CISA | CYBERSECURITY AND INFRASTRUCTURE SECURITY AGENCY

INTRO AND OVERVIEW
CYBER STATS
CYBER THREATS
AWARENESS, PREPAREDNESS & RESILIENCE
DHS/CISA SERVICES & TOOLS
SUMMARY & Q&A
CLOSING

Gatewood R4-Georgia-CSA
May 1, 2023

CYBER STATS, UPDATE AND THREATS

Gatewood
CSC/CSA
Cybersecurity and Infrastructure Security Agency

19 March 2023

Cyber Stats, Threats and Updates

January 1, 1983, is considered the official birthday of the Internet. Prior to this, the various computer networks did not have a standard way to communicate with each other. A new communications protocol was established called Transfer Control Protocol/Internetwork Protocol (TCP/IP).

University System of Georgia

ARPANET initially connected four independent network nodes situated at University of California, Los Angeles (UCLA), Stanford Research Institute (SRI), the University of California-Santa Barbara (UCSB) and the University of Utah.

University System of Georgia

“As of January 2023, there were 5.16 billion internet users worldwide, which is 64.4 percent of the global population. Of this total, 4.76 billion, or 59.4 percent of the world's population, were social media users.”

Statista 2023

“According to Cybersecurity Ventures, the cost of cybercrime is predicted to hit $8 trillion in 2023 and will grow to $10.5 trillion by 2025.”

Forbes 2023

Cyber Stats, Threats and Updates

1. Ransomware
2. E-Mail
3. Vulnerability in the cloud
4. State sponsored threats
5. Mobile attacks
6. Critical infrastructure attacks/Internet-of-Things attacks
7. An alarming shortage of cybersecurity professionals (Knowledge + Skills + Abilities + Experience)
8. Hybrid or remote work environments
9. Cyber-Physical attacks
10. 3rd party vulnerabilities (vendors, contractors, partners)

Cyber Stats, Threats and Updates

- 6 attack entities:
  - Healthcare industry
  - Government (SLTT)
  - Financial services
  - Energy and utilities
  - Supply chain
  - YOU!
    - Social networking
    - Conferences
    - Travel sites
    - …

FEAR/UNCERTAINTY/DOUBT – OH MY…

Can we protect, defend, work, play and live in cyberspace?

19 March 2023

Can we protect, defend, work, play and live in cyberspace?

YES!

Cybersecurity is a “sweet combination of physical + logical and human-element” security…

Cybersecurity is a team-sport

Cybersecurity: Awareness + Preparedness + Resilience

Focus on…

Known knowns, “things we know we know”

Known unknowns, "some things we do not know"

Unknown unknowns, “things we don’t know we don’t know.

“Donald H. Rumsfeld – Secretary of Defense”

Awareness + Preparedness + Resilience

- Awareness
  - User awareness:
    - User awareness is **knowledge that leads to appropriate security behaviors**. Knowledge itself is insufficient, true awareness requires that people behave in accordance with that knowledge.
      - Awareness, training and education
      - Rules of Behavior and/or Appropriate Use Policy
      - Testing
      - Exercising (TTX)
      - Pen-Testing
      - Vulnerability Scanning

Awareness

- Situational Awareness:
  - Situational awareness can be defined simply as “**knowing what is going on around us…**”
  - Examples are **awareness of uncertain assumptions, awareness of activities**, ability to focus awareness on important factors, and active seeking of confirming/disconfirming evidence.
- Aspects/Areas of Focus of situation awareness:
  - Network Awareness
  - Threat Awareness
  - Mission Awareness

Levels: Tactical & Operational Awareness

Preparedness

- **Preparedness**
  - Cyber preparedness requires testing our plans, ongoing monitoring, analysis, and annual exercises:
    - Cyber Governance, Cyber Policies/Standards, Compliance Management, Risk Management, Cyber Incident Response/Handling/Management, Security Awareness, Continuity of Operations (backups & recovery, IR, DRP/BCP, CMMC

Preparedness is “left of bang”…

Focus…

Read and study “Left of Bang/Boom”:

The strategy of putting controls in place to mitigate potential threats before systems can be compromised has been described as “moving left”. It can also be described as “Left of Boom” cybersecurity, wherein **the 'boom' represents an incident**.

Resilience…

- **Resilience** is the ability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises on systems that use or are enabled by cyber resources.
  - In a nutshell: Proactive stance (SSP), Backups & Recovery, Incident Response/Handling/Management, DRP/BCP/Business Resumption

Resilience is "right of bang…"

Bottomline: Awareness, Preparedness and Resilience

1. Conduct a “risk assessment” or “Cyber Resilience Review” or CMMC assessment. Why?
2. Inventory and Control: All Enterprise Assets
3. Protect the Information/Data/Systems (Physical, Logical and Human Element)
4. Secure Configuration for all Assets
5. Account Management
6. Access Control
7. Backups and Recovery Management
8. Cyber Incident Management/Handling/Reporting
9. DRP/BCP/Business Resumption
10. See Step #1

END OF PART 1 OF 2

CYBERSECURITY SERVICES FOR BUILDING CYBER RESILIENCE

Gatewood
CSC/CSA
Cybersecurity and Infrastructure Security Agency

19 March 2023

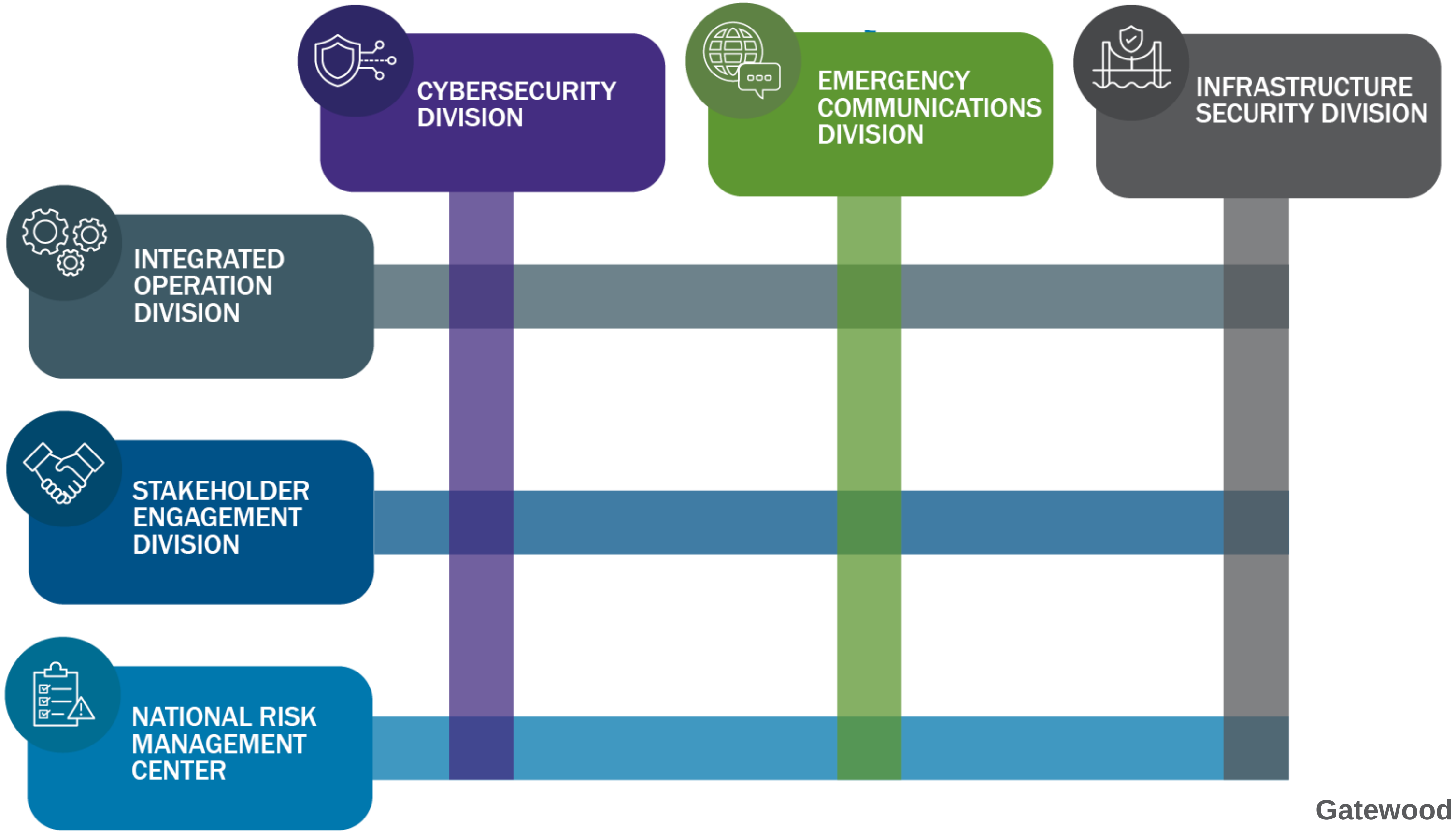
WHO WE ARE

CISA Mission and Vision

- Cybersecurity and Infrastructure Security Agency (CISA) mission:
  - Lead the collaborative national effort to strengthen the security and resilience of America’s critical infrastructure
- CISA vision:
  - A Nation with secure, resilient, and reliable critical infrastructure upon which the American way of life can thrive

CISA in Brief

- CISA consists of:



CYBERSECURITY DIVISION

EMERGENCY COMMUNICATIONS DIVISION

INFRASTRUCTURE SECURITY DIVISION

INTEGRATED OPERATION DIVISION

STAKEHOLDER ENGAGEMENT DIVISION

NATIONAL RISK MANAGEMENT CENTER

CYBERSECURITY ADVISOR PROGRAM

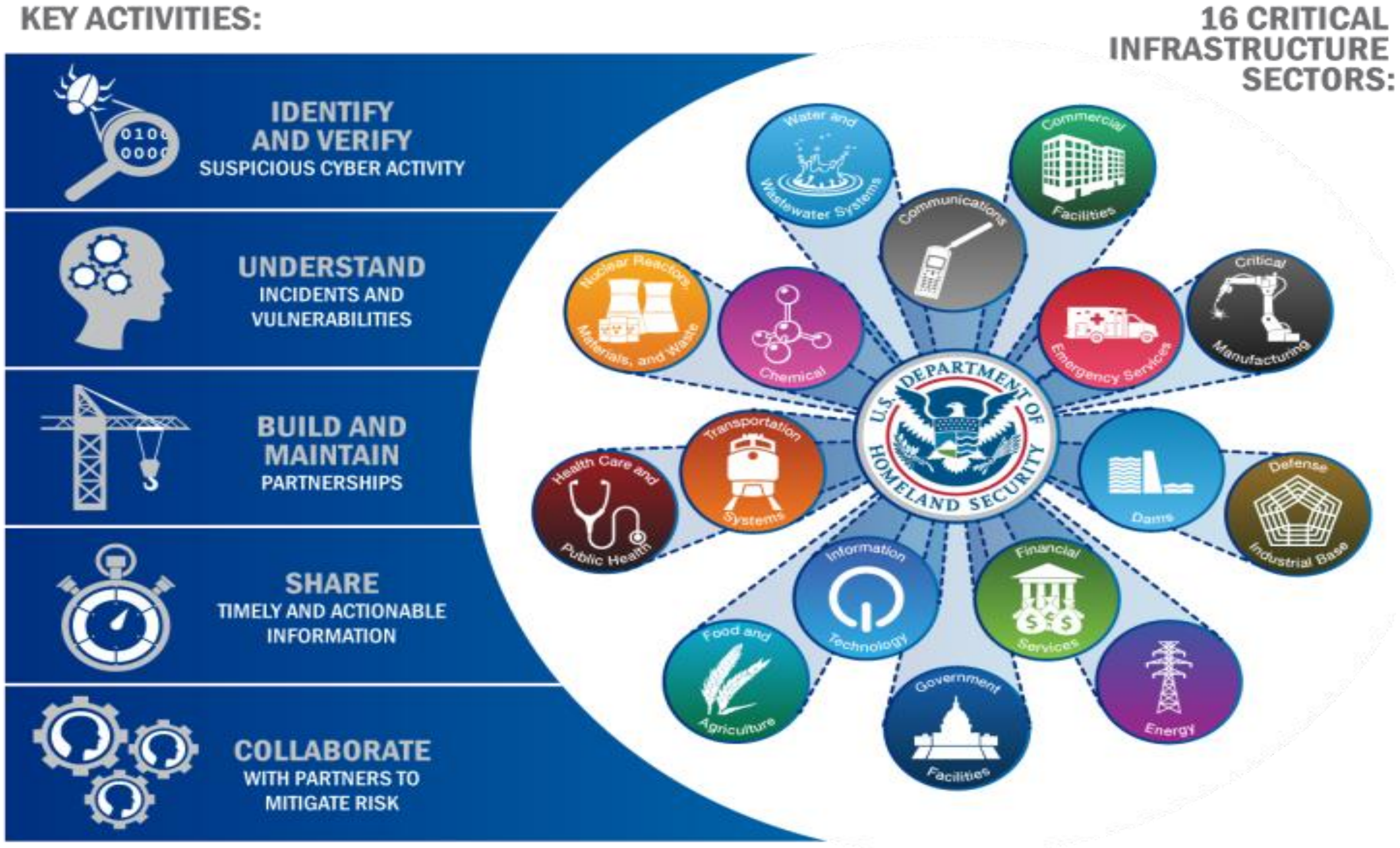
Cybersecurity Advisor Program

CISA mission: Lead the collaborative national effort to strengthen the security and resilience of America’s critical infrastructure

