INTEGRATING DFARS INTO YOUR DAY-TO-DAY CYBER PRACTICES
ACQUISITION HOUR WEBINAR
June 25, 2019
WEBINAR ETIQUETTE

PLEASE

• Log into the GoToMeeting session with the name that you registered with online

• Place your phone or computer on MUTE

• Use the CHAT option to ask your question(s). We will share the questions with our guest speaker who will respond to the group

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ACQUISITION HOUR: CURRENT TRENDS IN DEPARTMENT OF DEFENSE ACQUISITION - JUNE 26

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- Assistance with Agency Specific Contracting Requirements
- Assistance with Contracting Regulations and Requirements, including FAR, DFAR, CFR
- Assistance with GSA Schedule Preparation and Administration
- Assistance with Local, State and Federal Certifications, including:
  - Service Disabled & Veteran Owned Small Business, HUBZone, Woman Owned Small Business, 8(a) Business Development Program
  - State
  - Local
  - DBE
- Bid review and Submission Assistance
- Proposal review and Submission Assistance
- Capabilities Statement and Related Government Marketing Material Development
- Assistance in Locating and Developing Teaming Partners and Subcontractors
- Updated Government Market Information
Integrating DFARS Requirements Into Your Day-to-Day Cyber Practices

Marc N. Violante
Wisconsin Procurement Institute
June 25, 2019
DFARS- general requirements (review)

• Clause 252.204-7008
• Clause 252.204-7012
• Adequate security – NIST 800-171 rev 1
• Monitor for Malware, capture, defang, send to KO
• Identify incidents
• Forensic investigation, report within 72 hours
• System image for up to 90 days
• Flow-down only when required
Leakage – heat loss or information loss?
Starting point – key questions

• What are we trying to protect?
• What are the threats?
• How do we detect them? (the threats)
• How do we respond?
Identify key elements- what is needed?

Senior level support
Funding
Staff/talent
Resources
Information
Training – staff/technical
Security – top level factors

- Employees
- Information
- Network-Access points

Controls
Program

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Use standard/accepted descriptions

What is a cyber incident? -

• A cyber incident is defined as actions 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.

Create-Drive the importance

• Seal Belts
• Thunder
• Water on road
• It won’t happen to me!
• It cost’s too much
• I’ll let them worry about that
• That’s not important
Situational Awareness – users - Phishing

• > eight million results of sanctioned phishing tests in 2015; multiple security awareness vendors

• 30% of phishing messages were opened by the target across all campaigns.

• About 12% went on to click the malicious attachment or link and thus enabled the attack to succeed. The median time for the first user of a phishing campaign to open the malicious email is 1 minute, 40 seconds.

• The median time to the first click on the attachment was 3 minutes, 45 seconds

2016 Verizon, Data Breach Investigation Report, 18
Cyber – breach detection

“February 25, SecurityWeek – (International) Breach detection time improves, destructive attacks rise: FireEye. FireEye-owned Mandiant released a report titled, M-Trends which stated that current organizations were improving their breach detection rates after an investigation on real-life incidences revealed that the median detection rate improved from 205 days in 2014 to 146 days in 2015. The report also stated that disruptive attacks were a legitimate threat and gave insight into how organizations can prepare for and deal with such attacks.


Small Business risk – “it won’t happen to us”

• It’s not just Fortune 500 companies and nation states at risk of having IP stolen–even the local laundry service is a target.

• In one example, an organization of 35 employees was the victim of a cyber attack by a competitor.

• The competitor hid in their network for two years stealing customer and pricing information, giving them a significant advantage.

Hid for two years!
5 Questions CEOs Should Ask About Cyber Risks

1) How Is Our Executive Leadership Informed About the Current Level and Business Impact of Cyber Risks to Our Company?

2) What Is the Current Level and Business Impact of Cyber Risks to Our Company? What Is Our Plan to Address Identified Risks?

3) How Does Our Cybersecurity Program Apply Industry Standards and Best Practices?

4) How Many and What Types of Cyber Incidents Do We Detect In a Normal Week? What is the Threshold for Notifying Our Executive Leadership?

5) How Comprehensive Is Our Cyber Incident Response Plan? How Often Is It Tested?
General Approach

- Company processes and procedures
- NIST - Requirement

MAP into common vocabulary - NIST

+ / -

Compare

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Example - Recipes

• Family recipe cards
  • Add some butter
  • Dash
  • Lightly salt
  • Pinch
  • Splash
  • Sprinkle

• Published cookbook
  • Add 2 table spoons of butter
  • Add 1/8 cup of ...
  • etc

Translate
What data/information is on your computer?

