

# Debian Packaging for the Virtual Observatory

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# Motivation

- make VO-related software easier to install and to update
  - ➔ `apt-get install <package_name>`
  - ➔ `apt-get update && apt-get dist-upgrade`
- make all sources of VO applications and their dependencies available and distributable

# Motivation

- make VO-related software easier to install and to update
  - ➔ `apt-get install <package_name>`
  - ➔ `apt-get update && apt-get dist-upgrade`
- make all sources of VO applications and their dependencies available and distributable
- bring astronomical software to the attention of a wider audience:
  - ▶ within the astronomy community
  - ▶ to science-interested Debian users

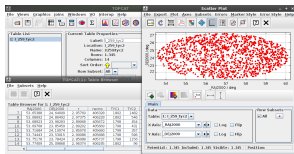
# Motivation

- make **VO-related software** easier to install and to update
  - ➔ `apt-get install <package_name>`
  - ➔ `apt-get update && apt-get dist-upgrade`
- make all **sources** of VO applications and their dependencies available and distributable
- bring astronomical software to the attention of a wider audience:
  - ▶ within the astronomy community
  - ▶ to science-interested Debian users
- co-operate with **upstream** authors (developers) to make their software Debian-compliant, e.g. by
  - ▶ introducing **versioning schemes** (if not present)
  - ▶ getting rid of potential **licensing issues**

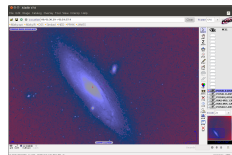
# Packaging of VO-related Software

- VO applications

- ▶ Topcat (Java)



- ▶ Aladin (Java)

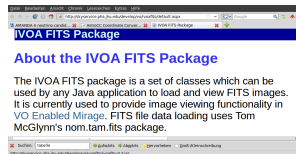


- modules and libraries

- ▶ DaCHS, tapsh (Python)



- ▶ IVOA Fits, ADQL Lib,... (Java)



➡ VO-packaging involves packaging of many non-VO dependencies

# Package Management Systems

- collection of software tools for an operating system responsible for **installing**, **upgrading**, **configuring** and **removing** software packages

# Package Management Systems

- collection of software tools for an operating system responsible for [installing](#), [upgrading](#), [configuring](#) and [removing](#) software packages
- evaluation of [package metadata](#), e.g. the software name, its version number or a list of package dependencies



# Package Management Systems

- collection of software tools for an operating system responsible for **installing**, **upgrading**, **configuring** and **removing** software packages
- evaluation of **package metadata**, e.g. the software name, its version number or a list of package dependencies
- multi-layer operation, e.g. in Debian:
  - ▶ low-level programme `dpkg` for installing and purging packages
  - ▶ high-level programme `APT` for resolving package dependencies

➡ package management is one of the greatest achievements of the Linux world

# Debian Packages

- Debian 6.0: more than [29,000 binary packages](#) built from approximately [15,000 source packages](#)
- Debian packages
  - ▶ support 11 different computer architectures using the [Linux kernel](#)
  - ▶ are used by a variety of Debian derivatives, e.g. Linux Mint, Ubuntu
- [Debian Pure Blends](#): thematic subset of packages used to support particular target groups, e.g. [Debian Med](#), [Debian Science](#)



# Creating a Package (I)

- `dh_make`: generates a set of template files necessary for the creation of the package, i.a.
  - ▶ `control`: contains most relevant metadata of the package, e.g. package description, list of dependencies, architectures, ...