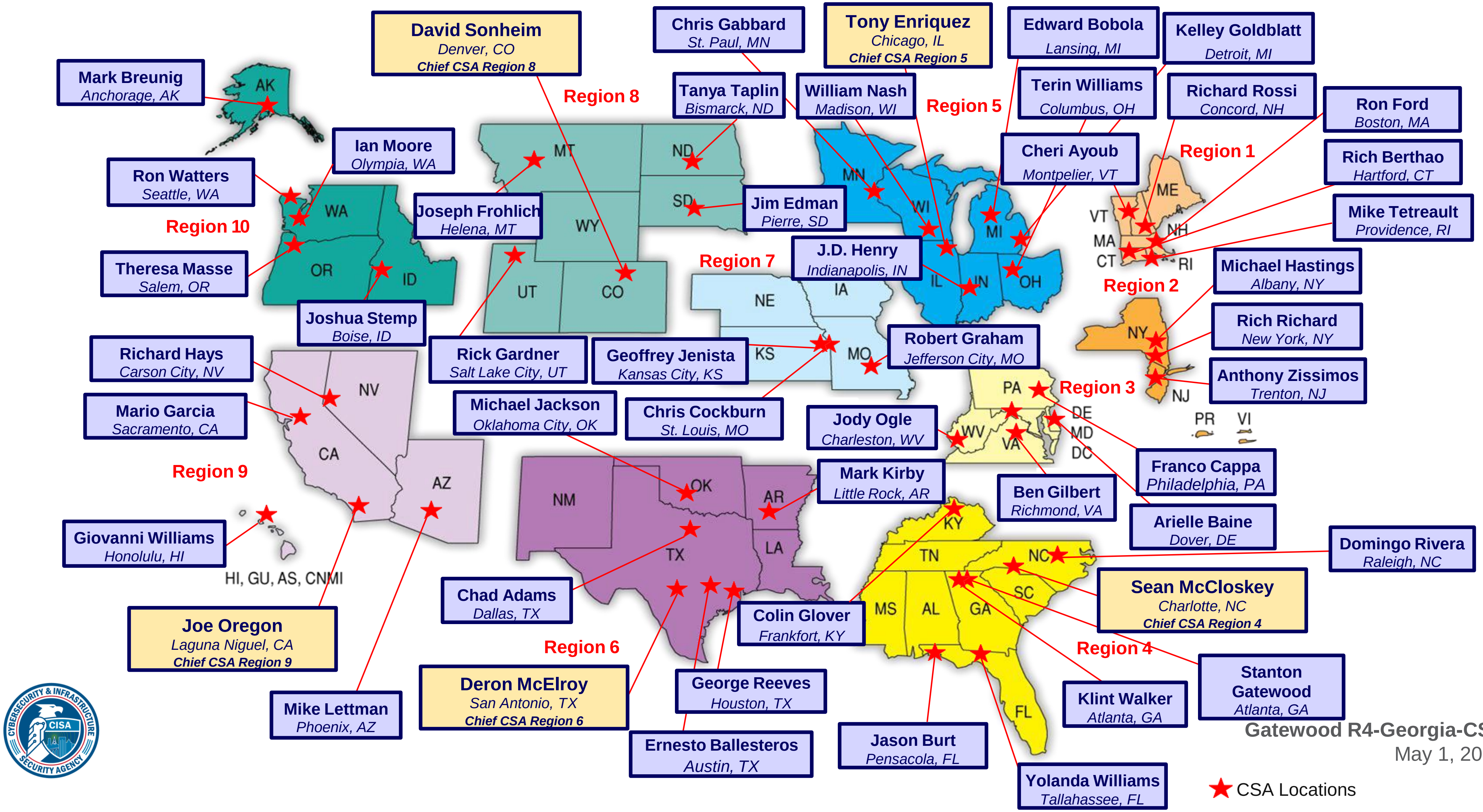
In support of that mission: Cybersecurity Advisors (CSAs):

- **Assess**: Evaluate critical infrastructure cyber risk.
- **Promote**: Encourage best practices and risk mitigation strategies.
- **Build**: Initiate, develop capacity, and support cyber communities-of-interest and working groups.
- **Educate**: Inform and raise awareness.
- **Listen**: Collect stakeholder requirements.
- **Coordinate**: Bring together incident support and lessons learned.

Serving Critical Infrastructure


KEY ACTIVITIES:
IDENTIFY AND VERIFY SUSPICIOUS CYBER ACTIVITY
UNDERSTAND INCIDENTS AND VULNERABILITIES
BUILD AND MAINTAIN PARTNERSHIPS
SHARE TIMELY AND ACTIONABLE INFORMATION
COLLABORATE WITH PARTNERS TO MITIGATE RISK
16 CRITICAL INFRASTRUCTURE SECTORS:
Water and Wastewater Systems
Commercial Facilities
Communications
Nuclear Reactors, Materials, and Waste
Chemical
Emergency Services
Critical Manufacturing
U.S. DEPARTMENT OF HOMELAND SECURITY
Health Care and Public Health
Transportation Systems
Dams
Defense Industrial Base
Information Technology
Financial Services
Food and Agriculture
Government Facilities
Energy

CSA Deployed Personnel



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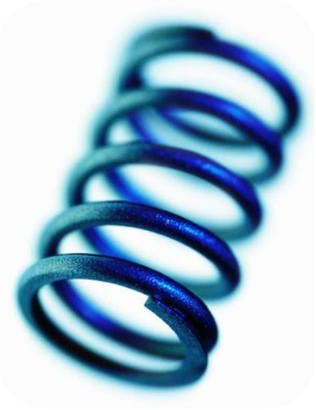
★ CSA Locations

CYBERSECURITY AND RESILIENCE

Resilience Defined

"… the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents…"

- Presidential Policy Directive 21
February 12, 2013



Protect (Security)	**Sustain (Continuity)**
Perform (Capability)	**Repeat (Maturity)**

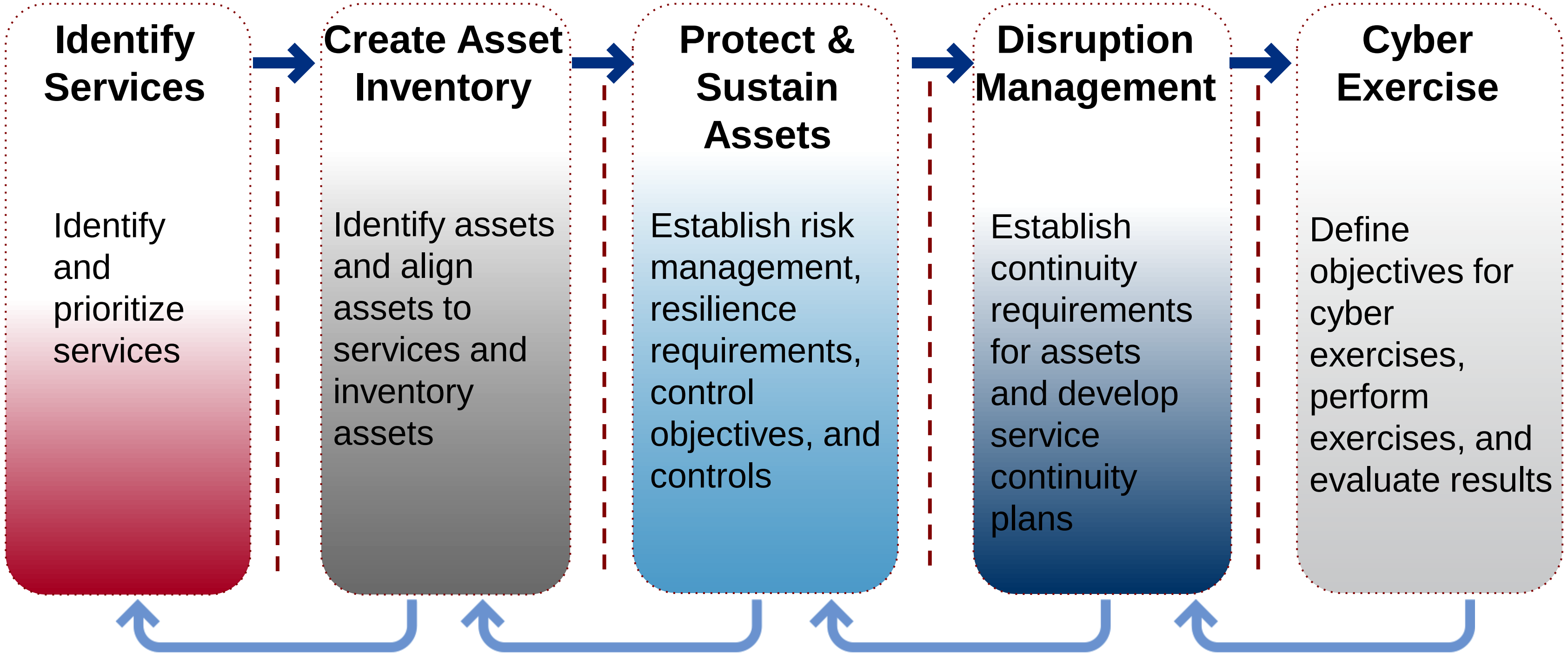
Operational Resilience in Practice

Operational resilience emerges from what we do, such as:

- Identifying and mitigating risks,
- Planning for and managing vulnerabilities and incidents,
- Performing service-continuity processes and planning,
- Managing IT operations,
- Managing, training, & deploying people,
- Protecting and securing important assets, and
- Working with external partners.

