



Getting Started with Apache Camel

Claus Ibsen (@davsclaus)
Principal Software Engineer, Red Hat
Javagruppen Århus, may 2013

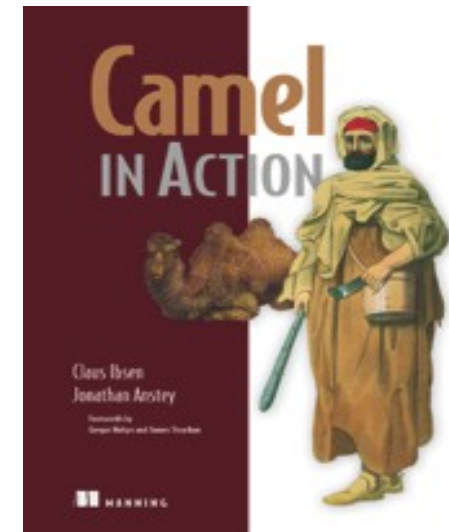
Agenda

- History of Camel
- What is Apache Camel?
- A little Example
- Riding Camel
- What's in the Camel box?
- Deploying Camel
- Creating new Camel Projects
- Q and A

Your Speaker



- Principal Software Engineer at Red Hat
- Apache Camel
 - 5 years working with Camel
- Author of Camel in Action book
- Contact
 - EMail: cibsen@redhat.com
 - Twitter: [@davsclaus](https://twitter.com/davsclaus)
 - Blog: <http://davsclaus.com>
 - LinkedIn: <http://www.linkedin.com/in/davsclaus>



Why the name Camel?

C
A
M
E
L
Concise
Application
Messaging
Exchange
Language

Why the name Camel?



**Because Camel is
easy to remember and type ...**

Why the name Camel?

James Strachan

Programmer

James Strachan is a software engineer who created the Groovy programming language in 2003. He is a member of the Apache Software Foundation and a co-founder of a number of other open source projects ... Wikipedia



... or the creator used to smoke cigarets!

<http://camel.apache.org/why-the-name-camel.html>

Camel's parents



Camel's parents



James Strachan (creator of Camel)
Gregor Hohpe (author of EIP book)

The birth of Camel

- First Commit

**r519901 | jstrachan | 2007-03-19 11:54:57 +0100
(Mon, 19 Mar 2007) | 1 line**

Initial checkin of Camel routing library



The birth of Camel

- My first Commit

**r640963 | davsclaus | 2008-03-25 21:07:10 +0100
(Tue, 25 Mar 2008) | 1 line**

Added unit test for mistyped URI

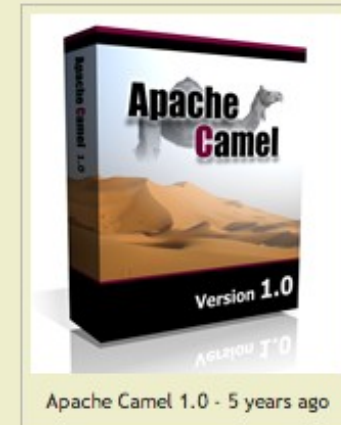
The birth of Camel

- First Release
 - Apache Camel 1.0
June 2007

2012-05-11

➔ Looking at the impressive first Apache Camel release

In preparation for the [CamelOne](#) conference next week, I took time to look back in the history of the [Apache Camel](#) project. So among others I had a look at the first official [1.0 release](#) of Apache Camel.



The more I looked the more impressed I am with the fact of this release. Now you have to consider this was done 5 years ago, and in this release the Camel founders had already in the DNA of the project

- Java DSL
- XML DSL (using Spring)
- OSGi on the roadmap
- camel-core JAR of 660kb
- 18 external components (+ whats in camel-core)
- 2 working examples
- full website with documentation included, incl FAQs
- Project logo and box
- The Camel Maven plugin to easily run Camel and its examples
- Test Kit

<http://www.davsclaus.com/2012/05/looking-at-impressive-first-apache.html>

Agenda

- History of Camel
- **What is Apache Camel?**
- A little Example
- Riding Camel
- What's in the Camel box?
- Deploying Camel
- Creating new Camel Projects
- Q and A

What is Apache Camel?

- Quote from the website

Apache Camel is a
powerful Open Source
Integration Framework
based on known
Enterprise Integration Patterns

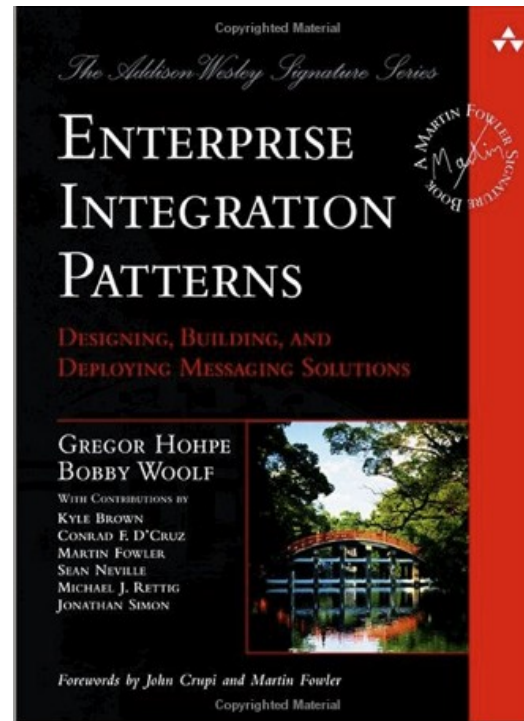
What is Apache Camel?

- Why do we need integration?
 - Critical for your business to integrate
- Why Integration Framework?
 - Framework do the heavy lifting
 - You can focus on business problem
 - Not "reinventing the wheel"



What is Apache Camel?

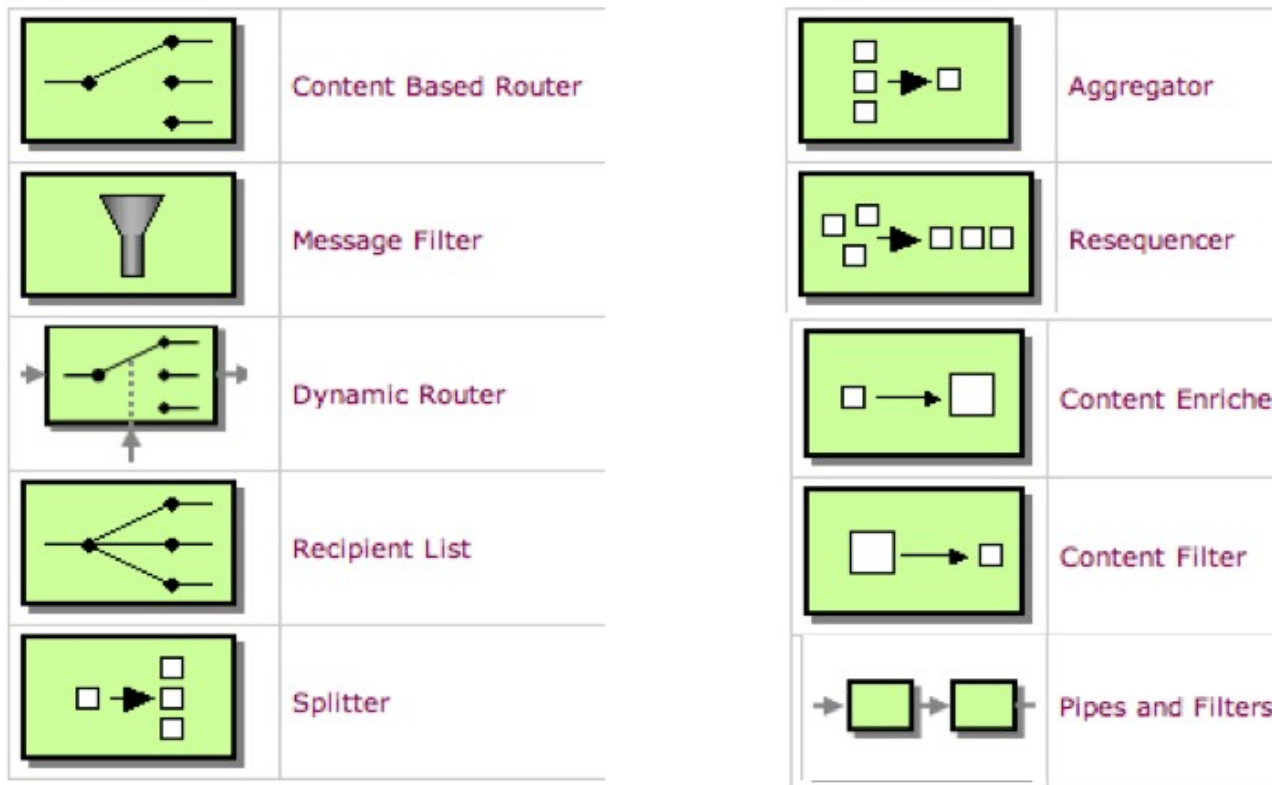
- What is Enterprise Integration Patterns?



It's a book

What is Apache Camel?

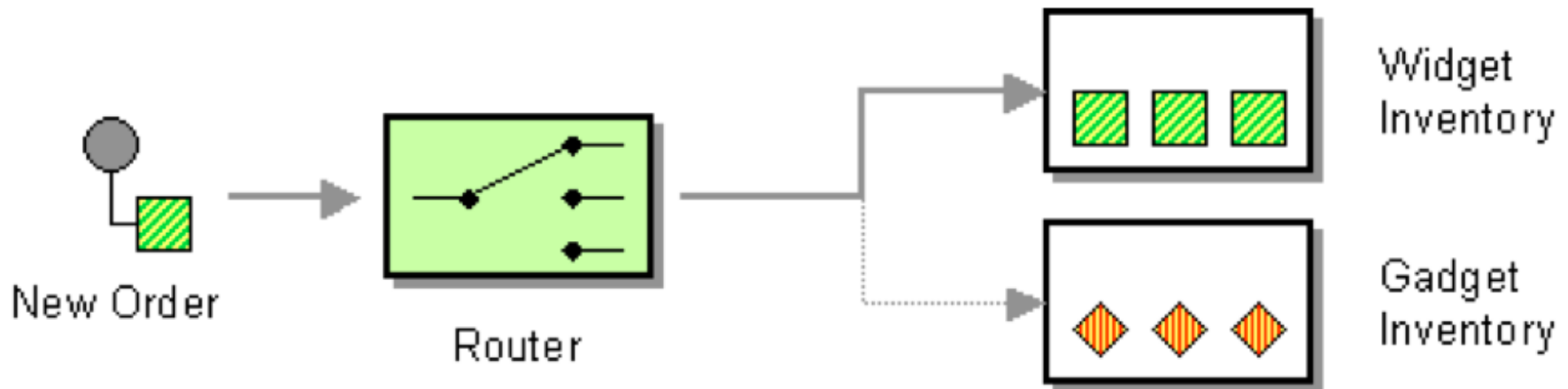
- Enterprise Integration Patterns



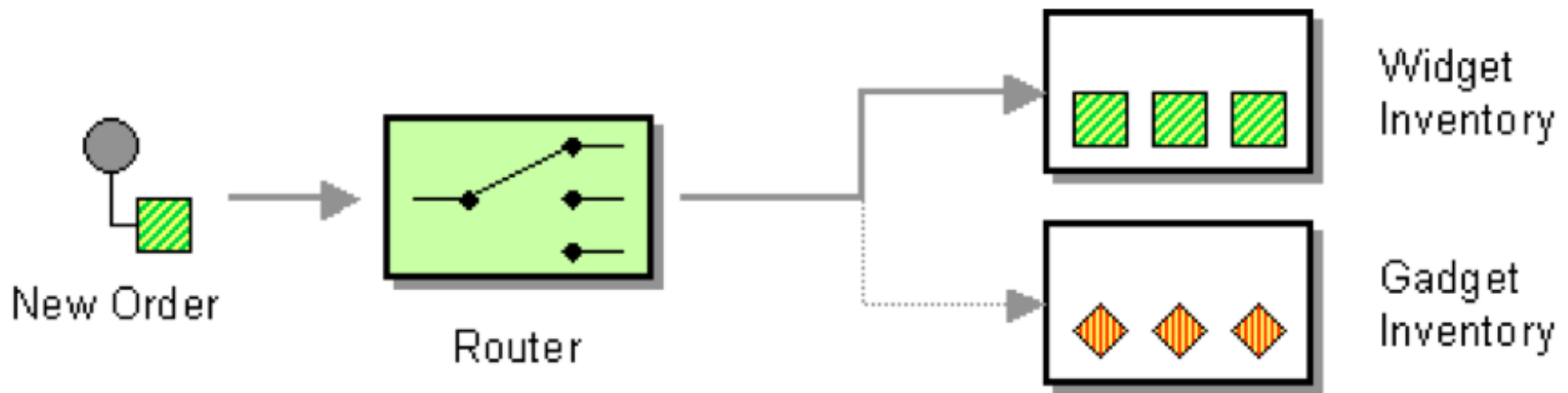
<http://camel.apache.org/eip>

What is Apache Camel?