On your Network?

What devices are being used?

What are the entry points?

Are the security/safeguarding requirements all the same? – different customers, different types of data/information

Assess your system

3.4.1 Establish and maintain baseline configurations and inventories of organizational systems (including hardware, software, firmware, and documentation) throughout the respective system development life cycles.
Collect/Identify current processes

• Systems
• Passwords
• Configurations
• Software / Data / Licenses
• Vendors / Contractors
• Staff assignments
• Training – training files
Translation process

NIST 14 Family Members

<table>
<thead>
<tr>
<th>FAMILY</th>
<th>FAMILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Control</td>
<td>Media Protection</td>
</tr>
<tr>
<td>Awareness and Training</td>
<td>Personnel Security</td>
</tr>
<tr>
<td>Audit and Accountability</td>
<td>Physical Protection</td>
</tr>
<tr>
<td>Configuration Management</td>
<td>Risk Assessment</td>
</tr>
<tr>
<td>Identification and Authentication</td>
<td>Security Assessment</td>
</tr>
<tr>
<td>Incident Response</td>
<td>System and Communications Protection</td>
</tr>
<tr>
<td>Maintenance</td>
<td>System and Information Integrity</td>
</tr>
</tbody>
</table>

Company Information

Specifics

Family member
Sort to Broader categories –

NIST 200 – Minimum Security Requirements for Federal information and Information Systems

Specifications for Minimum Security Requirements

Access Control (AC): Organizations must limit information system access to authorized users, processes acting on behalf of authorized users, or devices (including other information systems) and to the types of transactions and functions that authorized users are permitted to exercise.

Awareness and Training (AT): Organizations must: (i) ensure that managers and users of organizational information systems are made aware of the security risks associated with their activities and of the applicable laws, Executive Orders, directives, policies, standards, instructions, regulations, or procedures related to the security of organizational information systems; and (ii) ensure that organizational personnel are adequately trained to carry out their assigned information security-related duties and responsibilities.
NIST 800-171 (3.1 Access Control) example

Basic Security Requirements

3.1.1 Limit system access to authorized users, processes acting on behalf of authorized users, and devices (including other systems).

3.1.2 Limit system access to the types of transactions and functions that authorized users are permitted to execute.

Derived Security Requirements

3.1.3 Control the flow of CUI in accordance with approved authorizations.

3.1.4 Separate the duties of individuals to reduce the risk of malevolent activity without collusion.

3.1.5 Employ the principle of least privilege, including for specific security functions and privileged accounts.

3.1.6 Use non-privileged accounts or roles when accessing nonsecurity functions.

3.1.7 Prevent non-privileged users from executing privileged functions and capture the execution of such functions in audit logs.

3.1.8 Limit unsuccessful logon attempts.

3.1.9 – 3.1.22 Not shown
Establish a baseline – NIST terminology
Design in – Flexibility - monitor

System Security Plan
Gap (POA)
Baseline
NIST 800-171 r2 draft
NIST 800-171b draft
CMMC in process
NIST 800-171 r2 draft
Baseline
Threats
NIST

How?
US CERT
InfraGard
ISAO
Other

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CMMC – on the horizon

• Cybersecurity Maturity Model Certification
• DoD – driven, self-attestation is not working, too much “leakage”
• Developed by Johns Hopkins & SEI Carnegie Mellon
• Five levels – (1) basic cyber hygiene - (5) 24 x 7 monitoring/response
• Each notice will designate level (1 -5)
• Contractor eligibility – Go / No-go Certified/Not-certified
• Listening sessions (11) – this summer
• Initial publishing of program this summer
Monitor -
Include Active Involvement - test|check|verify
Threat target areas / Protection schemes

Confidentiality

Integrity

Availability

Focus of NIST 800-171 r1

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Information – life-cycle, general elements

- Auditing
- Awareness
- Controls
- Deliverables
  - Information – source(s)
  - Monitor – test
  - Questions to KO, other
  - Training
- Transmittal registry
- Update procedures
Get technical!
Create a Culture of Awareness

