

Contract Language and Software Redistribution at NASA

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The Current Situation: Defaulting to No

Current standard procurement language at NASA discourages contractors from publishing under open source licenses¹ the software they create for NASA. Specifically, NASA Federal Acquisition Regulation Supplement (NFS) 1852.227-14 (4)(i) places a daunting permission gate on the path to public release:

The Contractor agrees not to assert claim to copyright, publish or release to others any computer software first produced in the performance of this contract unless the Contracting Officer authorizes through a contract modification.

(Incidentally, that requirement also conflates copyright ownership with the ability to publish, by implying that copyright ownership is a precondition of redistribution. As discussed later in this document, those two things are not always connected.)

The general Federal Acquisition Regulation (FAR) likewise contains no encouragement of public release under open source licenses. FAR Section 52.227-14 is mainly concerned with ensuring that the government obtains complete non-exclusive rights to the work, but is unconcerned with wider redistribution under open source terms. That section also contains some provisions under which contractors may claim copyright in their work product, but it does not suggest that they use such copyright ownership to publish the work under an open source license.

¹For the purposes of this paper, “open source” and “free software” are synonymous, and refer to software source code released under a license both approved as an open source license by the Open Source Initiative (OSI) at <https://opensource.org/licenses> and recognized as a free software license by the Free Software Foundation (FSF) at <https://www.gnu.org/licenses/license-list.html>.

Brief Review of Issues

This paper takes it as a given that open source publication is a reasonable default for software produced by NASA and by contractors working on behalf of NASA.² There may be exceptions to this default, but they should be treated as precisely that: exceptions, to be handled by the contracting officer on a case-by-case basis.

In order to devise broadly reuseable contract language that would support that default, it may helpful to first clearly establish certain distinctions and concepts:

- **Government Reuse**

The rights sought by the government in the current FAR 52.227-14, (*“... a paid-up, nonexclusive, irrevocable, worldwide license in such copyrighted computer software to reproduce, prepare derivative works, and perform publicly and display publicly ...”*) are the same rights granted by open source licenses. The only difference is that the government would no longer treated as a special case — instead, those rights would apply to everyone.

- **COTS and Software Reuse**

Contractors are always free to use open source software, including software they produce as works for hire for NASA, for commercial purposes, whether those purposes are related to their work for NASA or not.

Furthermore, because all open source software is by definition commercial software, and thus when publicly distributed meets the definition of Commercial-Off-The-Shelf (COTS) software, it also automatically satisfies procurement preferences for COTS software. Such preferences are part of the procurement regime in many public sector settings, both at and below the federal level. By defaulting to open source software licensing *and requiring that the software be publicly distributed in fact*, NASA would expand the set of software that can be procured easily by U.S. public sector entities.

- **Commercial vs Proprietary**

Many sources — although notably not the FAR — erroneously treat “commercial” as a synonym of “proprietary”. This is especially common in contractors’ own marketing language, but it sometimes happens even in legal documents.

Contract language that defaults to open source should make this distinction clear, by emphasizing that the software produced may be used by any entity for commercial purposes, and that no entity will have proprietary rights over it any further than the extremely limited exclusivities offered by an open source license.

- **Attribution vs Ownership**

The copyright owner of a piece of software need not be its author; they may be entirely distinct. It is typical in open source software projects to record attribution

²This default is wholly compatible with, although not absolutely required by, OMB “Federal Source Code Policy” memorandum M-16-21 (see <https://code.nasa.gov/NASA-M-16-21-Framework.pdf>).

based on who wrote what while separately recording copyright ownership based on who has *assigned* their ownership rights to whom. For example, individual employees retain attribution for their work on particular sections of code, while their employer (an organization) may be the copyright owner for all of those sections.

This works out because copyright ownership is a very limited ownership right under the terms of an open source license. Most of the restrictive powers available under copyright law, such as the powers to control redistribution and to prohibit derivative works, are defanged by the open source license anyway. This means that copyright ownership, while not entirely unimportant in open source, does not have the restrictive potential it would have under a proprietary license.