# Example for a control file

- e.g. `control` file under Aladin's `debian/` directory:

```
Source: aladin
Section: java
Priority: optional
Maintainer: Florian Rothmaier <gavo@ari.uni-heidelberg.de>
Build-Depends: debhelper (>= 7.0.50~), javahelper (>= 0.32) , ant
Build-Depends-Indep: default-jdk, default-jdk-doc,
    libxmlrpc2-java, libjsamp-java, libcommons-codec-java,
    librmilite-java, libstarplastic-java
Standards-Version: 3.9.1
Homepage: http://aladin.u-strasbg.fr/

Package: aladin
Architecture: all
Depends: ${java:Depends}, ${misc:Depends}
Description: interactive software sky atlas
...
```

# Creating a Package (I)

- **dh\_make**: generates a set of template files necessary for the creation of the package, i.a.
  - ▶ **control**: contains most relevant metadata of the package, e.g. package description, list of dependencies, architectures, ...
  - ▶ **copyright**: contains copyright and licensing information about the upstream sources
  - ▶ **changelog**: documents changes between successive versions of a package
  - ▶ **rules**: Makefile that defines the targets used to actually create the package

# Creating a Package (II)

- **debhelper** (v7): suite of small programmes (prefixed by `dh_`), each with a specific task
  - ▶ simple rules file evokes the execution of the 58 `dh_*` scripts:

```
#!/usr/bin/make -f
%:
    dh $@
```

- ▶ individual debhelper scripts can be customised by defining `override_dh_*` targets, e.g.

```
override_dh_auto_build:
    ant -f source/build.xml jar
```

# Packaging in the Java World

- JAR archives provide a number of benefits for developers and users
  - ▶ platform-independent file format
  - ▶ JARs can be executed as standalone programmes
  - ▶ download of a single archive including a set of compressed files is faster than downloading all these files separately

# Packaging in the Java World

- JAR archives provide a number of benefits for developers and users
    - ▶ platform-independent file format
    - ▶ JARs can be executed as standalone programmes
    - ▶ download of a single archive including a set of compressed files is faster than downloading all these files separately
  - packaging, however, is complicated by the common practice of dealing with JAR archives
    - ▶ “JAR-within-a-JAR”: third-party binary archives included in the class path of an application
- ➡ no (third-party) source code distributed
- ➡ potential licensing issues concealed



# Topcat's Dependencies

## Starjava Libs

- uk.ac.starlink.datanode
  - uk.ac.starlink.array
  - uk.ac.starlink.ast
  - uk.ac.starlink.connect
  - uk.ac.starlink.hds
  - uk.ac.starlink.hdx
  - uk.ac.starlink.ndx
  - nom.tam.util
  - org.apache.commons.net:  
Debian package  
libcommons-net-java (1.4.1) in  
"Squeeze"
  - org.apache.tools:  
Debian package ant (1.8.0) in  
"Squeeze"
- uk.ac.starlink.fits
- uk.ac.starlink.plastic
- uk.ac.starlink.sog
  - uk.ac.starlink.diva
    - diva
    - javax.accessibility:  
Standard Library
  - uk.ac.starlink.jaiutil
    - com.sun.media.jai.codec
    - javax.media.jai
  - uk.ac.starlink.soap
  - jdky
    - ca.nrc.cadc.arch.io
    - com.jrefinery:  
Debian package  
libjfreechart-java  
(1.0.13) in "Squeeze"
    - com.sun.media.jai.codec
    - javax.media.jai
    - org.dom4j.io:  
Debian package  
libdom4j-java (1.6.1) in  
"Squeeze"

- org.apache.axis:  
Debian package  
libaxis-java  
(1.4) in "Squeeze"
- org.apache.commons.logging:  
Debian package  
libcommons-logging-java (1.1.1)  
in "Squeeze"
- com.sun.media.jai.codec
- javax.media.jai
- uk.ac.starlink.table
  - uk.ac.starlink.pal
  - edu.jhu.htm
  - gov.fnal.eng.healpix
    - javax.vecmath:  
Debian package  
libvecmath-java (1.5.2) in  
"Squeeze"
- uk.ac.starlink.task
- uk.ac.starlink.ttools
  - uk.ac.starlink.registry
  - com.lowagie.text:  
Debian package libitext-java  
(2.1.7) in "Squeeze"
  - jarray
  - org.jibble.epsgraphics:  
Debian package libjlibeps-java  
(0.1) in "Squeeze"
  - org.mortbay:  
Debian package libjetty-java  
(6.1.26) in "Squeeze"
  - org.python:  
Debian package jython (2.5.1-2)  
in "Squeeze"
  - javax.servlet:  
Debian package  
libjavax2.5-java in "Squeeze"
- uk.ac.starlink.util
  - sun.awt.shell

