

Tooling for Service Mix 4

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About the Author

- Principal Architect
PROGRESS - Open Source Center of Competence
- Degree in Computer Science from the University of the German Forces 1992
- Working with middleware like MOMs, CORBA, J2EE, WS and ESBs ever since for Sterling Software, Iona Technologies and PROGRESS
- Specialized on ESB based architectures since 2002



Software used for the examples

- The examples are based on the **FUSE** releases of Apache ServiceMix and Apache ActiveMQ
- The FUSE community provides
 - **Access to Committers** as many Apache committers are employed by the FUSE team
 - **Enterprise support** – Open source adaption in the enterprise requires 24x7 reliable support
 - **Increased testing** on a CI environment maintained by the FUSE team
 - **Enterprise qualities of service** – Ensuring sensible Enterprise deployment and backwards compatibility
 - **Documentation and training** for the Apache projects released under the FUSE brand
 - **Backed by large, enterprise company**

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FUSE products

- **FUSE ESB 3**
Based on Apache Service Mix 3
- **FUSE ESB 4**
Based on Apache Service Mix 4
- **FUSE Message Broker**
Based on Apache ActiveMQ
- **FUSE Services Framework**
Based on Apache CXF
- **FUSE Mediation Router**
Based on Apache Camel
- **FUSE Integration Designer**
Eclipse tooling for implementing EIP flows
- **FUSE HQ**
Management and Monitoring of the FUSE infrastructure

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Agenda

- Introduction to the example
- FUSE Integration Designer
- Implementing the EIP Flow
- Deploying the EIP Flow to FUSE ESB 4
- Debugging the EIP Flow
- Conclusion & References
- Q & A

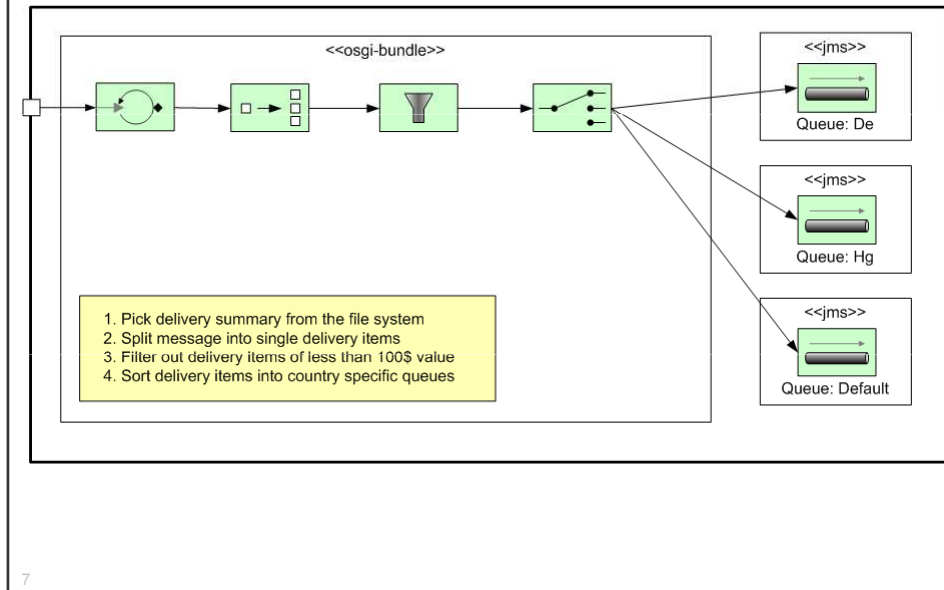
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The example application for the session

- We will use a simple example
 - Camel flow containing a File and JMS endpoints, a Message Splitter, a Message Filter and Content Based Routing
- Will be defined as an OSGi bundle for easy deployment within FUSE ESB 4

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The example application for the session



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The FUSE Integration Designer

- Eclipse based tool to create Camel based Enterprise Integration flows
- Allows visualization, design and debugging of Enterprise Integration flows
- Can Im-/Export Spring based configurations of Enterprise integration flows
- Seamless integrates FUSE projects with Apache Maven and the Spring IDE

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The FUSE Integration Designer

- **Supported Endpoints**
 - JMS
 - File
 - HTTP
 - Jetty
 - Generic
- **Supported Processors**
 - Content Filter
 - Routing Slip
 - Splitter
 - Content Enricher
 - Message Translator
 - Recipient List
 - Content Based Router
 - Aggregator
 - Message Filter
 - Resequencer
- Other components can be included in separate Spring configuration files and referenced in the diagrams
- The components are documented at <http://camel.apache.org>