- **How Export Restrictions Are Handled In Open Source**

Complying with export restrictions is not a matter of what copyright license one places on software code, but rather a matter of whom one physically distributes copies to. If a particular piece of code is subject to export restrictions, then NASA and its counterparties must not distribute copies to entities covered by those restrictions — and this is neither a contractual issue nor a copyright licensing issue: it would be illegal for anyone operating under U.S. law to perform such distribution.

The way this is handled in open source software projects to publish export-sensitive code on code hosting sites that are compliant with ITAR and other export controls. There are various hosting solutions available that support export controls, and the use of such a solution to perform distribution may be written into the contract.

This does not affect what kind of license the software is distributed under, and open source licensing is still a fine default. Export controls are about whom one can physically send copies to; open source licensing is about what rights someone has to the software when they receive a copy.

- **Single Copyright Ownership vs Joint Copyright Ownership**

A given piece of open source software often has many copyright owners. While some projects attempt to aggregate ownership in a single entity, through license agreements solicited from participants, it is increasingly the norm to simply let each contributor hold their own copyright, and for the project to merely require that each contributor formally represent that they have the right to make their contributions available to the project under the project’s open source license. This representation enables the project, and indeed anyone, to redistribute the code under that license without fear of a contributor later claiming proprietary rights over their portion of the code.

Defaulting To Yes: Sample Contract Language

The FAR and its supplements generally use the word “data” to refer to both software source code and other kinds of digital information, even though in common usage

“software” and “data” are usually considered to be different things³. In fact “data” is explicitly defined in the FAR as including software⁴, and is then temporarily redefined wherever its more conventional meaning is needed, e.g., “(C)(1)(iii) For data other than computer software, ...”.

While changing basic terminology in the FAR is certainly beyond the scope of this document, in the sample language proposed below we will use the word “software” instead of “data”, in a fit of optimism about potential future revisions of the FAR and the NFS.

The proposed language below bears several important disclaimers:

1. Nothing in this paper constitutes legal advice.
2. The proposed clauses are drafted quite loosely. They are intended to convey their meanings clearly and unambiguously, and are as specific as necessary to do so, but more formality and care in drafting would be needed before they could be incorporated into the NFS or into contracts. (Among other things, clause and paragraph identifiers would need to be introduced for internal referencing.)
3. We make no suggestions as to which open source licenses NASA should prefer. To answer that question would require in-depth research, and the answer might be a set of guidelines under which different types of open source licenses are recommended for different types of projects.
4. The proposed language says nothing about patents, and in particular nothing about patents that the Contractor may hold. To some extent patent issues can be dealt with by the choice of open source license: several popular open source licenses contain limited patent grants sufficient to protect recipients of covered software from the dangers of patent litigation related to that software.

However, given the highly technical nature of the work NASA does with its contractors, it may be advisable for NASA to consider explicit language that enjoins contractors from using patent law to effectively regain some of the restrictive powers they gave up by agreeing to distribute under an open source license. Devising such language is beyond the scope of this document.

We have tried to err on the side of inclusivity. Some of the clauses proposed below may be deemed by NASA too unwieldy or too broad to use. For example, perhaps requiring contractors to use a version control system at all (as one of the proposed clauses effectively does) is going too far. The purpose of this paper is not to establish finalized contract language, but to raise issues worth considering when designing contract language that would encourage the production of open source software by default.

³For example, medical software might be open source, but the patient data that it processes should remain confidential because of federal privacy regulations such as HIPAA, which a contract cannot override.

⁴“Data ... includes technical data and computer software.”, FAR 52.227-14 (a)(ii).

