Cybersecurity Challenges

Protecting DoD's Unclassified Information

NAVSEA Small Business Industry Day

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Outline

- Protecting DoD's Unclassified Information
- DFARS Clause 252.204-7012 — Contractor and Subcontractor Requirements
- Adequate Security — NIST SP 800-171
- Compliance — What Happens on December 31, 2017?
- Resources

DoDI 5000.02, Enclosure 14 – Cybersecurity in the Defense Acquisition System

Program Responsibilities:

- **What the Program Manager should pay attention to:**
  - **Program information (to include the identification and marking of information requiring protection), organizations and personnel, enabling networks and systems, and supporting systems**
- **Potential exploitation points that the PM will consider for the Program and the System:**
  - **Government Program Organizations; Contractor Organizations and Environments, Software and Hardware; System Interfaces; Enabling and Support Equipment, Systems, and Facilities; and Fielded Systems**
- **Activities to mitigate cybersecurity risks to program information:**
  - **Appropriate classification, marking and understanding the exposure of the unclassified program information**
  - **Use of FAR/DFARS Clauses to protect information**
  - **Assessment of unclassified controlled technical information losses**
  - **Contractor and industry participation in the voluntary DIB CS Program**

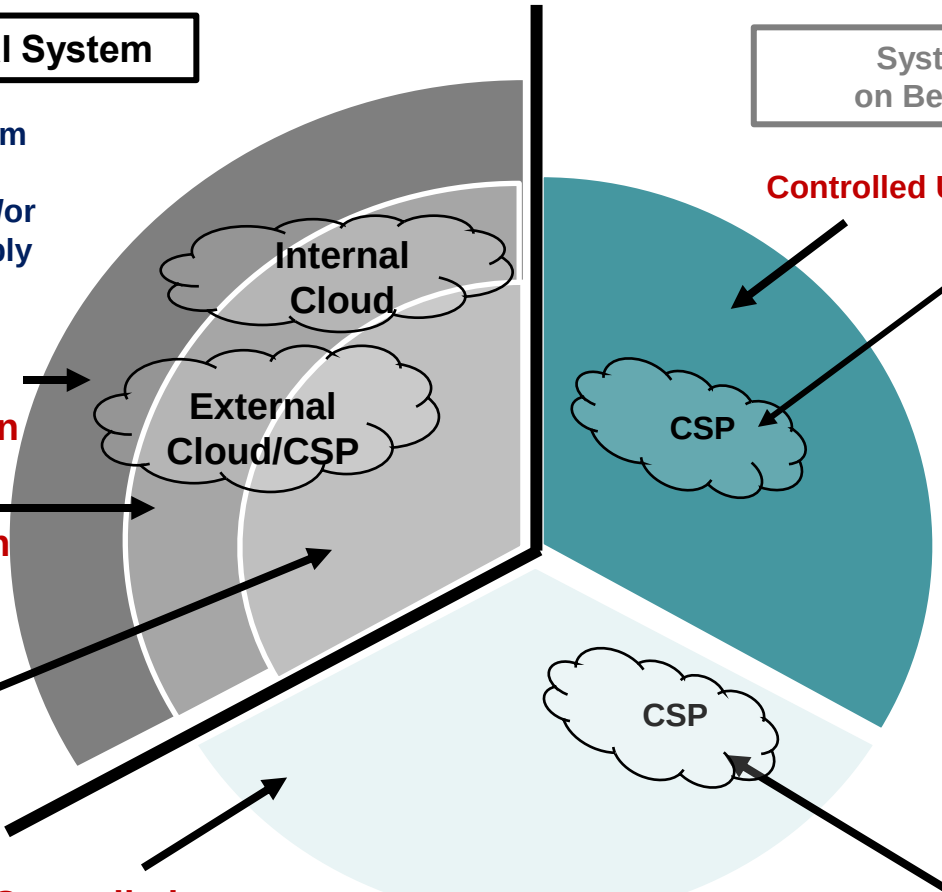
Network Penetration Reporting and Contracting for Cloud Services (DFARS Case 2013-D018)

48 CFR Parts 202, 204, 212, 239 & 252:

		Provision/Clause Prescription
Safeguarding Covered Defense Information	– (p) Section 252.204-7008, Compliance with Safeguarding Covered Defense Information	All solicitations except COTs
	– (c) Section 252.204-7009, Limitation on the Use or Disclosure of Third-Party Contractor Reported Cyber Incident Information	Solicitations/contracts for services that support safeguarding/reporting
	(c) Section 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting	All solicitations/contracts except COTs
Contracting For Cloud Services	– (p) Section 252.239-7009, Representation of Use of Cloud Computing	Solicitations/contracts for IT services
	– (c) Section 252.239-7010, Cloud Computing Services	