- uk.ac.starlink.vo
  - adql
  - net.ivoa.registry.search
    - nasa.horizon.util
- uk.ac.starlink.votable
- uk.ac.starlink.xdoe

## Third Party Libs

- Acme.JPM.Encoders
- eds.to.ols
- edu.jhu.pha.sdss.fits.imageio
- edu.stanford.ejalbert
- gnu.jel
- nom.tam.fits
- org.astrogrid.samp
- org.votech.plastic

## Standard Libs/Oracle (Sun)

- com.sun.javadev:  
Debian package  
gcj-4.4-jre-lib  
(4.4.5-2) in "Squeeze"
- javax.help:  
Debian package javahelp2 (2.0.05.ds1-4)  
in "Squeeze"
- javax.imageio: Standard Library
- javax.xml: Standard Library
- org.w3c.dom: Standard Library
- org.xml.sax: Standard Library

# Debian-packaged Dependencies (I)

- packages already available in the current (stable) Debian release

## Starjava Libs

- uk.ac.starlink.datanode
  - uk.ac.starlink.array
  - uk.ac.starlink.ast
  - uk.ac.starlink.connect
  - uk.ac.starlink.hds
  - uk.ac.starlink.hdx
  - uk.ac.starlink.ndx
  - nom.tam.util
  - [org.apache.commons.net](#)
  - [org.apache.tools](#)
- uk.ac.starlink.fits
- uk.ac.starlink.plastic
- uk.ac.starlink.sog
  - uk.ac.starlink.diva
    - + diva
    - + [javac.accessibility](#): Standard Library
  - uk.ac.starlink.jaiutil
    - + [com.sun.media.jai.codec](#)
    - + [javax.media.jai](#)
  - uk.ac.starlink.soap
  - jsky
    - + [ca.nrc.cadc.arch.io](#)
    - + [com.jrefinery](#)
    - + [com.sun.media.jai.codec](#)
    - + [javax.media.jai](#)
    - + [org.dom4j.io](#)

- [org.apache.axis](#)
- [org.apache.commons.logging](#)
- [com.sun.media.jai.codec](#)
- [javax.media.jai](#)
- uk.ac.starlink.table
  - uk.ac.starlink.pal
  - edu.jhu.htm
  - [gov.fnal.heg.healpix](#)
    - + [javax.vecmath](#)
- uk.ac.starlink.task
- uk.ac.starlink.ttools
  - uk.ac.starlink.registry
  - [com.lowagie.text](#)
  - jarray
  - [org.jibble.epsgraphics](#)
  - [org.mortbay](#)
  - [org.python](#)
  - [javax.servlet](#)
- uk.ac.starlink.util
  - [sun.awt.shell](#)
- uk.ac.starlink.vo
  - adql
  - [net.ivoa.registry.search](#)
    - + [nasa.horizon.util](#)
- uk.ac.starlink.votable
- uk.ac.starlink.xdoc

## Third Party Libs

- [Acme.JPM.Encoders](#)
- [cds.tools](#)
- [edu.jhu.pha.sds.fits.imageio](#)
- [edu.stanford.ejalbert](#)
- [gnu.jel](#)
- [nom.tam.fits](#)
- [org.astron.grid.samp](#)
- [org.votech.plastic](#)

## Standard Libs/Oracle (Sun)

- [com.sun.javadoc](#)
- [javax.help](#)
- [javax.imageio](#): Standard Library
- [javax.xml](#): Standard Library
- [org.w3c.dom](#): Standard Library
- [org.xml.sax](#): Standard Library

