APACHE SLING & FRIENDS TECH MEETUP

BERLIN, 23-25 SEPTEMBER 2013

Argeo Platform

Integrating OSGi, Spring, Eclipse and JCR

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Argeo GmbH, Berlin

- Tailor-made enterprise systems since 2007, mostly for the finance industry
- Over time a generic basis has emerged
- Main packaged product based on the framework is **Argeo SLC**
- Coordinator/host of the “Enterprise Linux GIS” effort at the OSGeo foundation

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Argeo Platform - Principles

- Consistent set of OSGi bundles (**Argeo Distribution**)
- Integrate the various security models and provide utilities (**Argeo Commons**)
- Prototyping is fast, while preparing evolution towards a complex application
- Linux and Java can fit well

Not THE framework, to cover all needs

Argeo – Core Technologies

- Modularity and provisioning: **OSGi**
- Assembly and configuration: **Spring**
- User interface: **Eclipse**
  - RCP (desktop)
  - RAP (web)
- Data layer: **JCR / Jackrabbit**

Argeo 1 vs. Argeo 2

- **Argeo 1** (stable)
  - stable and backward compatible since 2009 (so, getting slowly outdated)
  - open source since the beginning but no effort was made to build a community around it
  - OSGi: Equinox only, v3.6
  - Spring v2.5
  - Eclipse v3.6 / RAP 1.3
  - Jackrabbit v2.2

