Hot Topics in Cybersecurity

June 9, 2023

Moderator:

Dan Nordquist, *Deputy Vice President for Research Operations, Office of Research Support, Washington State University*

Presenters (in order of presentations):

Kimberly Milford, *Chief Information Security Officer, University of Illinois*

Jarret Cummings, *Senior Advisor, Policy & Government Relations, Educause*

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Cyber Summary (To get you up to speed again)

- The Serious
  - Since Oct. 2019, COGR - 20 times, maybe more…
- The Standard:
  - NIST Requirements - NIST 800-171
- The Standard being Implemented (at least for all of us):
  - FAR 52.204-21 Basic Safeguarding of Covered Contractor Information Systems:
  - OSTP's NSPM-33 cybersecurity – "basic safeguarding protocols and procedures"
  - DOD's Cybersecurity Maturity Model Certification (CMMC).
- The Funny
  - CUI, CDI, DFARS 252.204-7012, NIST, 800-171, CMMC, DHS, FAR 52.204-21, OMB/OIRA, NDAA, and NSPM-33.

Cybersecurity Maturity Model Certification (CMMC) and Controlled Unclassified Information (CUI)

Kim Milford

CISO

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

History of CMMC

- **2002** – Federal Information Security Management Act (FISMA) makes National Institute of Standards and Technology (NIST) responsible for developing controls for federal data
- **2011** – US Department of Defense (DoD) issues Defense Federal Acquisition Regulation Supplemental (DFARS) 252.204-7000 requiring protection of data
- **2014** – FISMA updated to account for Controlled Unclassified Information (CUI)
- **2016** – Pursuant to FISMA-2014, NIST issues Special Publication (SP) 800-171 with security controls for CUI
- **2017** – All Defense contractors required to self-attest to cybersecurity readiness
- **2019** – DoD works with a selection of contractors to develop the Cybersecurity Maturity Model Certification (CMMC)
- **2020** – General Services Administration (GSA) puts non-defense federal contractors on notice that they should prepare to comply with CMMC

History of CUI

- Historically every federal agency had its own requirements for unclassified data, resulting in different requirements between agencies for similar data

- **2004** – President Bush's *Commission on 9-11* recommends intelligence sharing between federal agencies

- **2009** – Presidential Task Force charged by President Obama with expanding the sharing recommendation to include all CUI under control of federal executive branch

- **2010** – Presidential Executive Order 13556 establishes the CUI program to standardize practices across over 100 federal agencies; state, local, and tribal agencies; private sector, academia, and industry entities

- **2016** – Office of Management and Budget (OMB) publishes final rule 32 CFR 2002 to cover Controlled Unclassified Information

https://www.archives.gov/cui/cui-history
https://www.law.cornell.edu/cfr/text/32/part-2002

Definitions: Unclassified Federal Data

Public

- Marked for public release

Federal Contract Information (FCI)