- EIP - Content Based Router

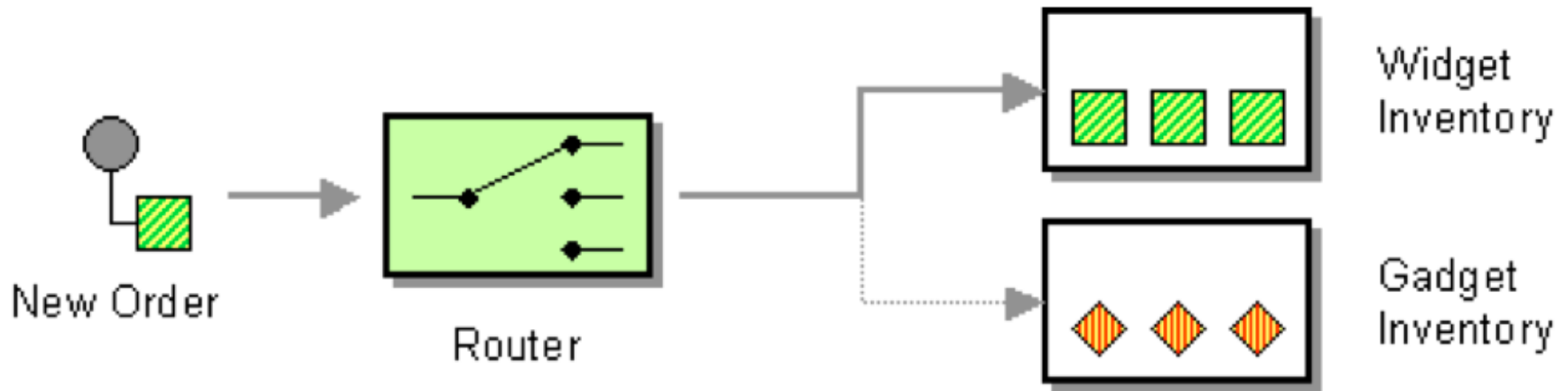


What is Apache Camel?



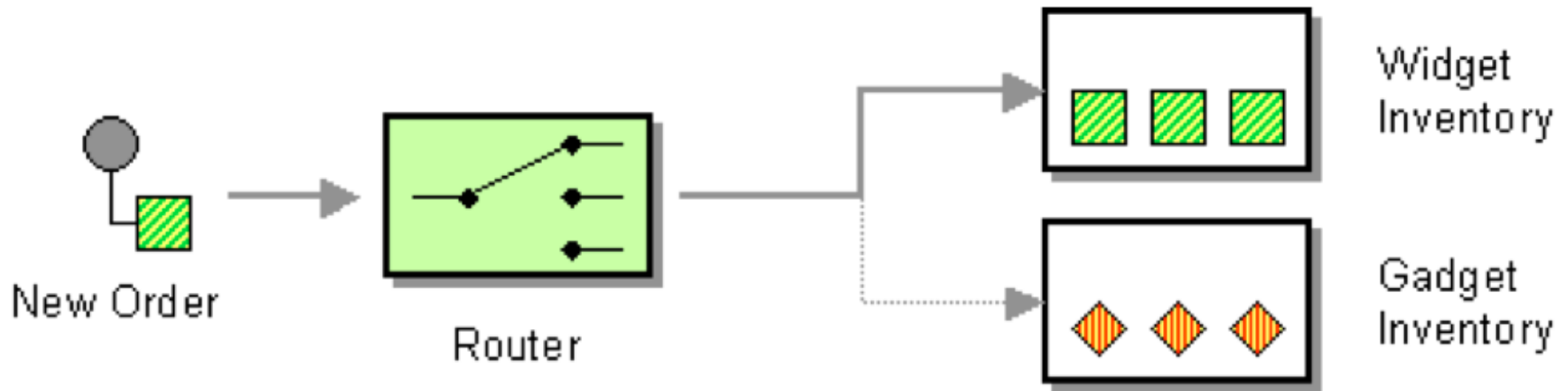
from `newOrder`

What is Apache Camel?



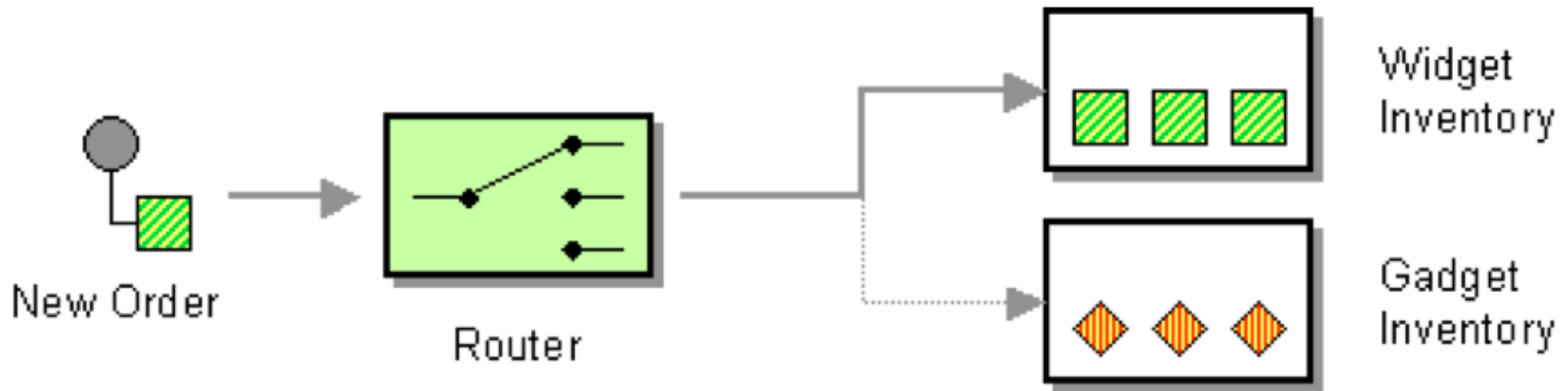
from `newOrder`
choice

What is Apache Camel?



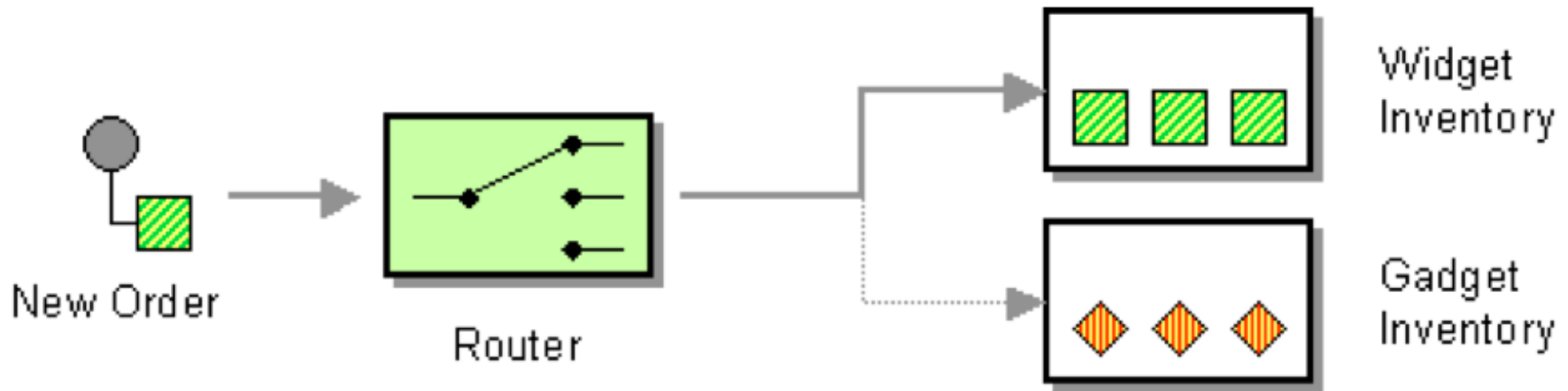
from `newOrder`
 choice
 when `isWidget` to `widget`

What is Apache Camel?



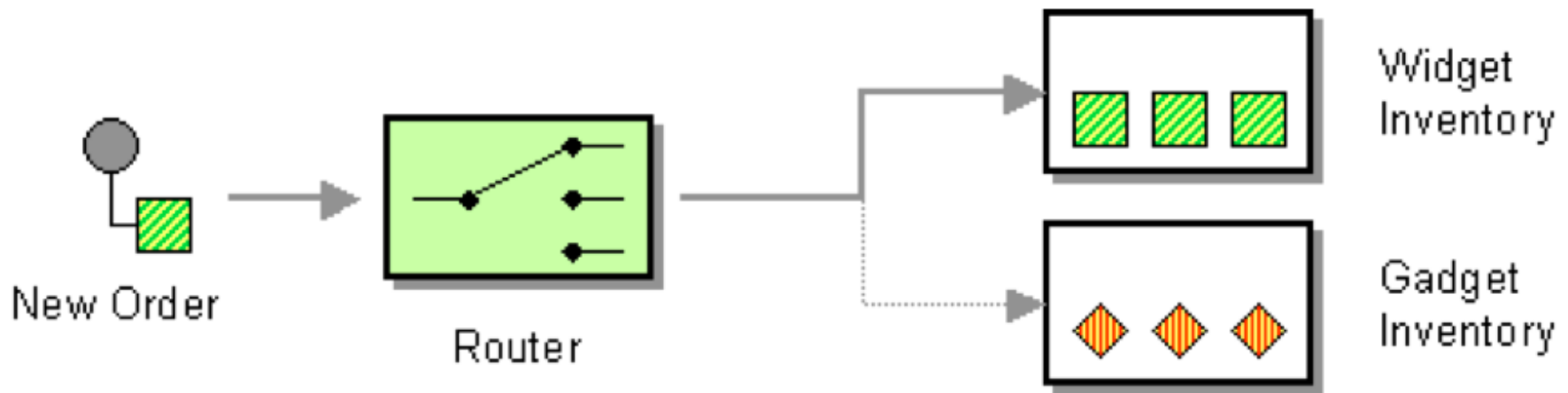
from `newOrder`
choice
when `isWidget` to `widget`
otherwise to `gadget`

What is Apache Camel?