Protecting the DoD's Unclassified Information…

Information System Security Requirements



Contractor's Internal System

Security requirements from NIST SP 800-171, DFARS Clause 252.204-7012, and/or FAR Clause 52.204-21 apply

Federal Contract Information

Controlled Unclassified Information (USG-wide)

Covered Defense Information (includes Unclassified Controlled Technical Information)

Controlled Unclassified Information

System Operated on Behalf of the DoD

Controlled Unclassified Information

Cloud Service Provider

When cloud services are used to process data on the DoD's behalf, DFARS Clause 252.239-7010 and DoD Cloud Computing SRG apply

DoD Information System

Security requirements from CNSSI 1253, based on NIST SP 800-53, apply

Cloud Service Provider

When cloud services are provided by DoD, the DoD Cloud Computing SRG applies

DoD Owned and/or Operated Information System

DFARS Clause 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting

DFARS Clause 252.204-7012 requires contractors/subcontractors to:

1. **Provide adequate security to safeguard covered defense information that resides on or is transiting through a contractors internal information system or network**
2. **Report cyber incidents that affect a covered contractor information system or the covered defense information residing therein, or that affect the contractor's ability to perform requirements designated as operationally critical support**
3. **Submit malicious software discovered and isolated in connection with a reported cyber incident to the DoD Cyber Crime Center**
4. **If requested, submit media and additional information to support damage assessment**
5. **Flow down the clause in subcontracts for operationally critical support, or for which subcontract performance will involve covered defense information**

Covered Defense Information — Definition

Covered defense information – Term used to identify information that requires protection under DFARS Clause 252.204-7012

Covered defense information means:

- **Unclassified controlled technical information (CTI) or other information as described in the CUI Registry that requires safeguarding or dissemination controls pursuant to and consistent with law, regulations, and Government wide policies and is –**

  1) **Marked or otherwise identified in the contract, task order, or delivery order and provided to contractor by or on behalf of, DoD in support of the performance of the contract; OR**

  2) **Collected, developed, received, transmitted, used, or stored by, or on behalf of, the contractor in support of the performance of the contract***

* **"In support of the performance of the contract" is not meant to include the contractor's internal information (e.g., human resource or financial) that is incidental to contract performance**

Identification and Marking of Covered Defense Information

Existing DoD policy/regulations require DoD to:

- **Identify covered defense information and mark information** in accordance with DoD procedures for identification and protection of controlled unclassified information (CUI) found in DoDM 5200.01 Vol 4, DoD Information Security Program: CUI
  - **Determine the appropriate marking** for controlled technical information in accordance with the procedures for applying distribution statements on technical documents found in DoDM 5200.01 Vol 4 and DoDI 5230.24, Distribution Statements on Technical Documents
- **Document in the contract** (e.g., Statement of Work, CDRLs) information, including covered defense information, that is required to be developed for performance of the contract, and specify requirements for the contractor to mark, as appropriate, information to be delivered to DoD. (see, e.g., MIL-Handbook 245D, and Contract Data Requirements List (CDRL) (DD Form 1423))

The contractor is responsible for:

- Following the terms of the contract, which includes the requirements in the Statement of Work

Subcontractor Flowdown

When should DFARS Clause 252.204-7012 flow down to subcontractors?

- **The clause is required to flow down to subcontractors only when performance will involve operationally critical support or covered defense information**
- **The contractor shall determine if the information required for subcontractor performance is, or retains its identify as, covered defense information and requires safeguarding**
- **Flowdown is a requirement of the terms of the contract with the Government, which must be enforced by the prime contractor as a result of compliance with these terms**
  - **If a subcontractor does not agree to comply with the terms of DFARS Clause 252.204–7012, then covered defense information shall not be shared with the subcontractor or otherwise reside on it's information system**

The Department's emphasis is on the deliberate management of information requiring protection. Prime contractors should minimize the flowdown of information requiring protection.

