

Building REST Services with Apache CXF



Desert Code Camp 2016

Presenters

Aaron Hoffer

Travis McMahon

Connexa



Things we will demo

- Running REST services
- JAX-RS
- REST CRUD: Get, Post, Put, Delete
- Changing resource representation between XML and JSON
- Autogenerating API documentation
- Enabling SSL/TLS
- REST HATEOAS (*not implemented yet*)

Putting the pieces together

What is CXF?

- Framework for service-oriented application
- Supports multiple protocols (styles?) for a service
- Supports multiple transports (HTTP, message queues, others)
- Standards driven
 - JAX-WS
 - JAX-RS
 - Lots of OASIS WS-* standards
- CXF is part of *Service Mix*
 - Suite of Apache software to create an enterprise service bus

What is JAX-RS

- Java API for RESTful Web Services
- Add annotations to create services
- It's a standard
 - JSR-339 specification
- Implementations include CXF, Jersey, RESTEasy, others

Spring Boot1/2

- Wait, what?
 - Spring Boot seen as CXF "competitor"
- CXF needs a web container like Jetty or Tomcat
- CXF can integrate with an application server
 - WebSphere
 - JBoss
 - Glassfish
 - Spring Boot
 - ... others...

Spring Boot 2/2

- This presentation started with Jetty, but it was easier to get SSL/TLS working with Spring Boot
- "Why didn't you Sprint Boot instead of CXF?"
 - Simple answer: *Our company uses Service Mix, so we did a presentation on CXF.*
 - Our customers like standards based development and CXF implements standards.

What else will you see today?

- **Maven** to manage dependencies
- **Maven Sprint Boot plugin** to make building and running easy
- **Swagger** to create a nice summary of our web service API

Free advice: in a world of annotations, pay attention to the logs

About JAX-RS

- Use annotations to control:
 - When a method is invoked
 - What is passed into the method
 - What method should return
- JAX-RS Annotation you will see today
 - @Path and @GET, @PUT, @POST, ...
 - @Consumes, @PathParam
 - @Produces
- Annotations you won't see today
 - @QueryParam, @CookieParam, @Context
- Install new providers/mappers to serve new MIME types
 - JAXB to convert between Java objects to XML
 - Jackson to convert between Java objects and JSON

Things about CXF we left out

- CXF Interceptors (reading and writing), Filters
 - Useful for authentication, authorization steps
- Streaming input and output
- Alternate transports like JMS
- Other "styles" of web services like SOAP and POX
- Integration with Apache Camel for ESB
- Generating WSDLs for SOAP or WADLs for REST services
- Using CXF as a client instead of a server