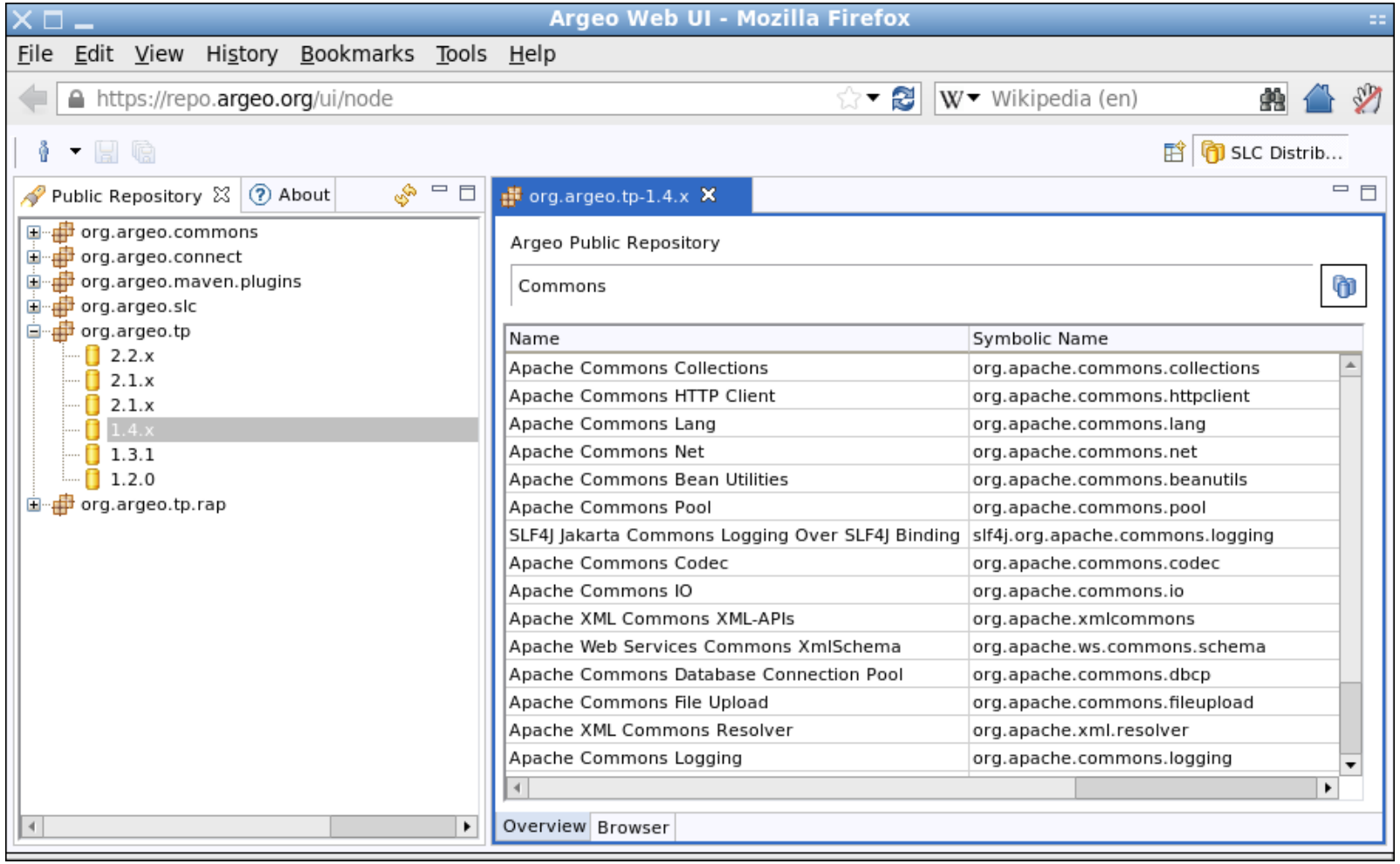
Argeo 1 vs. Argeo 2

- **Argeo 2** (under development)
  - to be released early 2014
  - upgraded third parties
  - reusability by others (docs, SDK, community)
  - OSGi: support for Felix in addition to Equinox v3.9
  - Spring v3.2
  - Eclipse v4.3 / RAP 2.1
  - Jackrabbit v2.6