Working toward Cyber Resilience

- Follow a framework or general approach to cyber resilience. One successful approach includes:



Identify Services

Identify and prioritize services

Create Asset Inventory

Identify assets and align assets to services and inventory assets

Protect & Sustain Assets

Establish risk management, resilience requirements, control objectives, and controls

Disruption Management

Establish continuity requirements for assets and develop service continuity plans

Cyber Exercise

Define objectives for cyber exercises, perform exercises, and evaluate results

Process Management and Improvement

CISA
CYBERSECURITY SERVICES

Cybersecurity Services for All

- Cybersecurity Advisors
- State, Local, Tribal, and Territorial engagements
- Cyber Resilience Reviews (CRR™)
- External Dependencies Management (EDM) Assessments
- Cyber Infrastructure Surveys
- Cyber Education and Awareness
- Federal Virtual Training Environment (Fed VTE)
- National Initiative for Cybersecurity Careers and Studies (NICCS)
- Stop. Think. Connect.™

CISA Central

CISA Central is CISA's hub for staying on top of threats and emerging risks to our nation's critical infrastructure, whether they're of cyber, communications or physical origin**:**

CYBER RESOURCE HUB

- RVA Mapped to the MITRE ATT&CK Framework Infographic
- Vulnerability Scanning
- Phishing Campaign Assessment
- Risk and Vulnerability Assessment
- Cyber Resilience Review (CRR)
- CRR Downloadable Resources
- External Dependencies Management Assessment (EDM)
- EDM Downloadable Resources
- Cyber Infrastructure Survey
- Remote Penetration Testing
- Web Application Scanning
- Cyber Security Evaluation Tool (CSET®)
- Validated Architecture Design Review (VADR)

Sampling of Cybersecurity Offerings

- **Preparedness Activities**
  - Information / Threat Indicator Sharing
  - Cybersecurity Training and Awareness
  - Cyber Exercises and “Playbooks”
  - National Cyber Awareness System
  - Vulnerability Notes Database
  - Information Products and Recommended Practices
  - Cybersecurity Evaluations
    - Cyber Resilience Reviews (CRR™)
    - Cyber Infrastructure Surveys
    - Phishing Campaign Assessment
    - Vulnerability Scanning
    - Risk and Vulnerability Assessments (aka “Pen” Tests)
    - External Dependencies Management Reviews
    - Cyber Security Evaluation Tool (CSET™)
    - Validated Architecture Design Review (VADR)

- **Response Assistance**
  - Remote / On-Site Assistance
  - Malware Analysis
  - Hunt and Incident Response Teams
  - Incident Coordination

- **Cybersecurity Advisors**
  - Assessments
  - Working group collaboration
  - Best Practices private-public
  - Incident assistance coordination

- **Protective Security Advisors**
  - Assessments
  - Incident liaisons between government and private sector
  - Support for National Special Security Events

ASSESSMENTS

Criticality of Periodic Assessments

- Periodic assessments are essential for resilience
- Can’t protect if you don’t know what needs protection
- Can’t fix what needs if you don’t know what’s wrong

Range of Cybersecurity Assessments

STRATEGIC
(C-Suite Level)

- Cyber Resilience Review (Strategic)
- External Dependencies Management (Strategic)
- Cyber Infrastructure Survey (Strategic)
- Cybersecurity Evaluations Tool (Strategic/Technical)
- Phishing Campaign Assessment (EVERYONE)
- Vulnerability Scanning / Hygiene (Technical)
- Validated Architecture Design Review (Technical)
- Risk and Vulnerability Assessment (Technical)

TECHNICAL
(Network-Administrator Level)

Protected Critical Infrastructure Information Program

Protected Critical Infrastructure Information (PCII) Program Guards Your Information

- Sensitive critical infrastructure information voluntarily given to CISA is protected by law from
  - Public release under Freedom of Information Act requests,
  - Public release under State, local, tribal, or territorial disclosure laws,
  - Use in civil litigation and
  - Use in regulatory purposes.

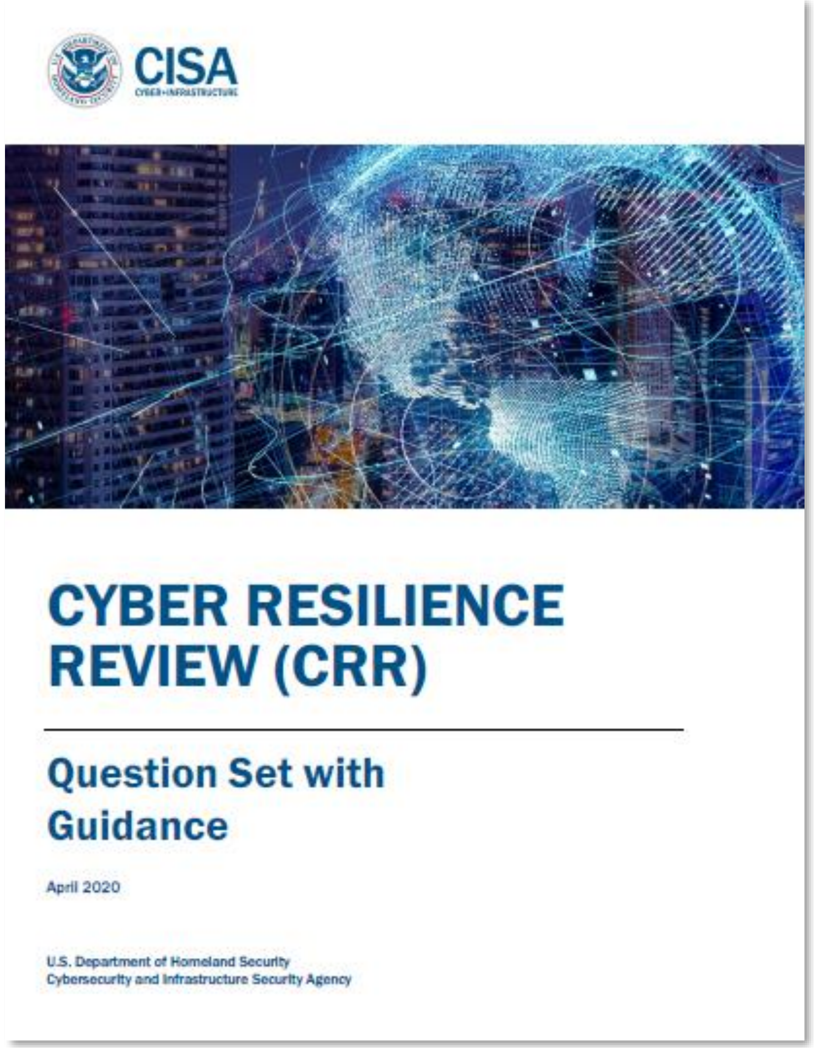
CYBER RESILIENCE REVIEW

Cyber Resilience Review

- **Purpose:** Evaluates that maturity of an organization’s capacities and capabilities in performing, planning, managing, measuring, and defining cybersecurity capabilities across the following 10 domains:

Asset Management	Service Continuity Management
Controls Management	Risk Management
Configuration and Change Management	External Dependency Management
Vulnerability Management	Training and Awareness
Incident Management	Situational Awareness

- Benefits include: Helps public and private sector partners understand and measure cybersecurity capabilities as they relate to operational resilience and cyber risk



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CYBER+INFRASTRUCTURE

CYBER RESILIENCE REVIEW (CRR)

Question Set with Guidance

April 2020

U.S. Department of Homeland Security
Cybersecurity and Infrastructure Security Agency

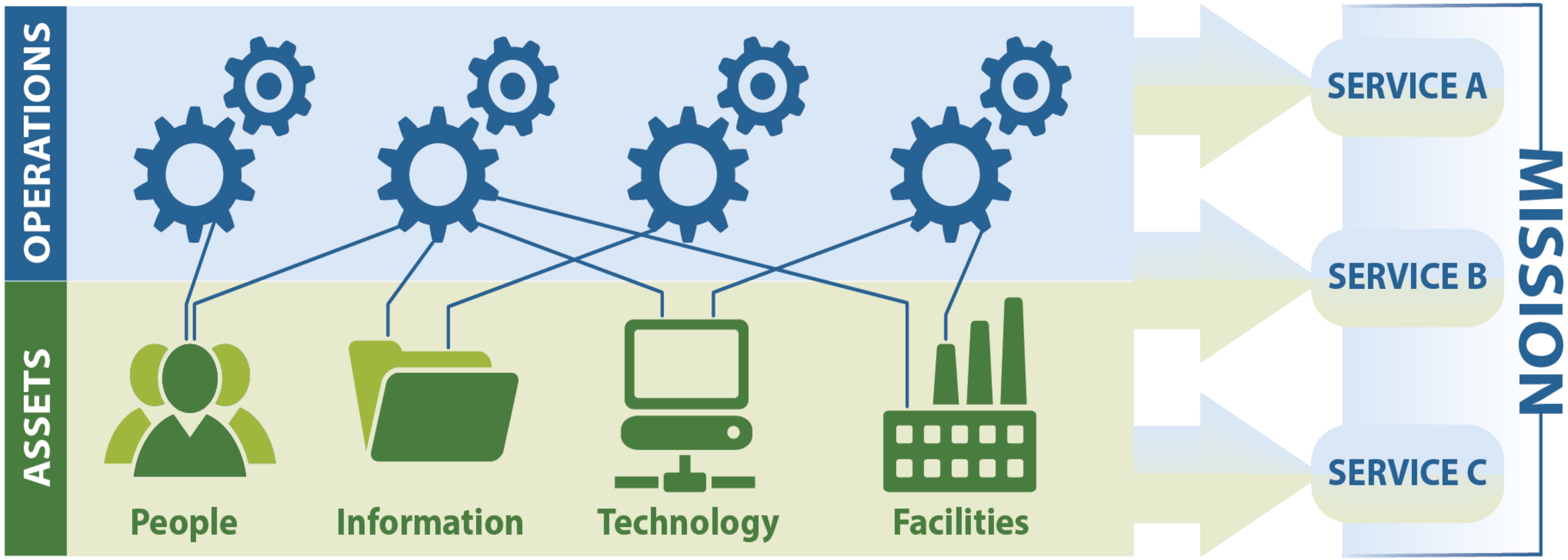
Cyber Resilience Review Domains

Asset Management Know your assets being protected & their requirements, e.g., CIA	**Risk Management** Know and address your biggest risks that considers cost and your risk tolerances
Configuration and Change Management Manage asset configurations and changes	**Service Continuity Management** Ensure workable plans are in place to manage disruptions
Controls Management Manage and monitor controls to ensure they are meeting your objectives	**Situational Awareness** Discover and analyze information related to immediate operational stability and security
External Dependencies Management Know your most important external entities and manage the risks posed to essential services	**Training and Awareness** Ensure your people are trained on and aware of cybersecurity risks and practices
Incident Management Be able to detect and respond to incidents	**Vulnerability Management** Know your vulnerabilities and manage those that pose the most risk

For more information: https://www.cisa.gov/cisa-cybersecurity-resources

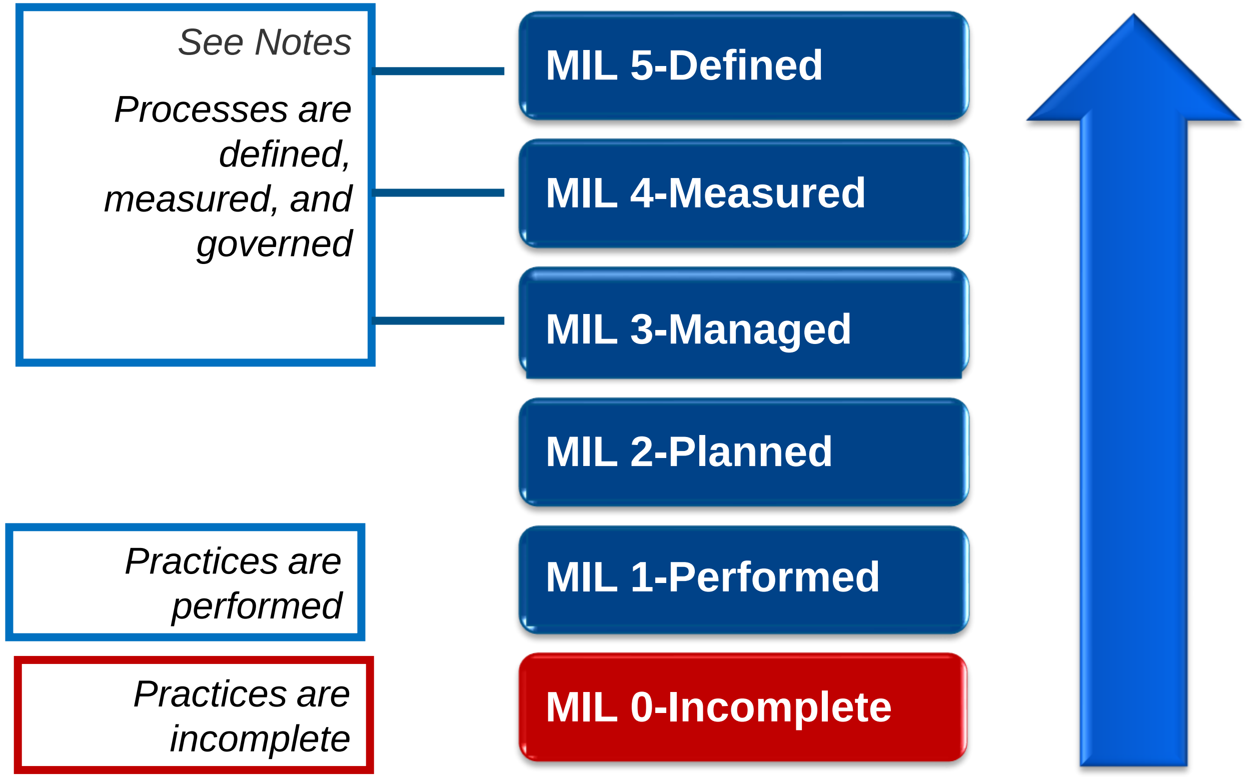
Critical Service Focus

Organizations use **assets (people, information, technology, and facilities)** to provide operational **services** and accomplish **missions**.



