Upgrading DSpace

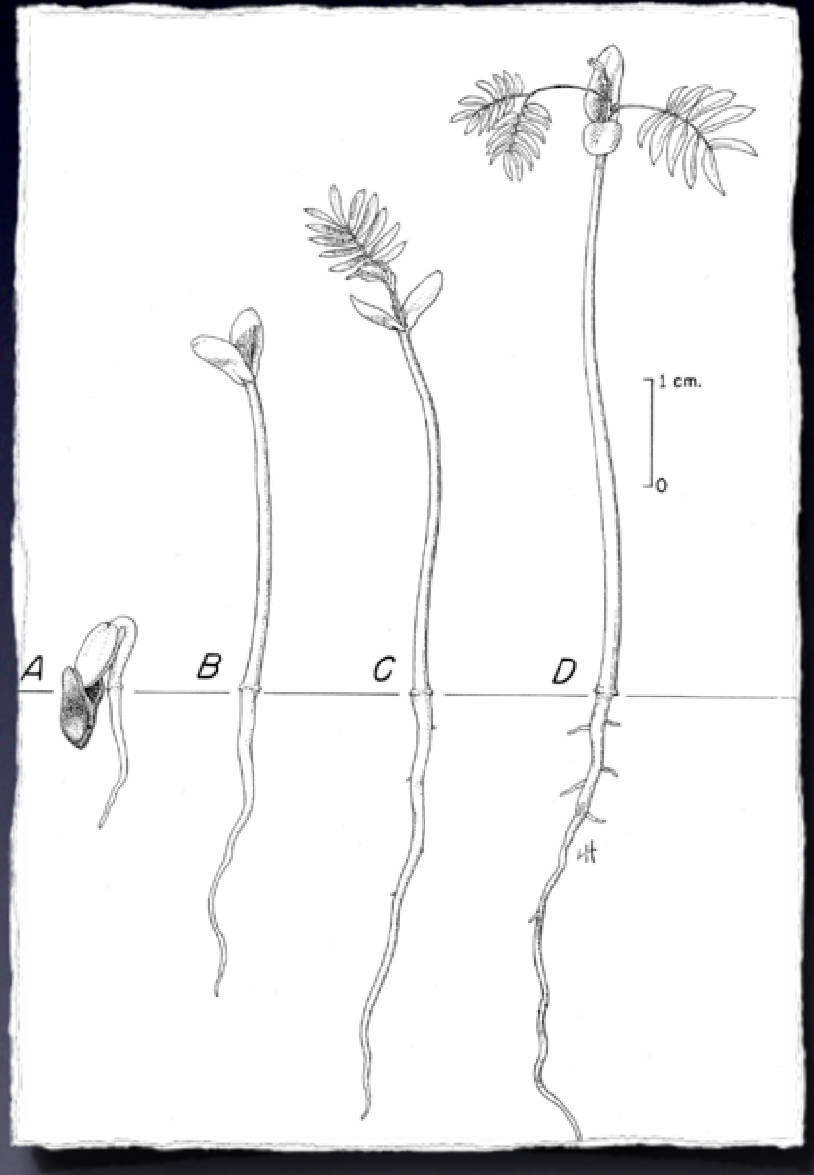
Version 1.4.2 to Version 1.5.x

JA-SIG
Spring 2008 Conference
St. Paul, Minnesota
April 28-30, 2008

Mark Diggory

Changes

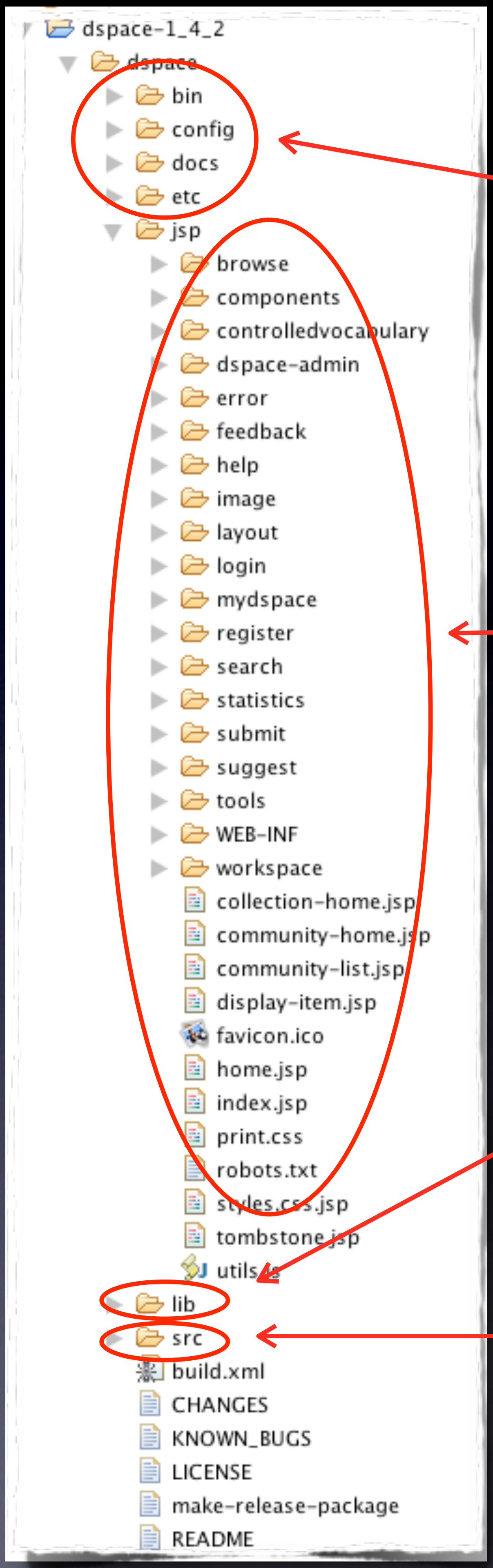
- Code Reorganization
- New Build System
- New Services
- New Configurability



Code Reorganization

- Separates JAVA code into functional units (API, OAI, JSP-UI).
- Reorganizes Resources by Web-application Service (OAI, JSP-UI)
- Adds New Web-application Services (SWORD, LNI, XML-UI)
- Allows for better Customization (Overlays)

Code Reorg.