# Debian-packaged Dependencies (II)

The screenshot shows a web browser window with the address bar displaying `http://packages.debian.org/en/squeeze/libjlibeps-java`. The browser's tab bar shows several open tabs, including "Debian -- Details of packa...". The website header includes the Debian logo and navigation links: "About Debian", "Getting Debian", "Support", and "Developers' Corner". Below the header, the breadcrumb trail reads "packages / squeeze (stable) / java / libjlibeps-java". A search bar is visible with the text "package names" and a search button. The main content area displays the package name "libjlibeps-java (0.1+2-1)" and a description: "Java library to create EPS images". It explains that the jlibeps classes are a set of Java classes for creating EPS images, suitable for high quality EPS graphics. It also mentions that jlibeps is a fork of the last GPL version of the EpsGraphics2D package from jibble.org. On the right side, there is a section titled "Links for libjlibeps-java" which contains a placeholder for a screenshot that says "No screenshot available". Below this, there are "Debian Resources" including links for "Bug Reports", "Developer Information (PTS)", "Debian Changelog", "Copyright File", and "Debian Patch Tracker". At the bottom, there is a link to "Download Source Package jlibeps:". The footer of the browser window shows the word "Fertig".

Package: **libjlibeps-java (0.1+2-1)**

Java library to create EPS images

The jlibeps classes are a set of Java classes for creating EPS images.

They are suitable for creating high quality EPS graphics for use in documents and papers, and can be used just like a standard Graphics2D object within Java applications that are using AWT.

jlibeps is a fork of the last GPL version of the EpsGraphics2D package from jibble.org.

Tags: Software Development: [Java Development](#), [Libraries](#), Implemented in: [Java](#), Role: [Development Library](#), [Shared Library](#).

Works with: [Image](#), [Raster Image](#), [Vector Image](#), Supports Format: [PostScript](#)

**Links for libjlibeps-java**

No screenshot available

**Debian Resources:**

- [Bug Reports](#)
- [Developer Information \(PTS\)](#)
- [Debian Changelog](#)
- [Copyright File](#)
- [Debian Patch Tracker](#)

Download Source Package [jlibeps](#):

➡ no extra work needed in case of version matching (`.jar` ↔ `.deb`)

- Debian package is incompatible with the classes needed by Topcat

## Starjava Libs

- uk.ac.starlink.datanode
  - uk.ac.starlink.array
  - uk.ac.starlink.ast
  - uk.ac.starlink.connect
  - uk.ac.starlink.hds
  - uk.ac.starlink.hdx
  - uk.ac.starlink.ndx
  - nom.tam.util
  - org.apache.commons.net:  
Debian package  
libcommons-net-java (1.4.1) in  
“Squeeze”
  - org.apache.tools:  
Debian package ant (1.8.0) in  
“Squeeze”
- uk.ac.starlink.fits
- uk.ac.starlink.plastic
- uk.ac.starlink.sog
  - uk.ac.starlink.diva
    - + diva
    - + javax.accessibility:  
Standard Library
  - uk.ac.starlink.jlutil
    - + com.sun.media.jai.codec
    - + javax.media.jai
  - uk.ac.starlink.soap
  - jsky
    - + ca.nrc.cadc.arch.io
    - + **com.jrefinery**:  
Debian package  
libjfreechart-java  
(1.0.13) in “Squeeze”
    - + com.sun.media.jai.codec
    - + javax.media.jai
    - + org.dom4j.io:  
Debian package  
libdom4j-java (1.6.1) in  
“Squeeze”