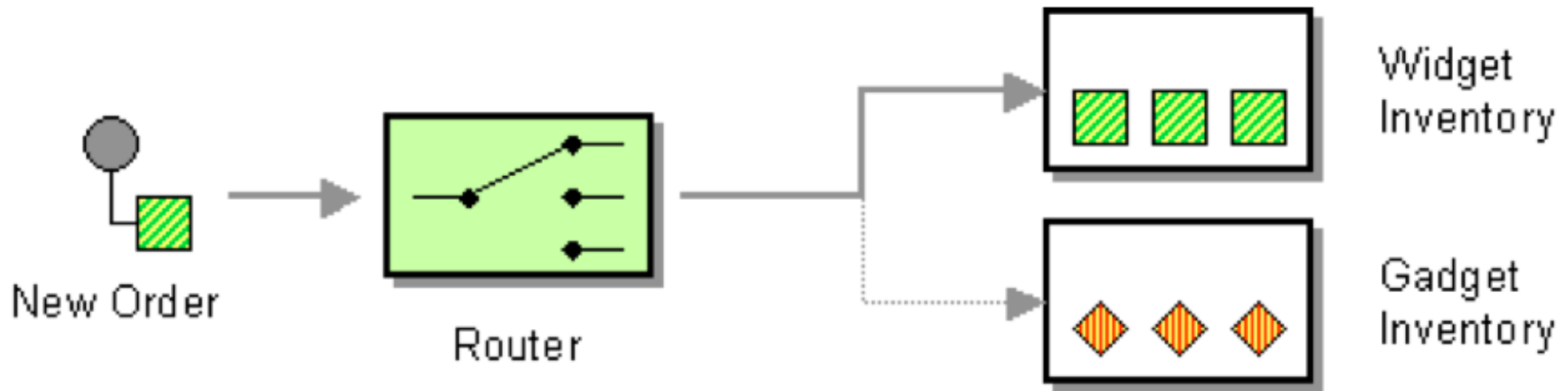
```
from(newOrder)
  choice
    when(isWidget) to(widget)
    otherwise to(gadget)
```

What is Apache Camel?



```
from(newOrder)
    .choice()
    .when(isWidget).to(widget)
    .otherwise().to(gadget);
```

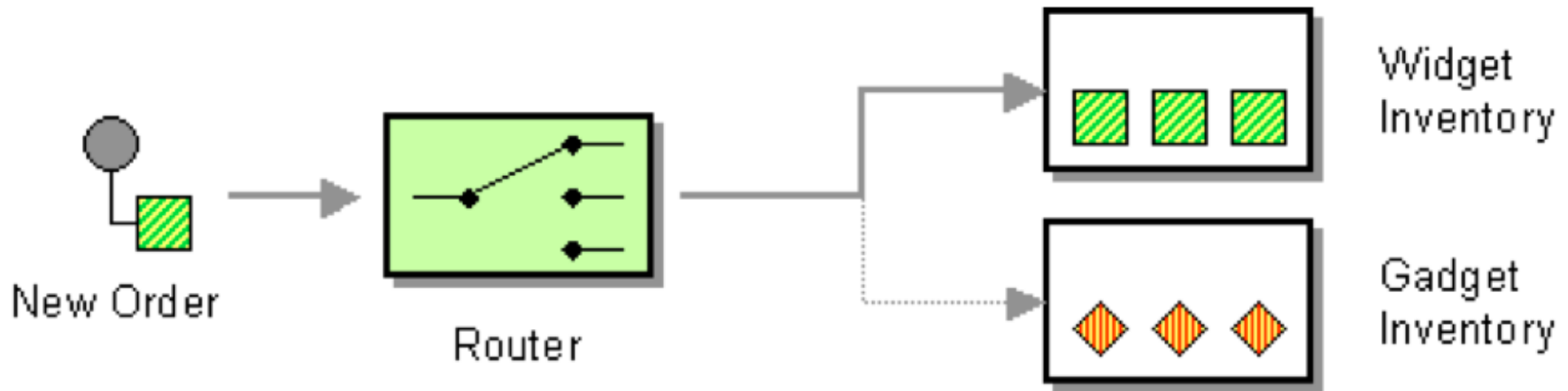
What is Apache Camel?



```
Endpoint newOrder = endpoint("activemq:queue:newOrder");
```

```
from(newOrder)
    .choice()
        .when(isWidget).to(widget)
        .otherwise().to(gadget);
```

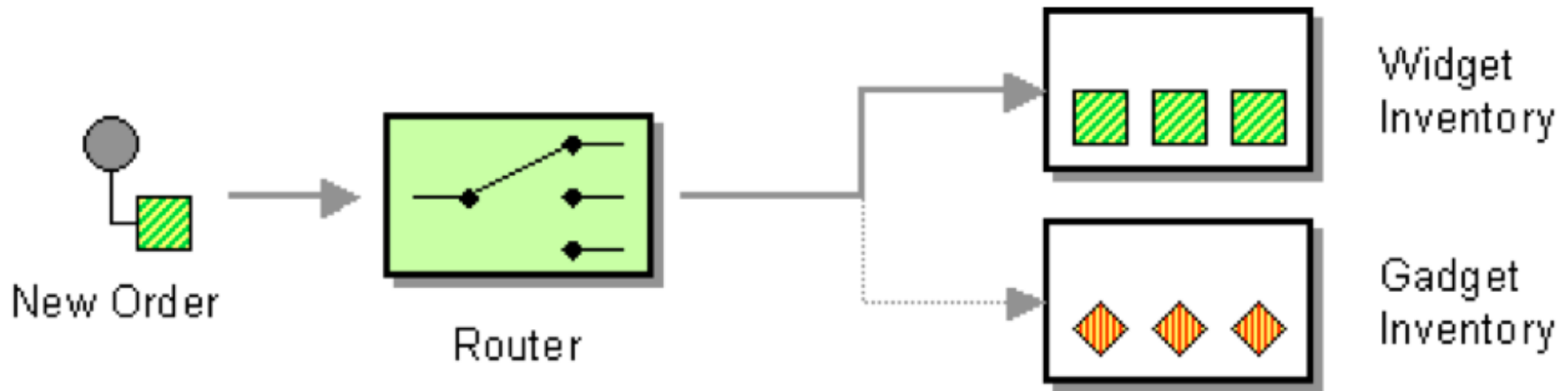

What is Apache Camel?



```
Endpoint newOrder = endpoint("activemq:queue:newOrder");  
Predicate isWidget = xpath("/order/product = 'widget'");
```

```
from(newOrder)  
  .choice()  
    .when(isWidget).to(widget)  
    .otherwise().to(gadget);
```

What is Apache Camel?



```
Endpoint newOrder = endpoint("activemq:queue:newOrder");
Predicate isWidget = xpath("/order/product = 'widget'");
Endpoint widget = endpoint("activemq:queue:widget");
Endpoint gadget = endpoint("activemq:queue:gadget");
```

```
from(newOrder)
    .choice()
        .when(isWidget).to(widget)
        .otherwise().to(gadget);
```

What is Apache Camel?

- Java Code

```
public void configure() throws Exception {  
    Endpoint newOrder = endpoint("activemq:queue:newOrder");  
    Predicate isWidget = xpath("/order/product = 'widget'");  
    Endpoint widget = endpoint("activemq:queue:widget");  
    Endpoint gadget = endpoint("activemq:queue:gadget");  
  
    from(newOrder)  
        .choice()  
            .when(isWidget).to(widget)  
            .otherwise().to(gadget)  
        .end();  
}
```

What is Apache Camel?

- Java Code

```
import org.apache.camel.Endpoint;
import org.apache.camel.Predicate;
import org.apache.camel.builder.RouteBuilder;

public class MyRoute extends RouteBuilder {

    public void configure() throws Exception {
        Endpoint newOrder = endpoint("activemq:queue:newOrder");
        Predicate isWidget = xpath("/order/product = 'widget'");
        Endpoint widget = endpoint("activemq:queue:widget");
        Endpoint gadget = endpoint("activemq:queue:gadget");

        from(newOrder)
            .choice()
                .when(isWidget).to(widget)
                .otherwise().to(gadget)
            .end();
    }
}
```

What is Apache Camel?

- Camel Java DSL

```
import org.apache.camel.builder.RouteBuilder;

public class MyRoute extends RouteBuilder {

    public void configure() throws Exception {
        from("activemq:queue:newOrder")
            .choice()
                .when(xpath("/order/product = 'widget'"))
                    .to("activemq:queue:widget")
                .otherwise()
                    .to("activemq:queue:gadget")
            .end();
    }
}
```

What is Apache Camel?

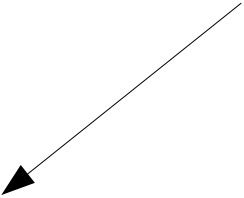
- Camel XML DSL

```
<route>
  <from uri="activemq:queue:newOrder"/>
  <choice>
    <when>
      <xpath>/order/product = 'widget'</xpath>
      <to uri="activemq:queue:widget"/>
    </when>
    <otherwise>
      <to uri="activemq:queue:gadget"/>
    </otherwise>
  </choice>
</route>
```

What is Apache Camel?

- Endpoint as URIs

use file instead



```
<route>
  <from uri="file:inbox/orders"/>
  <choice>
    <when>
      <xpath>/order/product = 'widget'</xpath>
      <to uri="activemq:queue:widget"/>
    </when>
    <otherwise>
      <to uri="activemq:queue:gadget"/>
    </otherwise>
  </choice>
</route>
```

What is Apache Camel?

- Endpoint as URIs

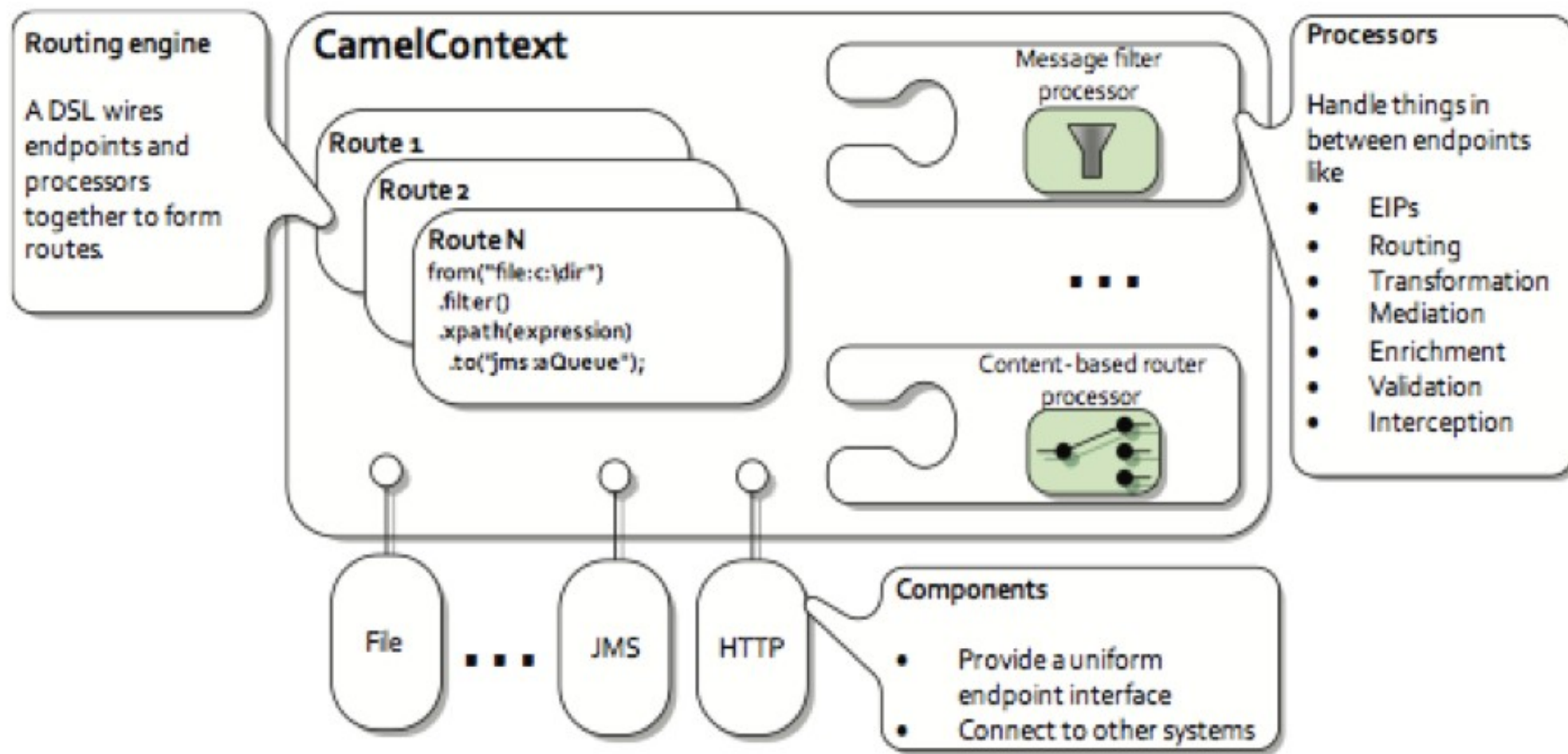
```
<route>
  <from uri="file:inbox/orders?delete=true"/>
  <choice>
    <when>
      <xpath>/order/product = 'widget'</xpath>
      <to uri="activemq:queue:widget"/>
    </when>
    <otherwise>
      <to uri="activemq:queue:gadget"/>
    </otherwise>
  </choice>
</route>
```

parameters



What is Apache Camel?

- Camel's Architecture



What is Apache Camel?

120+ Components

activemq	cxfr	flatpack	jasypt
activemq-journal	cxfrs	freemarker	javaspace
amqp	dataset	ftp/ftps/sftp	jbi
atom	db4o	gae	jcr
bean	direct	hdfs	jdbc
bean validation	ejb	hibernate	jetty
browse	esper	hl7	jms
cache	event	http	jmx
cometd	exec	ibatis	jpa
crypto	file	irc	jt/400

What is Apache Camel?