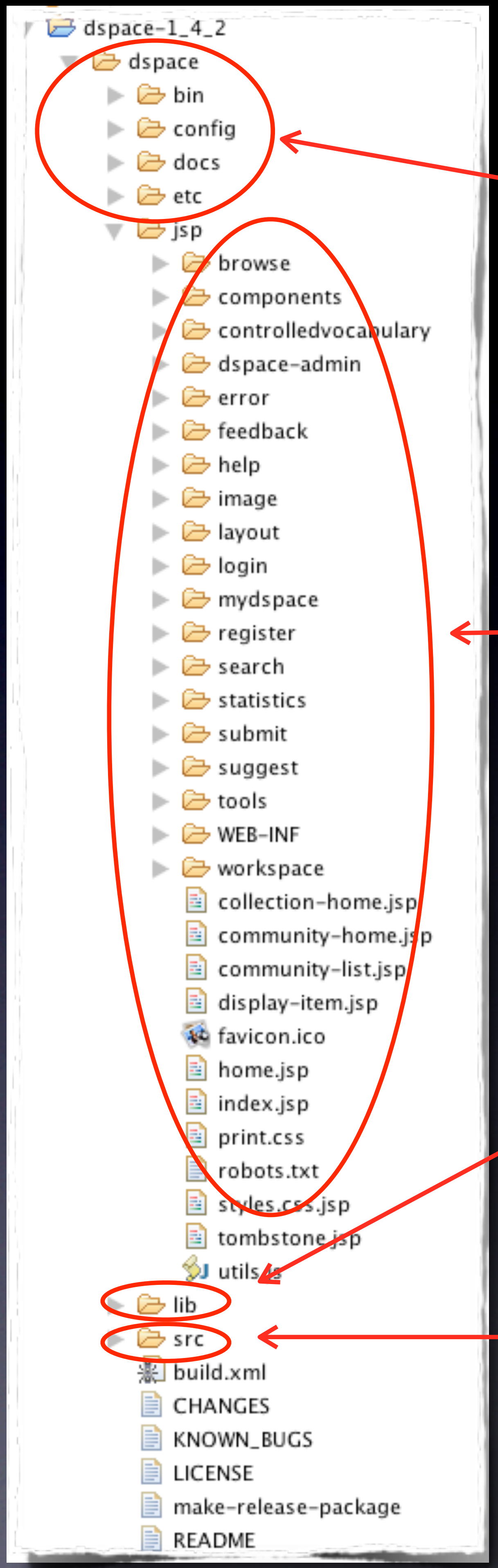
```
dspace-1_4_2
  dspace
    bin
    config
    docs
    etc
    jsp
      browse
      components
      controlledvocabulary
      dspace-admin
      error
      feedback
      help
      image
      layout
      login
      mydspace
      register
      search
      statistics
      submit
      suggest
      tools
      WEB-INF
      workspace
      collection-home.jsp
      community-home.jsp
      community-list.jsp
      display-item.jsp
      favicon.ico
      home.jsp
      index.jsp
      print.css
      robots.txt
      styles.css.jsp
      tombstone.jsp
      utils.js
    lib
    src
    build.xml
    CHANGES
    KNOWN_BUGS
    LICENSE
    make-release-package
    README
```

Configuration Files
(cli, webapp, build)

Web application resources (JSP)

Dependency Libraries

Java Source Files
(api, servlets)



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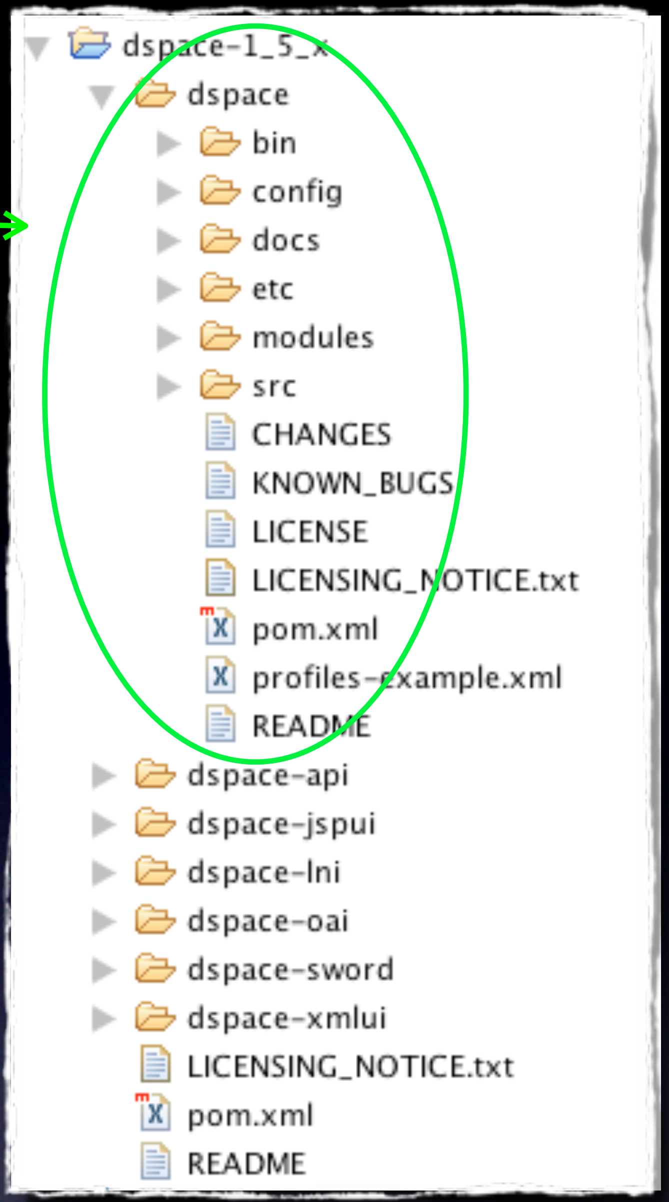

