0, 1.5	 0.4-0.7		

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2008					
















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2007		1.0, 1.5	 0.4-0.7		  
2008	@Grab				


















```
@Grab(group='org.ccil.cowan.tagsoup',  
      module='tagsoup', version='1.2')  
import org.ccil.cowan.tagsoup.Parser  
  
def parser = new XmlParser(new Parser())  
def url = 'http://twitter.com/hamletdrc'  
def html = parser.parse(url)
```


















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2008	@Grab	 1.0			



















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2008	@Grab	 1.0			 RIA 

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2009					

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2007		1.0, 1.5	 0.4-0.7		  
2008	@Grab	 1.0			 RIA   
2009		1.6, 1.7			




















```
def (x, y) = [1, 2]
```






















```
@Singleton, @Lazy,  
@Immutable, @Delegate,  
... and more
```
























```
def (x, y) = [1, 2]
```


























```
assert x == 1
```


























```
assert y == 2
```




























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2005		XmlSlurper			
2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3
2007		1.0, 1.5	 0.4-0.7		  
2008	@Grab	 1.0			   
2009		1.6, 1.7	 1.1, 1.2		































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2008	@Grab	 1.0	 	GRIA		 
2009		1.6, 1.7	 1.1, 1.2			





























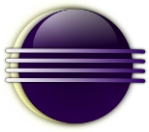




2003		Closure	GString	Range	MarkupBuilder	
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2006	Duration	MockFor	 0.1-0.3	webtest	Gant 0.3	
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2009		1.6, 1.7	 1.1, 1.2			 





























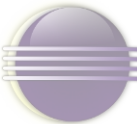




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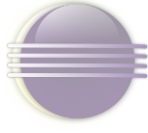






2003		Closure	GString	Range	MarkupBuilder
2004		JSR-241		SimpleTemplateEngine	
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2008	@Grab	 1.0			   
2009		1.6, 1.7	 1.1, 1.2		    
20010	 1.3	 0.9			

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2009		1.6, 1.7	 1.1, 1.2		    
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2011					

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2007		1.0, 1.5	 0.4-0.7		  
2008	@Grab	 1.0			   
2009		1.6, 1.7	 1.1, 1.2		    
2010	 1.3	 0.9	 0.4, 0.5	    	
2011		1.8	 2.0		

Command Chains

stand 7.minutes at busstop

ride 10.stops on bus towards Basel





























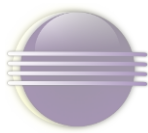







JSON Builder




























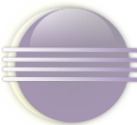







```
import groovy.json.*




























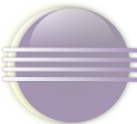










def json = new JsonBuilder()
json.person {
    name 'William Tell'
    status 'mythological'
}
```




























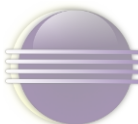










AST Transformations

@ToString, @EqualsAndHashCode
@TupleConstructor, @Canonical
@Log, @Field, @Package,
... and many more

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2008	@Grab	 1.0		 RIA	  
2009	 1.6, 1.7	 1.1, 1.2			   
20010	 1.3	 0.9	 0.4, 0.5		   
2011	 1.8		 2.0	 1.0	
2012					

2003		Closure	GString	Range	MarkupBuilder	
2004		JSR-241		SimpleTemplateEngine		
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2007		1.0, 1.5	 0.4-0.7			 
2008	@Grab	 1.0			GRIA	  
2009		1.6, 1.7	 1.1, 1.2			   
20010	 1.3	 0.9	 0.4, 0.5			  
2011		1.8	 2.0		 1.0	
2012			 1.0	 1.0		 0.17

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2004		JSR-241		SimpleTemplateEngine	
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2008	@Grab	 1.0		 RIA	  
2009		1.6, 1.7	 1.1, 1.2		    
2010	 1.3	 0.9	 0.4, 0.5	   	
2011		1.8	 2.0	 1.0	
2012		2.0	 1.0	 1.0	 0.17


```
void method(String message) {  
    if (message != null) {  
        log.info("Received input: ${message.toUpperCase()}")  
    }  
}
```

```
@groovy.transform.TypeChecked
void method(String message) {
    if (message != null) {
        log.info("Received input: ${message.toUpperCase()}")
    }
}
```

```
@groovy.transform.TypeChecked
void method(String message) {
    if (message != null) {
        log.info("Received input: ${message.toUpperCase()}")
    }
}
```

1 compilation error:

```
[Static type checking] - Cannot find matching
method java.lang.String#toUpperCase()
    at line: 4, column: 43
```

```
void method(Object message) {  
    if (message instanceof String) {  
        log.info("Received input: " + message.toUpperCase());  
    }  
}
```



```
@groovy.transform.TypeChecked
void method(Object message) {
    if (message instanceof String) {
        log.info("Received input: ${message.toUpperCase()}")
    }
}
```

```
def keys = [x:1,y:2,z:3]*.key
def values = [x:'1',y:'2',z:'3']*.value
keys*.toUpperCase()
values*.toUpperCase()
```

```
Dimension d1 = [100]
Dimension d2 = ['100', '200']

Dimension d3 = new Dimension(
    width: 100,
    height: 100,
    depth: 100)
```

@groovy.transform.TypeChecked

- Not a static compiler
- No new syntax
- No new semantics
- Bytecode not changed
- Targeted at Java developers

```
def v = 1  
v = v.toString()  
println v.toUpperCase()
```

Flow Sensitive Typing

```
def v = 1  
v = v.toString()  
println v.toUpperCase()
```

Flow Sensitive Typing

```
def v = 1  
v = v.toString()  
println v.toUpperCase()
```

– Under discussion

```
int fib(int i) {  
    i < 2 ? 1 : fib(i - 2) + fib(i - 1)  
}
```



```
@groovy.transform.CompileStatic
```

```
int fib(int i) {  
    i < 2 ? 1 : fib(i - 2) + fib(i - 1)  
}
```








































@groovy.transform.CompileStatic

- Is a static compiler
- No new syntax
- Requires new semantics
- Bytecode is changed

@groovy.transform.CompileStatic

- Is a static compiler
- No new syntax
- Requires new semantics
- Bytecode is changed

- InvokeDynamic?

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2009		1.6, 1.7	 1.1, 1.2		    
2010	 1.3	 0.9	 0.4, 0.5	    	
2011		1.8	 2.0	 1.0	
2012		2.0	 1.0	 1.0	 0.17