- org.apache.axis:  
Debian package libaxis-java  
(1.4) in “Squeeze”
- org.apache.commons.logging:  
Debian package  
libcommons-logging-java (1.1.1)  
in “Squeeze”
- com.sun.media.jai.codec
- javax.media.jai
- uk.ac.starlink.table
  - uk.ac.starlink.pal
  - edu.jhu.htm
  - gov.fnal.eng.healpix
    - + javax.vecmath:  
Debian package  
libvecmath-java (1.5.2) in  
“Squeeze”
- uk.ac.starlink.task
- uk.ac.starlink.ttools
  - uk.ac.starlink.registry
  - com.lowagie.text:  
Debian package libtext-java  
(2.1.7) in “Squeeze”
  - jarray
  - org.jibble.epgraphics:  
Debian package libjlibeps-java  
(0.1) in “Squeeze”
  - **org.mortbay**:  
Debian package libjetty-java  
(6.1.24) in “Squeeze”
  - org.python:  
Debian package jython (2.5.1-2)  
in “Squeeze”
  - javax.servlet:  
Debian package  
libservlet2.5-java in “Squeeze”
- uk.ac.starlink.util
  - sun.awt.shell

- uk.ac.starlink.vo
  - adql
  - net.ivoa.registry.search
    - + nsa.horizon.util
- uk.ac.starlink.votable
- uk.ac.starlink.xdoc

## Third Party Libs

- Acme.JPM.Encoders
- eds.tools
- edu.jhu.pha.sdss.fits.imageio
- edu.stanford.ejalbert
- gnu.jel
- nom.tam.fits
- org.astronid.samp
- org.votech.plastic

## Standard Libs/Oracle (Sun)

- com.sun.javadoc:  
Debian package  
(4.4.5-2) in “Squeeze” gcj-4.4-jre-11b
- javax.help:  
Debian package javahelp2 (2.0.05.ds1-4)  
in “Squeeze”
- javax.imageio: Standard Library
- javax.xml: Standard Library
- org.w3c.dom: Standard Library
- org.xml.sax: Standard Library

# Orphaned Dependencies (I)

## ● unmaintained libraries included by Topcat

### Starjava Libs

- uk.ac.starlink.datanode
  - uk.ac.starlink.array
  - uk.ac.starlink.ast
  - uk.ac.starlink.connect
  - uk.ac.starlink.hds
  - uk.ac.starlink.hdx
  - uk.ac.starlink.ndx
  - nom.tam.util
  - org.apache.commons.net:  
Debian package  
libcommons-net-java (1.4.1) in "Squeeze"
  - org.apache.tools:  
Debian package ant (1.8.0) in "Squeeze"
- uk.ac.starlink.fits
- uk.ac.starlink.plastic
- uk.ac.starlink.sog
  - uk.ac.starlink.diva
    - diva
    - javax.accessibility:  
Standard Library
  - uk.ac.starlink.jalutil
    - com.sun.media.jai.codec
    - javax.media.jai
  - uk.ac.starlink.soap
  - jsky
    - ca.nrc.cadc.archio
    - com.jrefinery:  
Debian package  
libjfreechart-java (1.0.13) in "Squeeze"
    - com.sun.media.jai.codec
    - javax.media.jai
    - org.dom4j.io:  
Debian package  
libdom4j-java (1.6.1) in "Squeeze"

- org.apache.axis:  
Debian package libaxis-java (1.4) in "Squeeze"
- org.apache.commons.logging:  
Debian package  
libcommons-logging-java (1.1.1) in "Squeeze"
- com.sun.media.jai.codec
- javax.media.jai
- uk.ac.starlink.table
  - uk.ac.starlink.pal
  - edu.jhu.htm
  - gov.fnal.eng.healpix
    - javax.vecmath:  
Debian package  
libvecmath-java (1.5.2) in "Squeeze"
- uk.ac.starlink.task
- uk.ac.starlink.ttools
  - uk.ac.starlink.registry
  - com.lowagie.text:  
Debian package libtext-java (2.1.7) in "Squeeze"
  - jarray
  - org.jibble.epgraphics:  
Debian package libjlibeps-java (0.1) in "Squeeze"
  - org.mortbay:  
Debian package libjetty-java (6.1.24) in "Squeeze"
  - org.python:  
Debian package jython (2.5.1-2) in "Squeeze"
  - javax.servlet:  
Debian package  
libservlet2.5-java in "Squeeze"
- uk.ac.starlink.util
  - sun.awt.shell
- uk.ac.starlink.vo