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    docs
    etc
    modules
    src
    CHANGES
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    LICENSE
    LICENSING_NOTICE.txt
    pom.xml
    profiles-example.xml
    README
  dspace-api
  dspace-jspui
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  dspace-oai
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  dspace-xmlui
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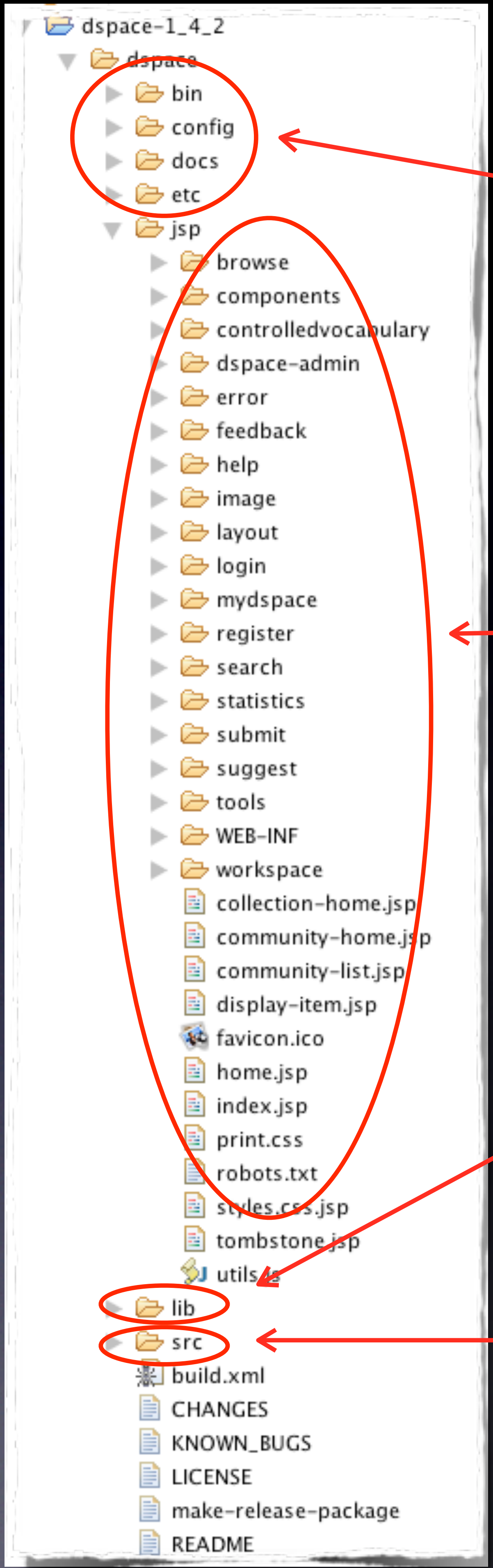