120+ Components

language	properties	seda	stream
ldap	quartz	servlet	string-template
mail/imap/pop3	quickfix	sip	test
mina	ref	smooks	timer
mock	restlet	smpp	validation
msv	rmi	snmp	velocity
nagios	rnc	spring-integration	vm
netty	rng	spring-security	xmpp
nmr	rss	spring-ws	xquery
printer	scalate	sql	xslt

What is Apache Camel?

- Summary
 - Integration Framework
 - Enterprise Integration Patterns (EIP)
 - Routing (using DSL)
 - Easy Configuration (endpoint as uri's)
 - Payload Agnostic
 - No Container Dependency
 - A lot of components



Agenda

- History of Camel
- What is Apache Camel?
- **A little Example**
- Riding Camel
- What's in the Camel box?
- Deploying Camel
- Creating new Camel Projects
- Extending Camel
- Q and A

A Little Example

- File Copier Example

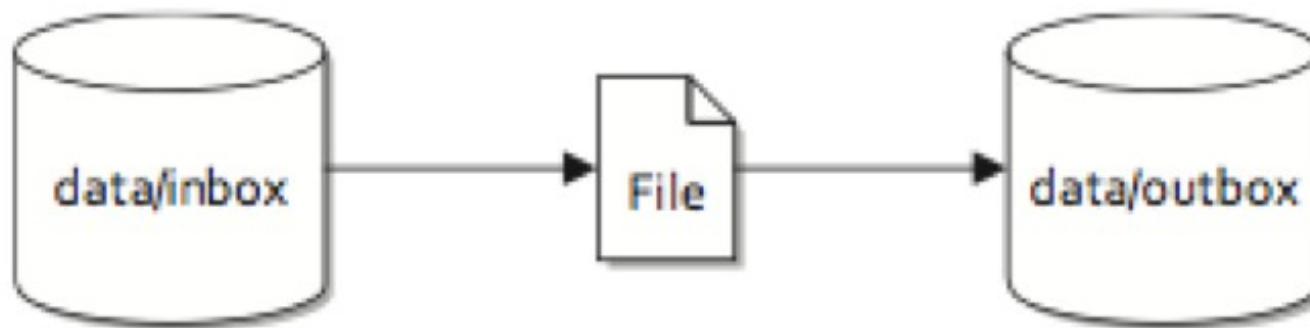


Figure 1.2 Files are routed from the data/inbox directory to the data/outbox directory.

A Little Example

- File Copier Example

Listing 1.2 Routing files from one folder to another with Apache Camel

```
public class FileCopierWithCamel {  
    public static void main(String args[]) throws Exception {  
        CamelContext context = new DefaultCamelContext();  
        context.addRoutes(new RouteBuilder() {  
            public void configure() {  
                from("file:data/inbox?noop=true")  
                    .to("file:data/outbox");  
            }  
        });  
        context.start();  
        Thread.sleep(10000);  
        context.stop();  
    }  
}
```

1 Routes files from
inbox to outbox

A Little Example

- File Copier Example

Listing 1.2 Routing files from one folder to another with Apache Camel

```
public class FileCopierWithCamel {  
    public static void main(String args[]) throws Exception {  
        CamelContext context = new DefaultCamelContext();  
        context.addRoutes(new RouteBuilder() {  
            public void configure() {  
                from("file:data/inbox?noop=true")  
                    .to("file:data/outbox");  
            }  
        });  
        context.start();  
        Thread.sleep(10000);  
        context.stop();  
    }  
}
```

1 Routes files from
inbox to outbox

A Little Example

- File Copier Example

Listing 1.2 Routing files from one folder to another with Apache Camel

```
public class FileCopierWithCamel {  
    public static void main(String args[]) throws Exception {  
        CamelContext context = new DefaultCamelContext();  
        context.addRoutes(new RouteBuilder() {  
            public void configure() {  
                from("file:data/inbox?noop=true")  
                    .to("file:data/outbox");  
            }  
        });  
        context.start();  
        Thread.sleep(10000);  
        context.stop();  
    }  
}
```

1 Routes files from inbox to outbox

A Little Example

- File Copier Example

Listing 1.2 Routing files from one folder to another with Apache Camel

```
public class FileCopierWithCamel {  
    public static void main(String args[]) throws Exception {  
        CamelContext context = new DefaultCamelContext();  
        context.addRoutes(new RouteBuilder() {  
            public void configure() {  
                from("file:data/inbox?noop=true")  
                    .to("file:data/outbox");  
            }  
        });  
        context.start();  
        Thread.sleep(10000);  
        context.stop();  
    }  
}
```

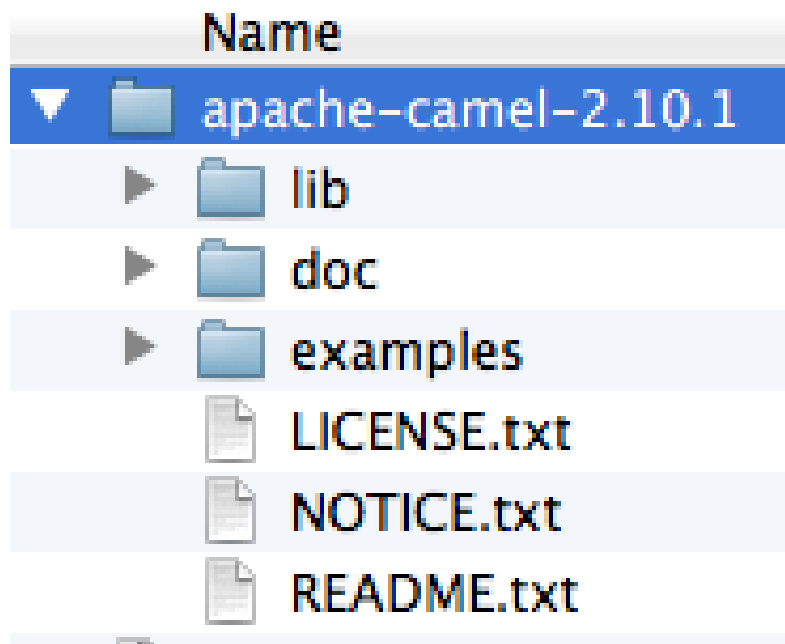
1 Routes files from inbox to outbox

Agenda

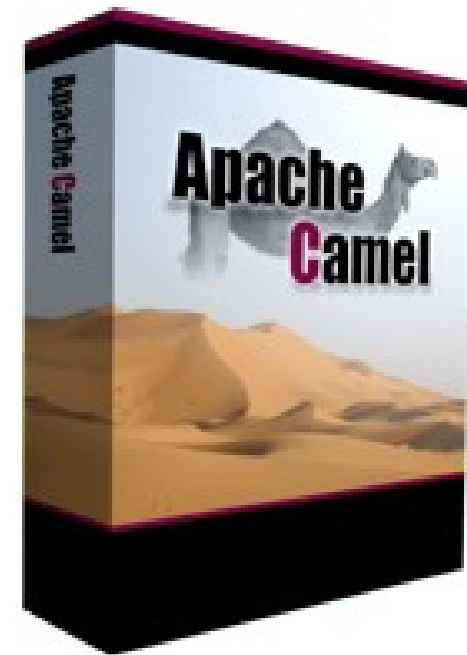
- History of Camel
- What is Apache Camel?
- A little Example
- **Riding Camel**
- What's in the Camel box?
- Deploying Camel
- Creating new Camel Projects
- Q and A

Riding Camel

- Downloading Apache Camel
 - zip/tarball (approx 14mb)



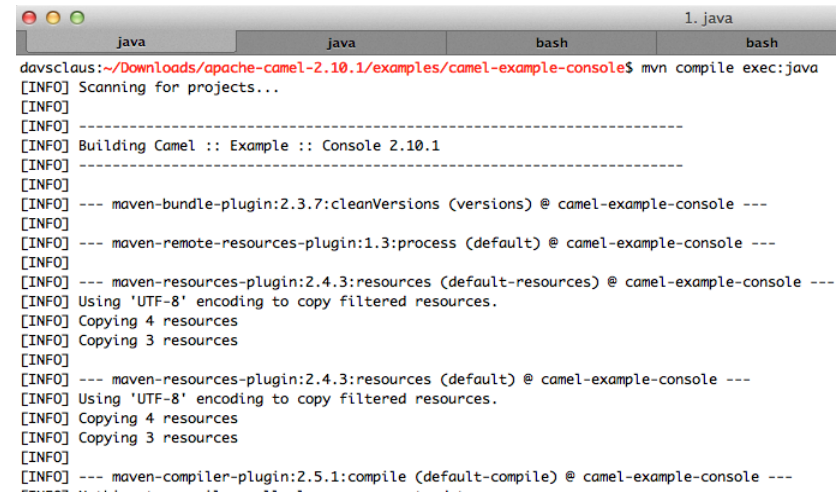
**Download it
Today!**



<http://camel.apache.org>

Riding Camel

- Using Command Shell
 - Requires: Apache Maven



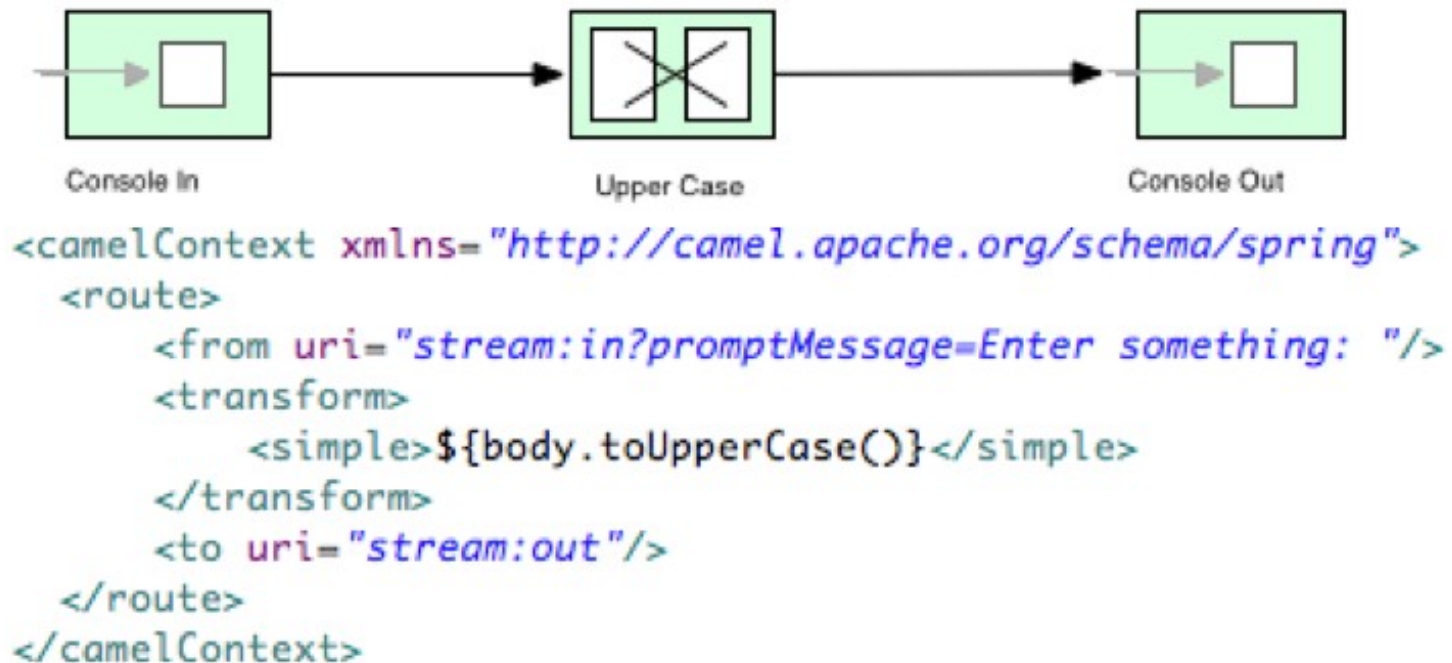
```
1. java
java      java      bash      bash
davsclaus:~/Downloads/apache-camel-2.10.1/examples/camel-example-console$ mvn compile exec:java
[INFO] Scanning for projects...
[INFO]
[INFO] -----
[INFO] Building Camel :: Example :: Console 2.10.1
[INFO] -----
[INFO] --- maven-bundle-plugin:2.3.7:cleanVersions (versions) @ camel-example-console ---
[INFO] --- maven-remote-resources-plugin:1.3:process (default) @ camel-example-console ---
[INFO] --- maven-resources-plugin:2.4.3:resources (default-resources) @ camel-example-console ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Copying 4 resources
[INFO] Copying 3 resources
[INFO] --- maven-resources-plugin:2.4.3:resources (default) @ camel-example-console ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Copying 4 resources
[INFO] Copying 3 resources
[INFO] --- maven-compiler-plugin:2.5.1:compile (default-compile) @ camel-example-console ---
```

