**Enterprise Integration Patterns in Apache camel**

Camel supports most of the Enterprise Integration Patterns .

**Messaging Systems**

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| http://www.eaipatterns.com/img/ChannelIcon.gif | **Message Channel** | How does one application communicate with another using messaging? |
| http://www.eaipatterns.com/img/MessageIcon.gif | **Message** | How can two applications connected by a message channel exchange a piece of information? |
| http://www.eaipatterns.com/img/PipesAndFiltersIcon.gif | **Pipes and Filters** | How can we perform complex processing on a message while maintaining independence and flexibility? |
| http://www.eaipatterns.com/img/ContentBasedRouterIcon.gif | **Message Router** | How can you decouple individual processing steps so that messages can be passed to different filters depending on a set of conditions? |
| http://www.eaipatterns.com/img/MessageTranslatorIcon.gif | **Message Translator** | How can systems using different data formats communicate with each other using messaging? |
| http://www.eaipatterns.com/img/MessageEndpointIcon.gif | **Message Endpoint** | How does an application connect to a messaging channel to send and receive messages? |

**Messaging Channels**

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| http://www.eaipatterns.com/img/PointToPointIcon.gif | **Point to Point Channel** | How can the caller be sure that exactly one receiver will receive the document or perform the call? |
| http://www.eaipatterns.com/img/PublishSubscribeIcon.gif | **Publish Subscribe Channel** | How can the sender broadcast an event to all interested receivers? |
| http://www.eaipatterns.com/img/DeadLetterChannelIcon.gif | **Dead Letter Channel** | What will the messaging system do with a message it cannot deliver? |
| http://www.eaipatterns.com/img/GuaranteedMessagingIcon.gif | **Guaranteed Delivery** | How can the sender make sure that a message will be delivered, even if the messaging system fails? |
| http://www.eaipatterns.com/img/MessageBusIcon.gif | **Message Bus** | What is an architecture that enables separate applications to work together, but in a de-coupled fashion such that applications can be easily added or removed without affecting the others? |

**Message Construction**

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| http://www.eaipatterns.com/img/EventMessageIcon.gif | **Event Message** | How can messaging be used to transmit events from one application to another? |
| http://www.eaipatterns.com/img/RequestReplyIcon.gif | **Request Reply** | When an application sends a message, how can it get a response from the receiver? |
| http://www.eaipatterns.com/img/CorrelationIdentifierIcon.gif | **Correlation Identifier** | How does a requestor that has received a reply know which request this is the reply for? |
| http://www.eaipatterns.com/img/ReturnAddressIcon.gif | [**Return Address**](http://camel.apache.org/return-address.html) | How does a replier know where to send the reply? |

**Message Routing**

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| http://www.eaipatterns.com/img/ContentBasedRouterIcon.gif | **Content Based Router** | How do we handle a situation where the implementation of a single logical function (e.g., inventory check) is spread across multiple physical systems? |
| http://www.eaipatterns.com/img/MessageFilterIcon.gif | [**Message Filter**](http://camel.apache.org/message-filter.html) | How can a component avoid receiving uninteresting messages? |
| http://www.eaipatterns.com/img/DynamicRouterIcon.gif | **Dynamic Router** | How can you avoid the dependency of the router on all possible destinations while maintaining its efficiency? |
| http://www.eaipatterns.com/img/RecipientListIcon.gif | **Recipient List** | How do we route a message to a list of (static or dynamically) specified recipients? |
| http://www.eaipatterns.com/img/SplitterIcon.gif | **Splitter** | How can we process a message if it contains multiple elements, each of which may have to be processed in a different way? |
| http://www.eaipatterns.com/img/AggregatorIcon.gif | **Aggregator** | How do we combine the results of individual, but related messages so that they can be processed as a whole? |
| http://www.eaipatterns.com/img/ResequencerIcon.gif | **Resequencer** | How can we get a stream of related but out-of-sequence messages back into the correct order? |
| http://www.eaipatterns.com/img/DistributionAggregateIcon.gif | **Composed Message Processor** | How can you maintain the overall message flow when processing a message consisting of multiple elements, each of which may require different processing? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Scatter-Gather** | How do you maintain the overall message flow when a message needs to be sent to multiple recipients, each of which may send a reply? |
| http://www.eaipatterns.com/img/RoutingTableIcon.gif | **Routing Slip** | How do we route a message consecutively through a series of processing steps when the sequence of steps is not known at design-time and may vary for each message? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Throttler** | How can I throttle messages to ensure that a specific endpoint does not get overloaded, or we don't exceed an agreed SLA with some external service? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Sampling** | How can I sample one message out of many in a given period to avoid downstream route does not get overloaded? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Delayer** | How can I delay the sending of a message? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Load Balancer** | How can I balance load across a number of endpoints? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Multicast** | How can I route a message to a number of endpoints at the same time? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Loop** | How can I repeat processing a message in a loop? |