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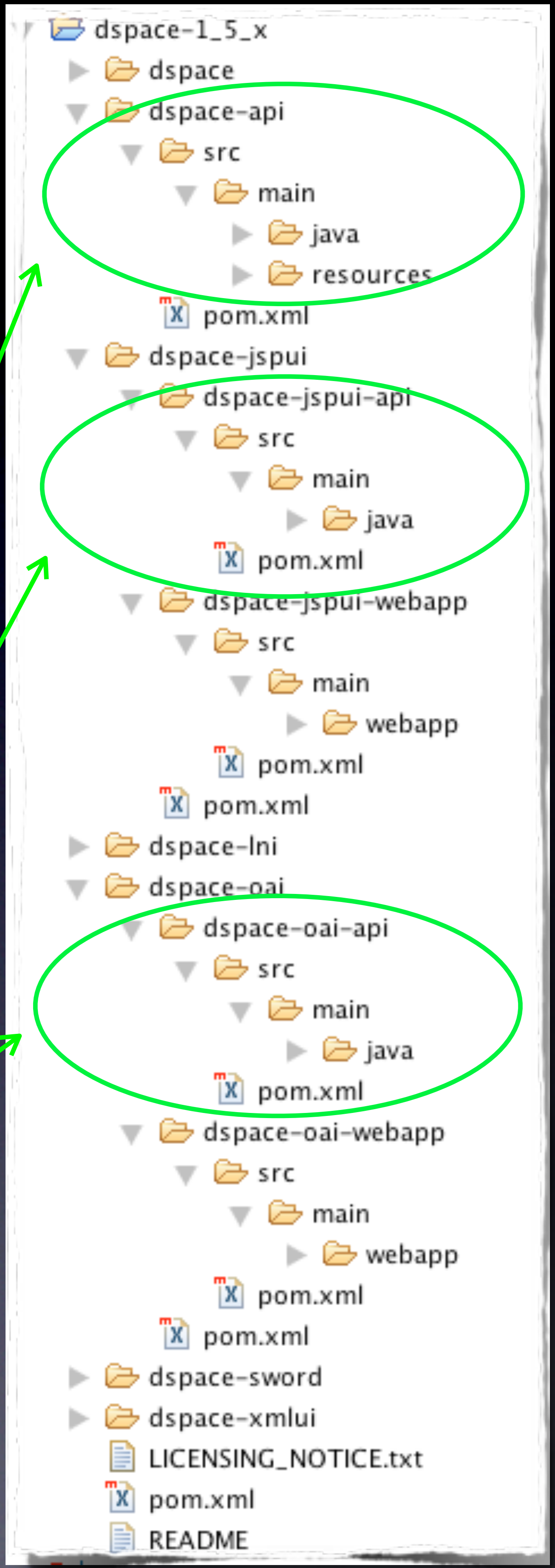

```
dspace-1_5_x
  dspace
  dspace-api
    src
      main
        java
        resources
    pom.xml
  dspace-jspui
    dspace-jspui-api
      src
        main
          java
      pom.xml
    dspace-jspui-webapp
      src
        main
          webapp
      pom.xml
    pom.xml
  dspace-lni
  dspace-oai
    dspace-oai-api
      src
        main
          java
      pom.xml
    dspace-oai-webapp
      src
        main
          webapp
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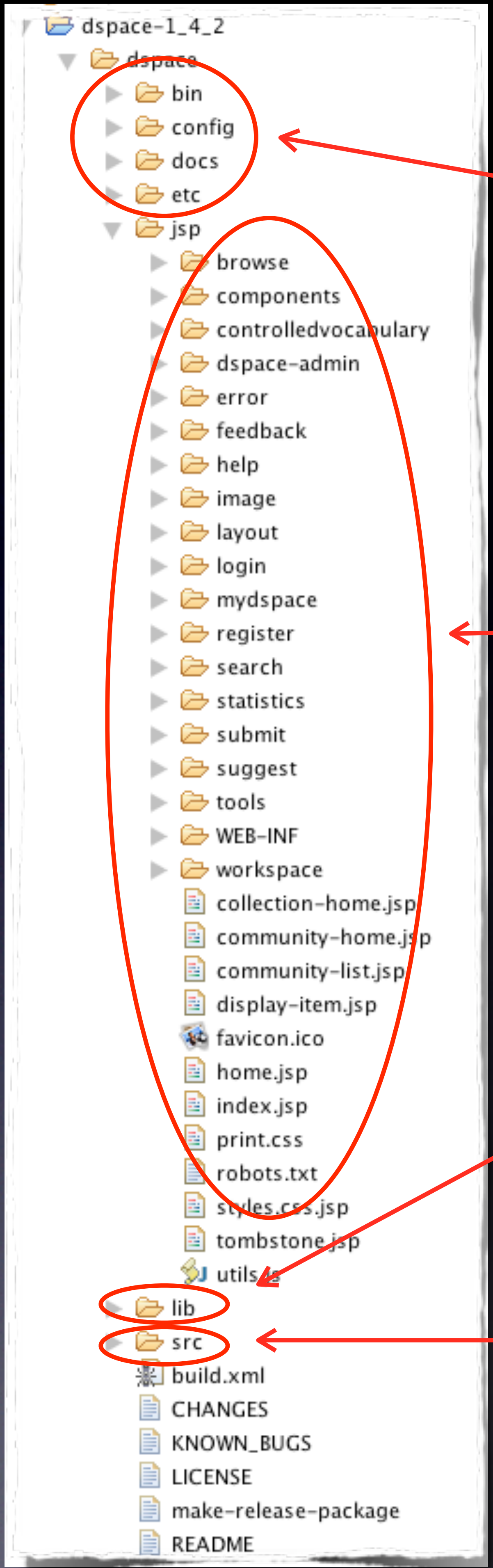

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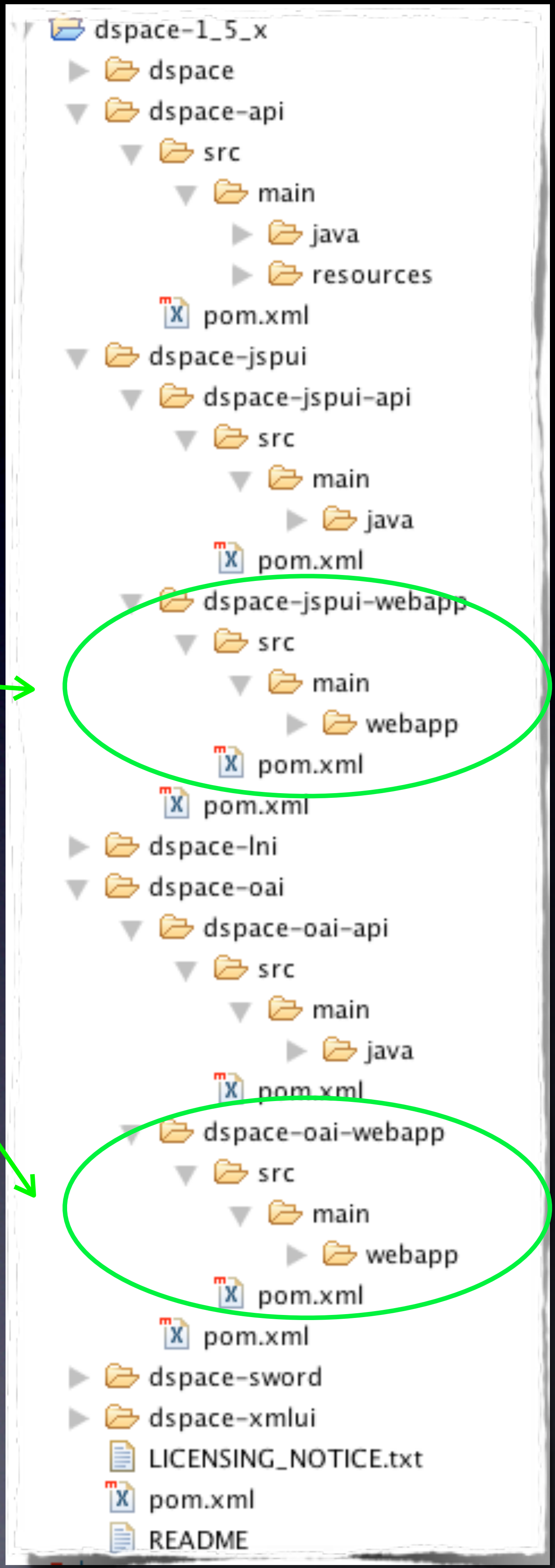

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        main
          java
      pom.xml
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      src
        main
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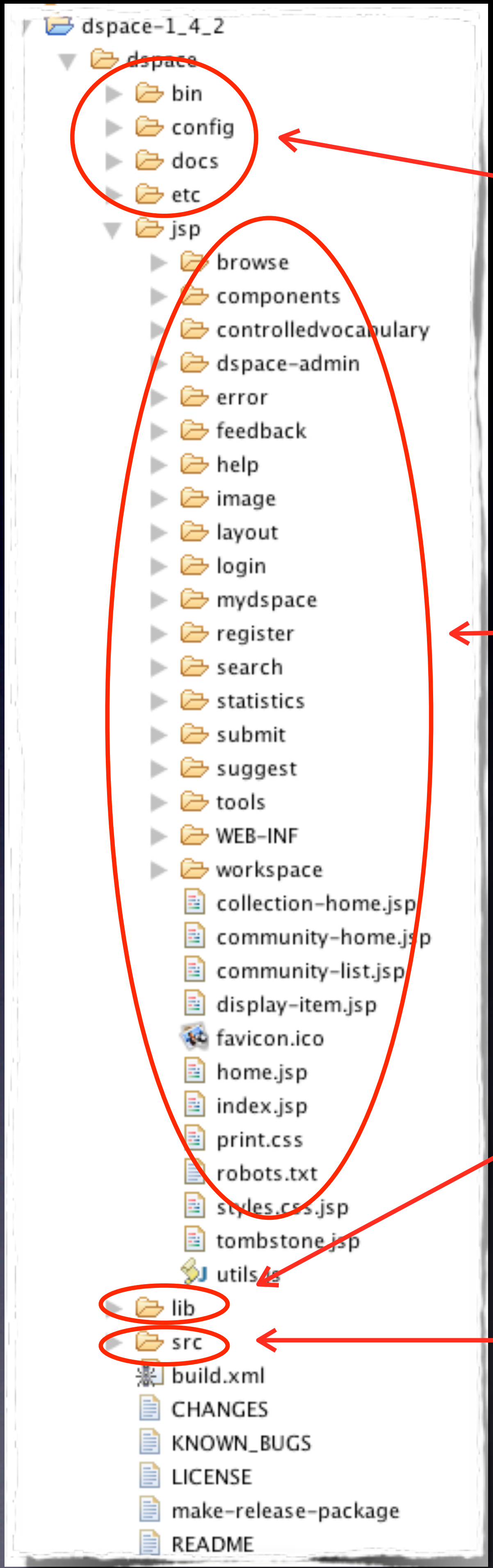

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Configuration Files (cli, webapp, build)

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Dependency Libraries

?

Java Source Files (api, servlets)