Adequate Security for Covered Defense Information

To provide adequate security to safeguard covered defense information:

DFARS 252.204-7012 (b) Adequate Security. … the contractor shall implement, at a minimum, the following information security protections:

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(b)(2)(ii)(A): The contractor shall implement NIST SP 800-171, Protecting CUI in Nonfederal Information Systems and Organizations, as soon as practical, but not later than December 31, 2017

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(b)(3): Apply other information systems security measures when the Contractor reasonably determines that information systems security measures, in addition to those identified in paragraphs (b)(1) and (2) of this clause, may be required

NIST SP 800-171, Protecting CUI in Nonfederal Information Systems and Organizations

- **Developed for use on contractor and other nonfederal information systems to protect CUI* at confidentiality impact level "moderate", in accordance with FIPS 199 (32 CFR 2002.12)**
- **Consists of performance-based security requirements which significantly reduce unnecessary specificity**
  - **Enables contractors to comply using systems and practices already in place**
  - **More easily applied to existing systems**
- **Provides standardized/uniform set of security requirements for all CUI**
  - **Allows nonfederal organizations to consistently implement one solution to protect CUI for all customers**
  - **Allows contractor to implement alternative, but equally effective, security measures to satisfy CUI security requirements**

*** For DoD, this applies to covered defense information as defined in DFARS 252.204-7012**

Implementing NIST SP 800-171 Security Requirements

Most requirements in NIST SP 800-171 are about policy, process, and configuring IT securely, but some may require security-related software or hardware. For companies new to the requirements, a reasonable approach would be to:

1. **Examine each of the requirements to determine**
   - **Policy or process requirements**
   - **Policy/process requirements that require an implementation in IT (typically by either configuring the IT in a certain way or through use of specific software)**
   - **IT configuration requirements**
   - **Any additional software or hardware required**

   The complexity of the company IT system may determine whether additional software or tools are required
2. **Determine which of requirements can readily be accomplished by in-house IT personnel and which require additional research or assistance**
3. **Develop a plan of action and milestones to implement the requirements**

Implementing NIST SP 800-171 Security Requirements

	AC	AT	AU	CM	IA	IR	MA	MP	PS	PE	RA	CA	SC	SI
Basic (FIPS 200)	3.1.1	3.2.1	3.3.1	3.4.1	3.5.1	3.6.1	3.7.1	3.8.1	3.9.1	3.10.1	3.11.1	3.12.1	3.13.1	3.14.1
	3.1.2	3.2.2	3.3.2	3.4.2	3.5.2	3.6.2	3.7.2	3.8.2	3.9.2	3.10.2	3.11.2	3.12.2	3.13.2	3.14.2
								3.8.3			3.11.3	3.12.3		3.14.3
												(3.12.4)		
Derived (800-53)	3.1.3	3.2.3	3.3.3	3.4.3	3.5.3	3.6.3	3.7.3	3.8.4		3.10.3			3.13.3	3.14.4
	3.1.4		3.3.4	3.4.4	3.5.4		3.7.4	3.8.5		3.10.4			3.13.4	3.14.5
	3.1.5		3.3.5	3.4.5	3.5.5		3.7.5	3.8.6		3.10.5			3.13.5	3.14.6
	3.1.6		3.3.6	3.4.6	3.5.6		3.7.6	3.8.7		3.10.6			3.13.6	3.14.7
	3.1.7		3.3.7	3.4.7	3.5.7			3.8.8					3.13.7	
	3.1.8		3.3.8	3.4.8	3.5.8			3.8.9					3.13.8	
	3.1.9		3.3.9	3.4.9	3.5.9								3.13.9	
	3.1.10				3.5.10								3.13.10	
	3.1.11				3.5.11								3.13.11	
	3.1.12												3.13.12	
	3.1.13												3.13.13	
	3.1.14												3.13.14	
	3.1.15				Policy/Process			Policy or Software Requirement					3.13.15	
	3.1.16												3.13.16	
	3.1.17				Configuration			Configuration or Software						
	3.1.18													
	3.1.19				Software			Configuration or Software or Hardware						
	3.1.20													
	3.1.21				Hardware			Software or Hardware						
	3.1.22													

Implementing NIST SP 800-171 Security Requirements

- **If the offeror proposes to vary from NIST SP 800-171, the Offeror shall submit to the Contracting Officer, a written explanation of -**
  - **Why security requirement is not applicable; or**
  - **How an alternative but equally effective security measure is used to achieve equivalent protection**

  (see 252.204-7008(c)(2)(i) and 252.204-7012(b)(2)(ii)(B))

- **For all contracts awarded prior to October 1, 2017, the Contractor shall notify the DoD Chief Information Officer (CIO), via email at osd.dibcsia@mail.mil, within 30 days of contract award, of any security requirements specified by NIST SP 800-171 not implemented at the time of contract award.**

  (see 252.204-7012(b)(2)(ii)(A))