1. Strengthen your PASSWORD!
2. Lock-down your social media accounts.
3. Delete suspicious emails.
4. Don’t expect privacy when you travel.
5. Know who you’re talking to.
DON Review / Report – some findings

- **Annual training was "far too basic"**
- Annual training philosophy - **one-size-fits-all**
- It "underemphasizes the realities of the cyber threat" to the point that "the workforce is led to believe that cybersecurity is simply a matter of routine compliance"
- (Routine compliance) enables seeing security practices such as **password protection** and email vigilance as needlessly burdensome."
Stay aware & up to date (password spraying)

- Use SSO or web-based applications with federated authentication method
- Lack multifactor authentication (MFA)
- Allow easy-to-guess passwords (e.g., “Winter2018”, “Password123!”)
- Use inbox synchronization, allowing email to be pulled from cloud environments to remote devices
- Allow email forwarding to be setup at the user level
- Limited logging setup creating difficulty during post-event investigations

Brute Force Attacks Conducted by Cyber Actors  https://www.us-cert.gov/ncas/alerts/TA18-086A

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Passwords – what is the risk?

• “Users have long been considered the weakest link of any security system[25-28]. Across different authentication schemas users tend to choose passwords, which are easy to remember, and so are easy to guess. “

• It has been shown [5] that user's passwords can be grouped into four broad categories: family oriented, fans, fantasies, and cryptic.

• "Family oriented" users, which comprise 47.5% of users, select their own name or last name or other personal information such as pet or child's name as their password. Those are usually less experienced computer users.
Example - passwords

• “in fact, the password that turned up the most was the same: According to the NCSC’s global breach analysis, 23.2 million of those hacked worldwide used the password “123456”. “
  • UK’s National Cyber Security Center (NCSC)

• The 20 most used passwords (partial)
  • 123456 (23.2m)
  • 123456789 (7.7m)
  • qwerty (3.8m)
  • password (3.6m)
  • 1111111 (3.1m)
  • 12345678 (2.9m)

https://www.forbes.com/sites/kateoflahertyuk/2019/04/21/these-are-the-worlds-most-hacked-passwords-is-yours-on-the-list/#26c614cb289c
Passwords – general selection biases

<table>
<thead>
<tr>
<th>TABLE 7</th>
<th>TOPIC PREFERENCES BY GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Female</td>
</tr>
<tr>
<td>Animals</td>
<td>20.8%</td>
</tr>
<tr>
<td>Cars</td>
<td>14.6%</td>
</tr>
<tr>
<td>Women</td>
<td>6.3%</td>
</tr>
<tr>
<td>Food</td>
<td>14.6%</td>
</tr>
<tr>
<td>Children</td>
<td>8.3%</td>
</tr>
<tr>
<td>Men</td>
<td>4.2%</td>
</tr>
<tr>
<td>Objects</td>
<td>12.5%</td>
</tr>
<tr>
<td>Nature</td>
<td>14.6%</td>
</tr>
<tr>
<td>Sports</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 8</th>
<th>TOPIC PREFERENCES BY RACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Asian</td>
</tr>
<tr>
<td>Animals</td>
<td>10.7%</td>
</tr>
<tr>
<td>Cars</td>
<td>18.6%</td>
</tr>
<tr>
<td>Women</td>
<td>11.4%</td>
</tr>
<tr>
<td>Food</td>
<td>11.4%</td>
</tr>
<tr>
<td>Children</td>
<td>8.6%</td>
</tr>
<tr>
<td>Men</td>
<td>4.3%</td>
</tr>
<tr>
<td>Nature</td>
<td>17.1%</td>
</tr>
</tbody>
</table>

Utilizing the demographic information presented above for the easiest 10% of passwords, which belonged to Asian males, it was shown to be possible to break the Story authentication mechanism in just twenty attempts [18].

Analyzing User Password Selection Behavior for Reduction of Password Space; Roman V. Yampolskiy Department of Computer Science and Engineering and I GERT in GIS University at Buffalo, Buffalo, NY 14260, USA rvy@buffalo.edu

June 25, 2019
Reduce variables

• Provide training
• Communicate
• Identify & classify system v. individual requirements
• Reduce individual efforts
• Maximize use of system/network level solutions
• Minimize target surface
• Security at the individual level = each individual has to maintain
• Managed security reduces the number of risks
Tailor the solution for the need - encryption

- Use Case 1 – Sharing a Laptop
- Use Case 2 – Transferring Files Between Computers
- Use Case 3 – Sharing Data with Contractor
- Use Case 4 – Traveling with a Laptop
- Use Case 5 – Traveling with a Dual-Boot Laptop

NIST Special Publication 800-111 provides guidance on storage encryption technologies for end user devices. If the data is encrypted – how is the paper protected?
Develop threat information

• ISAC – Information Sharing and Analysis Center – Industry specific
• Infragard – FBI – Corporate association
• U.S. Cert – publications/notifications
• Industry groups
Monitor mass-flow of information

System activity

Logs!!!
How do you know?