Maven

Apache Software Foundation

- “Convention Driven”
- Build Management
- Dependency Resolution
- Build Modularization

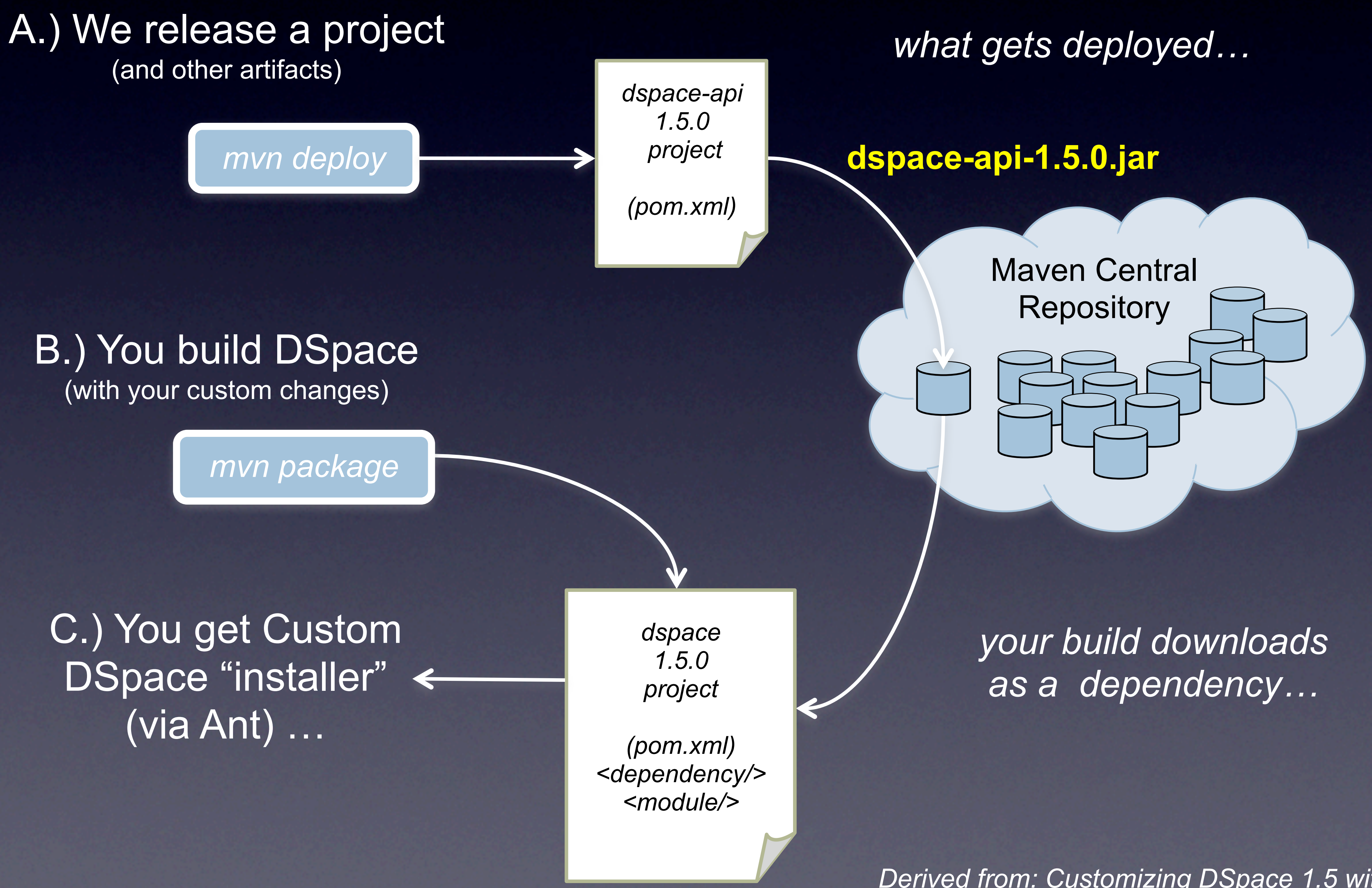
Maven Benefits

- Defines "Conventions" for a DSpace project.
- Manages all DSpace third party dependencies
- Allows DSpace to be published and reused as a dependency for others.
- Gives DSpace a predictable modularity

Maven Complexities

- Learning Curve
- Distributed Configuration
- Requires Network Internet Access
- Much larger a project than Ant
    - (many many sub projects and plugins)

DSpace Release and Build Process



A.) We release a project
(and other artifacts)

mvn deploy

*dspace-api
1.5.0
project*

(pom.xml)

what gets deployed…

dspace-api-1.5.0.jar

Maven Central
Repository

B.) You build DSpace
(with your custom changes)

mvn package

C.) You get Custom
DSpace “installer”
(via Ant) …

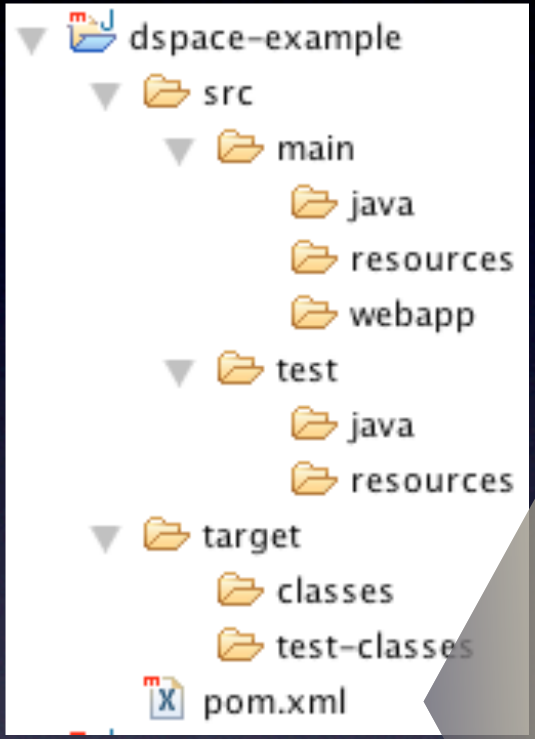
*dspace
1.5.0
project*

*(pom.xml)
<dependency/>
<module/>*

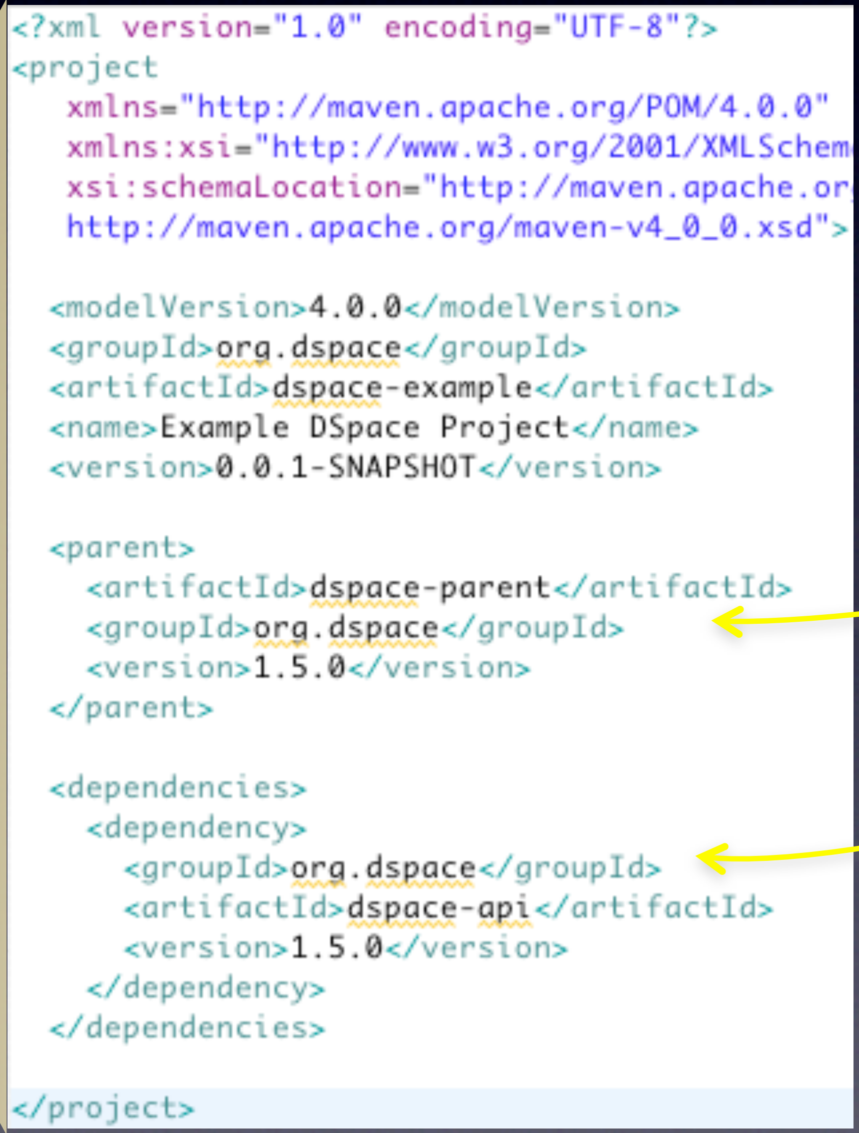
*your build downloads
as a dependency…*

*Derived from: Customizing DSpace 1.5 with Overlays,
Tim Donohue and Graham Triggs, OR 2008*

Maven Project Conventions