**Message Transformation**

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| http://www.eaipatterns.com/img/DataEnricherIcon.gif | **Content** **Enricher** | How do we communicate with another system if the message originator does not have all the required data items available? |
| http://www.eaipatterns.com/img/ContentFilterIcon.gif | **Content Filter** | How do you simplify dealing with a large message, when you are interested only in a few data items? |
| http://www.eaipatterns.com/img/StoreInLibraryIcon.gif | **Claim Check** | How can we reduce the data volume of message sent across the system without sacrificing information content? |
| http://www.eaipatterns.com/img/NormalizerIcon.gif | **Normalizer** | How do you process messages that are semantically equivalent, but arrive in a different format? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Sort** | How can I sort the body of a message? |
|  | **Script** | How do I execute a script which may not change the message? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Validate** | How can I validate a message? |

**Messaging Endpoints**

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| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Messaging Mapper** | How do you move data between domain objects and the messaging infrastructure while keeping the two independent of each other? |
| http://www.eaipatterns.com/img/EventDrivenConsumerIcon.gif | **Event Driven Consumer** | How can an application automatically consume messages as they become available? |
| http://www.eaipatterns.com/img/PollingConsumerIcon.gif | **Polling Consumer** | How can an application consume a message when the application is ready? |
| http://www.eaipatterns.com/img/CompetingConsumersIcon.gif | **Competing Consumers** | How can a messaging client process multiple messages concurrently? |
| http://www.eaipatterns.com/img/MessageDispatcherIcon.gif | **Message Dispatcher** | How can multiple consumers on a single channel coordinate their message processing? |
| http://www.eaipatterns.com/img/MessageSelectorIcon.gif | **Selective Consumer** | How can a message consumer select which messages it wishes to receive? |
| http://www.eaipatterns.com/img/DurableSubscriptionIcon.gif | **Durable Subscriber** | How can a subscriber avoid missing messages while it's not listening for them? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Idempotent Consumer** | How can a message receiver deal with duplicate messages? |
| http://www.eaipatterns.com/img/TransactionalClientIcon.gif | **Transactional Client** | How can a client control its transactions with the messaging system? |
| http://www.eaipatterns.com/img/MessagingGatewayIcon.gif | **Messaging Gateway** | How do you encapsulate access to the messaging system from the rest of the application? |
| http://www.eaipatterns.com/img/MessagingAdapterIcon.gif | **Service Activator** | How can an application design a service to be invoked both via various messaging technologies and via non-messaging techniques? |

**System Management**

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| http://www.eaipatterns.com/img/ControlBusIcon.gif | **ControlBus** | How can we effectively administer a messaging system that is distributed across multiple platforms and a wide geographic area? |
| http://www.eaipatterns.com/img/DetourIcon.gif | **Detour** | How can you route a message through intermediate steps to perform validation, testing or debugging functions? |
| http://www.eaipatterns.com/img/WireTapIcon.gif | **Wire Tap** | How do you inspect messages that travel on a point-to-point channel? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Message History** | How can we effectively analyze and debug the flow of messages in a loosely coupled system? |
| http://cwiki.apache.org/confluence/download/attachments/49204/clear.png | **Log** | How can I log processing a message? |

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