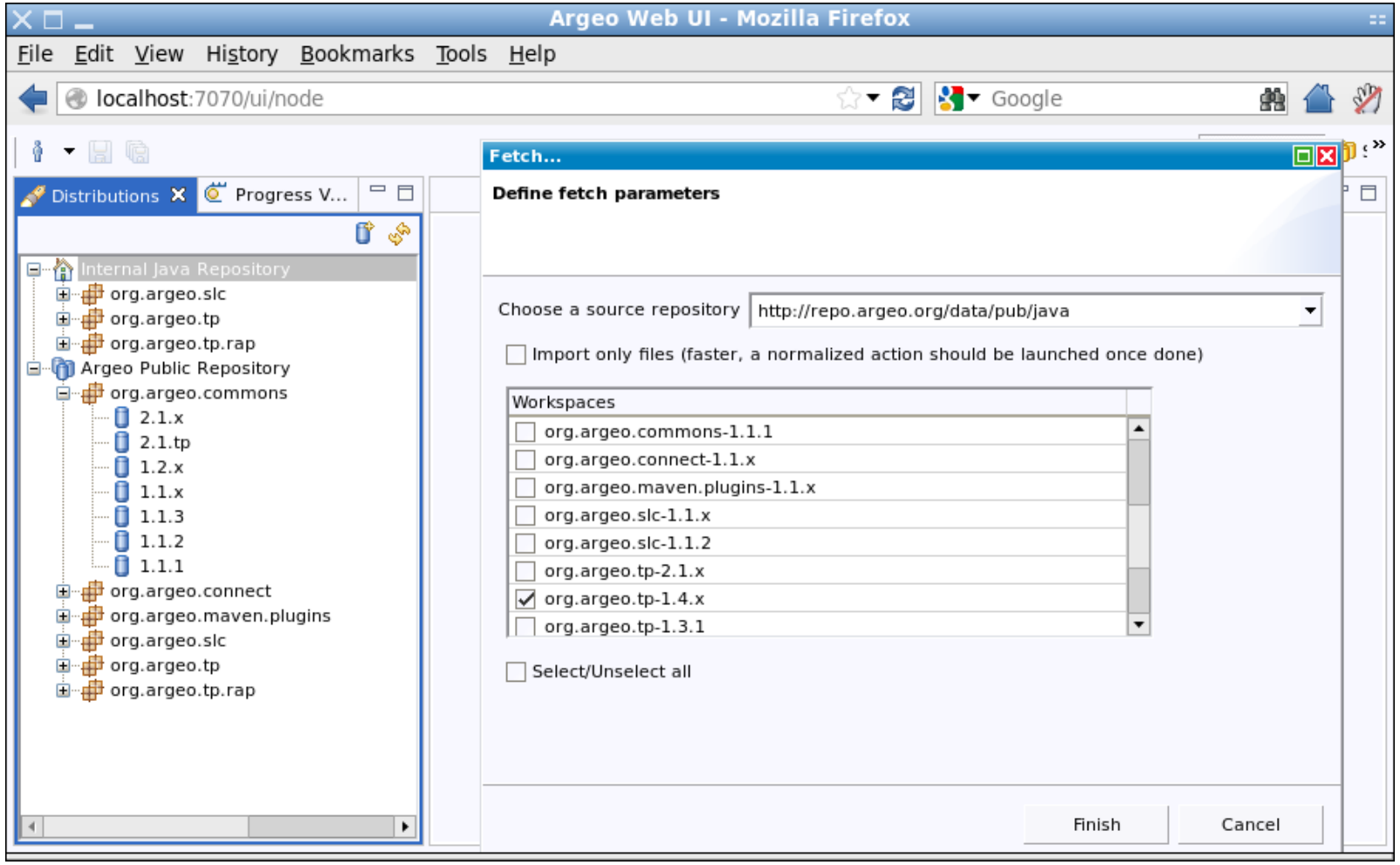
OSGi / Argeo Distribution

- 250+ open source modules, fully resolved in OSGi, available in maven-compatible repositories
- **[Argeo 2]** The factory used to maintain the distribution is easily forkable in order for others to create spins. Combined with **SLC Repo** it allows for a kind of 'git' for provisioning

OSGi / Argeo Distribution



OSGi / Argeo Distribution



Spring

- Spring-friendly containers for Tomcat, Jackrabbit, Apache Directory Server (LDAP), etc.
- Spring massively used and pushed to the limits in Argeo SLC
- **[Argeo 2]** Upgrade to Gemini Blueprint from Spring OSGi, expression language, REST support

Spring

```
<!-- Templates -->
<bean id="template.jcrRepository" abstract="true"
      class="org.argeo.jackrabbit.JackrabbitContainer" init-method="init"
      destroy-method="destroy">
      <property name="variables" value="osgibundle:/repo.properties" />
      <property name="cndFiles">
            <list>
                  <value>/org/argeo/jcr/argeo.cnd</value>
                  <value>/org/argeo/slc/jcr/slc.cnd</value>
                  <value>/org/argeo/slc/repo/repo.cnd</value>
            </list>
      </property>
      <property name="bundleContext" ref="bundleContext" />
      <property name="forceCndImport" value="${slc.repo.jcr.forceCndImport}" />
</bean>



<!-- JCR repositories -->
<bean id="javaRepository" parent="template.jcrRepository">
      <property name="homeDirectory" value="${slc.repo.jcr.reposBase}/java" />
      <property name="configuration" value="${slc.repo.jcr.configuration.java}" />
</bean>
<bean id="distRepository" parent="template.jcrRepository">
      <property name="homeDirectory" value="${slc.repo.jcr.reposBase}/dist" />
      <property name="configuration" value="${slc.repo.jcr.configuration.dist}" />
</bean>
```

Spring

```
<!-- SERVICES -->
<service ref="javaRepository" interface="javax.jcr.Repository">
      <service-properties>
            <beans:entry key="argeo.jcr.repository.alias" value="java" />
      </service-properties>
</service>
<service ref="distRepository" interface="javax.jcr.Repository">
      <service-properties>
            <beans:entry key="argeo.jcr.repository.alias" value="dist" />
      </service-properties>
</service>
```