Sample Contract Clauses

- “Open source software” is defined as in Appendix A of the Federal Source Code Policy (M-16-21, <https://sourcecode.cio.gov/AppendixA/>), and includes all documentation or other necessary digital assets pertaining to the software, as well as the software source code itself.
- Contractor retains copyright ownership of software first produced in the performance of this contract, and agrees to publish such software under the terms of either a) one or more open source licenses of NASA’s choosing, or b) one or more open source licenses mutually agreed to by the Contractor and NASA.

For the purposes of this clause, to publish software means to provide a complete copy of the software source code to NASA and to any other parties whom NASA may direct the Contractor to provide copies to. NASA may request that Contractor upload a complete copy to an online code hosting and collaboration site of NASA’s choosing; Contractor will comply with this request when compliance is not onerous, and compliance is presumed not to be onerous when the when site NASA chooses is a site generally accepted and typically used for open source development by the software industry at large.

Comment: There might be circumstances in which NASA wishes a third party, such as a foundation, to hold copyright. In that case, this clause could be modified, e.g., as follows: “Contractor agrees to assign its entire copyright interest in software first produced in the performance of this contract to an entity chosen by NASA. If NASA designates no entity, then Contractor retains copyright ownership of such software.” The rest of the clause, about publication under open source terms, would need to be adjusted accordingly, since if Contractor is not the copyright holder then Contractor cannot apply a license.

- Contractor agrees not to incorporate any pre-existing software code into software first produced in the performance of this contract unless the pre-existing software’s license allows redistribution under the terms of the open source license(s) under which the software first produced in the performance of this contract is distributed.
- Contractor will, if requested by NASA, perform all development work on software first produced in the performance of this contract under the designated open source license(s) and use a code hosting and collaboration site chosen by NASA. For the purposes of this clause, to use a code hosting and collaboration site means that each finalized change to the software will be uploaded to that site such that the site is the first and primary repository of record through which the change is made available to developers who were not involved in writing the change.
- Contractor agrees to accurately and permanently record the provenance of code written for software first produced in the performance of this contract. The identities of individual contributors shall be associated with the particular changes they produced. Publishing such records in an open source software revision control system

(such as but not limited to Git, Mercurial, Subversion, CVS, or RCS) for code development is sufficient to satisfy this clause, but publishing such records in a proprietary software revision control system is not sufficient.

- Contractor agrees not to use copyright ownership or contributor identity as a factor in deciding whether to incorporate a code change into software first produced in the performance of this contract, except in cases where a contributor is restricted by import or export controls in a way that affects Contractor's ability to legally incorporate changes from that contributor. Code changes received from any party under terms compatible with outbound distribution under such software's open source license(s) will be evaluated by Contractor as directed by NASA, with NASA's interests taking precedence over Contractor's interests.
- Contractor agrees not to incorporate any pre-existing software code into software first produced in the performance of this contract unless the pre-existing software's license allows redistribution under the terms of the open source license(s) under which the software first produced in the performance of this contract is distributed.
- NASA agrees that Contractor may make unlimited commercial use of software first produced in the performance of this contract. Contractor agrees to abide by the open source license applied to the software, and in particular not to assert proprietary rights over the software except as explicitly permitted by the software's open source license.

Comment: Formally, this clause is unnecessary, because all it says is that everyone agrees to abide by the license, which they must do anyway. However, it may be clarifying to the Contractor to state explicitly that while commercial use is allowed, Contractor's position in the commercial ecosystem is not legally special just because Contractor happens to hold the copyrights or happens to have written the code.

- Nothing in this contract shall be construed to require publication of software in a manner that violates any export restriction imposed by the United States. If normal publication as described above would violate any such export restriction, Contractor will publish in instead a manner that is as convenient for third parties as possible while still complying with all such restrictions, but in any case Contractor's original obligation to provide complete copies to NASA and to any other non-export-restricted parties whom NASA may direct the Contractor to provide copies to remains wholly in effect.
- Exceptions to these clauses may be made only as authorized by the Contracting Officer through a contract modification.