

Maven, eXist-db and EXPath

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Part 1.

Mavenizing eXist-db



Building eXist-db

- **Complicated build system**
 - Apache Ant
 - Bespoke project layout
- **Modularizing eXist-db has failed**
 - Difficult to define module boundaries
 - Hard to isolate test failures (to a module)
 - XQuery Extension modules have no location for tests
- **No real dependency management**
 - Some dependencies in VCS / downloaded by Apache Ivy
 - Clean and Build without Internet connection is impossible
 - Some duplicate/conflicting dependencies, e.g. YAJSW, etc.
 - No alerts on dependency security issues, e.g. OWASP, etc.

Building eXist-db

- IDE project files have to be maintained manually
- Difficult to use eXist-db as an embedded database in a Java project
- Generating a release is complicated
 - Several Manual Steps
 - Fixed Release Products (no pick-and-mix)



Benefits of switching to Maven

- **A modular eXist-db**
 - Standard Project Layout
 - Each module has its own source code, tests, and resources
 - Modules can be built and tested (somewhat) independently
 - Different release products containing more or less modules
- **Dependency management**
 - Downloaded on demand (and cached)
 - Conflicts can be detected and (automatically) resolved
 - Auto-checked for newer versions and/or Security alerts
- **Most IDEs natively support Maven Projects**
- **Building and publishing can be a single command**

Progress Report: Adopt Maven

- **Tool for Mavenizing eXist-db**
 - <https://github.com/adamretter/mavenize-exist>
 - A set of Bash scripts and POM files
 - Input: a clone of the eXist repo
 - Output a Maven project
 - exist-parent module
 - exist-core module
- **Can run the eXist test suite using Surefire**
- **Needs a further investment of time...**
- **DEMO!**

Part 2.

EXPath Packages and Maven



Creating EXPath Packages

- **Maven EXPath Pkg plugin**
 - <https://github.com/claudius108/kuberam-expath-plugin>
- **Simplify: We provide a Maven archetype for users**
 - <https://github.com/eXist-db/exist-apps-archetype>
 - Just generates a skeleton project:
 - Example XQuery Library Module written in Java
 - Example XQuery Library module written in XQuery
 - Build system for your project
 - Will create the EXPath Pkg Metadata for you
 - Ultimately builds an EXPath Pkg XAR file for you
- **Very easy for you to use!**
- **DEMO!**

Part 3.

Reflections on EXPath Pkg Spec



EXPath Pkg Spec :-/

- **Bad**

- Dependency management
- Metadata descriptors
- Auto Module registration
- Interoperability
- Extensibility
- Publication/Distribution

- **Good**

- Documented conventions
- Standard package file format

EXPath Pkg Spec :-/

- **Many wheels reinvented!**
 - Make more use of Maven ecosystem
 - Maven is much more than `mvn` command
 - Maven ecosystem also used by Ivy, Gradle, SBT, Buildr, etc.
 - pom.xml files
 - Manage and reflect dependencies
 - Contain metadata needed for EXPath Package files
 - Maven Extension for .xar files (just like .nar files)
 - Distribute via Maven Central or other Maven ecosystem compatible repo.
- **We can do so much better through reuse!**