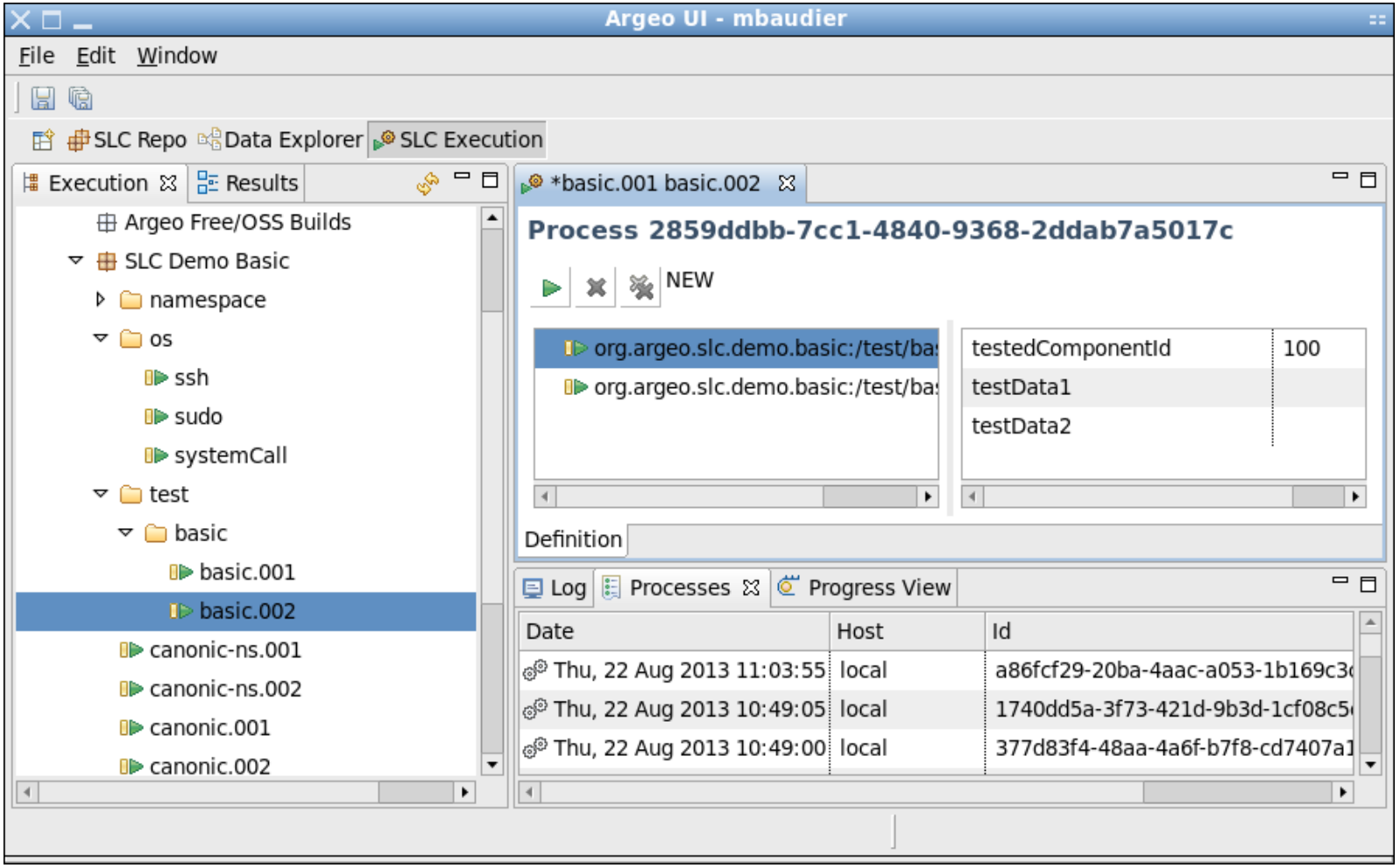
```
<!-- REFERENCES -->
<reference id="javaRepository" interface="javax.jcr.Repository"
      filter="(argeo.jcr.repository.alias=java)" />
<reference id="distRepository" interface="javax.jcr.Repository"
      filter="(argeo.jcr.repository.alias=dist)" />

<!-- Example of injection into a POJO bean -->
<bean id="osgiFactory" class="org.argeo.slc.repo.osgi.OsgiFactoryImpl"
      init-method="init" destroy-method="destroy">
      <property name="workspace" value="org.argeo.tp-2.1.x" />
      <property name="nodeIndexers">
            <list>
                  <bean class="org.argeo.slc.repo.ArtifactIndexer" />
                  <bean class="org.argeo.slc.repo.JarFileIndexer" />
            </list>
      </property>
      <property name="javaRepository" ref="javaRepository" />
      <property name="distRepository" ref="distRepository" />
</bean>
```