Process Institutionalization

CRR maturity indicator levels (MILs) are to measure process institutionalization:



See Notes

Processes are defined, measured, and governed

Practices are performed

Practices are incomplete

MIL 5-Defined

MIL 4-Measured

MIL 3-Managed

MIL 2-Planned

MIL 1-Performed

MIL 0-Incomplete

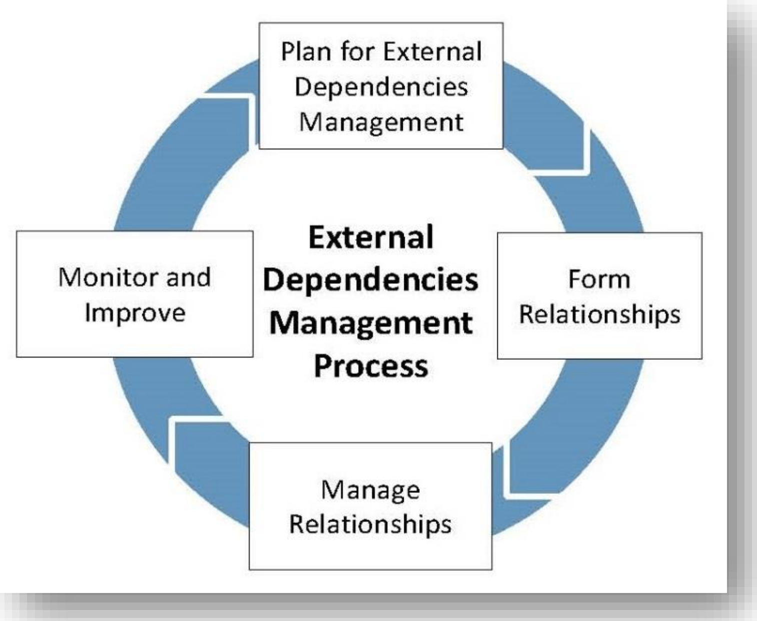
Higher MIL degrees translate to more stable processes that:

- Produce consistent results over time
- Are retained during times of stress

EXTERNAL DEPENDENCIES MANAGEMENT ASSESSMENTS

External Dependencies Management Assessment

- **Purpose:** Evaluate an entity’s management of their dependencies on third-party entities
- **Delivery:** CSA-facilitated
- **Benefits**:
  - Better understanding of the entity’s cyber posture relating to external dependencies
  - Identification of improvement areas for managing third parties that support the organization


Plan for External Dependencies Management
Form Relationships
Manage Relationships
Monitor and Improve
External Dependencies Management Process

EDM process outlined per the External Dependencies Management Resource Guide

Note: graphic edits will need time to be recreated and adjusted.

EDM Assessment Organization and Structure

- Structure and scoring similar to Cyber Resilience Review
- Uses one Maturity Indicator Level (MIL) scale with three lifecycle domains.

Relationship Formation

Assesses whether the acquirer evaluates and controls the risks of relying on external entities before entering into relationships with them.

Relationship Management and Governance

Assesses whether the acquirer manages ongoing relationships to maintain the resilience of the critical service, and mitigate dependency risk.

Service Protection and Sustainment

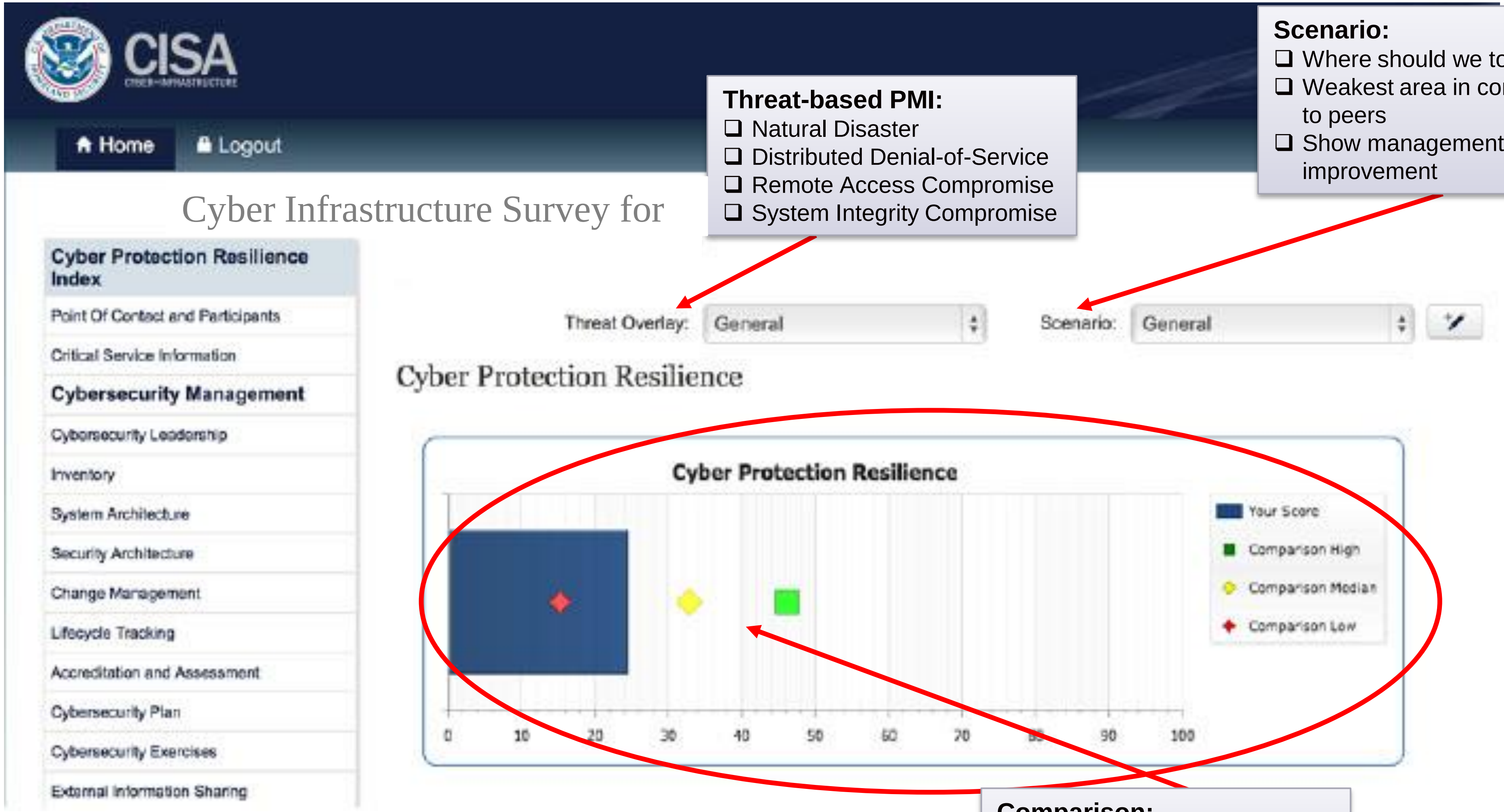
Assesses whether the acquirer accounts for its dependence on external entities as part of its operational activities around managing incidents, disruptions, and threats.

CYBER INFRASTRUCTURE SURVEY

Cyber Infrastructure Survey Highlights

- Purpose: Evaluate security controls, cyber preparedness, overall resilience.
- Delivery: CSA-facilitated
- Benefits:
  - Effective assessment of cybersecurity controls in place for a critical service,
  - Easy-to-use interactive dashboard to support cybersecurity planning and resource allocation), and
  - Access to peer performance data visually depicted on the dashboard.

Example of CIS Dashboard



CISA

Home

Logout

Cyber Infrastructure Survey for

- Cyber Protection Resilience Index
- Point Of Contact and Participants
- Critical Service Information
- **Cybersecurity Management**
- Cybersecurity Leadership
- Inventory
- System Architecture
- Security Architecture
- Change Management
- Lifecycle Tracking
- Accreditation and Assessment
- Cybersecurity Plan
- Cybersecurity Exercises
- External Information Sharing

Threat Overlay: General

Scenario: General

Cyber Protection Resilience

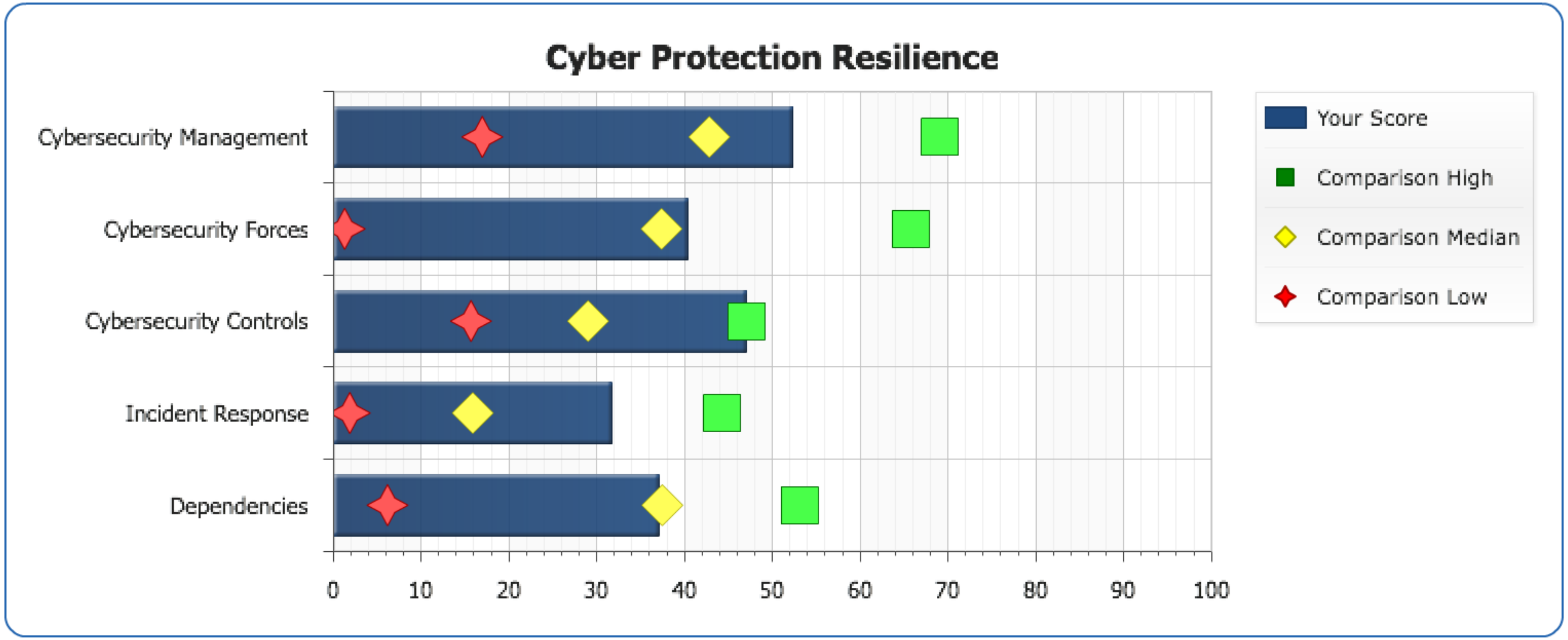
Threat-based PMI:
- ❑ Natural Disaster
- ❑ Distributed Denial-of-Service
- ❑ Remote Access Compromise
- ❑ System Integrity Compromise

Scenario:
- ❑ Where should we to invest?
- ❑ Weakest area in comparison to peers
- ❑ Show management improvement