- From Eclipse



Riding Camel

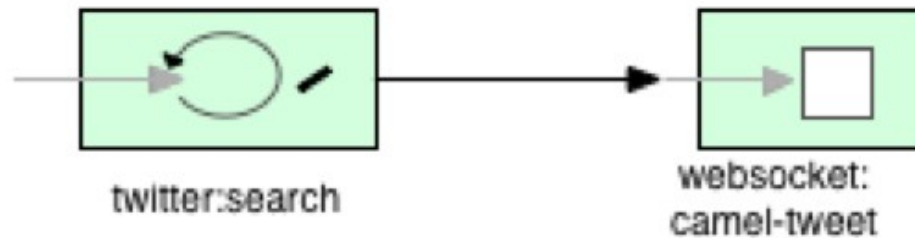
- Console Example



- cd examples/camel-example-console
- mvn compile exec:java

Riding Camel

- Twitter Example



```
localhost:9090
Wed Mar 28 17:49:11 CEST 2012 (Femmaho) Omg!! Iforgot!!!! RT@ladygaaaaaga: News: Happy 26th birthday, Lady Gaga - CNN (b
Wed Mar 28 17:49:11 CEST 2012 (DebiDebishU) Happy Birthday Lady Gaga. *-*
Wed Mar 28 17:49:11 CEST 2012 (aashatrosper) GAGA OH LA LA WATCH OUT ITS LADY GAGA'S BIRTHDAYYYYYY!!!
Wed Mar 28 17:49:10 CEST 2012 (alexfairhurst) just been on lady gaga's twitter looked at her followers then refreshed the page & she w
Wed Mar 28 17:49:10 CEST 2012 (MoreiradiDiego) RT @brunu__: Gaga Queen of Pop
```

- `cd examples/camel-example-twitter-websocket`
- `mvn compile exec:java`

<http://localhost:9090/index.html>

Riding Camel

- More examples ...

```
davsclaus:~/Downloads/apache-camel-2.10.1$ ls examples/  
README.txt  
camel-example-aggregate  
camel-example-bam  
camel-example-cafe  
camel-example-console  
camel-example-cxf  
camel-example-cxf-blueprint  
camel-example-cxf-osgi  
camel-example-cxf-proxy  
camel-example-cxf-tomcat  
camel-example-docs  
camel-example-etl  
camel-example-gae  
camel-example-gauth  
camel-example-guice-jms  
camel-example-jms-file  
camel-example-jmx  
camel-example-loadbalancing  
camel-example-loan-broker  
camel-example-management  
camel-example-osgi  
camel-example-osgi-rmi  
camel-example-pojo-messaging  
camel-example-reportincident  
camel-example-reportincident-wssecurity  
camel-example-route-throttling  
camel-example-servlet-tomcat  
camel-example-simplejirabot  
camel-example-spring  
camel-example-spring-javaconfig  
camel-example-spring-jms  
camel-example-spring-security  
camel-example-spring-ws  
camel-example-spring-xquery  
camel-example-ssh  
camel-example-tracer  
camel-example-twitter-websocket  
pom.xml
```

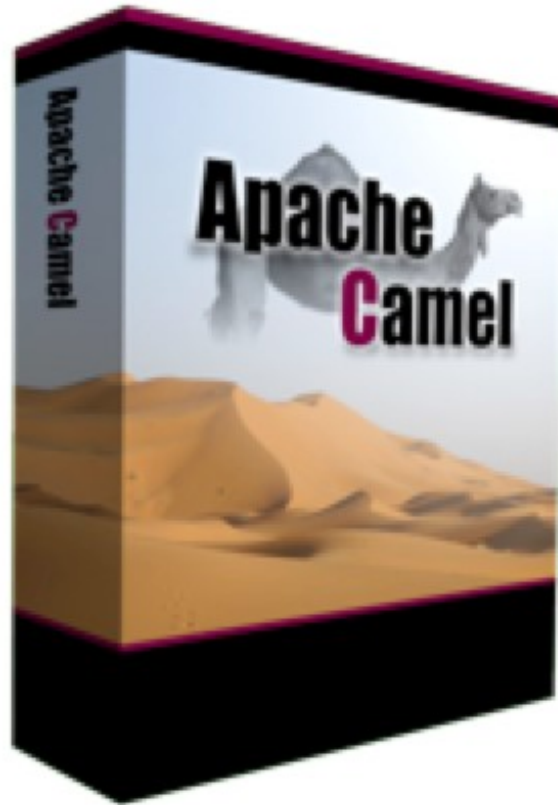
... and further details at website.

<http://camel.apache.org/examples>

Agenda

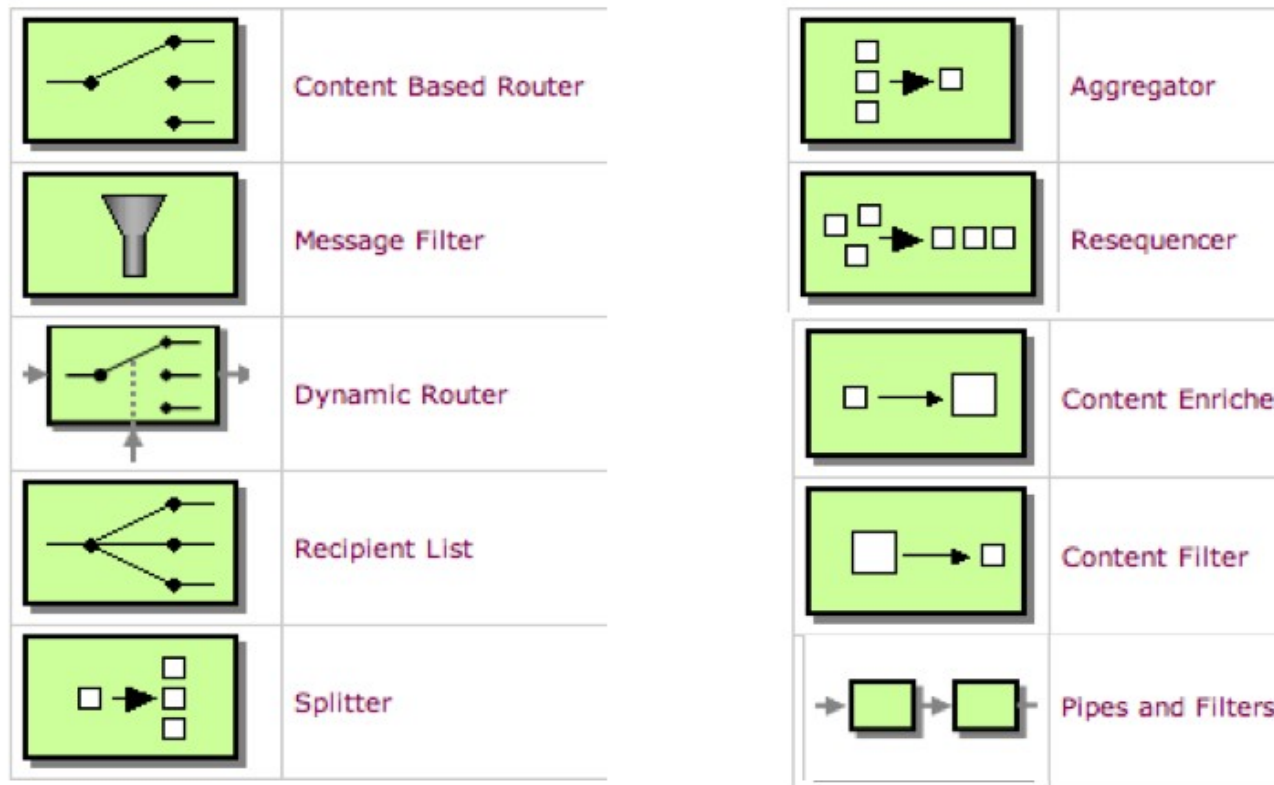
- History of Camel
- What is Apache Camel?
- A little Example
- Riding Camel
- **What's in the box?**
- Deploying Camel
- Creating new Camel Projects
- Q and A

What's in the box?



What's in the box?

- Enterprise Integration Patterns

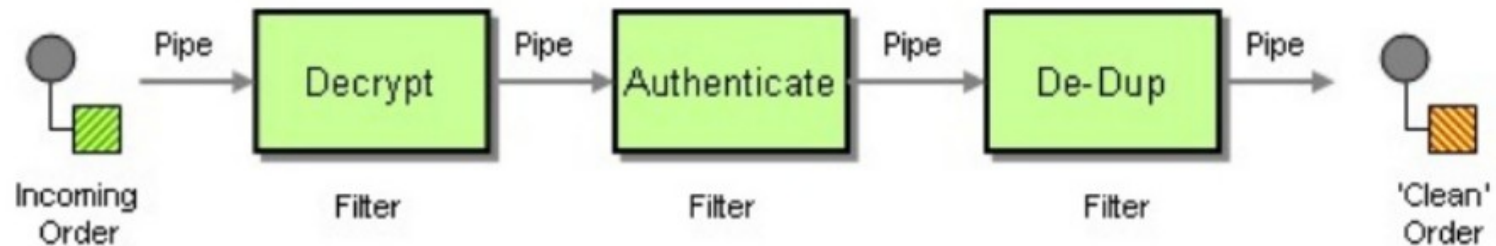


<http://camel.apache.org/eip>

What's in the box?

- Pipes and Filters EIP

- Pipes and Filters EIP

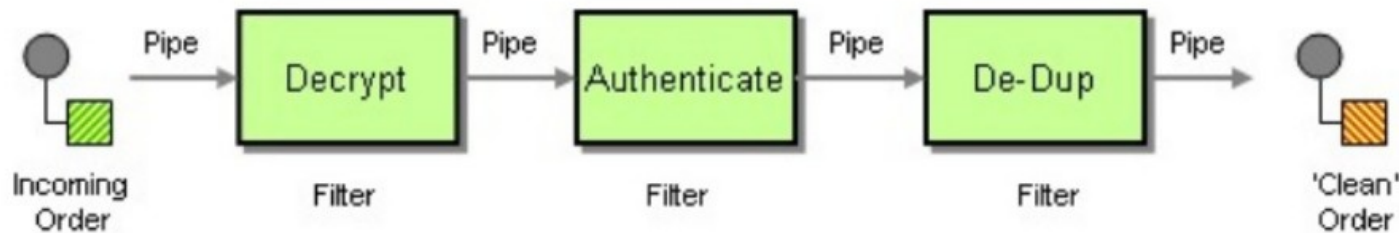


```
from("file:inbox")  
  .pipeline()  
  .to("bean:decrypt")  
  .to("bean:authenticate")  
  .to("bean:deDup");
```

What's in the box?

- Pipes and Filters EIP

- Pipes and Filters EIP



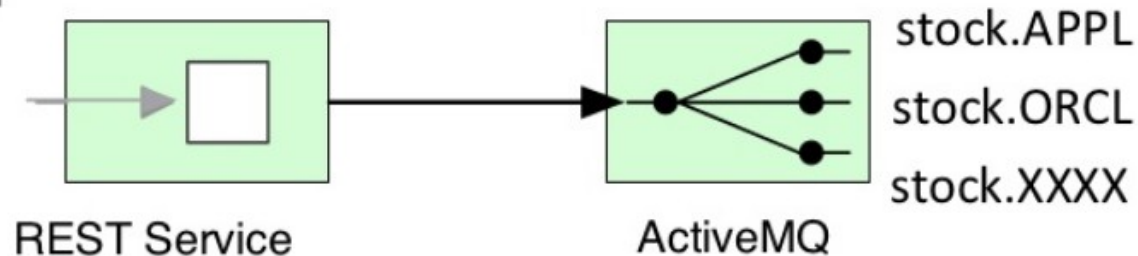
```
from("file:inbox")  
  .to("bean:decrypt")  
  .to("bean:authenticate")  
  .to("bean:deDup");
```

pipeline() is default mode in Camel and can usually be omitted

What's in the box?