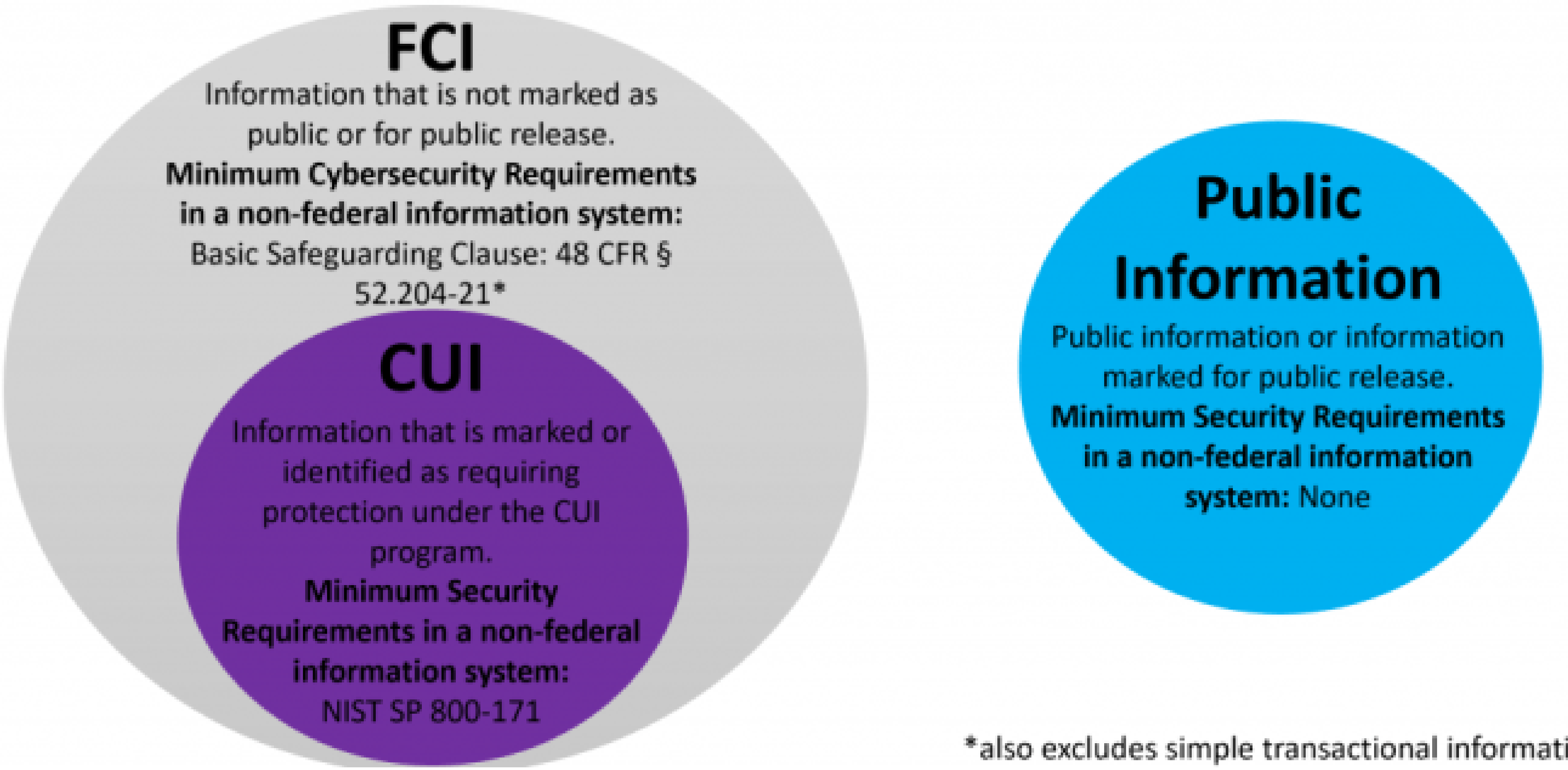
- Information not intended for public release
- Requires some basic security – minimum controls specified in Federal Acquisition Regulation (FAR) 52.204-21
- Covered by CMMC

Controlled Unclassified Information (CUI)

- Information does not meet threshold for "classified" (national security or atomic energy information)
- Requires some level of protection from unauthorized access and release
- Security requirements more stringent than basic FCI requirements, specified in NIST SP 800-171
- Protection may be required for privacy reasons or other law, regulation or federal policy
- Applies only to information held by executive branch agencies
- Covered by CMMC

All CUI is FCI, but not all FCI is CUI

Information that is collected, created, or received pursuant to a government contract



FCI

Information that is not marked as public or for public release.

Minimum Cybersecurity Requirements in a non-federal information system: Basic Safeguarding Clause: 48 CFR § 52.204-21*

CUI

Information that is marked or identified as requiring protection under the CUI program.

Minimum Security Requirements in a non-federal information system: NIST SP 800-171

Public Information

Public information or information marked for public release.

Minimum Security Requirements in a non-federal information system: None

*also excludes simple transactional information.