Comparison:
- ❑ Low Performers
- ❑ Median Performers
- ❑ High Performers

CIS Dashboard - Comparison

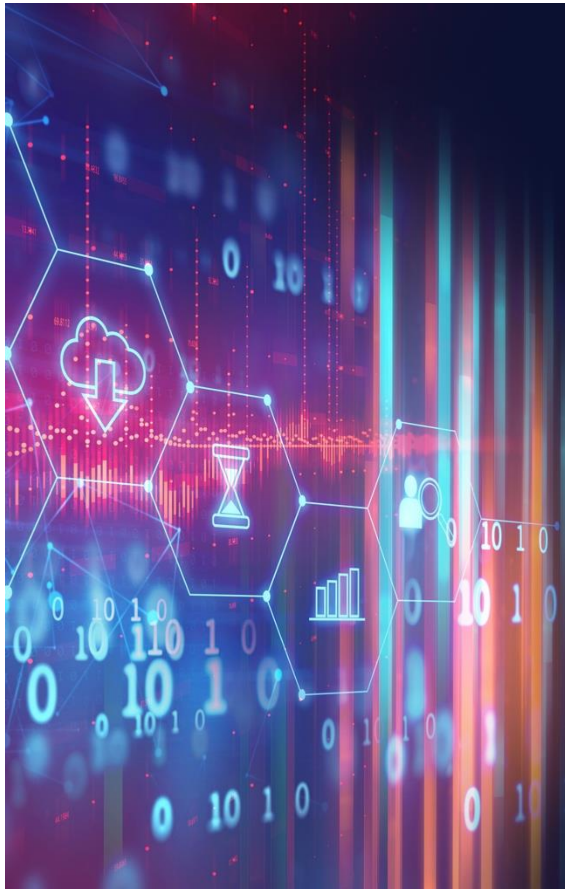
- Shows the low, median, and high performers
- Compares your organization to the aggregate



CYBER SECURITY EVALUTION TOOL

Cyber Security Evaluation Tool

- **Purpose:** Assesses control system and information technology network security practices against industry standards.
- **Facilitated:** Self-Administered, undertaken independently
- **Benefits:**
  - Immediately available for download upon request
  - Understanding of operational technology and information technology network security practices
  - Ability to drill down on specific areas and issues
  - Helps to integrate cybersecurity into current corporate risk management strategy



PHISHING CAMPAIGN ASSESSMENT

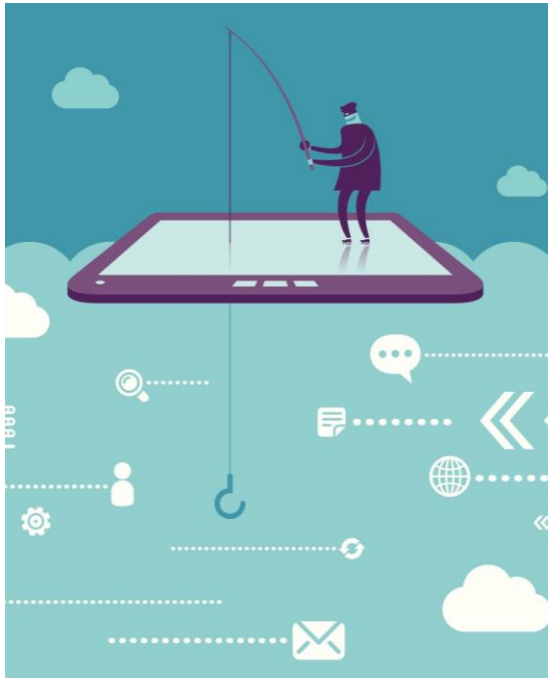
Phishing Campaign Assessment

Purpose: Test an organization’s susceptibility and reaction to phishing emails.

Delivery: Online delivery by CISA

Benefits:

- Identify the risk phishing poses to your organization
- Decrease risk of successful malicious phishing attacks, limit exposure, reduce rates of exploitation
- Receive actionable metrics
- Highlight need for improved security training
- Increase cyber awareness among staff



Phishing Campaign Assessment Sample Email, 1 of 2

To: <Stakeholder List>

From: Apples Customer Relations <freeapplesforyou@[PCA-testing-site].org> Subject: Free iPad – Just Complete a Survey!

Want the new iPad or iPad Mini? I got mine free from this site: <fake link> !!!!!

We would like to invite you to be part of a brand new pilot program to get our new product in the hands of users before official release. This assures that any issues or errors are mitigated before the release. If you are accept to participate in this programall we ask is that you submit a survey at the end of the Pilot. You be able to keep iPad at the end for free!

Apples Customer Relationships Office

Apples Campus, Cupertino, California 95114

Phishing Campaign Assessment Sample Email, 2 of 2

To: <Stakeholder List>
From: OBRM <OBRM@[PCA-testing-site].org>
Subject: Future Budget Plans

In the coming weeks, our state's leadership will be working to draft a plan to prevent long term financial issues and ways to avoid human resource reductions. All departments within the State Government are being directed to draft a plan to help meet projected budget shortages and find ways to reduce spending within the State Government.

We have been asked to work more efficiently with less. As a result, many budgets and programs are also facing significant reduction. The Office of Budget and Resource Management has developed a draft plan that will address any potential budget shortcomings.

To learn more about the budget and how your program maybe affected, please visit <LINK>.

If you have any questions or concerns, we'd love to hear them. Please emails us here <embedded link>.

Office of Budget and Resource Management

CYBER HYGIENE: WEB APPLICATION SCANNING (WAS)

Cyber Hygiene: Web Application Scanning (WAS)

The CISA Assessments team supports Federal, State, Local, Tribal and Territorial Governments and Critical Infrastructure partners by providing proactive testing and assessment services. CISA's Cyber Hygiene Web Application Scanning is "internet scanning-as-a-service." This service assesses the "health" of your publicly accessible web applications by checking for known vulnerabilities and weak configurations. Additionally, we can recommend ways to enhance security in accordance with industry and government best practices and standards.

SCANNING OBJECTIVES

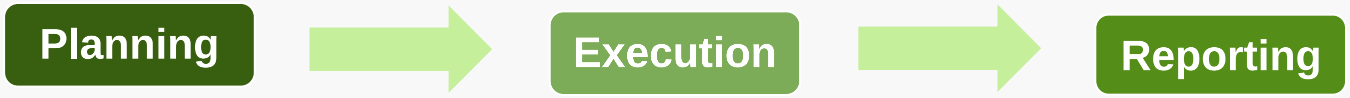
- Maintain enterprise awareness of your publicly accessible web-based assets
- Provide insight into how systems and infrastructure appear to potential attackers
- Drive proactive mitigation of vulnerabilities to help reduce overall risk

SCANNING PHASES AND OVERALL PROCESS

Scanning Phases

- **Discovery Scanning:** Identify active, internet-facing web applications
- **Vulnerability Scanning:** Initiate non-intrusive checks to identify potential vulnerabilities and configuration weaknesses

OVERALL PROCESS



Planning

- Request service (Existing Cyber Hygiene Customers)
- Provide target list (scope)
- Confirm scanning schedule
- Pre-scan notification

Execution

- Initial discovery scan of submitted list
- Conduct vulnerability scan

Reporting

- Provide detailed report of findings
- Follow on discussion (if necessary) to review

REMOTE PENETRATION TESTING

Remote Penetration Testing

SCENARIOS

External Penetration Test: Verifying if the stakeholder network is accessible from the public domain by an unauthorized user by assessing open ports, protocols, and services.

External Web Application Test: Evaluating web applications for potential exploitable vulnerabilities; the test can include automated scanning, manual testing, or a combination of both methods.

Phishing Assessment: Testing the stakeholder email infrastructure through carefully crafted phishing emails containing a variety of malicious payloads to the trusted point of contact.

Open-Source Information Gathering: Identify publicly available information about the stakeholder environment which may be useful in preparing for an attack.

ASSESSMENT OBJECTIVES

- Conduct assessments to identify vulnerabilities and work with customers to eliminate exploitable pathways.
- Simulate the tactics and techniques of real-world threats and malicious adversaries.
- Test centralized data repositories and externally accessible assets/resources.
- Avoid causing disruption to the customer’s mission, operation, and network infrastructure.

ASSESSMENT TIMELINE

Pre-Planning

- Request RPT
- Receive RPT Capabilities Brief
- Sign and return RPT Rules of Engagement
- Determine RPT services, scope, and logistics during pre-assessment call(s)

Planning

- Confirm schedule
- Establish trusted points of contact

Execution (Up to Six Weeks)

- Dependent on resource availability
- Critical findings are immediately disclosed

Reporting

- Briefing and initial recommendations
- Final report review and receipt – 10 days

VULNERABILITY SCANNING

Vulnerability Scanning

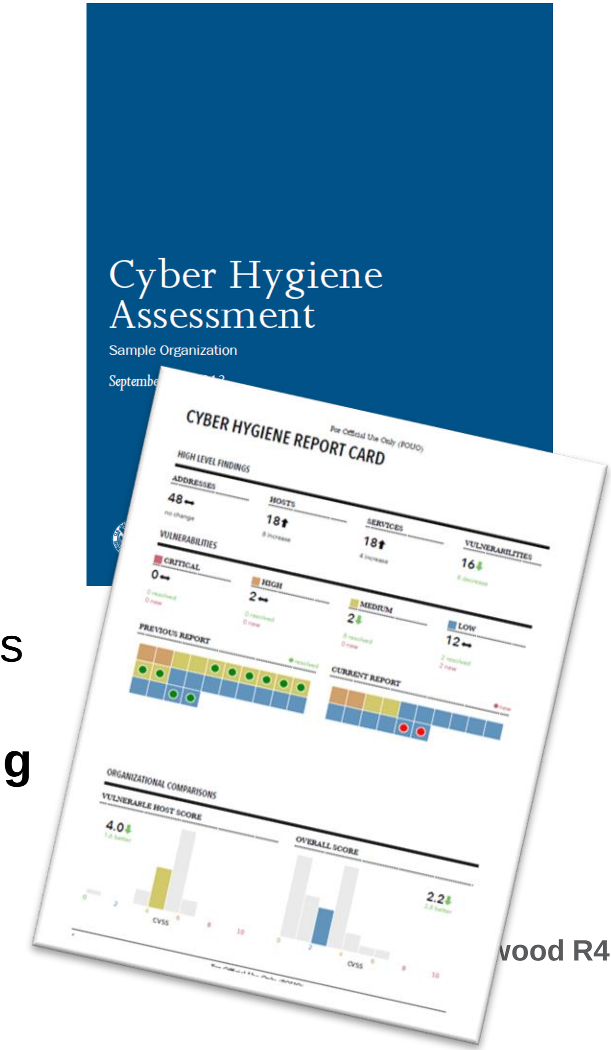
Purpose: Assess Internet-accessible systems for known vulnerabilities and configuration errors.

Delivery: Online by CISA

Benefits:

- Continual review of system to identify potential problems
- Weekly reports detailing current and previously mitigated vulnerabilities
- Recommended mitigation for identified vulnerabilities

  - **Network Vulnerability & Configuration Scanning**
    - Identify network vulnerabilities and weakness



Cyber Hygiene Assessment

Sample Organization

Septembe

CYBER HYGIENE REPORT CARD

For Official Use Only (FOUO)

HIGH LEVEL FINDINGS

ADDRESSES 48 ⟷ no change

HOSTS 18 ↑ 8 increase

SERVICES 18 ↑ 4 increase

VULNERABILITIES 16 ↓ 8 decrease

VULNERABILITIES

CRITICAL 0 ⟷ 0 resolved 0 new

HIGH 2 ⟷ 0 resolved 0 new

MEDIUM 2 ↓ 8 resolved 0 new

LOW 12 ⟷ 2 resolved 2 new

PREVIOUS REPORT

● resolved

CURRENT REPORT

● new

ORGANIZATIONAL COMPARISONS

VULNERABLE HOST SCORE

4.0 ↓ 1.6 better

OVERALL SCORE

2.2 ↓ 2.8 better

VALIDATED ARCHITECTURE DESIGN REVIEW

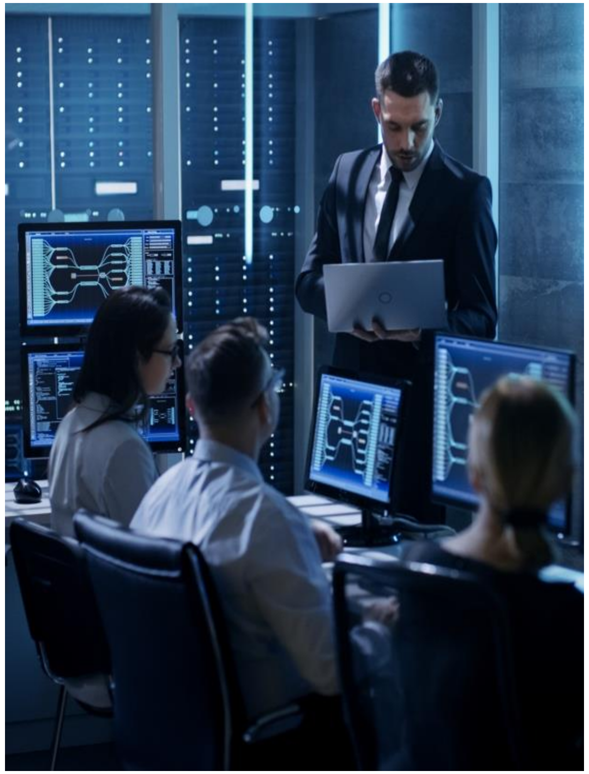
Validated Architecture Design Review

Purpose: Analyze network architecture, system configurations, log file review, network traffic and data flows to identify abnormalities in devices and communications traffic.

