An Open Source OSGi™ Plugin For

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Outline

- Context
- Motivation
- The OSGi plugin
- Development plugin
- Repository plugin
- Gateway Management plugin
- General modular architecture
- Conclusion
- Future work
Context

- IMAG LSR Laboratory, Adele team, Grenoble
- Bull, an international French company

Members of ObjectWeb
- 1rst International consortium for Open Source Middleware
- Co-founded 2002 by Bull, France Telecom R&D and INRIA;
- Non-profit, open, business neutral
- Industry-grade projects

- 60 corporate members incl. 10 research labs
- 1700 individual members from 80 countries
- 130,000 visitors/months, 40% EU, 40% N.A
- 100 projects, 470 committers, 5,700 contributors
Motivation

- Developing an OSGi bundle implies
  - Packaging classes and resources
  - Writing Metadata (Metatype, SB, SCR, …)
- Testing the bundle
  - Deploying it to an OSGi framework
- Publish the bundle
  - In a repository
- Those tasks are
  - Complex for non-OSGi experts
  - Repetitive
- Could imply inconsistent bundles
  - Version, metadata, … versus sources
Motivation

- One of the major IDE (licence-free and open-source)
- Extensible by plug-ins (commercial or open-source)
- Plugins are packaged as OSGi Bundles

• Eclipse/Equinox
  - OSGi platform for plugin/bundle deployment

• Our goal

• Provides a open-source Eclipse plugin to simplify OSGi bundle development and deployment
The ADELE OSGi™ Plugin

- Set of modular plugins for
  - Bundle development
  - Repository (OBR) management
  - OSGi gateway management

- All can be installed and used independently
Development Plugin (1)

- Specific project for bundles
  - With a predefined classpath (osgi.jar,…)

- Some specific editors
  - For the manifest file
  - For Service Binder (pre-R4 SCR) metadata

- Packaging of the resources in bundles

- Publishing the bundles w/o OBR
Development Plugin (2)

Project creation

Manifest editor

Bundle Manifest Editor

Bundle Informations
- Bundle-Name
- Bundle-Description
- Bundle-Version
- Bundle-DirURL
- Bundle-Contact-Address
- Bundle-Update-Location

Bundle Activator
- Bundle-Activator

Bundle Path
- Bundle-Class-Path
- Bundle-Native-Code

Bundle Export Package

Bundle Import Package
Development Plugin (3)

Bundle creation

Publishing with OBR
Repository Plugin (1)

- Enable to import bundles into the project from the OBR (Oscar Bundle Repository)
- Automates download of a desired bundle
  - Save it in a local project
  - Add it to the classpath
  - Eclipse completion is available for classes the bundle embeds
- Deals with multiple OBRs
  - Publics (Oscar, Knoplerfish, ...) and privates
Gateway Management Plugin (1)

- Deploy bundles on a targeted OSGi gateway
  - Install, start, stop, update, uninstall
  - Deploy with dependencies (OBR)
- Manages several gateways
  - Customizable protocols
Gateway Management Plugin (2)

Protocol Preferences

Available protocols

- HTTP/SOAP
- Protocols under construction
- RMI
- JMX/RMI, JMX/HTTP
- UPnP OGD (OSGi Gateway Device)
Gateways view

<table>
<thead>
<tr>
<th>Problems</th>
<th>Javadoc</th>
<th>Declaration</th>
<th>OSGi Gateways</th>
<th>Plug-in Dependencies</th>
<th>Search</th>
<th>Console</th>
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<td>7: [ACTIVE] SoapS</td>
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</table>

- Start
- Stop
- Uninstall
- Get More Info

 OSPi Alliance
General Modular Architecture

- Preferences Plugin
- Remote Gateway Plugin
- Optional
- Mandatory

Repository

Development

Gateway

OSGi Alliance
Conclusion

- A set of modular plug-ins for OSGi bundle development and deployment
  - Extending Java Development Environment
  - Extensible

- Freely available from
Future Works

- Short-term work
  - Bundle debugging
  - OBR metadata editor
  - War2Bundle wizard
  - Update for OSGi R4
    - SCR metadata editor/wizard
    - Metatype metadata editor/wizard
  - Extends the PDE (plug-in development env.)

- Team future works will focus the deployment/admin.
  since PDE will cover the bundle dev. requirement.
  - OBR and gateway remote management