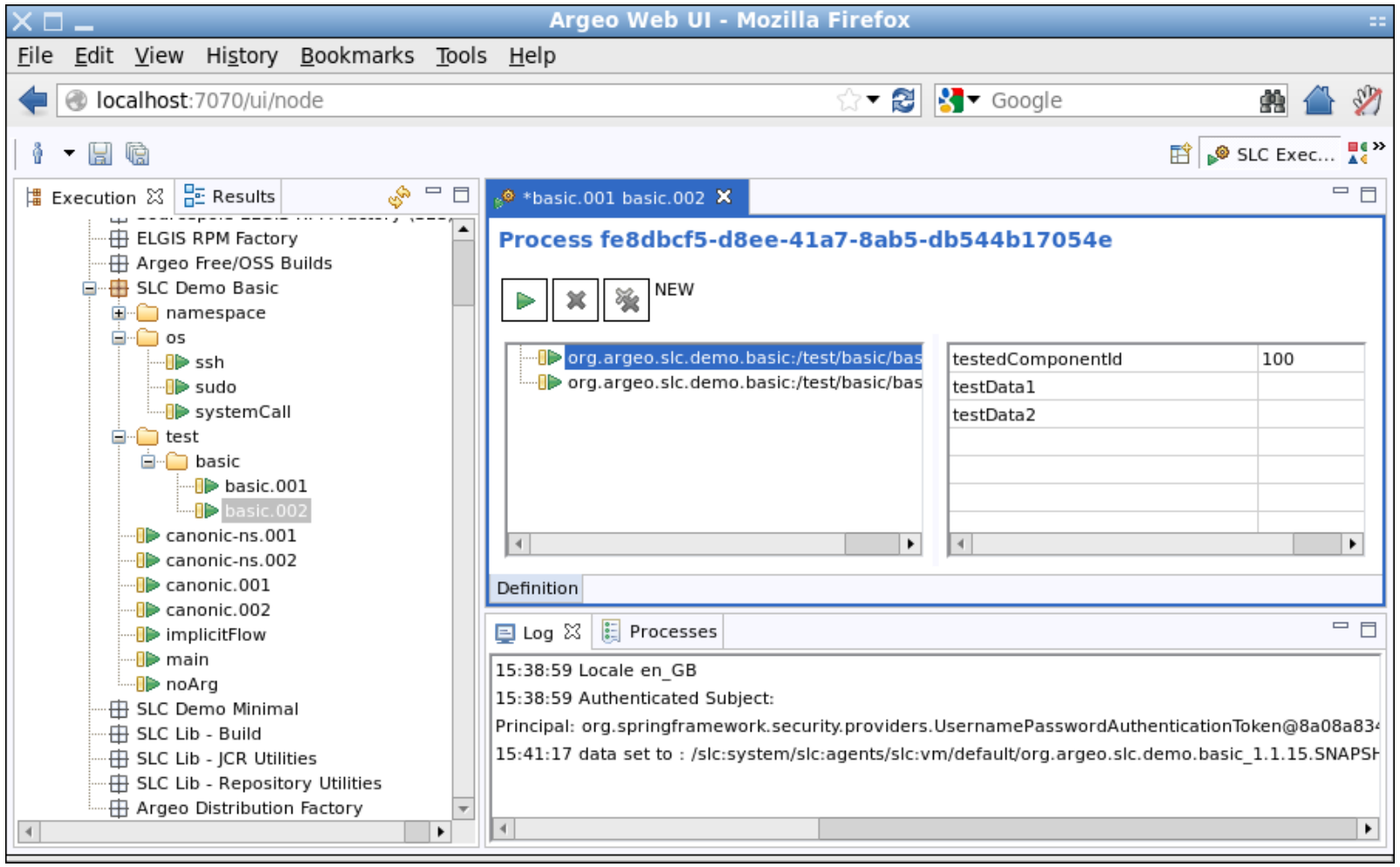
Eclipse

- Integration with Spring: views and editors are defined as Spring beans so that OSGi services can be easily injected
- Single sourcing and JCR utilities
- [Argeo 2] Leverage RAP 2.x improvements to have more flexible design and templating and go beyond the workbench paradigm