Delivery: CISA staff working with entity staff

Benefits:

- In-depth review of network and operating system
- Recommendations to improve an organization's operational maturity and enhancing their cybersecurity posture
- Evaluation of network architecture

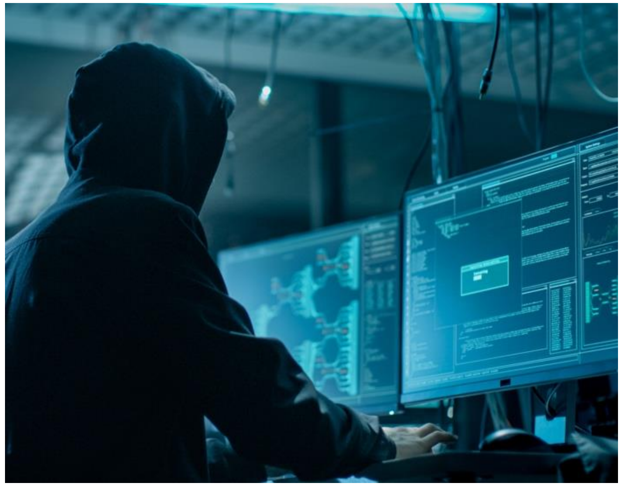


RISK AND VULNERABILITY ASSESSMENT

[PENETRATION TEST]

Risk and Vulnerability Assessment

- **Purpose**: Perform network penetration and deep technical analysis of enterprise IT systems and an organization’s external resistance to specific IT risks
- **Delivery**: Onsite by CISA
- **Benefits**:
  - Identification of vulnerabilities
  - Specific remediation recommendations
  - Improves an entity’s cyber posture, limits exposure, reduces rates of exploitation
  - Increases speed and effectiveness of future cyber attack responses.



Risk and Vulnerability Assessment Specifics

Assessment Aspects

Service	Description
Vulnerability Scanning and Testing	Conduct Vulnerability Assessments
Penetration Testing	Exploit weakness, test responses in systems, applications, network, and security controls
Social Engineering	Craft e-mail at targeted audience to test security awareness, used as an attack sector to internal network
Wireless Discovery & Identification	Identify wireless signals and rogue wireless devices, and exploit access points
Web Application Scanning and Testing	Identify web application vulnerabilities
Database Scanning	Security Scan of database settings and controls
Operating System Scanning	Security Scan of operating system to do compliance checks

CISA Cyber Assessments in Brief, 1 of 2

Name	Cyber Resilience Review	Cyber Infrastructure Survey	External Dependencies Management Review	Cybersecurity Evaluation Tool Assessment
Purpose	Identify cybersecurity management capabilities and maturity	Calculate a comparative analysis and valuation of protective measures in-place	Assess the activities and practices utilized by an organization to manage risks arising from external dependencies	Provide detailed, effective, and repeatable methodology for assessing control systems security encompassing the organization's infrastructure, policies, and procedures
Scope	Critical service view	Critical service view	Critical service view	Information Technology and Operational Technology systems
Time to Execute	8 Hours (1 business day)	2 ½ to 4 Hours	2 ½ to 4 Hours	Varies greatly (min 2 Hours), unknown for self-assessment
Information Sought	Capabilities and maturity indicators in 10 security domains	Protective measures in-place	Capabilities and maturity indicators across third-party relationship management lifecycle domains	Architecture diagrams, infrastructure, policies, and procedures documents
Preparation	1-hour questionnaire and planning call(s)	Planning call to scope evaluation	Planning call to scope evaluation	Self-assessment available from web site and used locally
Participants	IT / Security Manager, Continuity Planner, and Incident Responders	IT / Security Manager	IT / Security Manager with Continuity Planner and Contract Management	Operators, engineers, IT staff, policy / management personnel, and subject matter experts
Delivered By	CSAs iodregionaloperations@cisa.dhs.gov	CSAs iodregionaloperations@cisa.dhs.gov	CSAs iodregionaloperations@cisa.dhs.gov	Self-administered / CSAs https://ics-cert.us-cert.gov/

CISA Cyber Assessments in Brief, 2 of 2

Name	Validated Architecture Design Review	Phishing Campaign Assessment	Risk and Vulnerability Assessment	Vulnerability Scanning
Purpose	Provide analysis and representation of asset owner's network traffic, data flows, and relationships between devices and identifies anomalous communications flows.	Measure the susceptibility of an organization's personnel to social engineering attacks, specifically email phishing attacks.	Perform penetration and deep technical analysis of enterprise IT systems and an organization's external resistance to specific IT risks	Identify public-facing Internet security risks, at a high-level, through service enumeration and vulnerability scanning
Scope	Industrial Control Systems / Network Architecture, Traffic	Organization / Business Unit / Email Exchange Service	Organization / Business Unit / Network-Based IT Service	Public-Facing, Network-Based IT Service
Time to Execute	Variable (Hours to Days)	Approximately 6 Weeks	Variable (Days to Weeks)	Variable (Hours to Continuous)
Information Sought	Network design, configurations, log files, interdependencies, data flows and its applications	Click rate metrics gathered during phishing assessment	Low-level options and recommendations for improving IT network and system security	High-level network service and vulnerability information
Preparation	Coordinated via Email. Planning call(s).	Formal rules of engagement and pre-planning	Formal rules of engagement and extensive pre-planning	Formal rules of engagement and extensive pre-planning
Participants	Control system operators/ engineers, IT personnel, and ICS network, architecture, and topologies SMEs	IT/Security Manager and Network Administrators, end users	IT/Security Manager and Network Administrators	IT/Security Manager and Network Administrators
Delivered By	VM VM@CISA.DHS.GOV	VM VM@CISA.DHS.GOV	VM VM@CISA.DHS.GOV	VM VM@CISA.DHS.GOV

INFORMATION SHARING

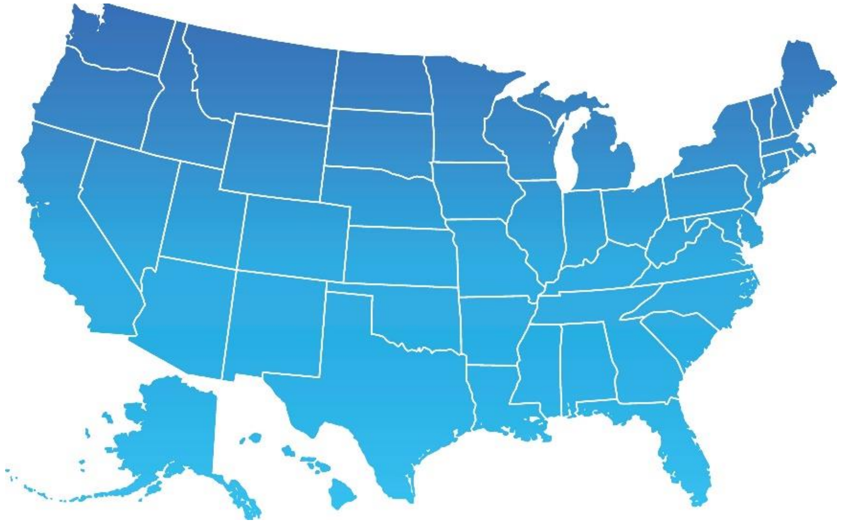
AUTOMATED INDICATOR SHARING

Automated Indicator Sharing

- Automated Indicator Sharing (AIS): Rapid and wide sharing of machine-readable cyber threat indicators and defensive measures at machine-speed for network defense purposes
- AIS is about volume and velocity of sharing indicators, ***not*** human validation.

Additional Information Sharing Opportunities, 2 of 2

- Multi-State Information Sharing and Analysis Center
  - Focal point for cyber threat prevention, protection, response and recovery for state, local, tribal, and territorial governments.
  - Operates 24 x7 cyber security operations center, providing real-time network monitoring, early cyber threat warnings and advisories, vulnerability identification and mitigation and incident response. For more information, visit www.cisecurity.org/ms-isac or email info@msisac.org



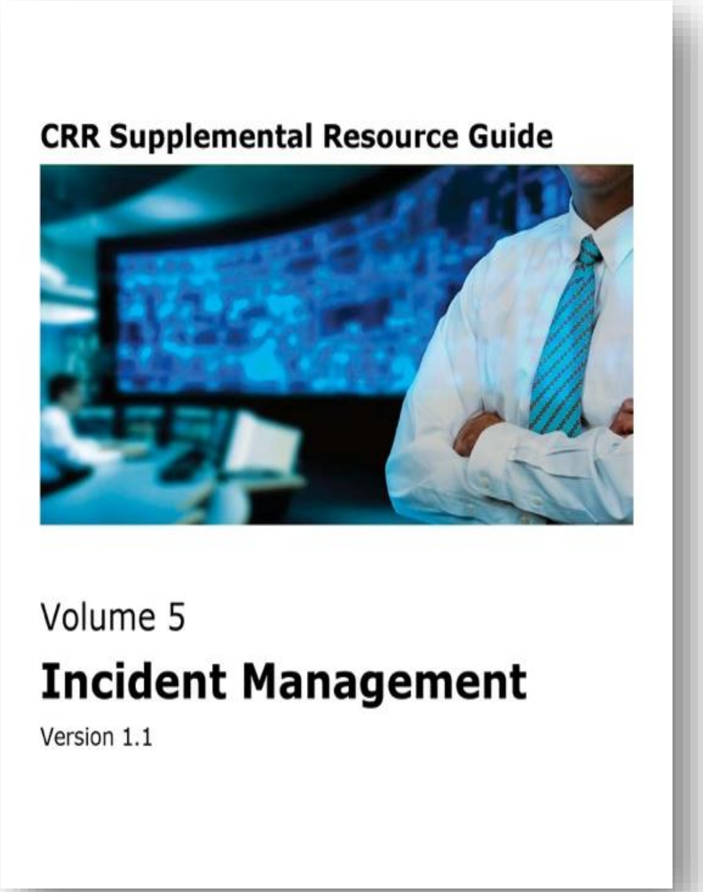
- ISACs and ISAOs
  - **Information Sharing and Analysis Centers** (ISACs) or **Organizations** (ISAOs) are communities of interest sharing cybersecurity risk, threat information, and incident management to members. For more information on ISACs, visit www.nationalisacs.org. For more on ISAOs visit www.isao.org/about.

INCIDENT MANAGEMENT

Incident Management Planning Helps Mitigate Effects

1. Get leadership support for incident management planning.
2. Establish an event-detection process.
3. Establish a triage-and-analysis process.
4. Establish an incident-declaration process.
5. Establish an incident-response and recovery process.
6. Establish an incident-communications process.
7. Assign roles and responsibilities for incident management.
8. Establish a post-incident analysis and improvement process.

Resource: CRR Supplemental Resource Guide, Incident Management.