- Recipient List EIP

- Recipient List EIP

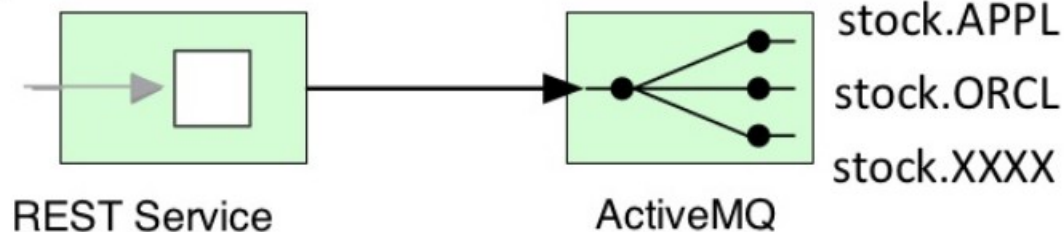


```
from("restlet:http:localhost:9080  
    /stock/${symbol}?restletMethods=post")  
    .recipientList()  
    .simple("activemq:stocks.${header.symbol}");
```

What's in the box?

- Recipient List EIP

- Recipient List EIP

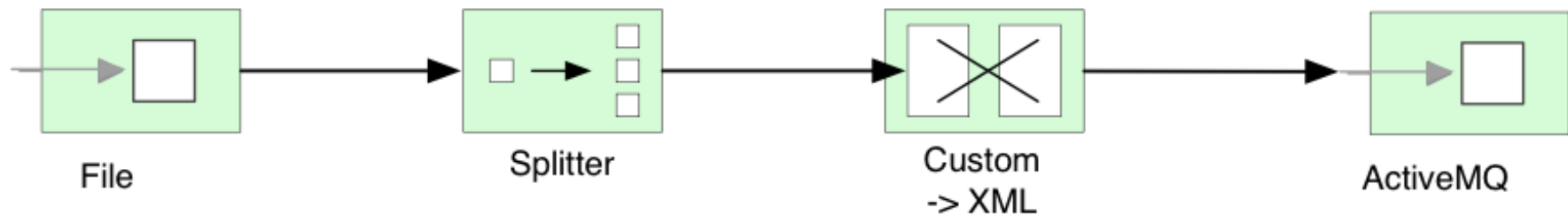


```
from("restlet:http:localhost:9080  
    /stock/${symbol}?restletMethods=post")  
    .recipientList()  
    .simple("activemq:stocks.${header.symbol}");
```

```
curl -X POST -d "120" "http://localhost:9080/stock/ORCL"
```

What's in the box?

- Splitter EIP



```
from("file:inbox")  
    .split(body().tokenize("\n"))  
    .marshal(customToXml)  
    .to("activemq:line");
```


What's in the box?

120+ Components

activemq	cxfr	flatpack	jasypt
activemq-journal	cxfrs	freemarker	javaspace
amqp	dataset	ftp/ftps/sftp	jbi
atom	db4o	gae	jcr
bean	direct	hdfs	jdbc
bean validation	ejb	hibernate	jetty
browse	esper	hl7	jms
cache	event	http	jmx
cometd	exec	ibatis	jpa
crypto	file	irc	jt/400

What's in the box?

19 Data Formats

<u>bindy</u>	<u>protobuf</u>
castor	serialization
<u>csv</u>	soap
crypto	syslog
dozer	tidy markup
flatpack	xml beans
gzip	xml security
hl7	<u>xstream</u>
<u>jaxb</u>	zip
<u>json</u>	

<http://camel.apache.org/data-format.html>

What's in the box?

15 Expression Languages

BeanShell	Python
EL	Ruby
Groovy	Simple
JavaScript	SpEL
JSR 223	SQL
OGNL	XPath
MVEL	XQuery
PHP	

<http://camel.apache.org/languages.html>

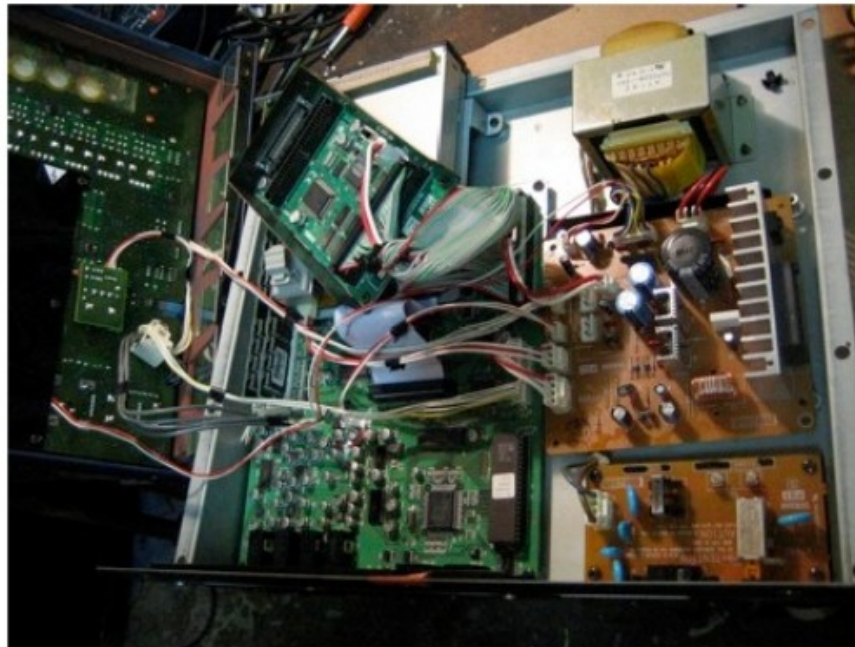
What's in the box?

5+ DSL in multiple languages

- Java DSL
- XML DSL (Spring and OSGi Blueprint)
- Groovy DSL
- Scala DSL
- Kotlin DSL (work in progress)

What's in the box?

- Type Converters



INFO DefaultTypeConverter
- Loaded 148 type converters

What's in the box?

- Writing Custom Type Converter

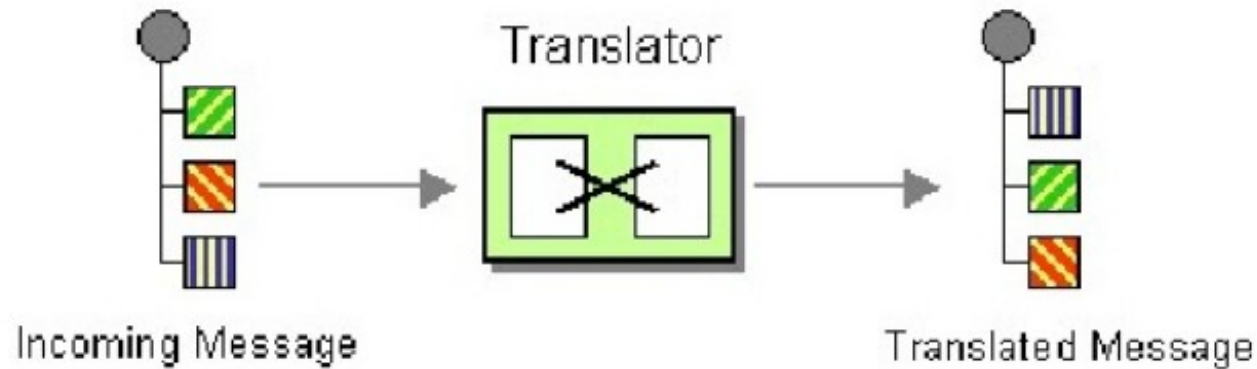
```
@Converter
public class MyTypeConverter {
    @Converter
    public String toString(MyOrder order) {
        StringBuilder sb = new StringBuilder();
        ...
        return sb.toString();
    }
}
```

```
# META-INF/services/org/apache/camel/TypeConverter
com.acme.converters
```

META-INF file in the JAR

What's in the box?


- Bean as Message Translator



What's in the box?

- Bean as Message Translator

```
from("activemq:Incoming").  
    beanRef("myBeanName", "someMethod").  
    to("activemq:Outgoing");
```



```
public class Foo {  
  
    public String someMethod(String name) {  
        return "Hello " + name;  
    }  
}
```


What's in the box?

- Working with beans
 - Powerful bean integration
 - Adapt to your beans
 - EIP as @annotations
 - @Produce
 - @Consume
 - @RecipientList
 - @RoutingSlip
 - @DynamicRouter



What's in the box?

- Working with beans
 - Bean Parameter Binding

```
public class Foo {  
  
    public String processOrder(  
        String orderAsXml,  
        @XPath("/order/@id") String oid,  
        @Header("JMSCorrelationID") String cid) {  
        ...  
    }  
}
```

What's in the box?

- Working with beans
 - Receiving message

```
public class Foo {  
  
    @Consume(uri="activemq:cheese")  
    public void onCheese(String name) {  
        ...  
    }  
}
```

What's in the box?

- Working with beans
 - Sending message

```
public class Foo {  
    @Produce(uri="activemq:foo.bar")  
    ProducerTemplate producer;  
  
    public void doSomething() {  
        if (whatever) {  
            producer.sendBody("<hello>world!</hello>");  
        }  
    }  
}
```

What's in the box?

Test Kit

- camel-test camel-test-spring
- camel-test-blueprint camel-testng

```
public class FilterTest extends CamelTestSupport {

    @EndpointInject(uri = "mock:result")
    protected MockEndpoint resultEndpoint;

    @Produce(uri = "direct:start")
    protected ProducerTemplate template;

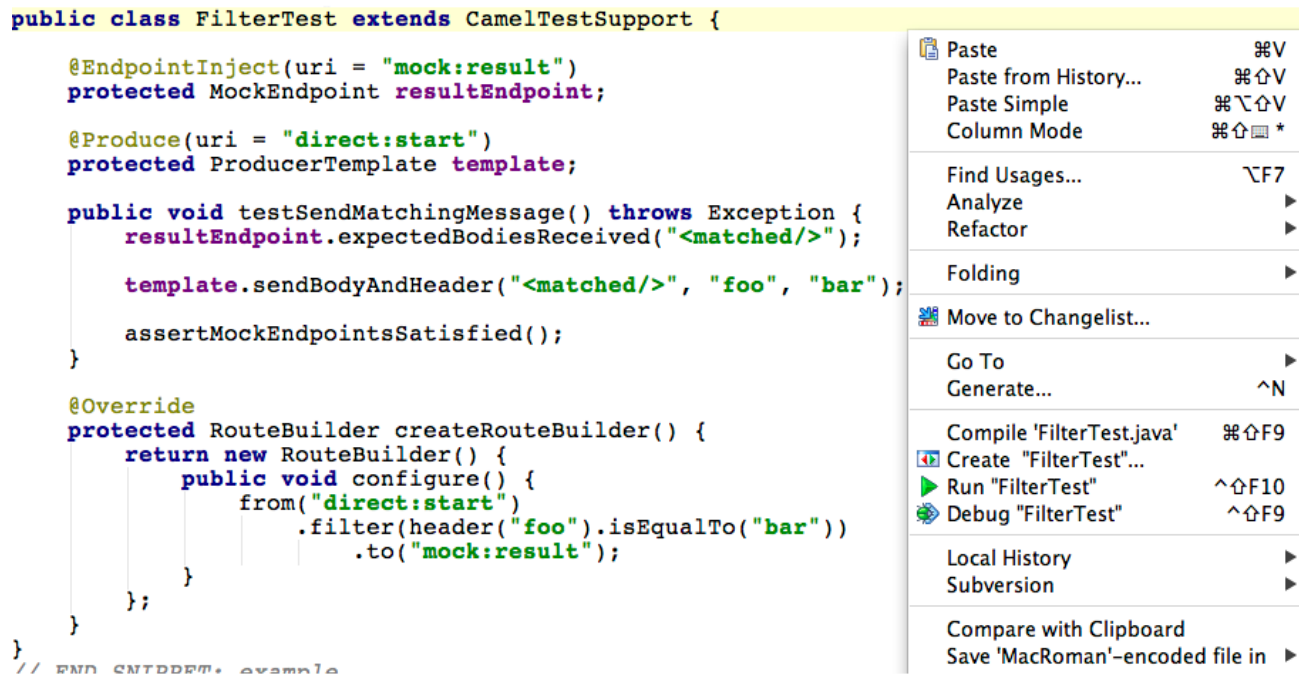
    public void testSendMatchingMessage() throws Exception {
        resultEndpoint.expectedBodiesReceived("<matched/>");

        template.sendBodyAndHeader("<matched/>", "foo", "bar");

        assertMockEndpointsSatisfied();
    }

    @Override
    protected RouteBuilder createRouteBuilder() {
        return new RouteBuilder() {
            public void configure() {
                from("direct:start")
                    .filter(header("foo").isEqualTo("bar"))
                    .to("mock:result");
            }
        };
    }
}

// END SNIPPET: example
```