Cloud Computing

Cloud Computing Services
48 CFR Parts 239 and 252, DFARS Clause 252.239-7010

- Applies when a cloud solution is being used to process data on the DoD's behalf or DoD is contracting with Cloud Service Provider to host/process data in a cloud
- Requires the cloud service provider to:
  - Comply with the DoD Cloud Computing Security Requirements Guide
  - Comply with requirements for cyber incident reporting and damage assessment

Safeguarding Covered Defense Information and Cyber Incident Reporting
48 CFR Parts 202, 204, 212, and 252, DFARS Clause 252.204-7012

- Applies when a contractor uses an external cloud service provider to store, process, or transmit Covered Defense Information on the contractor's behalf
- Ensures that the cloud service provider:
  - Meets requirements equivalent to those established for the Federal Risk and Authorization Management Program (FedRAMP) Moderate baseline
  - Complies with requirements for cyber incident reporting and damage assessment

Contractor Compliance — Implementation of DFARS Clause 252.204-7012

- By signing the contract, the contractor agrees to comply with the terms of the contract and all requirements of the DFARS Clause 252.204-7012
- The DFARS rule did not add any unique/additional requirements for the Government to monitor contractor implementation of required security requirements
  - DoD will not certify that a contractor is compliant with the NIST SP 800-171 security requirements
  - 3rd party assessments or certifications of compliance are not required, authorized, or recognized by DoD
- If oversight related to these requirements is deemed necessary, it can be accomplished through existing FAR and DFARS allowances, or an additional requirement can be added to the terms of the contract

Demonstrating Implementation of NIST SP 800-171 — System Security Plan and Plans of Action

NIST SP 800-171, Revision 1, Chapter 3:

- **When requested, the system security plan and any associated plans of action for any planned implementations or mitigations should be submitted to the responsible federal agency/contracting officer to demonstrate the nonfederal organization's implementation or planned implementation of the security requirements**

NIST SP 800-171, Security Requirement 3.12.4:

- **Develop, document, and periodically update, system security plans that describe system boundaries, system environments of operation, how security requirements are implemented, and the relationships with or connections to other systems**

NIST SP 800-171, Security Requirement 3.12.2:

- **Develop and implement plans of action designed to correct deficiencies and reduce or eliminate vulnerabilities in organizational systems**

Demonstrating Implementation of NIST SP 800-171 — System Security Plan and Plans of Action

- The system security plan may be used to document/describe:
  - How the system security protections are implemented
  - Situations where requirements cannot practically be applied (non-applicable)
  - Alternative but equally effective security measures approved by DoD CIO
  - Exceptions to accommodate special circumstances (e.g., medical devices, CNC machines and/or shop floor machines)
  - Individual, isolated or temporary deficiencies addressed by assessing risk and applying mitigations
- The solicitation may require or allow elements of the system security plan to be included with the contractor's technical proposal (and may subsequently be incorporated as part of the contract)

Role of the System Security Plan and Plans of Action in Source Selection and Contract Formation / Administration

NIST SP 800-171, Revision 1, Chapter 3: Federal agencies may consider the submitted system security plan and plans of action as critical inputs to an overall risk management decision to process, store, or transmit CUI on a system hosted by a nonfederal organization and whether or not it is advisable to pursue an agreement or contract with the nonfederal organization

Examples of how a requiring activity may utilize the system security plan and associated plans of action include:

- **Requiring that proposals i) identify any NIST SP 800-171 security requirements not implemented at the time award and ii) include associated plans of action for implementation**
- **Identifying in the solicitation that all security requirements in NIST SP 800-171 must be implemented at the time of award**
- **Identifying in the solicitation that the contractor's approach to providing adequate security will be evaluated in the source selection process**

Implementation of NIST SP 800-171 — What Happens on December 31, 2017?

- In response to the December 31, 2017 implementation deadline, companies should have a system security plan in place, and associated plans of action to address any security requirements not yet implemented
  - If Revision 1 of NIST SP 800-171 was not "in effect" when the contract was solicited, the contractor should work with the contracting officer to modify the contract to include NIST SP 800-171, Revision 1 (Dec 2016)
  - DoD guidance is for contracting officers to work with contractors who request assistance in working towards consistent implementation of the latest version of DFARS Clause 252.204-7012 and NIST SP 800-171
- The contractor self-attests (by signing contract) to be compliant with DFARS Clause 252.204-7012, to include implementation of NIST SP 800-171 (which allows for planned implementation of some requirements if documented in the system security plan and associated plans of action)
- The solicitation/contract may allow the system security plan, and any associated plans of action, to be incorporated, by reference, into the contract (e.g., via Section H special contract requirement)