Eclipse – Desktop



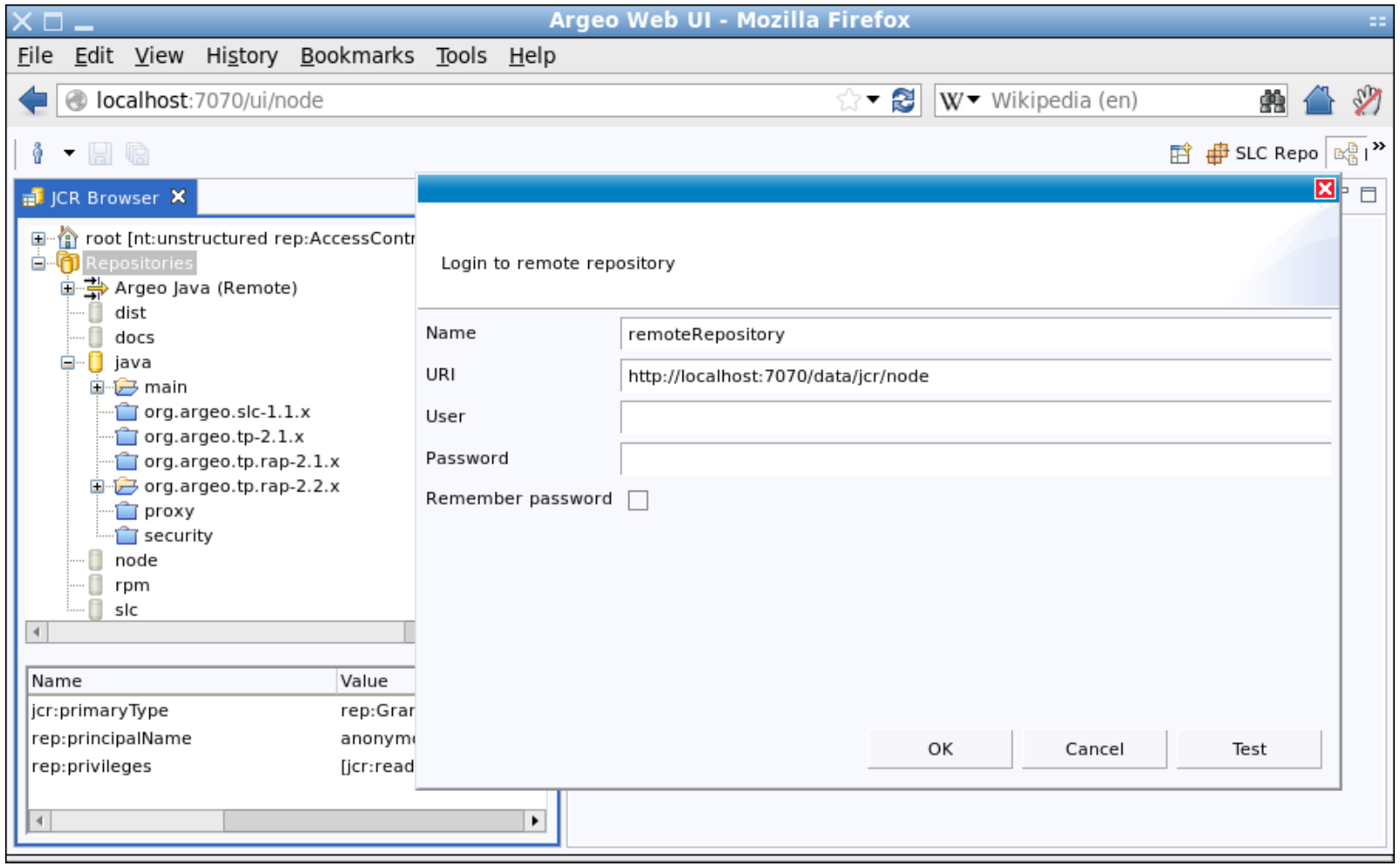
Eclipse – Web


Argeo Web UI - Mozilla Firefox
File Edit View History Bookmarks Tools Help
localhost:7070/ui/node
Google
SLC Exec...
Execution
Results
ELGIS RPM Factory
Argeo Free/OSS Builds
SLC Demo Basic
namespace
os
ssh
sudo
systemCall
test
basic
basic.001
basic.002
canonic-ns.001
canonic-ns.002
canonic.001
canonic.002
implicitFlow
main
noArg
SLC Demo Minimal
SLC Lib - Build
SLC Lib - JCR Utilities
SLC Lib - Repository Utilities
Argeo Distribution Factory
*basic.001 basic.002
Process fe8dbcf5-d8ee-41a7-8ab5-db544b17054e
NEW
org.argeo.slc.demo.basic:/test/basic/bas
org.argeo.slc.demo.basic:/test/basic/bas
testedComponentId
100
testData1
testData2
Definition
Log
Processes
15:38:59 Locale en_GB
15:38:59 Authenticated Subject:
Principal: org.springframework.security.providers.UsernamePasswordAuthenticationToken@8a08a83
15:41:17 data set to : /slc:system/slc:agents/slc:vm/default/org.argeo.slc.demo.basic_1.1.15.SNAPSH

JCR - Multiple Repositories

- Multiple Jackrabbit repositories in one runtime referenced as OSGi services. Always a 'node' repository available
- All repositories exposed via remoting / webdav thanks to a Spring MVC layer integrating the Jackrabbit servlets
- **[Argeo 2]** Modeshape support. Generalized usage of remoting thanks to improvements in Jackrabbit.