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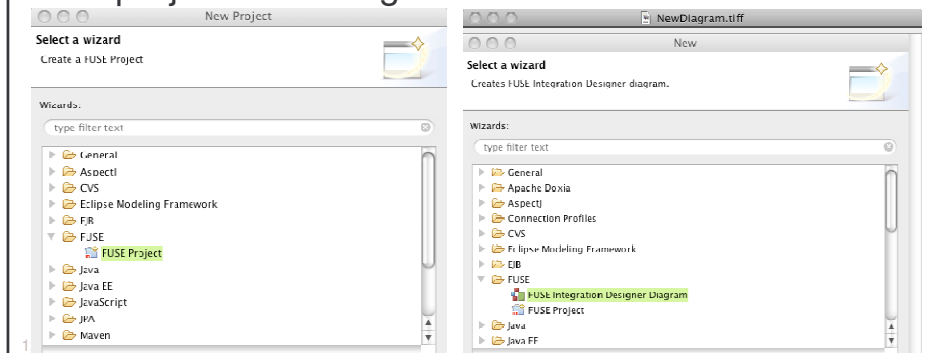
Installing the FUSE Integration Designer

- Prerequisites
 - Eclipse Ganymede
<http://www.eclipse.org/downloads>
 - Install Maven 2 support for Eclipse from the Sonatype m2eclipse update site
<http://m2eclipse.sonatype.org/update-dev/>
 - Install the Spring IDE from the update site
<http://dist.springframework.org/release/IDE>
 - Install Eclipse J2EE & Web tooling from the Ganymede update site

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Installing the FUSE Integration Designer

- Get the FUSE Integration Designer from the update site
<http://repo.fusesource.com/eclipse/updates>
- That will enable Eclipse to create FUSE EIP projects and diagrams



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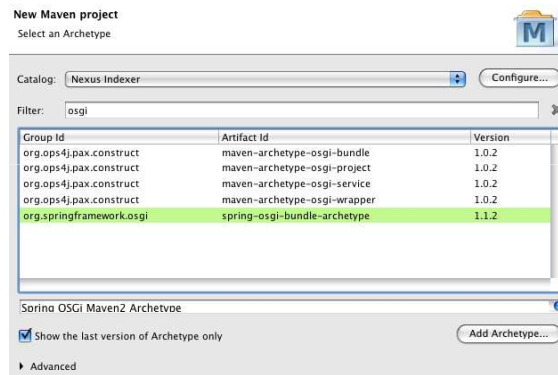
Implementation outline

- Goal: Implement the sample flow as an OSGi bundle installable in FUSE ESB 4
 1. Start a new project from a maven archetype
 2. Use the designer to implement the EIP flow
 3. Adjust the settings in the pom.xml
 4. Run the flow within the IDE
 5. Build and deploy the flow
- Optional: Debug the flow use the Integration Designer

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Starting the project

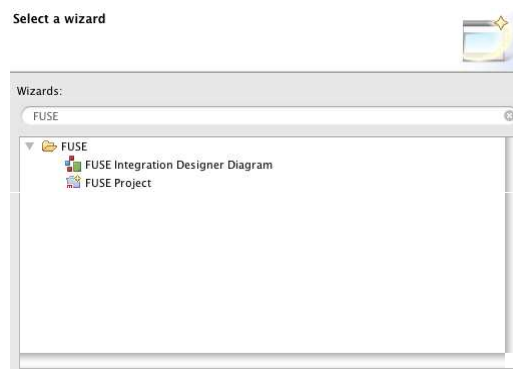
- When we create the example project, we will not create a new “FUSE project”, but will use a maven archetype
- Within Eclipse select “New Project -> Maven Project



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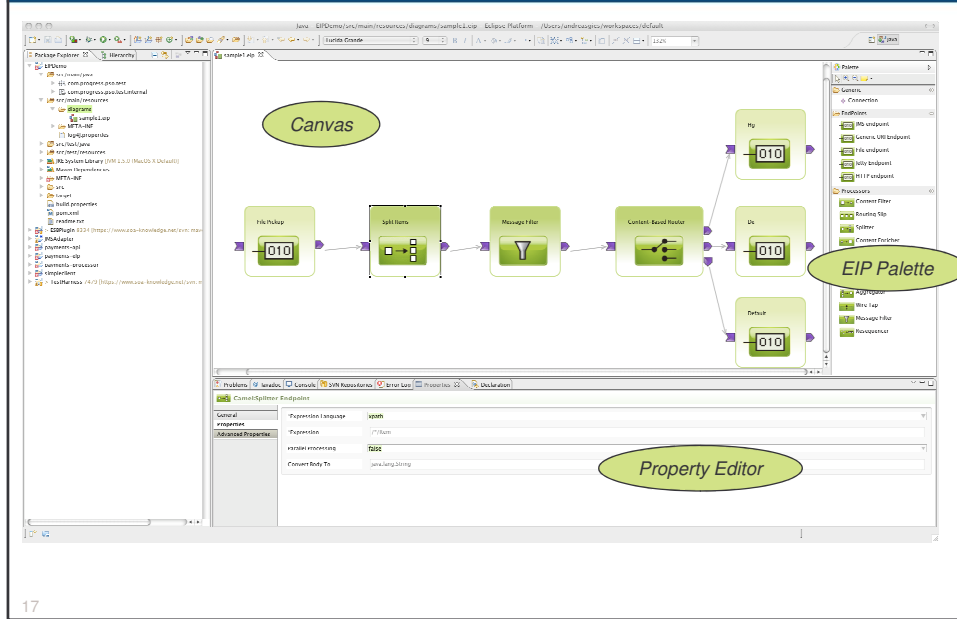
Create the EIP diagram