```
dspace-example
  src
    main
      java
      resources
      webapp
    test
      java
      resources
  target
    classes
    test-classes
  pom.xml
```



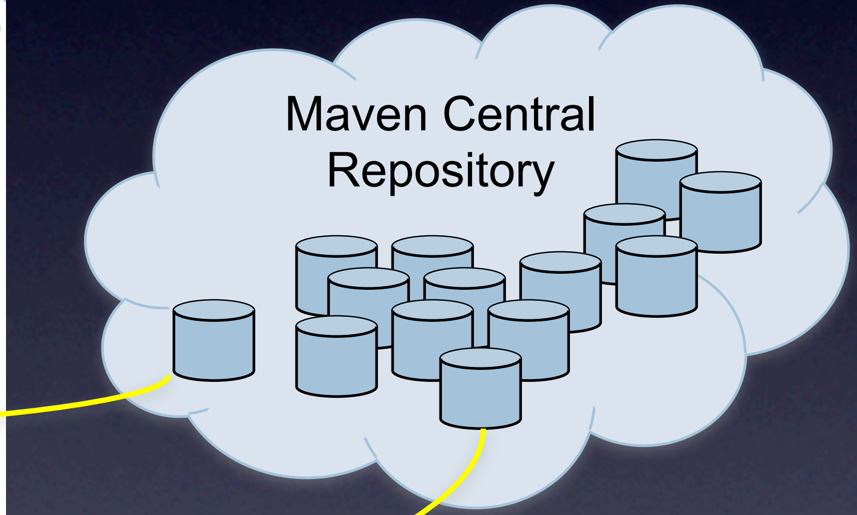
```
<?xml version="1.0" encoding="UTF-8"?>
<project
   xmlns="http://maven.apache.org/POM/4.0.0"
   xmlns:xsi="http://www.w3.org/2001/XMLSchem
   xsi:schemaLocation="http://maven.apache.or
   http://maven.apache.org/maven-v4_0_0.xsd">