JCR - Multiple Repositories



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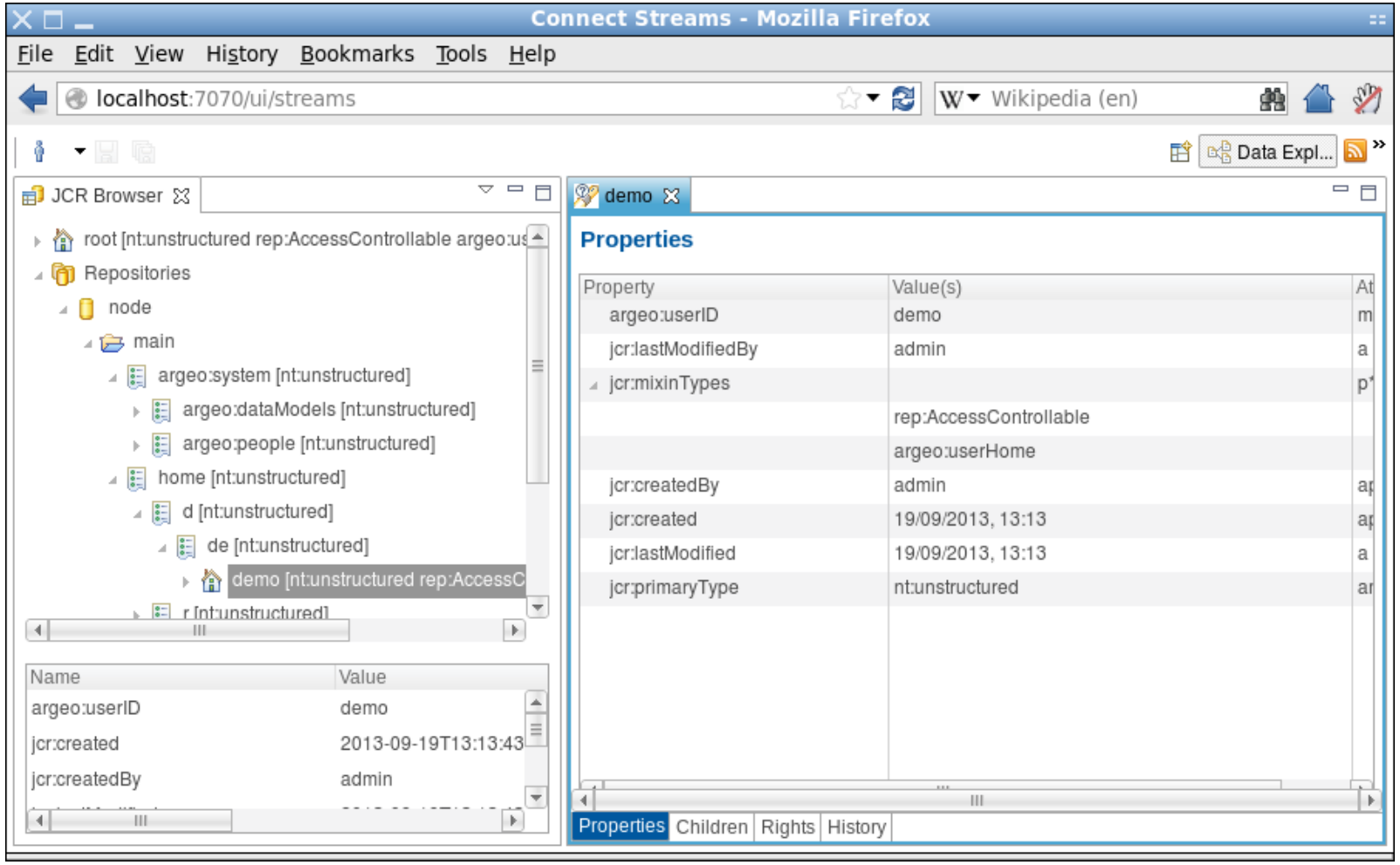
JCR – Data Explorer

- Browse the multiple repositories in a runtime, or remote repositories
- Very useful for debugging and during development
- [Argeo 2] Finer management of security and versioning. Management of Jackrabbit specific features

JCR – Data Explorer



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Security Integration 1/2

- Security integrated between JAAS, Eclipse and Jackrabbit with Spring Security as pivot
- A given thread has consistent username and authorities throug all layers
- Init/destroy methods of beans can be configured to have admin/system rights