Contractor Compliance — DCMA Role

- Where applicable, the Defense Contract Management Agency (DCMA) will verify that applicable cybersecurity clauses are in the contract
- As part of normal software surveillance activities, personnel will engage with contractors to implement the following actions in regards to cyber-security:
  - Verify contractor has a system security plan
  - Verify contractor submitted to DoD CIO within 30 days of any contract award made through October 2017, a list/notification of the security requirements not yet implemented
  - Verify contractor possesses DoD approved External Certificate Authority (ECA) issued medium assurance public key infrastructure (PKI) certificate
  - If DCMA detects or is made aware of potential cybersecurity issue, DCMA will notify the contractor, DoD program office, and the DoD CIO
  - As required, facilitate the entry of government external assessment team into applicable contractor facilities via coordination with cognizant government and contractor stakeholders

Implementing NIST SP 800-171 – Where to Get Assistance

- **NIST Manufacturing Extension Partnership (MEP)**
  - **Public-private partnership with Centers in all 50 states and Puerto Rico dedicated to serving small and medium-sized manufacturers**
- **Procurement Technical Assistance Program (PTAP) and Procurement Technical Assistance Centers (PTACs)**
  - **Nationwide network of centers/counselors experienced in government contracting, many of which are affiliated with Small Business Development Centers and other small business programs**
- **Cybersecurity Evaluation Tool (CSET)**
  - **No cost application, developed by DHS's Industrial Control Systems Cyber Emergency Response Team (ICS-CERT), provides step-by-step process to evaluate industrial control system and information technology network security practices**

Resources

- **Cybersecurity in DoD Acquisition Regulations page at *http://dodprocurementtoolbox.com/* for Related Regulations, Policy, Frequently Asked Questions, and Resources**
- **DPAP Website *http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html* for DFARs, Procedures, Guidance and Information (PGI), and Frequently Asked Questions**
- **Cybersecurity Evaluation Tool (CSET) - Download at *https://ics-cert.us-cert.gov/Downloading-and-Installing-CSET* or request physical copy of software at *cset@dhs.gov* — Select "Advanced Mode" to display option to select NIST 800-171**
- **NIST Manufacturing Extension Partnership at *https://www.nist.gov/mep***
- **The Procurement Technical Assistance Program (PTAP) at *http://www.dla.mil/HQ/SmallBusiness/PTAP.aspx***

Questions? Submit via email at osd.dibcsia@mail.mil

Backup

Cyber Incident Reporting

What is a cyber incident?

A "Cyber incident" is an action(s) taken through the use of computer networks that result in a compromise or an actual or potentially adverse effect on an information system and/or the information residing therein.

"Compromise" means disclosure of information to unauthorized persons, or a violation of the security policy of a system, in which unauthorized intentional or unintentional disclosure, modification, destruction, or loss of an object, or the copying of information to unauthorized media may have occurred.

DFARS 204.7302 (d)

A cyber incident that is reported by a contractor or subcontractor shall not, by itself, be interpreted as evidence that the contractor or subcontractor has failed to provide adequate security on their covered contractor information systems, or has otherwise failed to meet the requirements of the clause at 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting.

Cyber Incident Reporting

When reporting a cyber incident, contractors/subcontractors submit to DoD—

- **A cyber incident report via https://dibnet.dod.mil/**
- **Malicious software if detected and isolated**
- **Media or access to covered contractor information systems and equipment when requested by the requiring activity/contracting officer**

Upon receipt of a cyber incident report —

- **The DoD Cyber Crime Center (DC3) sends the report to the contracting officer(s) identified on the Incident Collection Format (ICF) via encrypted email; the contracting officer(s) provide the ICF to the requiring activity(ies)**
- **DC3 analyzes the report to identify cyber threat vectors and adversary trends**
- **DC3 contacts the reporting company if the report is incomplete (e.g., no contract numbers, no contracting officer listed)**

Cyber Incident Damage Assessment Activities

DoD decision to conduct a cyber incident damage assessment —

- **Contracting officer verifies clause is included in the contract**
- **The DoD Component damage assessment office (DAMO) and Requiring Activity will determine if a cyber incident damage assessment is warranted**
- **Once the decision to conduct an assessment is made - the Requiring Activity will notify the contractor via the Contracting Officer, and the Contracting Officer will request media from the contractor**

Purpose of the cyber incident damage assessment —

- **Determine impact of compromised information on U.S. military capability underpinned by the technology**
- **Consider how the compromised information may enable an adversary to counter, defeat, or reverse engineer U.S. capabilities**
- **Focus on the compromised intellectual property impacted by the cyber incident – not on the compromise mechanism**