  <modelVersion>4.0.0</modelVersion>
  <groupId>org.dspace</groupId>
  <artifactId>dspace-example</artifactId>
  <name>Example DSpace Project</name>
  <version>0.0.1-SNAPSHOT</version>

  <parent>
    <artifactId>dspace-parent</artifactId>
    <groupId>org.dspace</groupId>
    <version>1.5.0</version>
  </parent>

  <dependencies>
    <dependency>
      <groupId>org.dspace</groupId>
      <artifactId>dspace-api</artifactId>
      <version>1.5.0</version>
    </dependency>
  </dependencies>

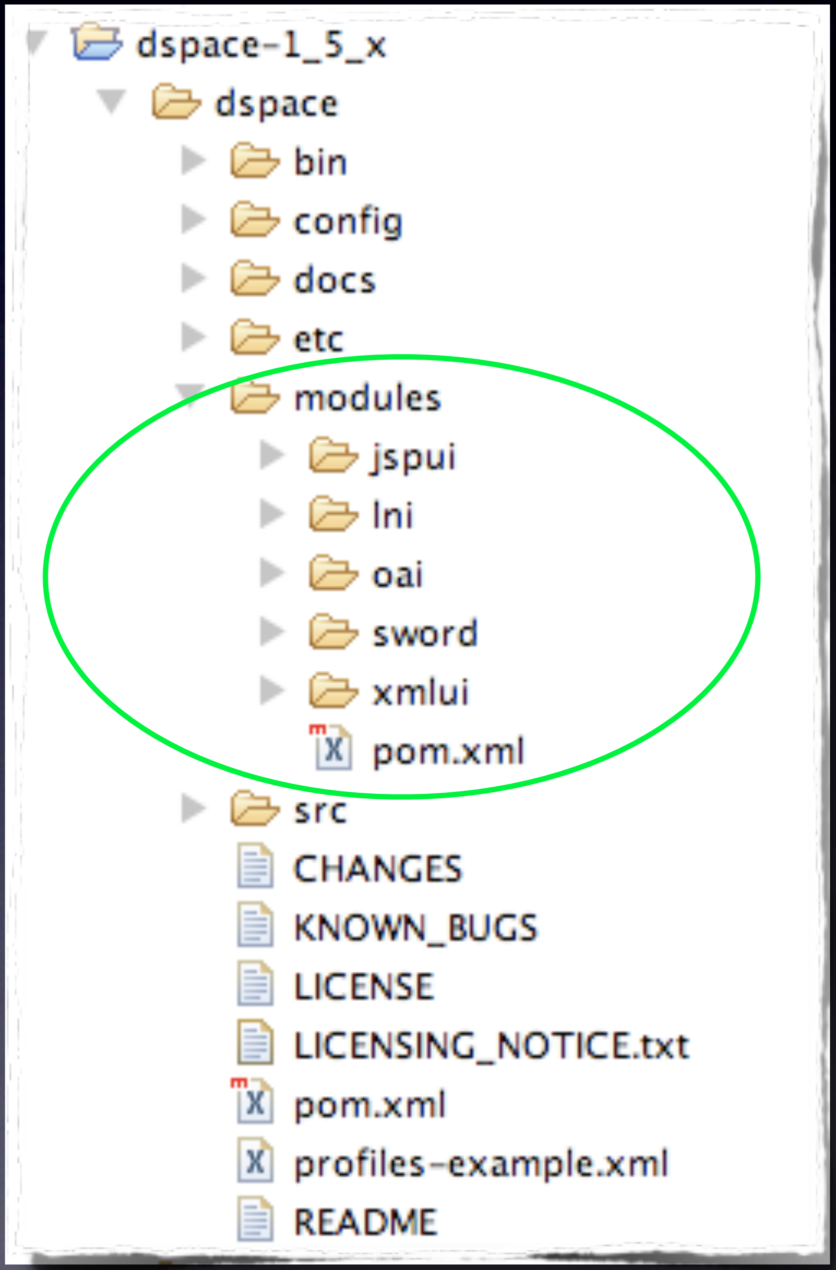
</project>
```



your build downloads a dependency…

Derived from: Customizing DSpace 1.5 with Overlays, Tim Donohue and Graham Triggs, OR 2008

New Services



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      lni
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      sword
      xmlui
      pom.xml
    src
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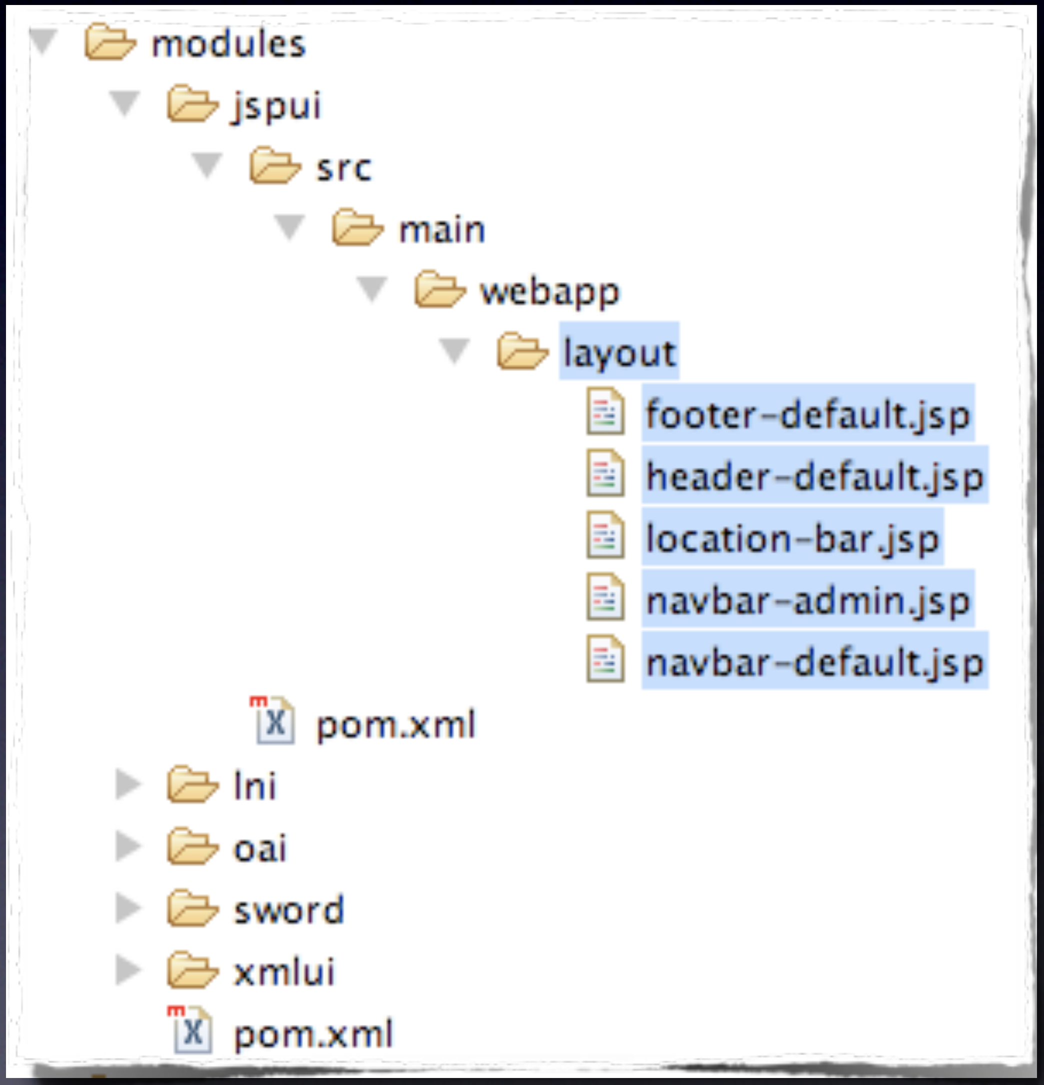
    KNOWN_BUGS
    LICENSE
    LICENSING_NOTICE.txt
    pom.xml
    profiles-example.xml
    README
```

