An Open Source License for LSST

Introduction

LSST as a project has a mandate to publish all of its software as open source. There are a multitude of open source/free software licenses to choose from. At the same time, LSST has a few specific desiderata to take into consideration when choosing the "right" license:

- Acknowledgement and credit of authorship
- Establishing ownership without restricting use
- Preserving all non-commercial use
- Enabling community extension and contributions
- ~~Allowing, but not necessarily encouraging, commercial use~~ *(dropped 2009-03-27)*

Another issue to take into consideration is that of copyright. Code written using LSST funds would have the approved <u>LSST copyright notice</u>, all other code would have the appropriate copyright notice instead. Whatever license is chosen should allow the specification and preservation of different copyright notices.

Proposal

All code written by the LSST project for the operation of LSST and the processing of its data shall be licensed under the <u>?GNU Public License Version 3 (GPLv3)</u> or later. This enables the following:

- Users of the software are allowed to do so free of charge
- Others may copy, redistribute, extend or modify the software
- Allows LSST to use and link against other GPLed software
- The software may be linked against certain proprietary software through well defined interfaces that are documented as special exceptions (<u>?Ref.</u>)

At the same time, the GPL license makes the following restrictions

- All copies, modified or unmodified, are accompanied by a copy of the license
- Source code for derived works or extensions distributed by others must be made available in source form
- GPLed software cannot be combined with other software unless it is covered by a compatible license (or meets the above mentioned exceptions).
- GPLed software cannot be used as part of proprietary (commercial) software.

Software distributed under GPL is provided as is (i.e. without any warranty of any sort).

Implementation

In practice adopting the GPL means

1. Adding a reference to the appropriate license and copyright information to each source file and each header.
2. Distributing with the code or otherwise making available a LICENSE file and a NOTICE file.

The LICENSE file contains the Apache License 2.0 text itself. The NOTICE file contains all the copyright notices needed.

Proposed disclaimer in source/header files (local NOTICE file)

```
/* See the NOTICE file distributed with this work
 * for information regarding copyright ownership.
 *
 * Licensed under the Apache License, Version 2.0
 * (the "License"); you may not use this file except in compliance with
 * the License.  You may obtain a copy of the License at
 *
 *     http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 */
```

Proposed disclaimer in source/header files (remote NOTICE file)

```
/* See the NOTICE file available at
 *
 *     http://www.lsst.org/license/NOTICE
 *
 * for information regarding copyright ownership.
 *
 * Licensed under the Apache License, Version 2.0
 * (the "License"); you may not use this file except in compliance with
 * the License.  You may obtain a copy of the License at
 *
 *     http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 */
```

Example NOTICE file (adapted from Apache httpd 2.0)

```
LSST Pipeline Framework
Copyright 2008, 2009, 2010 LSST Corporation.

This product includes software developed by the
LSST Project (http://www.lsst.org/).

Portions of this software were developed at the National Center
for Supercomputing Applications (NCSA) at the University of
Illinois at Urbana-Champaign.
```

```
This software contains code derived from the RSA Data Security
Inc. MD5 Message-Digest Algorithm, including various
modifications by Spyglass Inc., Carnegie Mellon University, and
Bell Communications Research, Inc (Bellcore).

Regular expression support is provided by the PCRE library package,
which is open source software, written by Philip Hazel, and copyright
by the University of Cambridge, England. The original software is
available from
    ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/
```

Comments

Email discussion between Ray and Francesco

Date: Wed, 3 Sep 2008 07:12:40 -0500 (CDT)
From: Ray Plante
To: Francesco Pierfederici
Cc: Robyn Allsman

Francesco,

Would you have time to address some questions regarding this topic before the meeting. Putting the answers on the trac page would be best. (I suppose I can put my questions there, too.)

- Does the Apache license say anything regarding linking with libraries covered by other licenses?

- Apache 2 is said to be "compatible" with GNU. What does this mean to us, particularly with regard to linking against GNU libraries? What versions of GNU is it compatible with.