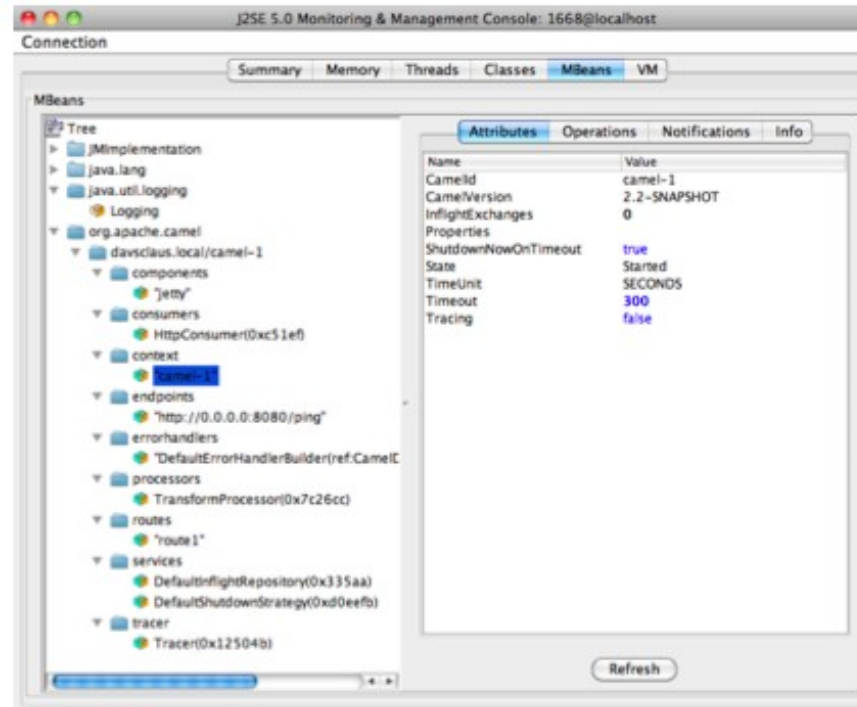


The image shows a screenshot of an IDE with a Java class named `FilterTest` that extends `CamelTestSupport`. The class contains annotations for endpoint injection and production, a test method `testSendMatchingMessage`, and an override for `createRouteBuilder`. A context menu is open over the code, displaying various actions such as 'Paste', 'Find Usages...', 'Folding', 'Move to Changelist...', 'Go To', 'Generate...', 'Compile', 'Create', 'Run', 'Debug', 'Local History', 'Subversion', and 'Compare with Clipboard'.

What's in the box?

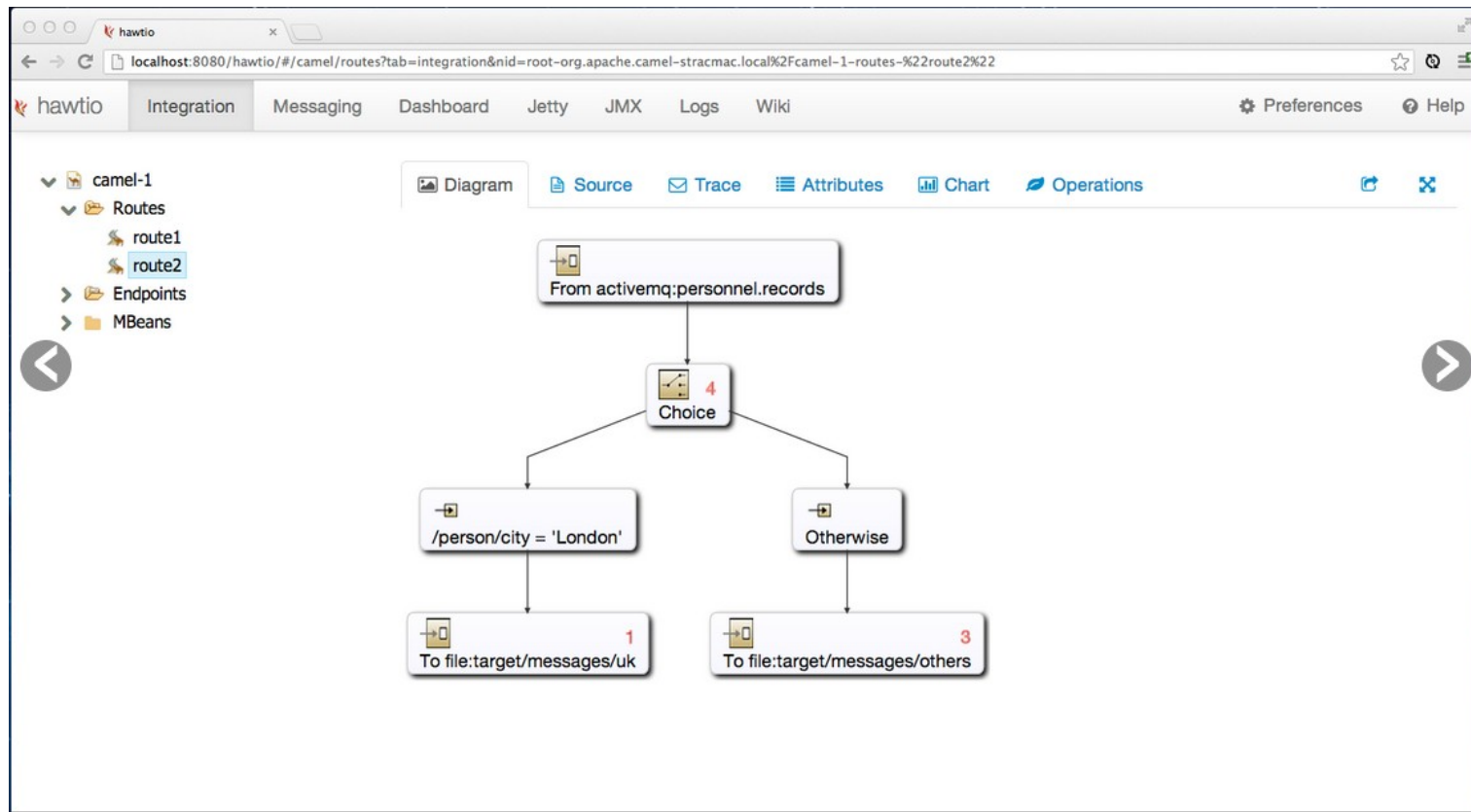
Management

- JMX
- REST (@deprecated)



What's in the box?

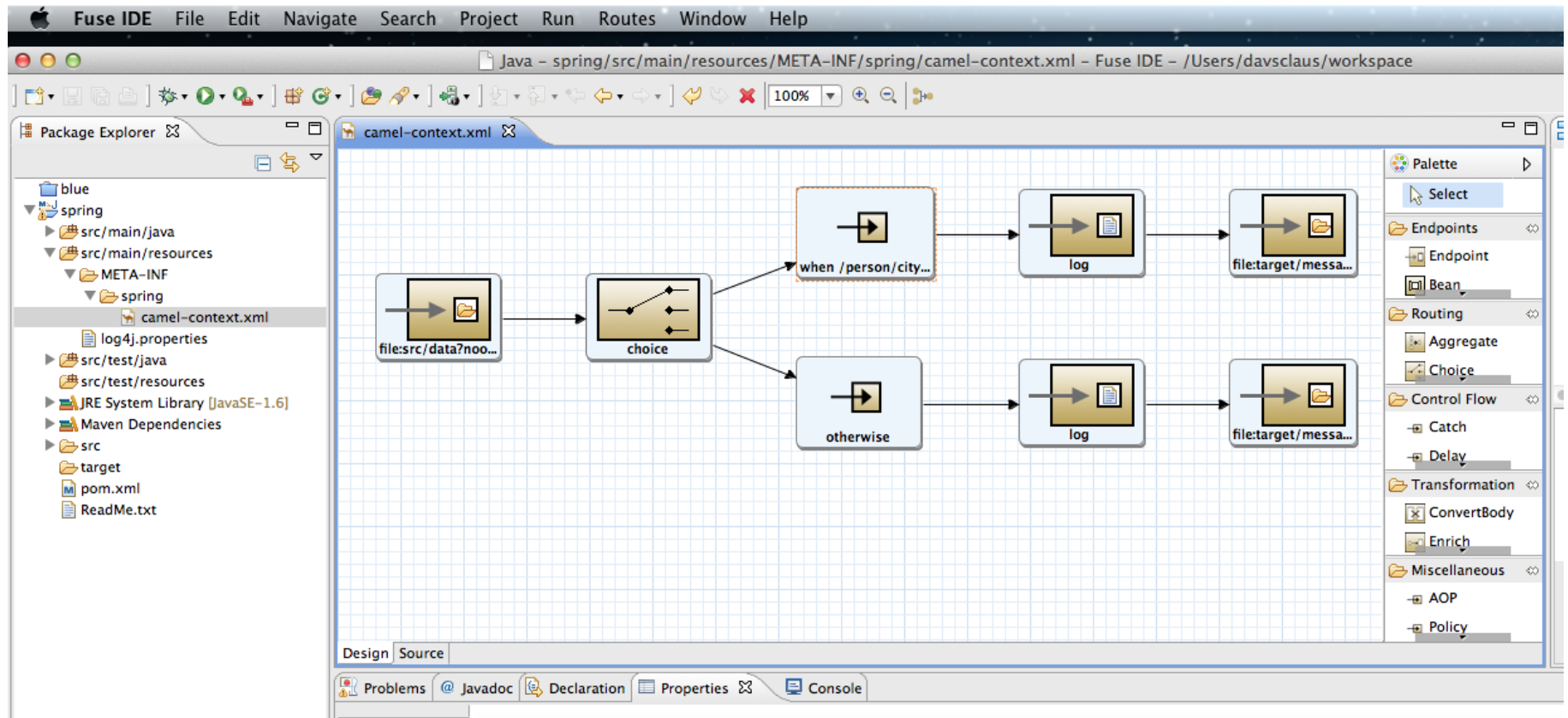
Tooling – Web console - HawtIO



<http://hawt.io>

What's in the box?

Tooling – Eclipse Plugin – Fuse IDE



<http://github.com/fusesource/fuseide>

What's in the box?

Error Handling



What's in the box?

try .. catch style

```
from("activemq:incoming")  
  .doTry()  
    .marshal().jaxb()  
    .to("mq:QueueWithXmlMessages")  
  .doCatch(Exception.class)  
    .to("activemq:error")  
  .end();
```

What's in the box?

Dead Letter Channel (EIP style)

```
errorHandler(  
    deadLetterChannel("activemq:error")  
);  
  
from("activemq:incoming")  
    .marshal().jaxb()  
    .to("mq:QueueWithXmlMessages");
```

What's in the box?

Dead Letter Channel (EIP style)

```
errorHandler(  
    deadLetterChannel("activemq:error")  
        .maximumRedeliveries(5)  
        .redeliveryDelay(5000)  
);  
  
from("activemq:incoming")  
    .marshal().jaxb()  
    .to("mq:QueueWithXmlMessages");
```

What's in the box?

