

# No to NOSA, yes to mainstream licenses

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## Summary

The NASA Open Source Agreement (NOSA) has limitations and should not be used as a one-size-fits-all open source license for NASA-produced software, and should not be considered the default license to apply to NASA-produced software. Instead, the recommendations regarding software licenses advanced at the 2011 NASA Open Source Summit should be followed.

The NASA Open Source Agreement (NOSA) was initially created in 2003, and is currently at version 1.3 [1]. When NASA software producers (civil servants, contractors, cooperative agreement holders, and grant awardees) at NASA centers wish to release their software under an open source license, the NOSA is

the default license that the NASA software release process mandates, but not the license that software authors wish to use, for reasons detailed below. An attempt to use any other license is often a long, uphill battle by software developers with the release process. Because of this situation, and the perceived cost of personal time involved, much software is probably not released that should be, or the software is not released via official channels, because it is just perceived as being ‘too difficult.’

Unfortunately, NOSA has some limitations and serious drawbacks such that it is mostly not the right choice of license under which to release open source software as we understand it today. For example, the NOSA license (Section 3.F) requests that users register with the originating organization to support use and modification tracking or, in instances where web based tracking is not supported, inform the originating organization of modification and use. This requirement alone is out of step with the current Free and Open Source Software (FOSS) life cycle. To its credit, the NOSA was created relatively early in the ‘copyleft’ movement, and had advantages at that time. Now it is seen as a ‘boutique’ license that has some complicated legal terms which make it incompatible with software released under other licenses, and difficult for external developers to contribute code to software released under it. Some of these issues were raised in Arfon Smith’s presentation to the National Academies ad hoc committee on Best Practices for a Future Open Code Policy for NASA Space Science in November 2017.

For an open source license to be useful to the original software authors, external contributors, and external users, it must be able to be comprehensible and compatible with other open source licenses, and NOSA is neither. The end result of these issues is that software released under NOSA is very unlikely to build a community of external users and developers, or to benefit from the contributions those developers would make to maintain and improve the software.

The Free Software Foundation considers NOSA a non-free software license [2] and is thus legally incompatible with the GNU General Public License (GPL). They say:

The NASA Open Source Agreement, version 1.3, is not a free software license because it includes a provision requiring changes to be your “original creation.” Free software development depends on combining code from third parties, and the NASA license doesn’t permit this.

In 2011, NASA held an Open Source Summit [3] where many details of open source software at NASA were discussed. One of the primary issues in the final

report from that meeting was the issue of licensing, and particularly how limited NOSA was in the realm of modern open source software.

Rather than reproduce those arguments, We include them verbatim from the final report in Appendix A, below. We were unable to find a copy posted by NASA online, but we found a complete copy here: <https://debbryant.files.wordpress.com/2013/07/nasa-open-source-summit-proceedings.pdf>.

It is important to note that the Open Source Summit did not recommend using NOSA for open source release, beyond some very narrow conditions.

We strongly encourage the National Academies ad hoc committee to consider the recommendations in Appendix A, below, as they contemplate best practices for a future Open Code Policy for NASA Space Science.

## **A Excerpt from the NASA Open Source Summit**

This is a reproduction of ‘Issue #2: Licensing’ from the NASA Open Source Summit [3] proceedings:

The NASA Open Source Agreement license (NOSA) was originally developed in 2003 to enable NASA to provide software in source code form to the public, but software must already be considered complete prior to public release. This precludes the ability to develop software iteratively with other agencies and the public. In order to participate in the open source developer community, NASA needs to be involved in the development process from the beginning.

There are two issues that need to be addressed:

- How does NASA license the code it develops internally? Should it use NOSA or drop it? Why does such code need to be licensed at all? Shouldn't it be public domain?
- What licenses are conducive to government agencies using non-government code? For those that aren't conducive, the government needs a model for using those licenses in a way that makes lawyers happy.

Proposed solutions:

### **1. Drop NOSA in favor of existing mainstream open source licenses**

Although innovative when first developed over seven years ago, NOSA is

not a well-received license in the Open Source community and the purpose for its development no longer exists. NASA software should be released under whatever mainstream open source license makes sense within the development environment it is being released within. Further, re-license software that was previously released under NASA using one of the mainstream open source licenses.

**2. Create a policy and licensing for unfinished or in-progress development**

The NASA was created for releasing software that is complete. NASA needs a policy that addresses licensing options for iterative software development with a community that includes a non-NASA workforce.

**3. Be aware of licensed software within other open source software or covered by a different open source license**

An open source software package often will list only the primary license but may include modules from other sources in its distribution that are covered under a different license. Source code files may reveal additional licenses, as well as original copyright holders.

**4. Approve a subset of OSI-approved licenses for NASA use**

Review and approve a set of mainstream open source licenses (BSD, MIT, GPL, Apache, etc.) that can be used to license publicly-released NASA software so that such a review does not have to be performed for each release of NASA software.

**5. Provide a single location for NASA guidance with regards to licensing open source software**

Provide an easily found and comprehensive source of the current regulations and restrictions. Create a FAQ that can be used to explain how different licenses may impact the release software.

**6. Define NASA requirements for Contributor License Agreements (CLAs)**

Currently, in order to accept and use third-party contributions, a CLA is required. Yahoo! Is currently using “Harmony CLAs” which are broadly accepted. Others include Fedora CLA, GNU Contributor agreement, and DARPA F6.

## B Author Information

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Robert G. Deen is a Principal software developer, and he is responsible for ground image processing software for the Mars in-situ missions at JPL. He has released several Open Source packages including the VICAR image processing system.

Wayne Moses Burke is a Cognizant Engineer in the Data Intensive Applications group at JPL. His team works exclusively with open source software and is responsible for some of the earliest open source releases from NASA.

### References:

- [1] *NASA OPEN SOURCE AGREEMENT, v 1.3*. 2003. URL: <https://ti.arc.nasa.gov/opensource/nosa/>.
- [2] Free Software Foundation. *Various Licenses and Comments about Them*. 2018. URL: <https://www.gnu.org/licenses/license-list.html#NASA>.
- [3] *NASA Open Source Summit*. 2011. URL: <https://www.nasa.gov/open/source/>.