

Department of Defense Debunks Myths and Endorses Use of Open Source Software

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In October 2009, the Department of Defense (DoD) issued a memorandum on “Clarifying Guidance Regarding Open Source Software (OSS)” (the “Memo”). This Memo provides guidance on the use of OSS, including advantages of using OSS and common misconceptions about such use in connection with government projects. The DoD Memo endorses the use of OSS.

This Memo is a call to action for government contractors to understand the realities of OSS and consider the use of OSS in appropriate circumstances. As a result of this guidance, contractors that do not leverage the advantages of open source might find themselves at a competitive disadvantage to competitors that do.

Background

The DoD Memo supersedes the DoD CIO Memorandum dated May 28, 2003, which previously provided policy guidance regarding obtaining OSS. The new Memo was prompted by the fact that, despite DoD’s significant use of OSS in both classified and unclassified programs, there have been misconceptions and misinterpretations of the existing laws, policies and regulations that deal with OSS. These misconceptions have hampered more effective use and development of OSS. Additionally, many government contractors have been reluctant to use OSS due to these uncertainties.

OSS Is Commercial Computer Software

The guidance states that in almost all cases, OSS meets the definition of “commercial computer software.”¹ One significance of this is that OSS must be given appropriate statutory preference in accordance with 10 U.S.C. § 2377 (b). This statute provides:

¹ “Commercial computer software” is defined, in part, to mean: “software developed or regularly used for nongovernmental purposes which—(i) Has been sold, leased, or licensed to the public; (ii) Has been offered for sale, lease, or license to the public; (iii) Has not been offered, sold, leased, or licensed to the public but will be available for commercial sale, lease, or license in time to satisfy the delivery requirements of this contract; [and certain modification thereof].” 48 C.F.R. § 252.227-7014(a)(1).

The head of an agency shall ensure that procurement officials in that agency, to the maximum extent practicable—

- (1) acquire commercial items^[2] or nondevelopmental items other than commercial items to meet the needs of the agency;
- (2) require prime contractors and subcontractors at all levels under the agency contracts to incorporate commercial items or nondevelopmental items other than commercial items as components of items supplied to the agency;
- (3) modify requirements in appropriate cases to ensure that the requirements can be met by commercial items or, to the extent that commercial items suitable to meet the agency's needs are not available, nondevelopmental items other than commercial items;
- (4) state specifications in terms that enable and encourage bidders and offerors to supply commercial items or, to the extent that commercial items suitable to meet the agency's needs are not available, nondevelopmental items other than commercial items in response to the agency solicitations;
- (5) revise the agency's procurement policies, practices, and procedures not required by law to reduce any impediments in those policies, practices, and procedures to the acquisition of commercial items; and
- (6) require training of appropriate personnel in the acquisition of commercial items.

Among other things, this means that OSS should be considered for use in more procurements where OSS meets the needs of the agency and both prime and subcontractors may be required to incorporate OSS in components of items they supply to the agency. This is consistent with other aspects of the Defense Federal Acquisition Regulation Supplement ("DFARS") which states, in part, that: "Departments and agencies shall identify and evaluate, at all stages of the acquisition process (including concept refinement, concept decision, and technology development), opportunities for the use of commercial computer software and other non-developmental software in accordance with Section 803 of the National Defense Authorization Act for Fiscal Year 2009 (Pub. L. 110-417)."³ 48 C.F.R. § 212.212 (a).

Market Research Should Include OSS

The guidance further notes that executive agencies, including DoD, are required to conduct market research when preparing for the procurement of property or services by 41 U.S.C. § 253a and states that market research for software should include OSS when it may meet mission needs. 41 U.S.C. § 253a(a) states:

- (1) In preparing for the procurement of property or services, an executive agency shall—

² The Federal Acquisition Regulation's ("FAR") definition of "commercial item" includes, in part: "Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and (i) Has been sold, leased, or licensed to the general public; or (ii) Has been offered for sale, lease, or license to the general public...." 48 C.F.R. § 2.101(b).

³ This provision further references DFARS Subpart 208.74 when acquiring commercial software or software maintenance and 227.7202 for policy on the acquisition of commercial computer software and commercial computer software documentation. See 48 C.F.R. § 212.212(b) (citing 48 C.F.R. §§ 708.74 & 227.7202).

- (A) specify its needs and solicit bids or proposals in a manner designed to achieve full and open competition for the procurement;
 - (B) use advance procurement planning and market research; and
 - (C) develop specifications in such manner as is necessary to obtain full and open competition with due regard to the nature of the property or services to be acquired.
- (2) Each solicitation under this subchapter shall include specifications which—
- (A) consistent with the provisions of this subchapter, permit full and open competition;
 - (B) include restrictive provisions or conditions only to the extent necessary to satisfy the needs of the executive agency or as authorized by law.
- (3) For the purposes of paragraphs (1) and (2), the type of specification included in a solicitation shall depend on the nature of the needs of the executive agency and the market available to satisfy such needs. Subject to such needs, specifications may be stated in terms of—
- (A) function, so that a variety of products or services may qualify;
 - (B) performance, including specifications of the range of acceptable characteristics or of the minimum acceptable standards; or
 - (C) design requirements.

See also 48 C.F.R. § 10.001.