The Rest

- Interceptors
- Security
- Route Policy
- Type Converters
- Transaction
 - Compensation as rollback
- Asynchronous non-blocking routing engine
- Thread management
- Maven Tooling
- ... and much more

Agenda

- History of Camel
- What is Apache Camel?
- A little Example
- Riding Camel
- What's in the Camel box?
- **Deploying Camel**
- Creating new Camel Projects
- Extending Camel
- Q and A

Deploying Camel

- Deployment Strategy
 - No Container Dependency
 - Lightweight & Embeddable
- Deployment Options
 - Standalone
 - WAR
 - Spring
 - JEE
 - OSGi
 - Cloud

Known Containers

Apache ActiveMQ
Apache ServiceMix
Apache Tomcat
Fuse ESB / Fuse MQ
Glassfish
IBM WebSphere
JBoss AS
Jetty
Oracle OC4j
Oracle WebLogic
Amazon EC2
Google App Engine
Rack space
... others

Camel as a Client

- Java Client Application (no routes)
- Example
 - Upload a file to a FTP server

```
CamelContext context = new DefaultCamelContext();  
ProducerTemplate template = context.createProducerTemplate();  
  
String data = ...  
String fileName = ...  
  
String uri = "ftp://myserver?username=foo&password=secret";  
template.sendBodyAndHeader(uri, data, Exchange.FILE_NAME, fileName);
```


Agenda

- History of Camel
- What is Apache Camel?
- A little Example
- Riding Camel
- What's in the Camel box?
- Deploying Camel
- **Creating new Camel Projects**
- Q and A

Creating new Camel Projects

- Using Command Shell

```
mvn archetype:generate
```

- From Eclipse

New Fuse IDE Project

New Fuse IDE project

Select a project archetype to create and specify its details

Filter:

Group ID	Artifact ID	Version
org.apache.camel.archetypes	camel-archetype-activemq	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-blueprint	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-component	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-component-scala	2.10.0.fuse-71-014
org.apache.camel.archetypes	camel-archetype-dataformat	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-java	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-scala	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-spring	2.9.0.fuse-70-097
org.apache.camel.archetypes	camel-archetype-spring-dm	2.9.0.fuse-70-097

Creates a new Camel project with OSGi blueprint support. Ready to be deployed in OSGi.

Group Id:

Artifact Id:

Version:

Package:

Creating new Camel Projects

- Maven Archetypes

camel-archetype-activemq
camel-archetype-blueprint
camel-archetype-component
camel-archetype-dataformat
camel-archetype-java
camel-archetype-scala
camel-archetype-spring
camel-archetype-spring-dm
camel-archetype-web
camel-archetype-webconsole

Creating new Camel Projects

- camel-archetype-blueprint

```
<blueprint xmlns="http://www.osgi.org/xmlns/blueprint/v1.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:camel="http://camel.apache.org/schema/blueprint"
  xsi:schemaLocation="
    http://www.osgi.org/xmlns/blueprint/v1.0.0 http://www.osgi.org/xmlns/blueprint/v1.0.0/blueprint.xsd
    http://camel.apache.org/schema/blueprint http://camel.apache.org/schema/blueprint/camel-blueprint.xsd">

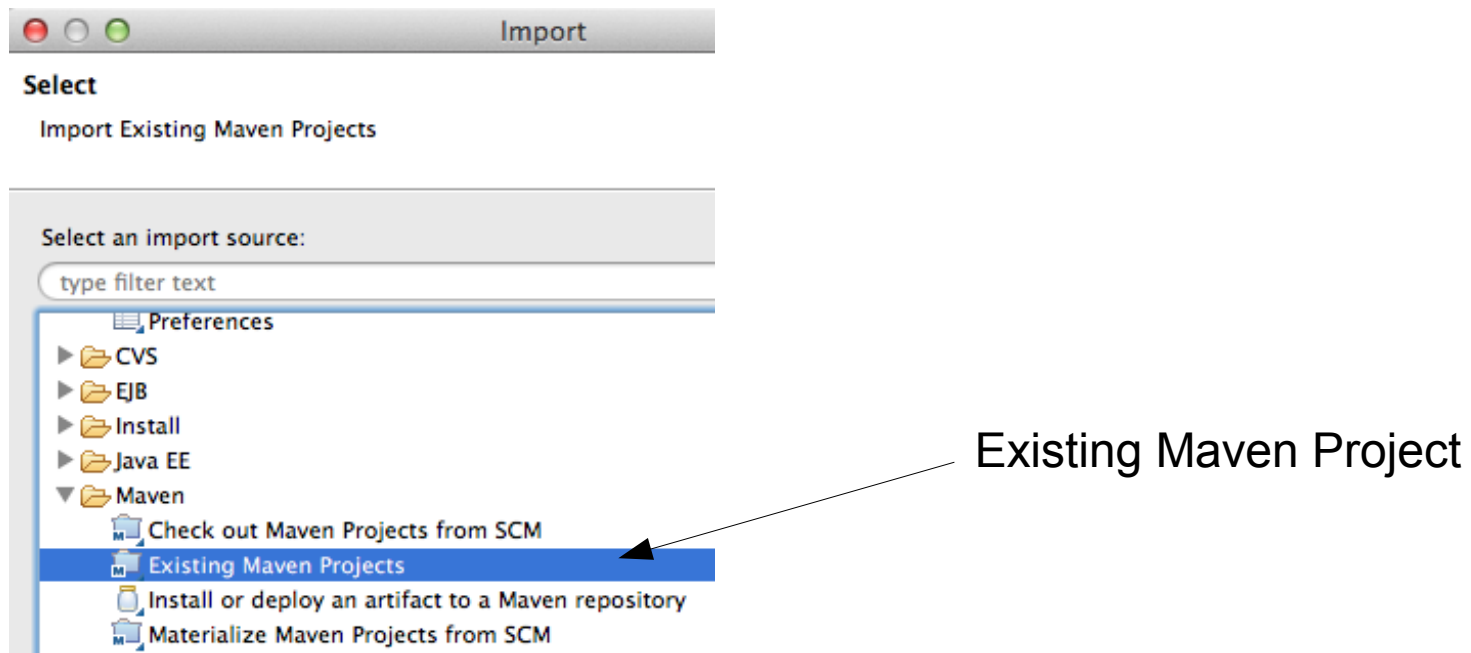
  <bean id="helloBean" class="com.foo.HelloBean">
    <property name="say" value="Hi from Camel"/>
  </bean>

  <camelContext trace="false" id="blueprintContext" xmlns="http://camel.apache.org/schema/blueprint">
    <route id="timerToLog">
      <from uri="timer:foo?period=5000"/>
      <setBody>
        <method method="hello" ref="helloBean"/>
      </setBody>
      <log message="The message contains ${body}"/>
      <to uri="mock:result"/>
    </route>
  </camelContext>
</blueprint>
```

mvn install
mvn camel:run

Creating new Camel Projects

- Importing into Eclipse



Creating new Camel Projects

- Testing Camel Projects

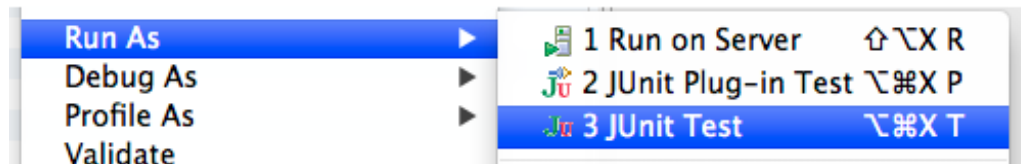
```
public class RouteTest extends CamelBlueprintTestSupport {

    @Override
    protected String getBlueprintDescriptor() {
        return "/OSGI-INF/blueprint/blueprint.xml";
    }

    @Test
    public void testRoute() throws Exception {
        // the route is timer based, so every 5th second a message is send
        // we should then expect at least one message
        getMockEndpoint("mock:result").expectedMinimumMessageCount(1);

        // assert expectations
        assertMockEndpointsSatisfied();
    }
}
```

- ... from inside Eclipse



Agenda

- History of Camel
- What is Apache Camel?
- A little Example
- Riding Camel
- What's in the Camel box?
- Deploying Camel
- Creating new Camel Projects
- **Q and A**

Where do I get more information?

- Best Article covering what Apache Camel is
 - <http://java.dzone.com/articles/open-source-integration-apache>

Getting Started

First you need to [Download](#) the Camel distribution; or you could grab the [Source](#) and try [Building](#) it yourself.

Then come back here and you might want to read the following documentation before continuing:

- [Longer Getting Started Guide](#)
- Find out about [Enterprise Integration Patterns](#) and how to implement them with Camel
- Review the [Architecture](#) guide to see how to build [Routes](#) using the [Java DSL](#) or [Spring based Xml Configuration](#)

Working with CamelContexts and RouteBuilders

To get started with Camel:

1. Create a [CamelContext](#).
2. Optionally, [configure components or endpoints](#).
3. Add whatever routing rules you wish using the [DSL](#) and [RouteBuilder](#) or using [Xml Configuration](#).
4. [Start the context](#).

When your application is closing you may wish to [stop the context](#)

When you are ready, why not [Walk through an Example](#)?
And then continue the walk [Walk through another example](#)
And after the walks head over to the [tutorials](#).

Working with Spring

If you use Spring as a Dependency Injection container then please refer to the [Camel Spring documentation](#).

Other Resources

We strongly suggest that you brew a cup of coffee or tea and take the 30 minutes to read one or more of the following resources:

- [Camel in Action, Chapter 1](#) ([direct link](#)) free chapter 1 of the [Camel in Action](#) book. Highly recommended to read to learn what Camel is and the basic Camel concepts. This is a free chapter you can download directly as a pdf (about 20 pages) and introduces you to Camel. We have been told by experience Camel end users they wished this chapter was available to them when they started learning Camel.
- [Open Source Integration with Apache Camel and How Fuse IDE Can Help](#) by Jonathan Anstey. Updated article of the [Apache Camel: Integration Nirvana](#). Great article to learn what Camel is and has a good use case example.

Overview

- [Home](#)
- [Download](#)
- [Getting Started](#)
- [FAQ](#)

Documentation

- [User Guide](#)
- [Manual](#)
- [Books](#)
- [Tutorials](#)
- [Examples](#)
- [Cookbook](#)
- [Architecture](#)
- [Enterprise Integration Patterns](#)
- [DSL](#)
- [Components](#)
- [Data Format](#)
- [Languages](#)
- [Security](#)

- [Support](#)
- [Contributing](#)
- [Discussion Forum](#)
- [Mailing Lists](#)
- [User Stories](#)
- [News](#)
- [Articles](#)
- [Site](#)
- [Team](#)
- [Camel Extra](#)

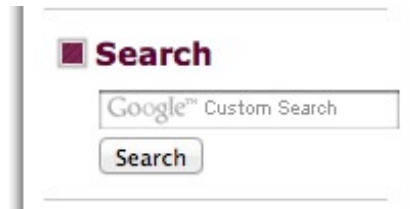
Developers

- [Developer Guide](#)
- [Source](#)
- [Building](#)

Link to article from “Getting Started”

Where do I get more information?

- Try Camel Examples
 - <http://camel.apache.org/examples.html>
- Read other blogs and articles
 - <http://camel.apache.org/articles.html>
- Use the “search box” on the Camel front page

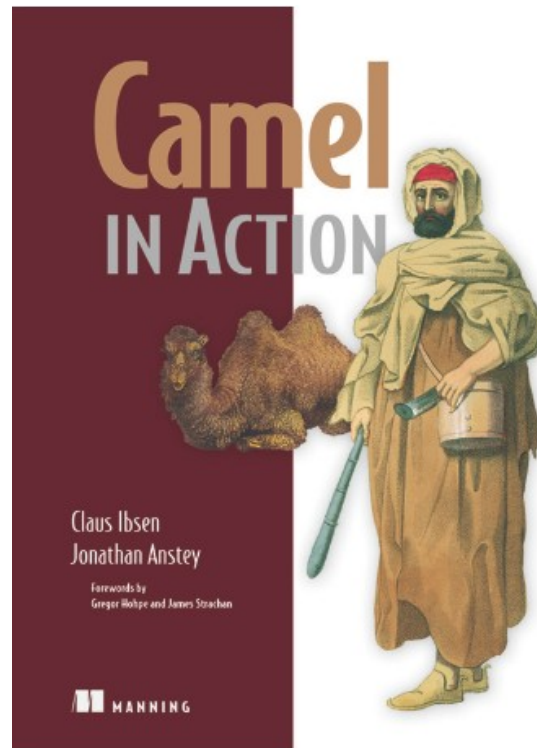


Where do I get more information?

- Use the mailing list / forum
 - <http://camel.apache.org/mailling-lists.html>
- Use stackoverflow
 - <http://stackoverflow.com/questions/tagged/apache-camel>

Where do I get more information?

- Buy the Camel in Action book



Use code ...
camel40
... for 40% discount

<http://manning.com/ibsen/>

Any Questions ?



- Contact
 - Email: cibsen@redhat.com
 - Twitter: [@davsclaus](https://twitter.com/davsclaus)
 - Blog: <http://davsclaus.com>
 - LinkedIn: <http://www.linkedin.com/in/davsclaus>