- Under `src/main/resources` create a folder named `diagrams`
- Create a new FUSE EIP diagram



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A look at the EIP editor



Properties review

Component	Property Name	Setting
File Endpoint	File Name	set to directry /tmp/inbound
Splitter	Expression Language	xpath
	Expression	//*/Item
	Parallel Processing	false
	Convert Body to	java.lang.String
Message Filter	Expression Language	xpath
	Filter Expression	//*/Price >= 100
Content based Routing	CBR Rules	//*/Country='De' => CBR Output De
		//*/Country='Hg' => CBR Output Hg

Adjusting the pom file

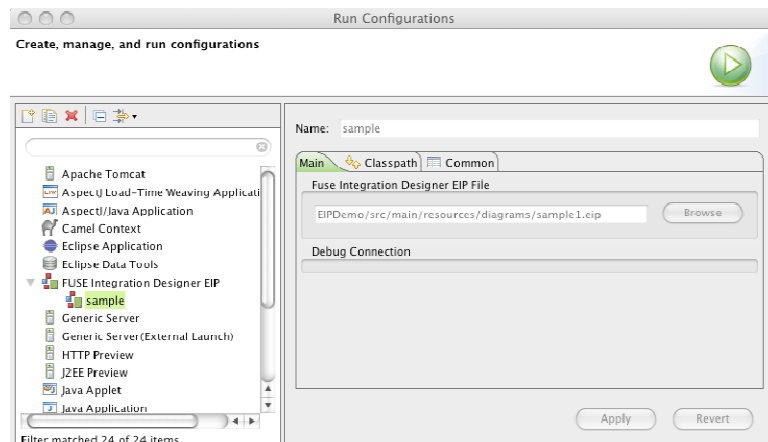
- Within the configuration for the maven-bundle plugin adjust the import packages as the plugin does not scan the schema based spring configuration files for imported packages:

```
...  
<Import-Package>  
  org.apache.activemq.camel.converter,  
  org.apache.camel.component.jms,  
  org.apache.activemq.blob,  
  org.apache.activemq,  
  *  
</Import-Package>  
...
```

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Running the flow within Eclipse

- Before we start the flow we need an FUSE Message Broker up and running on machine
- Then we define a new run configuration



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Running the flow within Eclipse

- Now we can start up the flow within eclipse using the normal launch button
- Now we can drop a sample file into the directory `/tmp/inbound`
- Inspect messages that have arrived in the Queues `De`, `Hg` and `Default`

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Installing and preparing FUSE ESB 4

- The only thing we change in the default installation is the amount of features loaded on startup
 - In `${servicemix.home}/etc/org.apache.servicemix.features.cfg` we set
`featuresBoot=management,transaction,activemq,camel,cxf`
- In addition we need two more bundles:
 - `osgi install -s mvn:org.apache.camel/camel-jms/1.5.4.0-fuse`
 - `osgi install -s mvn:org.apache.activemq/activemq-camel/5.2.0.2-fuse`
- These commands will install the bundles directly from the maven repositories

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Building and deploying the bundle

- The project is already an OSGi bundle project
- In Eclipse we can select the `pom.xml` and simply select Run As -> maven install
- This will install the bundle in our local maven repository
- Before we deploy the bundle in FUSE ESB 4, make sure the sample is stopped within Eclipse
- In the FUSE ESB 4 console we can now install the bundle with
`osgi install -s com.progress.pso.sample/EIPDemo`
- Now we can drop a sample document into `/tmp/inbound` again

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Debugging the EIP flow

The screenshot displays the FUSE Integration Designer interface. The main workspace shows a sequence of four components: a File Processor, an EIP Flow, a Message Filter, and a Content-Based Router. The EIP Flow component is highlighted with a red box. To the right, a palette lists various components like Connectors, Endpoints, and Processors. Below the workspace, a console window shows a log of messages, including headers like 'Content-Type: application/xml' and 'Content-Length: 1024', and a body containing XML data.

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References

- Eclipse development environment
<http://www.eclipse.org>
- Maven Integration for Eclipse
<http://m2eclipse.sonatype.org>
- Spring IDE for Eclipse
<http://www.springide.org>
- Camel documentation
<http://camel.apache.org>
- FUSE Integration Designer
<http://fusesource.com/products/fuse-integration-designer/#documentation>
- FUSE community
<http://www.fusesource.com>
- FUSE online training material
<http://fusesource.com/enterprise-support/online-training/>

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Questions ?

Come and talk to us at <http://fusesource.com/forums/index.jspa>

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Thank You

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