Highlighted Advantages of OSS

In support of OSS, the Memo explains that there are positive aspects of OSS that should be considered when conducting market research on software for DoD use, such as:

- (i) The continuous and broad peer-review enabled by publicly available source code supports software reliability and security efforts through the identification and elimination of defects that might otherwise go unrecognized by a more limited core development team.
- (ii) The unrestricted ability to modify software source code enables the Department to respond more rapidly to changing situations, missions, and future threats.
- (iii) Reliance on a particular software developer or vendor due to proprietary restrictions may be reduced by the use of OSS, which can be operated and maintained by multiple vendors, thus reducing barriers to entry and exit.
- (iv) Open source licenses do not restrict who can use the software or the fields of endeavor in which the software can be used. Therefore, OSS provides a net-centric licensing model that enables rapid provisioning of both known and unanticipated users.
- (v) Since OSS typically does not have a per-seat licensing cost, it can provide a cost advantage in situations where many copies of the software may be required, and can mitigate risk of

cost growth due to licensing in situations where the total number of users may not be known in advance.

- (vi) By sharing the responsibility for maintenance of OSS with other users, the Department can benefit by reducing the total cost of ownership for software, particularly compared with software for which the Department has sole responsibility for maintenance (e.g., GOTS).
- (vii) OSS is particularly suitable for rapid prototyping and experimentation, where the ability to “test drive” the software with minimal costs and administrative delays can be important.

The guidance Memo notes that while these considerations may be relevant, they may not be the overriding aspects to any decision about software. Ultimately, the software that best meets the needs and mission of the Department should be used, regardless of whether the software is open source. Thus, while the DoD Memo endorses consideration of the use of OSS, it stops short of making its use mandatory.

Perceived Concerns and Misconceptions About OSS

The guidance acknowledges a perceived concern with using OSS due to DoD Instruction 8500.2, “Information Assurance (IA) Implementation.” The IA Implementation includes an Information Assurance Control, “DCPD-1 Public Domain Software Controls,” which limits the use of “binary or machine-executable public domain software⁴ or other software products with limited or no warranty,” on the grounds that these items are difficult or impossible to review, repair, or extend, given that the Government does not have access to the original source code and there is no owner who could make such repairs on behalf of the Government. The Memo makes clear, however, that this control should not be interpreted as forbidding the use of OSS, as the source code is available for review, repair and extension by the Government and its contractors.

The guidance further explains that the use of “*any* software without appropriate maintenance and support presents an [IA] risk.” Thus, the Memo recognizes that before DoD approves the use of OSS, there must be adequate software support—either provided by the Government or commercially.

The Memo goes on to address the common misconception that the Government is always obligated to distribute the source code of any modified OSS to the public, and that therefore OSS should not be integrated or modified for use in classified or other sensitive DoD systems. As the Memo recognizes, however, many open source licenses (including the GNU General Public License) permit the user to modify OSS *for internal use* without being obligated to distribute source code to the public. However, the DoD correctly recognizes that if a Government user distributes⁵ the modified OSS outside the Government, then some OSS licenses (including the GPL) require distribution of the corresponding source code to the recipient of the software. Thus, the Memo stresses the importance of understanding the specifics of the software license and how DoD intends to use and redistribute any DoD-modified OSS.

⁴ Despite a common misconception, OSS is generally not public domain software. However, most OSS licenses do disclaim any warranties. But, a number of commercial entities make money in part by providing warranties for OSS as part of their distribution.

⁵ Different OSS licenses use different terms for what triggers the requirement to make the corresponding source code available. Even the GPL license itself uses different terms in different versions. For example, GPLv2 uses the term “distribute” as the trigger, while GPLv3 uses terms “propagate” and “convey.” Subtle but important differences flow from these different terms.

Computer Software and Documents Are “Data” for DoD Purposes

The Memo next explains that software source code and associated design documents are “data” as defined by DoD Directive 8320.02, and, therefore, “shall be shared across the DoD as widely as possible to support mission needs.” The Memo stresses that OSS “licenses authorize widespread dissemination of the licensed software, thus allowing OSS to be shared widely across the entire” DoD. The Memo encourages use of the collaborative software development environment at <https://software.forge.mil/>, operated by the Defense Information Systems Agency.

The Memo further indicates that software items, including code fixes and enhancements, developed for the Government should be released to the public (such as under an open source license) when all of the following conditions are met:

- (1) The project manager, program manager, or other comparable official determines that it is in the Government’s interest to do so, such as through the expectation of future enhancements by others.
- (2) The Government has the rights to reproduce and release the item, and to authorize others to do so. For example, the Government has public release rights when the software is developed by Government personnel, when the Government receives “unlimited rights” in software developed by a contractor at Government expense, or when pre-existing OSS is modified by or for the Government.
- (3) The public release of the item is not restricted by other law or regulation, such as the Export Administration Regulations or the International Traffic in Arms Regulation, and the item qualifies for Distribution Statement A, per DoD Directive 5230.24 (reference (i)).

Conclusion

OSS has, since its inception, been often misunderstood. The use of OSS has continued to grow in both the private and public sector, yet many companies have continued to shun OSS. With the DoD Memo and the growing trend of increased OSS adoption, it is now, more than ever, necessary for all types of businesses to develop a true understanding of OSS licensing and factor OSS use into their business models.

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