- adql
- net.ivoa.registry.search
  - nasa.horizon.util
- uk.ac.starlink.votable
- uk.ac.starlink.xdoc

### Third Party Libs

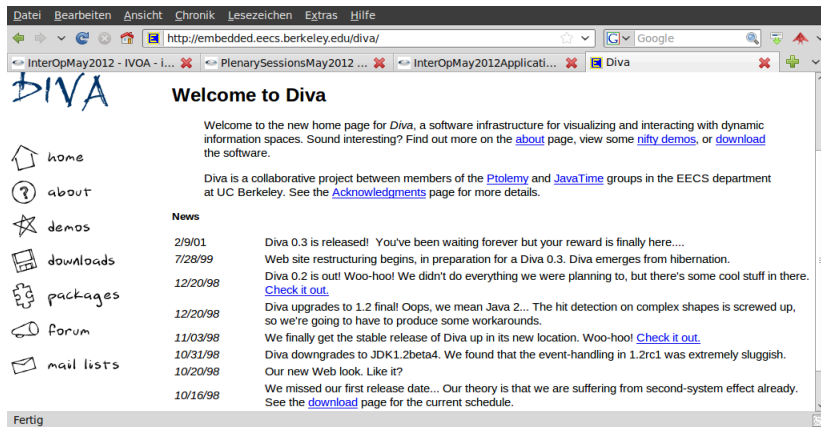
- Acme.JPM.Encoders
- eds.tools
- edu.jhu.pha.sdss.fits.imageio
- edu.stanford.ejalbert
- gnu.jel
- nom.tam.fits
- org.astron.grid.samp
- org.votech.plastic

### Standard Libs/Oracle (Sun)

- com.sun.javadoc:  
Debian package  
gcj-4.4-jre-11b (4.4.5-2) in "Squeeze"
- javax.help:  
Debian package javahelp2 (2.0.05.ds1-4) in "Squeeze"
- javax.imageio: Standard Library
- javax.xml: Standard Library
- org.w3c.dom: Standard Library
- org.xml.sax: Standard Library

# Orphaned Dependencies (II)

- example: diva package
- last version released in April 2003



# Missing Sources

- source code of these libraries not (yet) available

## Starjava Libs

- uk.ac.starlink.datanode
  - uk.ac.starlink.array
  - uk.ac.starlink.ast
  - uk.ac.starlink.connect
  - uk.ac.starlink.hds
  - uk.ac.starlink.hdx
  - uk.ac.starlink.ndx
  - nom.tam.util
  - org.apache.commons.net:  
Debian package  
libcommons-net-java (1.4.1) in  
"Squeeze"
  - org.apache.tools:  
Debian package ant (1.8.0) in  
"Squeeze"
- uk.ac.starlink.fits
- uk.ac.starlink.plastic
- uk.ac.starlink.sog
  - uk.ac.starlink.diva
    - diva
    - javax.acssibility:  
Standard Library
  - uk.ac.starlink.jaiutil
    - com.sun.media.jai.codec
    - javax.media.jai
  - uk.ac.starlink.soap
  - jsky
    - ca.nrc.cadc.arch.io
    - com.jrefinery:  
Debian package  
libjfreechart-java  
(1.0.13) in "Squeeze"
    - com.sun.media.jai.codec
    - javax.media.jai
    - org.dom4j.io:  
Debian package  
libdom4j-java (1.6.1) in  
"Squeeze"