- It was suggested at a past DC3 telecon that because we link against GNU software, we must license our own as GNU, or that at least that there are enough open questions about this that GNU represents the safest choice. In your opinion, what is the status of this discussion?

thanks! Ray

Date: Wed, 3 Sep 2008 13:56:47 +0100
From: "Francesco Pierfederici"

My understanding is that if we link our software against GNU Licensed software then the combined binary product (our code + GNU code) has to be GPLed. There is no way around it. The Apache 2 license is compatible with GPL 3 but not 2 or earlier versions (because of the clause on patents in the Apache license). Compatibility with GPL means that we can link against GPLed code. However the end result has to be GPLed as well.

The Apache 2 license is very liberal and does not even require that modified version of the software are distributed under the Apache license. As far as mixing software covered by the Apache license with code covered by other licenses, the Apache license does not affect the license status of the other work. You just have to give proper credits etc. This is in stark difference with the GPL, of course.

Another option would be a BSD license. Those are compatible with all version of GPL. However also in that

Example NOTICE file (adapted from Apache httpd 2.0)   3

case, linking with GPLed code produces GPL code.

From Ray Plante

If you look at the attached document, <u>3rdparty.txt?</u>, you will see list of 3rd party packages we currently depend on along with the license it employs. (We have other products available, but I haven't added these yet.) A few use GPL v2.

I surmise the following, then:

- Since some of the packages are GPL v2, we technically cannot go with Apache 2. If we ignored this issue and went with Apache 2, this would not be an enforcement issue. However, the Modified BSD would not have this problem. (KTL: only if we are linking with the package. For example, doxygen or gcc, which are only used for building, do not impact the licensing at all.)

- We must specifically license the binary distributions under GPL.

- We need to make sure our eups-based distribution system distributes copies of the licenses for the 3rd party packages.

CCB Discussion: Four Alternatives

This proposal was discussed on 3 Sept. and the GPL compatibility issue continues to nag at us. We identified four alternative proposals:

1. Apache 2 + GPL

> We adopt the <u>?Apache 2 License</u> for our LSST source code. Assuming we
> link against GPLed libraries, our binary distributions will be distributed
> under GPL, as required by the GPLed libraries.

- Apache 2 has the advantage in that it will allow other people link our libraries to non-open source code. This, of course, would have to be limited to LSST code that itself does not link against GPL.
- Technically, using Apache 2 does not allow us to link against GPLv2 licensed libraries; thus, this option requires that we ignore this fact. Given that GPLv3 addresses this incompatibility issue, ignoring this issue is not likely to result in an enforcement action. See <u>?this discussion from OSS watch</u> for details.

2. Mod-BSD + GPL

> We adopt the <u>?Modified BSD Licence</u> for our LSST source code. Assuming
> we link against GPLed libraries, our binary distributions will be distributed
> under GPL, as required by the GPLed libraries.

- Like Apache 2, this has the advantage that it will allow other people link our libraries to non-open source code. This, of course, would have to be limited to LSST code that itself does not link against GPL.
- This license is compatible with GPL (mainly by saying less)

3. public domain + GPL

We do not license our LSST software; we simply put it into the public domain. Assuming we link against GPLed libraries, our binary distributions will be distributed under GPL, as required by the GPLed libraries.

- This option is explicitly allowed by the GPL.

4. GPL

We adopt GPL v3 for our LSST software. All distributions, source and binary have the same license.

- This option is explicitly allowed by the GPL; there are no legal uncertainties in this option
- In exchange for the simplicity of our distributions, it will not be possible for other people to link our libraries with non-open source code.

Further Resources

1. [?the Apache 2 License](#)
2. [?OSS Watch discussion of the Apache License 2.0](#)
3. [?Wikipedia Article on Apache License 2.0](#)
4. [?A listing of open source licenses](#) from [?opensource.org](#)
5. [?GNU's evaluation of compatible OSS licenses](#)
6. [?The Modified BSD License](#)
7. [?the GNU License FAQ](#)