CRR Supplemental Resource Guide

Volume 5

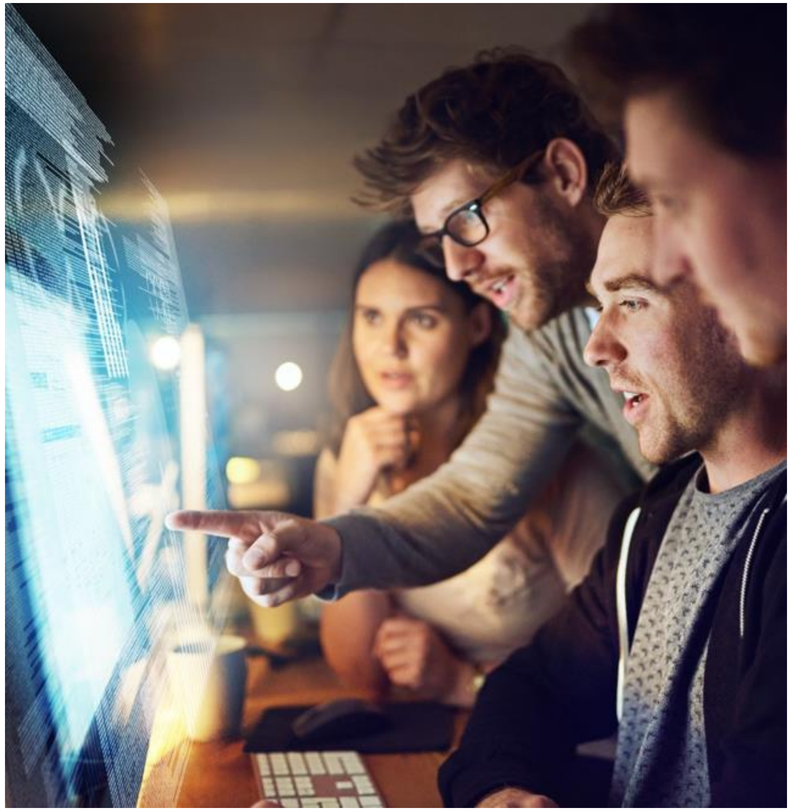
Incident Management

Version 1.1

Federal Incident Response, 1 of 2

Federal Incident Response

- **Threat Response:** Attributing, pursuing, and disrupting malicious cyber actors and malicious cyber activity. Conducting criminal investigations and other actions to counter the malicious cyber activity.
- **Asset Response:** Protecting assets and mitigating vulnerabilities in the face of malicious cyber activity, reducing the impact to systems and data; strengthening, recovering, and restoring services; identifying other entities at risk; and assessing potential risk to broader community.



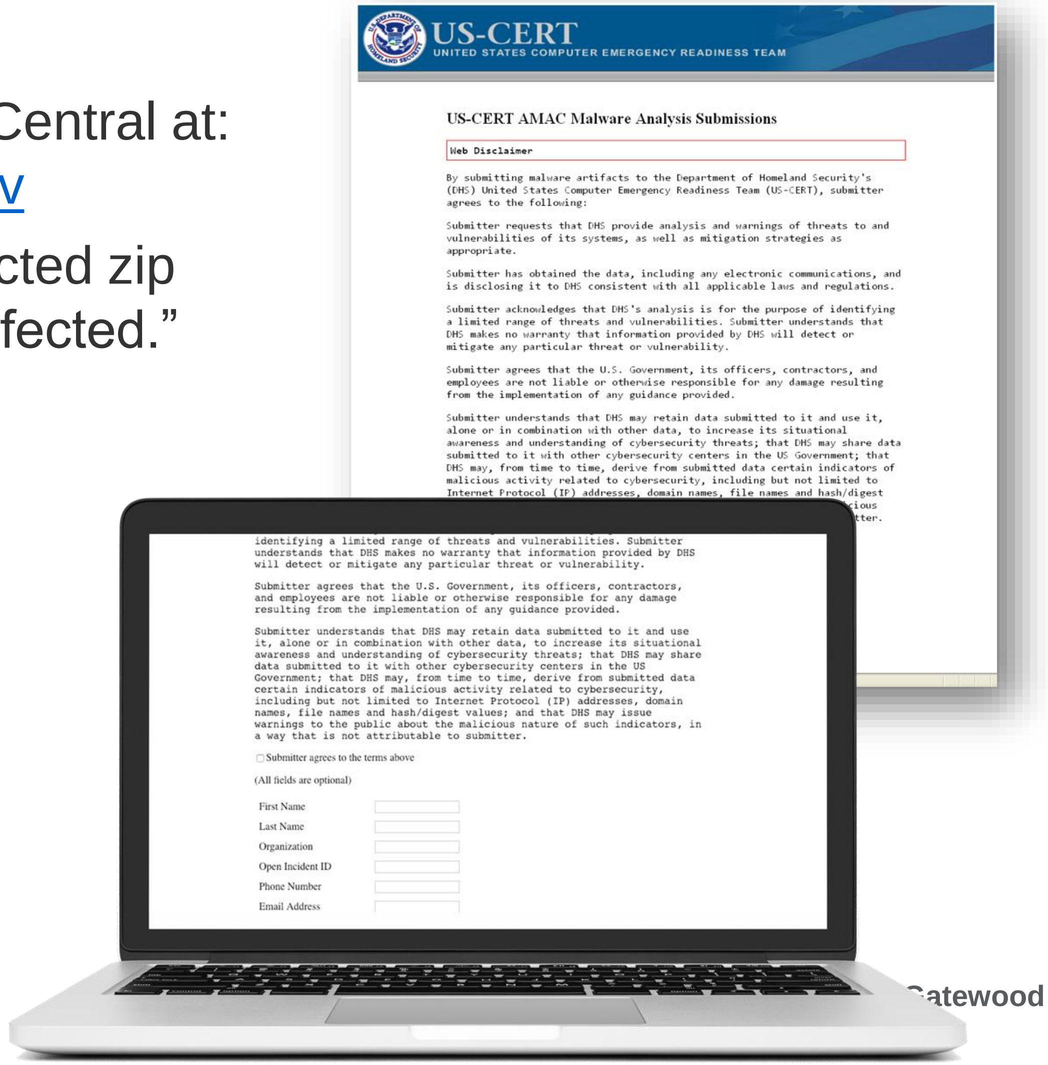
Federal Incident Response, 2 of 2

Threat Response	Asset Response
Federal Bureau of Investigation 855-292-3937 or cywatch@ic.fbi.gov	**CISA Central** 888-282-0870 or central@cisa.DHS.gov Report suspected or confirmed cyber incidents, including when the affected entity may be interested in government assistance in removing the adversary, restoring operations, and recommending ways to further improve security.
U.S. Secret Service secretservice.gov/contact/field-offices	
Immigration and Customs **Homeland Security Investigations** 866-347-2423 or ice.gov/contact/hsi	**Report Internet Crimes**: FBI Internet Crime Complaint Center ic3.gov

Malware Analysis

To submit malware:

- Email submissions to CISA Central at: submit@malware.us-cert.gov
  - Send in password-protected zip file(s). Use password “infected.”
- Upload submission online: https://malware.us-cert.gov



US-CERT
UNITED STATES COMPUTER EMERGENCY READINESS TEAM

US-CERT AMAC Malware Analysis Submissions

Web Disclaimer

By submitting malware artifacts to the Department of Homeland Security's (DHS) United States Computer Emergency Readiness Team (US-CERT), submitter agrees to the following:

Submitter requests that DHS provide analysis and warnings of threats to and vulnerabilities of its systems, as well as mitigation strategies as appropriate.

Submitter has obtained the data, including any electronic communications, and is disclosing it to DHS consistent with all applicable laws and regulations.

Submitter acknowledges that DHS's analysis is for the purpose of identifying a limited range of threats and vulnerabilities. Submitter understands that DHS makes no warranty that information provided by DHS will detect or mitigate any particular threat or vulnerability.

Submitter agrees that the U.S. Government, its officers, contractors, and employees are not liable or otherwise responsible for any damage resulting from the implementation of any guidance provided.

Submitter understands that DHS may retain data submitted to it and use it, alone or in combination with other data, to increase its situational awareness and understanding of cybersecurity threats; that DHS may share data submitted to it with other cybersecurity centers in the US Government; that DHS may, from time to time, derive from submitted data certain indicators of malicious activity related to cybersecurity, including but not limited to Internet Protocol (IP) addresses, domain names, file names and hash/digest
cious
tter.

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☐ Submitter agrees to the terms above

(All fields are optional)

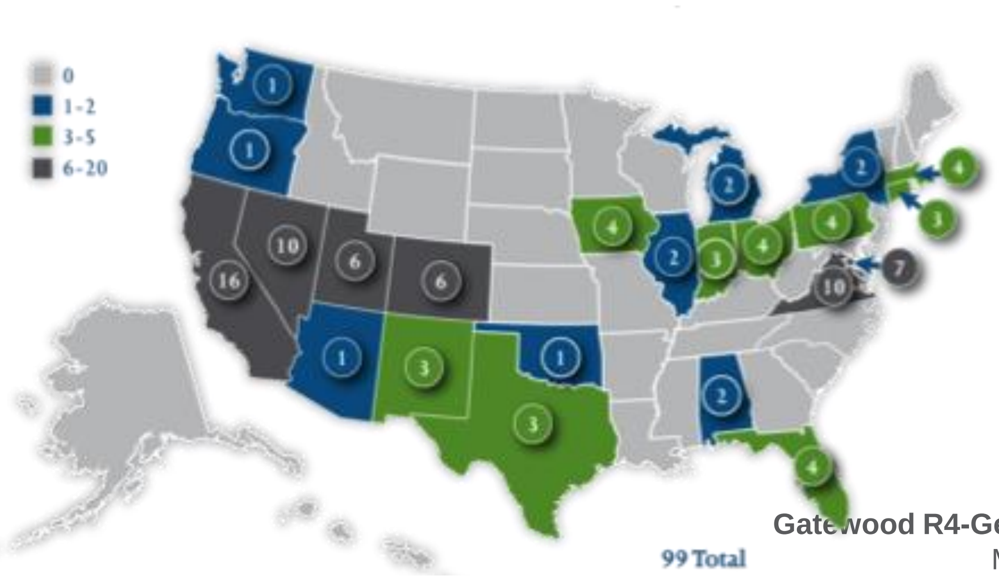
First Name
Last Name
Organization
Open Incident ID
Phone Number
Email Address

ADDITIONAL CYBERSECURITY RESOURCES

Cyber Exercises and Planning

CISA’s National Cyber Exercise and Planning Program develops, conducts, and evaluates cyber exercises and planning activities for state, local, tribal and territorial governments and public and private sector critical infrastructure organizations.

- Cyber Storm Exercise – DHS’s flagship national-level biennial exercise
- Exercise Planning and Conduct
- Cyber Exercise Consulting and Subject Expertise Support
- Cyber Planning Support
- Off-the-Shelf Resources

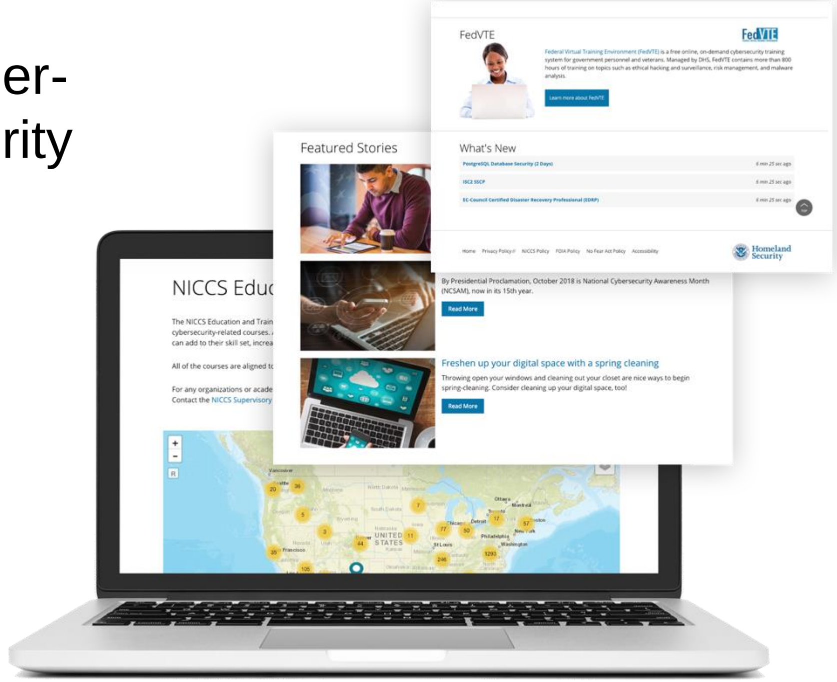


Cybersecurity Training Resources

CISA offers easily accessible education and awareness resources through the National Initiative for Cybersecurity Careers and Studies (NICCS) website.

