IronJacamar

- What is Java EE Connector Architecture?
- IronJacamar in JBoss Application Server 7
- “Use the Force, Luke”
- IronJacamar 1.1
What is JCA?

• Java Enterprise technology to integrate Enterprise Information Systems (EIS)
• Java EE Connector Architecture 1.6
  – JSR-322
  – Java Enterprise Edition 6
  – JBoss Application Server 7
• Resource adapter (.rar)
Outbound communication
Inbound communication
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IronJacamar in AS7

• :jca: subsystem
  – Global settings for resource adapter deployments
• :datasources: subsystem
  – Deployment of datasources
• :resource-adapters: subsystem
  – Configuration of resource adapter deployments
JCA subsystem

- Archive validation
  - Make sure that your resource adapter implement the specification correctly
- Bean validation
- Work managers
  - Default and custom
- Bootstrap contexts
Default JCA subsystem

```xml
<subsystem xmlns="urn:jboss:domain:jca:1.1">
  <archive-validation enabled="true" fail-on-error="true" fail-on-warn="false"/>
  <bean-validation enabled="true"/>
  <default-workmanager>
    <short-running-threads>
      <core-threads count="50"/>
      <queue-length count="50"/>
      <max-threads count="50"/>
      <keepalive-time time="10" unit="seconds"/>
    </short-running-threads>
    <long-running-threads>
      <core-threads count="50"/>
      <queue-length count="50"/>
      <max-threads count="50"/>
      <keepalive-time time="10" unit="seconds"/>
    </long-running-threads>
  </default-workmanager>
  <cached-connection-manager/>
</subsystem>
```
Datasources subsystem

• Deployment of datasources – do'h
  – <data-source>
  – <xa-data-source>

• Configuration of JDBC drivers
  – <drivers>

• -ds.xml deployment possible
  – But not best practice, and there are caveats
  – Same goes for JDBC drivers
ExampleDS

<subsystem xmlns="urn:jboss:domain:datasources:1.1">
  <datasources>
    <datasource jndi-name="java:jboss/datasources/ExampleDS"
                pool-name="ExampleDS">
      <connection-url>jdbc:h2:mem:test;DB_CLOSE_DELAY=-1</connection-url>
      <driver>h2</driver>
      <security>
        <user-name>sa</user-name>
        <password>sa</password>
      </security>
    </datasource>
    <drivers>
      <driver name="h2" module="com.h2database.h2">
        <xa-datasource-class>org.h2.jdbcx.JdbcDataSource</xa-datasource-class>
      </driver>
    </drivers>
  </datasources>
</subsystem>
<module xmlns="urn:jboss:module:1.1" name="com.h2database.h2">
  <resources>
    <resource-root path="h2-1.3.161.jar"/>
  </resources>
  <dependencies>
    <module name="javax.api"/>
    <module name="javax.transaction.api"/>
    <module name="javax.servlet.api" optional="true"/>
  </dependencies>
</module>
Resource adapters subsystem

• Resource adapters are special
  – A JCA container created for each activation and injected into the adapter instance
  – Deployment metadata
  – Activation metadata

• Hence we need to configure
  – <resource-adapter>

• Automatic activation
  – ironjacamar.xml
Sample configuration

```xml
<subsystem xmlns="urn:jboss:domain:resource-adapters:1.0">
  <resource-adapters>
    <resource-adapter>
      <archive>eis.rar</archive>
      <config-property name="Server">localhost</config-property>
      <transaction-support>XATransaction</transaction-support>
      <connection-definitions>
        <connection-definition class-name="com.acme.eis.ra.EISManagedConnectionFactory" jndi-name="java:/eis/AcmeConnectionFactory" pool-name="AcmeConnectionFactory">
          <config-property name="Name">Acme Inc</config-property>
          <security>
            <application/>
          </security>
        </connection-definition>
      </connection-definitions>
    </resource-adapter>
  </resource-adapters>
</subsystem>
```
Configuration and deployment

• Manually
  – standalone.xml / domain.xml
• Use CLI
  – CLI/GUI
• Use web console
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Power to the people

• Important to configure the deployment
  – Type of usage
  – How many connections
  – ...

• Know how the different settings apply
  – Give as much information to the JCA container as possible
Pool

- Min pool size
  - Minimum number of connections
- Max pool size
  - Maximum number of connections
- Prefill
  - Prefill the pool with connections
- Flush strategy
  - What happens in case of an error
Timeout

- Blocking timeout
  - Wait time before giving up
- Allocation retry
  - Number of tries
- Idle timeout
  - Remove unneeded connections from the pool
Validation

• Background validation
  – Validate connections in the background

• Use fast fail
  – Fail on the first error when retrieving
Datasource options

- New connection SQL
- Prepared statement cache
  - Size
  - Shared
- Track statements
- Valid connection checker
- Exception sorter
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• Lazy connection manager
  – Association
  – Enlistment
• Distributed Work Manager
  – “Clustering” for JCA
• Advanced security inflow
  – Per deployment
• Advanced reauthentication
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• Developer friendly taken to the next level
  – Arquillian / ShrinkWrap
  – ShrinkWrap/Descriptors
  – IronJacamar/Descriptors

• Eclipse development plugin
  – Code generator
  – Validator

• And more!
Links

• IronJacamar 1.1.0.Beta1 is out
  – Try the latest features today!
• Homepage
  – http://www.jboss.org/ironjacamar
• Documentation
  – http://www.jboss.org/ironjacamar/docs
• Get involved through our forums
Join our hack fest!

• Geek'ing out!
  – 8.30 PM -> 2.00 AM
  – Meet core JBoss developers and fellow hackers
  – Get a quick introduction to several projects
  – Start hacking on your issue of interest :)
    • Don't worry; I have enough tasks for you all!