Can DDI eXist?
http://ddi-exist.info

The web site will contain most of our work with eXist-db and DDI. Demos and examples will be posted here.
eXist-db

- eXist-db is an Open Source Project licensed under LGPL and is developed in an Agile and Open manner.

- 9+ Years since inception
- 22 Stable Releases

- > 530k lines of code
- ~ 140 man years of effort
- ~ $8.0M development cost

- Large Open Source community and user base

- Version 1.4.1 is imminent!
## History - 1

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<th>5th January 2001</th>
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## History - 2

<table>
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<td>(many snapshots)</td>
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Reflections

- Recent major releases have been huge
  - Many new features
  - Sometimes initially lacking documentation
  - Many bug fixes
  - Some breaking changes, e.g. alignment to specs

- Users depend on SVN trunk between releases
  - Good for testing and feedback
  - Challenging for “Production” systems

- High quality releases
Planned releases

- Shorter release cycle of 6 months
  - 1.5 Development – to be released soon
  - 1.6 January 2012 *)
  - 1.7 Development – to be defined
  - 1.8 January 2013 *)

*) Exact timing depends on factors
Version 1.6 – January 2012

- Low-level Storage API redesign and improvements
- Native XSLT 3.0 engine
- XQuery Debugger
- JSR-225 / XQJ API
- Pluggable Authentication API / OpenId
- W3C XQuery Full-Text support
- XQuery Update, align to W3C revised specification
- Java 1.6 Generics, Bug fixes and improvements
- WebDAV – using 'Milton'
Version 1.8 – January 2013

- Rewrite HTTP APIs
  - REST

- REST and SOAP delivery of XQuery functions
  - Continued development of 'SoapServer' servlet

- ANTLR Update
  - Better feedback on syntax errors
More features - 1

- (Redesign) Clustering
- Structural Index use for local:* and pfx:*
- Backup/Restore Versioning
- EXI Support (previously Binary XML)
- Content Management Integration
  - JSR-170 / JSR-238 / CÎMS
- CIFS Server
More features - 2

- XQuery threading
  - parallel and out-of-order execution

- Further uses of Statistical Index

- Automate Installer Testing

- Documentation

- Feature Requests from the community!
XML Validation

XML Validation support in eXist-db

- Implicit
  - Xerces
  - XML catalog support

- Explicit
  - Using extension functions
  - Wrapper around third party libraries
  - Validation Report
Explicit validation - 1

External libraries
• JAXP
  • Validate by parsing
  • javax.xml.parsers
  • Part of Java since Java5
  • XSD, catalogue files (DTD)

• JAXV
  • java.xml.validation
  • XSD

• Implemented by Xerces
Explicit validation - 2

External libraries
  • Jing
    • James Clark's / George Bina
    • Hosted on Google code
  • Grammar
    • XML schema (.xsd)
    • Namespace-based Validation Dispatching Language (.nvdl)
    • RelaxNG (.rng and .rnc)
    • Schematron 1.5 (.sch)
Functions

http://exist-db.org/xquery/validation
  validation:jaxp-report(xml, cache, catalogs*) node()
  validation:jaxv-report(xml, xsd+) node()
  validation:jing-report(xml, grammar) node()

Specials
  • Jaxp-parse
    • Parse in validating mode: schema defaults
  • Grammar cache management
Apache Lucene

eXist-db uses Lucene as an extension index for full text searches

This enables powerful indexing and searching on XML node level

Configuration examples for indexing DDI3 can be found on http://ddi-exist.info
SND Online Catalogue

Currently under development

Transformations from DDI into
- xhtml
- pdf and epub
- marc and other similar formats

Full text search

OAI-PMH
- harvesting of metadata in the catalogue
SND Question Bank

Backend
SIMS - SNDs Internal Management System

Windows based in-house developed system for managing SND's collections, metadata, contacts, disseminations etcetera

Exports to DDI2.1 and DDI3.1

Framework is C#.NET and MySQL

Uses wsdl to store DDI instances in eXist
SND Question Bank

Frontend

User interface built with jQuery. Communicates with eXist-db using json

eXist transforms QuestionItems to json array

filtered search
  • study citation fields
  • language
DDI Validator

http://ddi-exist.info/#validator

Validation of DDI2.1 and DDI3.0/3.1

Validation by
  • file upload
  • url
  • copy/paste

Drupal module as frontend available
EXPath

http://expath.org

“Collaboratively Defining Open Standards for Portable XPath Extensions”
XForms

We will present the following XForms-based solution in December

Generation from model e.g. DDIPrfile

Validation of input

Presentation view of QuestionItems