- org.apache.axis:  
Debian package  
libaxis-java  
(1.4) in "Squeeze"
- org.apache.commons.logging:  
Debian package  
libcommons-logging-java (1.1.1)  
in "Squeeze"
- com.sun.media.jai.codec
- javax.media.jai
- uk.ac.starlink.table
  - uk.ac.starlink.pai
  - edu.jhu.htm
  - gov.fnal.csg.healpix
    - javax.vecmath:  
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- uk.ac.starlink.task
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  - uk.ac.starlink.registry
  - com.lowagie.text:  
Debian package  
libitext-java  
(2.1.7) in "Squeeze"
  - jarray
  - org.jibble.epsgraphics:  
Debian package  
libjlibepsa-java  
(0.1) in "Squeeze"
  - org.mortbay:  
Debian package  
libjetty-java  
(6.1.24) in "Squeeze"
  - org.python:  
Debian package  
jython (2.5.1-2)  
in "Squeeze"
  - javax.servlet:  
Debian package  
libjavax.servlet2.5-java in  
"Squeeze"
- uk.ac.starlink.util
  - sun.awt.shell

- uk.ac.starlink.vo
  - adql
  - net.ivoa.registry.search
    - nasa.horizon.util
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- nom.tam.fits
- org.astrogrid.samp
- org.votech.plastic

## Standard Libs/Oracle (Sun)

- com.sun.javadoc:  
Debian package  
gcj-4.4-jre-lib  
(4.4.5-2) in "Squeeze"
- javax.help:  
Debian package  
javahelp2 (2.0.05.ds1-4)  
in "Squeeze"
- javax.imageio: Standard Library
- javax.xml: Standard Library
- org.w3c.dom: Standard Library
- org.xml.sax: Standard Library

# Licensing Issues (I)

## dependencies with a license that does not conform to the DFSG

### Starjava Libs

- uk.ac.starlink.datanode
    - uk.ac.starlink.array
    - uk.ac.starlink.ast
    - uk.ac.starlink.connect
    - uk.ac.starlink.hds
    - uk.ac.starlink.hdx
    - uk.ac.starlink.ndx
    - nom.tam.util
    - org.apache.commons.net:
      - Debian package libcommons-net-java (1.4.1) in "Squeeze"
    - org.apache.tools:
      - Debian package ant (1.8.0) in "Squeeze"
  - uk.ac.starlink.fits
  - uk.ac.starlink.plastic
  - uk.ac.starlink.sog
    - uk.ac.starlink.diva
      - diva
      - javax.accessibility:
        - Standard Library
    - uk.ac.starlink.jaiutil
      - com.sun.media.jai.codec
      - javax.media.jai
    - uk.ac.starlink.soap
    - jaky
      - ca.nrc.cadc.arch.io
      - com.jrefinery:
        - Debian package libjrefinery-java (1.0.10) in "Squeeze"
      - com.sun.media.jai.codec
      - javax.media.jai
      - org.dom4j.io:
        - Debian package libdom4j-java (1.6.1) in "Squeeze"
  - org.apache.axis:
    - Debian package libaxis-java (1.4) in "Squeeze"
  - org.apache.commons.logging:
    - Debian package libcommons-logging-java (1.1.1) in "Squeeze"
  - com.sun.media.jai.codec
  - javax.media.jai
- uk.ac.starlink.table
    - uk.ac.starlink.pal
    - edu.jhu.htm
    - gov.fnal.eng.healpix
      - javax.vecmath:
        - Debian package libvecmath-java (1.5.2) in "Squeeze"
  - uk.ac.starlink.task
  - uk.ac.starlink.ttools
    - uk.ac.starlink.registry
    - com.lowagie.text:
      - Debian package libitext-java (2.1.7) in "Squeeze"
    - jarray
    - org.jibble.epsgraphics:
      - Debian package libjlibeps-java (0.1) in "Squeeze"
    - org.mortbay:
      - Debian package libjetty-java (6.1.24) in "Squeeze"
    - org.python:
      - Debian package jython (2.5.1-2) in "Squeeze"
    - javax.servlet:
      - Debian package libjavax.servlet.2.5-java in "Squeeze"
  - uk.ac.starlink.util
    - sun.awt.shell
  - uk.ac.starlink.vo
    - adql
    - net.ivoa.registry.search
      - nasa.horizon.util
  - uk.ac.starlink.votable
  - uk.ac.starlink.xdoc

