

# Writing Custom Camel Routes

A number of example Camel Routes are available in the [fcrepo-camel](#) project, along with numerous production-ready projects in [fcrepo-camel-toolbox](#). Below are some additional Camel Routes to get you started.

## LDPath Transformations

If an `fc:transform` [program](#) has been installed as `mytransform`, you can generate a JSON representation of a [container](#) and send it to a low-latency, highly available document store, such as [Riak](#). The following route determines if a container has been removed or simply added/updated. It then routes the message appropriately to a load-balancer sitting in front of the Riak HTTP endpoint.

### Camel route to populate a Riak store, using the Scala DSL

```
1 val riakKeyProcessor = (exchange: Exchange) => {
2     exchange.getIn.setHeader(
3         Exchange.HTTP_PATH,
4         "/buckets/fcrepo/keys/" + URLEncoder.encode(exchange.getIn.getHeader("org.fcrepo.jms.identifier",
5     classOf[String]))
6 )
7 }
8
9 "activemq:topic:fedora" ==> {
10     choice() {
11         when(_.in("org.fcrepo.jms.eventType") == "http://fedora.info/definitions/v4/repository#NODE_REMOVED")
12     {
13         setHeader(Exchange.HTTP_METHOD, constant("DELETE"))
14         process(riakKeyProcessor)
15         to("http4:localhost:8098")
16     }
17     otherwise() {
18         to("fcrepo:localhost:8080/fedora/rest")
19         filter(xpathFilter) {
20             to("fcrepo:localhost:8080/fedora/rest?accept=application/json&transform=mytransform")
21             setHeader(Exchange.HTTP_METHOD, constant("PUT"))
22             process(riakKeyProcessor)
23             to("http4:localhost:8098")
24         }
25     }
26 }
27 }
```

## External Triplestore

Some additional processing must be done to transform an `application/n-triples` response into a `validapplication/sparql-update` payload before sending to an external triplestore such as Fuseki or Sesame. The `fcrepo` component contains some processors in `org.fcrepo.camel.processor` to handle this case. The examples below assume that messages have already been routed based on `eventType` (see below) and passed to the appropriate queue.

### Populate an external triplestore

```
1 from("direct:delete")
2   .process(new SparqlDescribeProcessor())
3   .to("http4:localhost:3030/db/query")
4   .process(new SparqlDeleteProcessor())
5   .to("http4:localhost:3030/db/update");
6
7 from("direct:new")
8   .to("fcrepo:localhost:8080/rest")
9   .process(new SparqlInsertProcessor())
10  .to("http4:localhost:3030/db/update");
11
12 from("direct:update")
13   .to("fcrepo:localhost:8080/rest")
14   .process(new SparqlUpdateProcessor())
15   .to("http4:localhost:3030/db/update");
```

## Event-based Routing

It is often helpful to route messages to different queues based on the `eventType` value. This example splits messages on `eventType` values and routes the messages to appropriate queues. Following this example, it would be prudent to aggregate the messages based on `org.fcrepo.jms.identifier` value after retrieving the messages from the downstream queues.

### Content-based Routing

```
1 <route id="fcrepo-event-splitter">
2   <description>
3     Retrieve messages from the fedora topic. Event types are comma-delimited, so split them into
4   separate messages before routing them.
5   </description>
6   <from uri="activemq:topic:fedora"/>
7   <setBody>
8     <simple>${header.org.fcrepo.jms.eventType}</simple>
9   </setBody>
10  <split>
11    <tokenize token=","/>
12    <setHeader headerName="org.fcrepo.jms.eventType">
13      <simple>${body}</simple>
14    </setHeader>
15    <setBody>
16      <simple>null</simple>
17    </setBody>
18    <to uri="seda:fcrepo-event-router"/>
19  </split>
20 </route>
21
22 <route id="fcrepo-event-router">
23   <description>
24     Route messages based on the eventType.
25   </description>
26   <from uri="seda:fcrepo-event-router"/>
27   <choice>
28     <when>
29       <simple>${header.org.fcrepo.jms.eventType} == "http://fedora.info/definitions/v4
30 /repository#NODE_REMOVED"</simple>
31       <to uri="activemq:queue:fcrepo.delete"/>
32     </when>
33     <when>
34       <simple>${header.org.fcrepo.jms.eventType} == "http://fedora.info/definitions/v4
35 /repository#NODE_ADDED"</simple>
36       <to uri="activemq:queue:fcrepo.add"/>
37     </when>
38     <when>
39       <simple>${header.org.fcrepo.jms.eventType} == "http://fedora.info/definitions/v4
40 /repository#PROPERTY_ADDED"</simple>
41       <to uri="activemq:queue:fcrepo.update"/>
42     </when>
43     <when>
44       <simple>${header.org.fcrepo.jms.eventType} == "http://fedora.info/definitions/v4
45 /repository#PROPERTY_CHANGED"</simple>
46       <to uri="activemq:queue:fcrepo.update"/>
47     </when>
48     <when>
49       <simple>${header.org.fcrepo.jms.eventType} == "http://fedora.info/definitions/v4
50 /repository#PROPERTY_REMOVED"</simple>
51       <to uri="activemq:queue:fcrepo.update"/>
52     </when>
53     <otherwise>
54       <log message="No router for ${header.org.fcrepo.jms.eventType}"/>
55     </otherwise>
56   </choice>
57 </route>
```