• - only authorized users have accessed the network?
• - information requiring destruction was destroyed appropriately?
• - email/ftp/other digital communications were handled correctly?
• - there is no malware on the network / computers / devices?
• - there have been no reportable incidents?
• - all other issues
Employees

• Training
  • Baseline
  • Annual/periodic
  • New hire/New position, responsibility, retiring, termination

• Awareness

• Determine access requirements

• Determine unique needs of position/assignment

• Test: Phishing – 3rd party

• Social Engineering
Visitors

- Sales/marketing
- Temporary employees
- Visiting engineer
- Customer
- Prospective customers
- Contract Services – repair, janitorial, suppliers, OEM, other
- Friends/family
- Others
Information

• Review information (prints, TDP, other)

• Determine
  • Program affiliation – ITAR, JCP, EAR, CUI, CUI – program, other
  • Marking
  • Handling – restrictions/limitations
  • CUI Control requirements – CUI Basic/CUI Specified
  • Decontrol
  • Destruction requirements
  • Contract retention requirements
Attachment to client email

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Network

• Network
  • Determine everything that connects to it
    • Internally
    • Externally
    • Visitor
    • Operations - equipment
Communication channels

- Location – work station, conference room, public area
- Network
- Hardwire – USB
- CD
- Removable drive
- Thumb drive
- WiFi – footprint/availability – does it need to be on 24/7?
- Remote access
UPCOMING TRAINING - EVENTS
ACQUISITION HOUR LIVE WEBINAR SERIES

• June 26, 2019 – Current Trends in Department of Defense Acquisition – CLICK HERE for additional information – presented by James Hasik, Senior Fellow, Center for Government Contracting, George Mason University School of Business

• July 9, 2019 – Overview of the Federal Acquisition Regulations (FAR) – CLICK HERE for additional information – presented by Carol Murphy, Wisconsin Procurement Institute (WPI)

• July 24, 2019 – The End of the Fiscal Year is Here: What is Hot and What is Not – CLICK HERE for additional information – presented by Marc Violante, Wisconsin Procurement Institute (WPI)

• August 7, 2019 – The NEW WAWF – The Procurement Integrated Enterprise Environment (PIEE) – CLICK HERE for additional information – presented by Benjamin Blanc, Wisconsin Procurement Institute (WPI)

• August 21, 2019 – Government Property Management for Federal Contractors and Subcontractors – CLICK HERE for additional information – presented by Benjamin Blanc, Wisconsin Procurement Institute (WPI)
13TH ANNUAL WISCONSIN GOVERNMENT OPPORTUNITIES BUSINESS CONFERENCE (GOBC)

In Partnership with Volk Field ANG and Fort McCoy

JULY 30-31, 2019

The 13th Annual Wisconsin Government Opportunities Business Conference (GOBC) is scheduled for July 30th and 31st at Volk Field in Camp Douglas, Wisconsin. Businesses from the Midwest will have the opportunity to participate in two days of technical training with a focus on Infrastructure Opportunities, Federal, State and Local Government Opportunities, Information Security, Manufacturing and Teaming.

Attendees will have the opportunity to hear from and meet with regional experts, leaders of the community, potential customers, potential partners and will also have the opportunity to meet one on one with various government and corporate buyers. All businesses including Small, Large, Disadvantaged, HUBZone, Minority-Owned, Native / Tribal Owned, Woman-Owned, Veteran-Owned and Service-Disabled Veteran-Owned firms will benefit from this event.

EARLY REGISTRATION ENDS June 14, 2019 – (Discounted registration may be available)

EVENT REGISTRATION ENDS July 18, 2019

https://volkfieldsbconference.org/
MARKETPLACE 2019 – Milwaukee, WI
October 23-24, 2019

https://www.marketplacewisconsin.com/
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