CMMC Version 2.0

Level	Description	Controls	Assessment	Data Type Protected
1	Foundational	17 basic cybersecurity practices from NIST 800-171	Annual Self-Assessment plus annual affirmation by leadership	Federal Contract Information (FCI)
2	Advanced	110 controls (All of NIST 800-171)	Non-Prioritized Acquisitions Annual Self-Assessment plus annual affirmation by leadership Prioritized Acquisitions (contract will specify) External Third-Party Assessment required every three years	Controlled Unclassified Information (CUI)
3	Expert	All Level 2 controls, plus 35 controls (All of NIST 800-172)	Government-led assessments every three years	Controlled Unclassified Information (CUI) deemed to be a target of Advanced Persistent Threats (APT) APT generally refers to attacks from unfriendly nation-states

CMMC Version 2.0 Updates

- Three levels instead of five
- All CMMC-unique controls and all maturity processes removed from all levels
- No external assessment required for Level 1 and certain Level 2
- DoD has suspended CMMC requirements in contracts until CMMC 2.0 final rulemaking complete
- Proposed rulemaking for Title 32 (DoD implementing CMMC 2.0) and Title 48 (Pentagon implementing controls and assessment requirements into contracts) is expected by the end of June 2023
- Allowing one year for public comment and finalization of the rules, CMMC requirements should not start showing up in contracts until federal fiscal year 2025, which begins Oct 1, 2024

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Research Cybersecurity Comment Processes

Quick (If Not The Greatest) Hits

Jarret Cummings, Senior Advisor, Policy and Govt. Relations, June 9, 2023

Poll Everywhere **Pollev.com/cogrstaff949** ***Ask a question from your seat!***

About EDUCAUSE

- Association for IT leaders/professionals in higher ed.
- Cybersecurity community = major component
- Higher Ed. Information Security Council (HEISC) = member guidance for our Cybersecurity and Privacy Program
  - HEISC 800-171 Compliance Community Grp: Research focused, main source for current comment processes
  - 800-171 group overlaps w/ Regulated Research Community of Practice (RRCoP) (NSF project)

Current Processes

- OSTP Research Security Programs Standard Requirement (Cybersecurity Protocols) (June 5th)
- NIST
    - Research Cybersecurity Resources for Higher Ed. (June 30th)
    - Draft SP 800-171, Rev. 3 (July 14th)
- NSF Research Security and Integrity Information Sharing and Analysis Organization (RSI-ISAO) (June 30)

OSTP Standard Requirement (Cybersecurity)

- SR cybersecurity “protocols” = Fed. Contract Info. requirements = sub-optimal checklist approach
- OSTP = set objectives, institutions = identify solutions
- Recommend shift to risk assessment/management model
- If not, SR should explicitly recognize need for:
  - Institutional discretion to interpret/apply via institutional policy
  - Discretion to use alt. measures/controls as appropriate

Standard Requirement (Cybersecurity) (cont’d)

Examples of other problems

- Overall lack of compliance metrics (so need discretion)
- Protocol 1 (access authorization): Drop OMB M-21-31; activity logging, not authorization; scope/cost concerns
- Protocol 3 (control external sys. access):
  - Implies only institutionally controlled devices = infeasible (cost)
  - May limit inter-institutional collaboration, use of cloud services
- Protocol 6 (authentication): Not all research equip. can…

Other Processes

- NIST 171_R3: Working group assessing
- NIST research cybersec. resources—preliminary feedback
  - Curate existing orgs./resources (e.g., Trusted CI, national labs)
  - Develop awareness/guidance resources for *researchers*
  - Produce resources to help grow research cybersec. profession
  - Collaborate w/ community on research cybersec. framework
  - Create/maintain effective practices guide for research contexts

Other Processes (cont'd)

- NSF RSI-ISAO
  - Really supposed to be an ISAO?
  - Focus on standardizing cybersec. frameworks/practices (no new)
  - Collaborate w/ relevant ISACs (e.g., REN-ISAC, MSI-ISAC)
  - Provide common tools/resources
    - Vulnerability mgt., incident mgt. in research contexts
    - Cybersec. awareness, compliance (see frameworks)

COGR Point of Contact

Robert Hardy, Research Security & Intellectual Property Director
rhardy@cogr.edu