- Customizable "Modules"
  - Original (JSP-UI)
  - LNI
  - OAI (OAI-PMH)
  - SWORD
  - Manakin (XML-UI)

Customizing a module

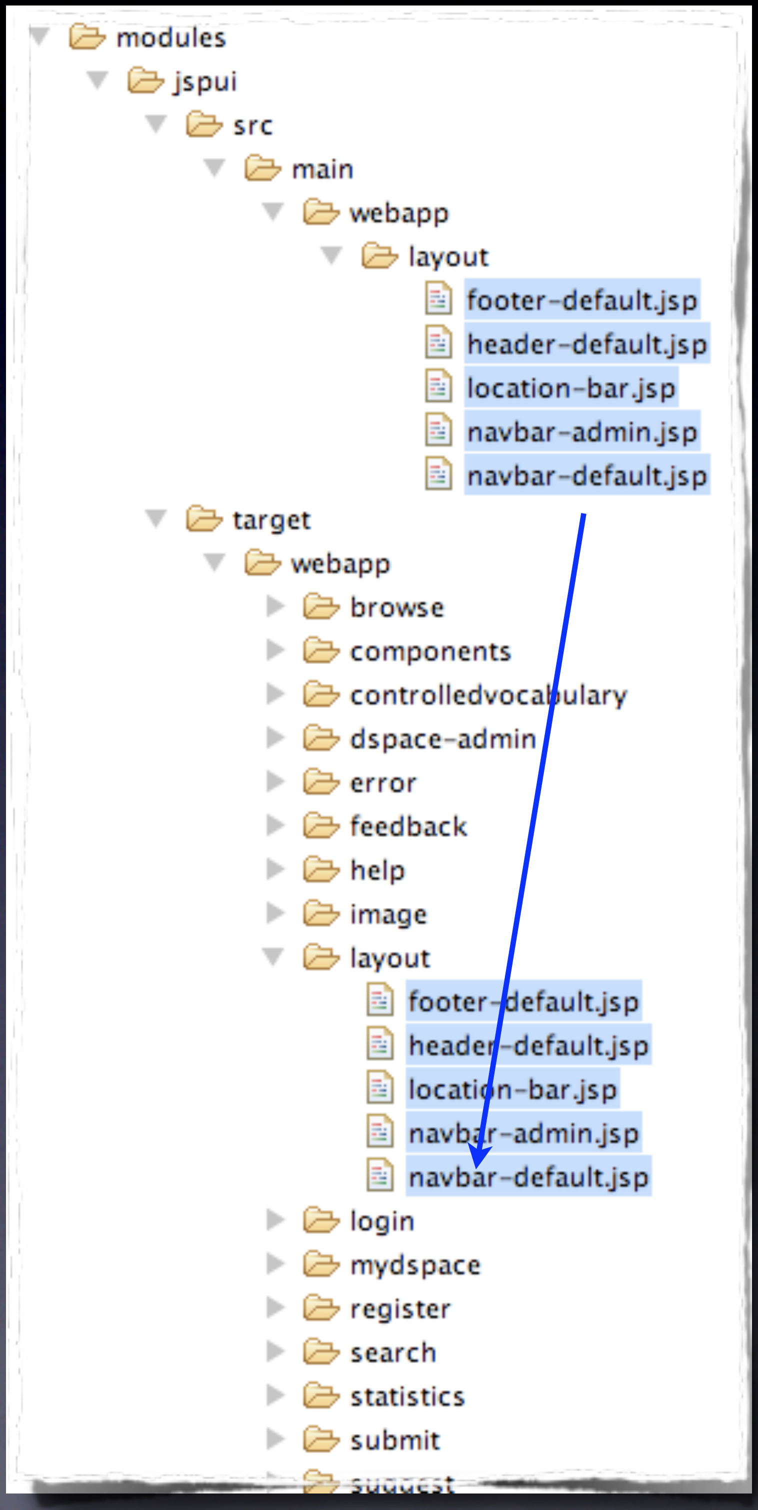
- Each a Maven Project
  - Adheres to conventions
    /src/main/webapp
    /src/main/resources
    /src/main/java



```
▼ modules
  ▼ jspui
    ▼ src
      ▼ main
        ▼ webapp
          ▼ layout
              footer-default.jsp
              header-default.jsp
              location-bar.jsp
              navbar-admin.jsp
              navbar-default.jsp
    pom.xml
  ▶ lni
  ▶ oai
  ▶ sword
  ▶ xmlui
  pom.xml
```

Customizing a module

- Each module an "Overlay"
- Each Replaces the original from webapp
- Keeps customizations out of original source.



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modules
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          navbar-default.jsp
        login
        mydspace
        register
        search
        statistics
        submit
        suggest
```

New Configurability

- Stackable Authentication
- Configurable Browse
- Configurable Submission
- Separate New Module Configurations

Impact

- new prerequisite (Maven)
- Code reorganization
- Database Schema changes
- dspace.cfg changes

Planning

- Backup everything often
- Track customizations
- Map migration path
- Ask questions!
- Practice, Practice Practice

Preserve local changes

- Store Customizations in SCM
- Tracks all changes
- Foundation for upgrade process
  (development, staging, production)

Application Backup

- Database

  -
    ```
    /usr/bin/pg_dump --create --oids \
            -U postgres -f backup.sql dspace
    ```
- DSpace App Directory
  - ${assetstore.dir}... ${assetstore.dir.N}
  - ${history.dir}, ${report.dir}, ${log.dir}, ${search.dir}
  - bin, config, etc, lib, handle-server, webapps

The Upgrade

- Building with Maven
- Installing with Ant
- Upgrading Database
- Rebuilding Search/Browse

Demonstration