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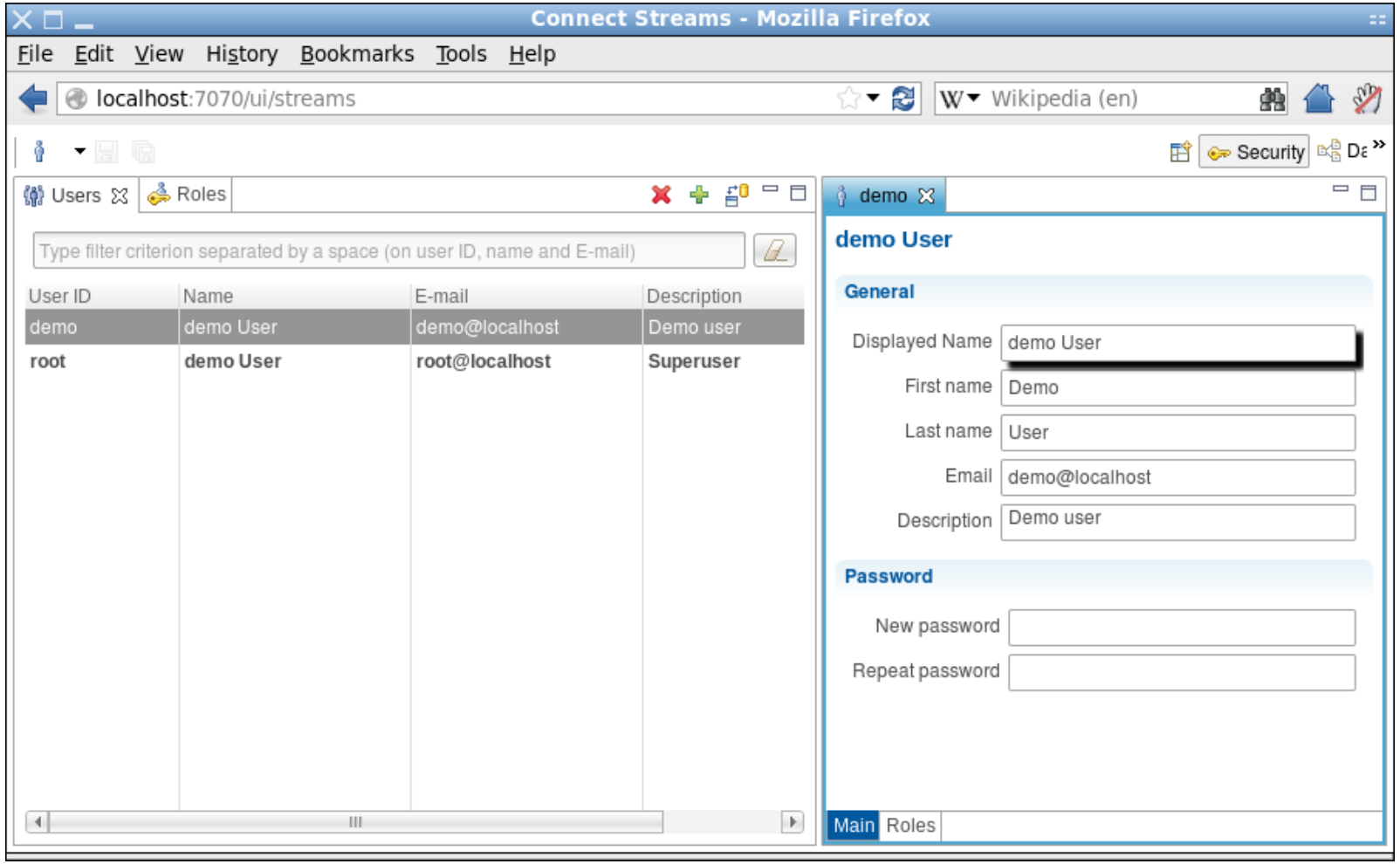
Security Integration 2/2

- Each user has a home JCR node in the 'node' repository (similar to a UNIX home directory) where modules can write
- Integrated with
  - LDAP for server applications
  - OS authentication for desktop
  - Remote Jackrabbit for thin clients

Security Integration



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Demo - SLC Runtime

- Based on Argeo 1, Desktop
- Execute processes defined as standard Java Runnable via Spring
- Used for builds, tests, configuration management, building RPMs, etc.
- Argeo Distribution factory based on it

Demo – RSS Reader 'Streams'

- Based on Argeo 2, Web
- As Google Reader has been retired, we wanted to illustrate that free, distributed, innovative alternatives are possible
- Prototyped in 3 man-days
- Note improvements in styling and instant search with **[Argeo 2]**

Questions / Contact

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