### Third Party Libs

- Acme.JPM.Encoders
- eds.to.ols
- edu.jhu.pha.sdss.fits.imageio
- edu.stanford.ejalbert
- gnu.jel
- nom.tam.fits
- org.astron.grid.samp
- org.votable.plastic

### Standard Libs/Oracle (Sun)

- com.sun.javadoc:
  - Debian package gcj-4.4-jre-11b (4.4.5-2) in "Squeeze"
- javax.help:
  - Debian package javahelp2 (2.0.05.ds1-4) in "Squeeze"
- javax.imageio: Standard Library
- javax.xml: Standard Library
- org.w3c.dom: Standard Library
- org.xml.sax: Standard Library



# Licensing Issues (II)

- Debian package `libjai-core-java` contains the

- ▶ `com.sun.media.jai` and
- ▶ `javax.media.jai`

classes

- distributed under the [Java Research License \(JRL\)](#)

- ▶ created by Sun
- ▶ to be used for non-commercial academic uses

➡ license is incompatible with the Debian Free Software Guidelines which do not place any restrictions on the fields of endeavour

# Aladin and (J)SAMP

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➡ better idea: make Aladin fully JSAMP-compliant

- Debian-packaged VO software
  - ▶ modules and libraries, e.g.:
    - ★ Markus' [TAPsh](#)
    - ★ Tom McGlynn's [FITS](#) lib
    - ★ Grégory Mantelet's [ADQL](#) lib
  - ▶ applications
    - ★ first version of an [Aladin](#) package ready
    - ★ [Topcat](#): work in progress
- Debian-packaged “third-party” software required by VO software
  - ▶ PostgreSQL plugins [pgsphere](#) and [q3c](#) for the GAVO data centre
  - ▶ more than [15 Java libraries](#) for Aladin, Topcat and SPLAT

- short-term goals:
    - ▶ fix the issues mentioned in this talk (e.g. licensing, missing sources)
    - ▶ finish Debian packages for [Topcat](#), [SPLAT](#) and [DaCHS](#)
    - ▶ make our packages available to the public via a [local repository](#)
  - mid-term goals:
    - ▶ bring as many packages as possible into the next [stable Debian release](#)
- ➡ establish the VO as a subset of Debian Science

I'd like to say...

Thank you for your attention!!



# References



Josip Rodin and Osamu Aoki: Debian New Maintainers' Guide, [www.debian.org/doc/manuals/maint-guide/maint-guide.en.pdf](http://www.debian.org/doc/manuals/maint-guide/maint-guide.en.pdf), [www.debian.org/doc/manuals/maint-guide/index.en.html](http://www.debian.org/doc/manuals/maint-guide/index.en.html).



Lukas Nussbaum: Debian Packaging Tutorial, [www.debian.org/doc/manuals/packaging-tutorial/packaging-tutorial.en.pdf](http://www.debian.org/doc/manuals/packaging-tutorial/packaging-tutorial.en.pdf).



Joe Brockmeier: Create Debian Linux packages, [www.ibm.com/developerworks/linux/library/l-debpkg/index.html](http://www.ibm.com/developerworks/linux/library/l-debpkg/index.html).



IVOA Recommendation. Simple Application Messaging Protocol Version 1.3, <http://www.ivoa.net/Documents/SAMP/>.

# Source and Binary Packages

- Debian source packages

- ▶ `package_version.orig.tar.gz`: original [upstream source code](#) tarball
- ▶ `package_version-revision.debian.tar.gz`: contents of the [debian/](#) directory
- ▶ `package_version-revision.dsc`: summary of the contents of the source code generated from the [control](#) file

- Debian binary packages

- ▶ `package_version-revision_arch.deb`: completed binary package