The NICCS website includes:

- Searchable Training Catalog with 4,400 plus cyber-related courses offered by nationwide cybersecurity educators
- Interactive National Cybersecurity Workforce Framework
- Cybersecurity Program information: FedVTE, Scholarships for Service, Centers for Academic Excellence, and Cyber Competitions
- Tools and resources for cyber managers
- Upcoming cybersecurity events list



FedVTE

Federal Virtual Training Environment (FedVTE) is a free online, on-demand cybersecurity training system for government personnel and veterans. Managed by DHS, FedVTE contains more than 800 hours of training on topics such as ethical hacking and surveillance, risk management, and malware analysis.

Learn more about FedVTE

What's New

PostgreSQL Database Security (2 Days) — 6 min 25 sec ago

ISC2 SSCP — 6 min 25 sec ago

EC-Council Certified Disaster Recovery Professional (EDRP) — 6 min 25 sec ago

Home Privacy Policy NICCS Policy FOIA Policy No Fear Act Policy Accessibility

Homeland Security

Featured Stories

By Presidential Proclamation, October 2018 is National Cybersecurity Awareness Month (NCSAM), now in its 15th year.

Read More

Freshen up your digital space with a spring cleaning

Throwing open your windows and cleaning out your closet are nice ways to begin spring-cleaning. Consider cleaning up your digital space, too!

Read More

NICCS Educ

The NICCS Education and Train cybersecurity-related courses. can add to their skill set, increa

All of the courses are aligned t

For any organizations or acade Contact the NICCS Supervisory

For more information, visit NICC.US-CERT.gov

Our Nation’s Cyber Workforce Foundation

The **National Cybersecurity Workforce Framework** is a collection of definitions that describe types of cybersecurity work and skills requires to perform it.

- ✓ When used nationally, the definitions help establish universally applicable cybersecurity skills, training/development, and curricula
- ✓ 7 Categories, 30+ Specialty Areas
- ✓ Baselines knowledge, skills, and abilities & tasks

Operate & Maintain | **Securely Provision** | **Analyze** | **Collect & Operate** | **Oversight & Development** | **Protect & Defend** | **Investigate**

Free Federal Cyber Training

FedVTE enables cyber professionals to continue growing skills.

FedVTE is an online, on-demand training center that provides **free** cybersecurity training for U.S. veterans and federal, state, local, tribal, and territorial government employees. **As of January 2017,** there are:

- Over 140,000 registered users, including employees at all levels of government
- Over 18,000 veteran users (through non-profit partner, Hire Our Heroes™)
- Over 5,000 SLTT registered users

Resource Guides

- **Resource Guides:** Created to help organizations enhance their resilience in specific Cyber Resilience Review (CRR) domains.
- **CRR Tools:** Helps move organizations from initial capability to well-define capability in security management areas
- **CRR Domains**: Includes the CRR 10 “domains” each representing a capability area foundational to an organization’s cyber resilience.
- **Content**: While the guides were developed for organizations to utilize after conducting a CRR, these publications provide content useful for all organizations with cybersecurity equities.
- **Flexibility in Use**: Moreover, the guides can be utilized as a full set or as individual components, depending on organizational preference and/or need.
- For more information, visit https://www.cisa.gov/cyber-resource-hub

CRR Supplemental Resource Guide
Volume 1
Asset Managem
Version 1.1

CRR Supplemental Resource Guide
Volume 5
Incident Mana
Version 1.1

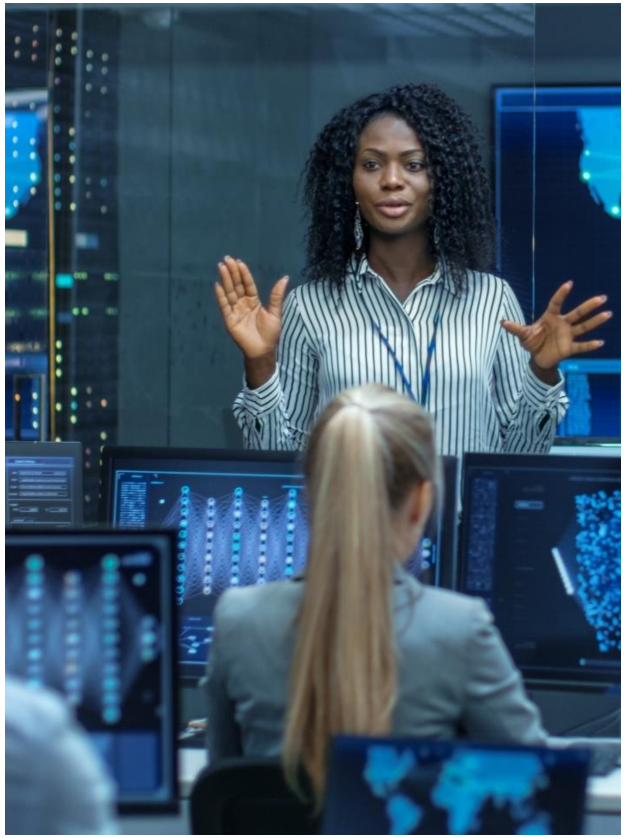
CRR Supplemental Resource Guide
Volume 10
Situational Awareness
Version 1.1

CRR Supplemental R

Volume 7
Risk Management
Version 1.1

CRR Supplemental R
Volume 6
Service Conti
Management
Version 1.1

Contact



General Inquiries

iodregionaloperations@cisa.dhs.gov

CISA Contact Information

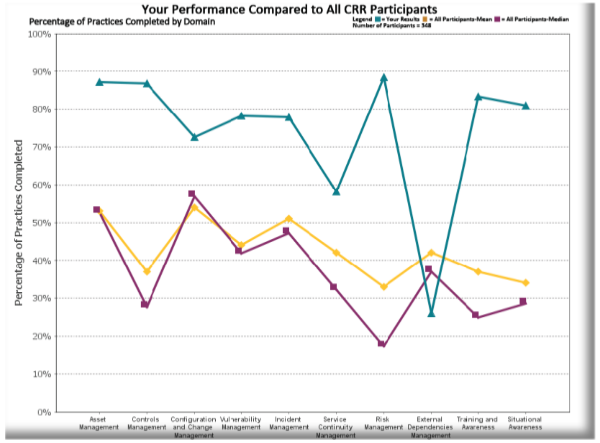
Name **Title**	**@cisa.dhs.gov** **Number**
Number	**@cisa.dhs.gov** **+1 202-380-6024**

Cybersecurity and Infrastructure Security Agency

BACK-UP SLIDES

CRR Sample Report

Each CRR report includes:

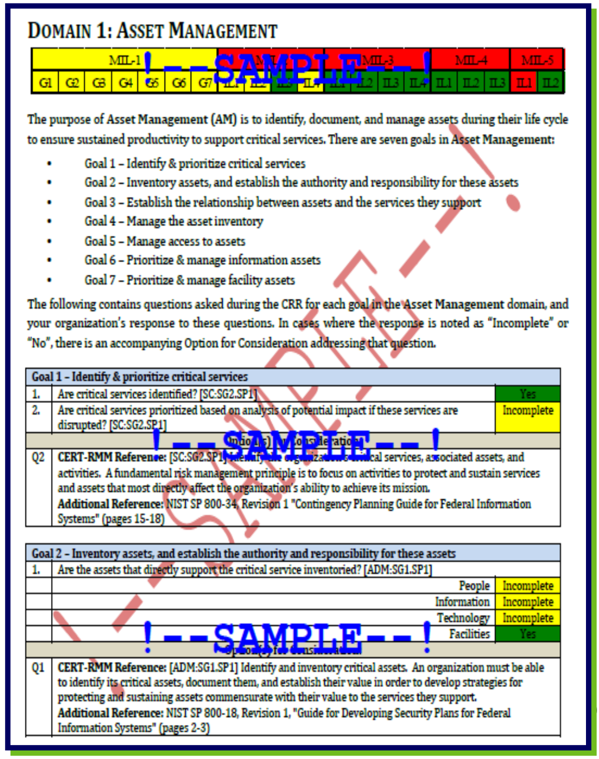


Comparison data with other CRR participants
facilitated only

NIST Cybersecurity Framework Summary
NIST CSF Summary
Legend
FUNCTION
CATEGORY
Identify (ID)
Protect (PR)
Detect (DE)
Respond (RS)
Recover (RC)
11 | CRR Self-Assessment V 8.0.0
BUSINESS CONFIDENTIAL

A summary “snapshot” graphic, related to the **NIST Cyber Security Framework.**

Domain performance of existing cybersecurity capability and options for consideration for all responses



Domain 1: Asset Management

MIL-1							MIL-2				MIL-3				MIL-4			MIL-5	
G1	G2	G3	G4	G5	G6	G7	IL1	IL2	IL3	IL4	IL1	IL2	IL3	IL4	IL1	IL2	IL3	IL1	IL2

The purpose of Asset Management (AM) is to identify, document, and manage assets during their life cycle to ensure sustained productivity to support critical services. There are seven goals in Asset Management:

- Goal 1 – Identify & prioritize critical services
- Goal 2 – Inventory assets, and establish the authority and responsibility for these assets
- Goal 3 – Establish the relationship between assets and the services they support
- Goal 4 – Manage the asset inventory
- Goal 5 – Manage access to assets
- Goal 6 – Prioritize & manage information assets
- Goal 7 – Prioritize & manage facility assets

The following contains questions asked during the CRR for each goal in the Asset Management domain, and your organization's response to these questions. In cases where the response is noted as “Incomplete” or “No”, there is an accompanying Option for Consideration addressing that question.

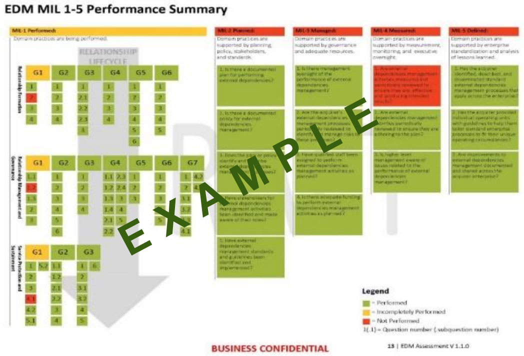
Goal 1 – Identify & prioritize critical services		
1.	Are critical services identified? [SC:SG2.SP1]	Yes
2.	Are critical services prioritized based on analysis of potential impact if these services are disrupted? [SC:SG2.SP1]	Incomplete
	Option(s) for Consideration	
Q2	**CERT-RMM Reference:** [SC:SG2.SP1] Identify the organization's critical services, associated assets, and activities. A fundamental risk management principle is to focus on activities to protect and sustain services and assets that most directly affect the organization's ability to achieve its mission. **Additional Reference:** NIST SP 800-34, Revision 1 "Contingency Planning Guide for Federal Information Systems" (pages 15-18)	

Goal 2 – Inventory assets, and establish the authority and responsibility for these assets		
1.	Are the assets that directly support the critical service inventoried? [ADM:SG1.SP1]	
	People	Incomplete
	Information	Incomplete
	Technology	Incomplete
	Facilities	Yes
	Option(s) for Consideration	
Q1	**CERT-RMM Reference:** [ADM:SG1.SP1] Identify and inventory critical assets. An organization must be able to identify its critical assets, document them, and establish their value in order to develop strategies for protecting and sustaining assets commensurate with their value to the services they support. **Additional Reference:** NIST SP 800-18, Revision 1, "Guide for Developing Security Plans for Federal Information Systems" (pages 2-3)	

EDM Assessment Report

Each EDM report includes:

- Performance summary of existing capability managing external dependencies



EDM MIL 1-5 Performance Summary

MIL-1 Performed: Domain practices are being performed.

MIL-2 Planned: Domain practices are supported by planning, policy, stakeholders, and standards.

MIL-3 Managed: Domain practices are supported by governance and adequate resources.

MIL-4 Measured: Domain practices are supported by measurement, monitoring, and executive oversight.

MIL-5 Defined: Domain practices are supported by enterprise standardization and analysis of lessons learned.

Legend
🟩 = Performed
🟨 = Incompletely Performed
🟥 = Not Performed
1(.1) = Question number (.subquestion number)

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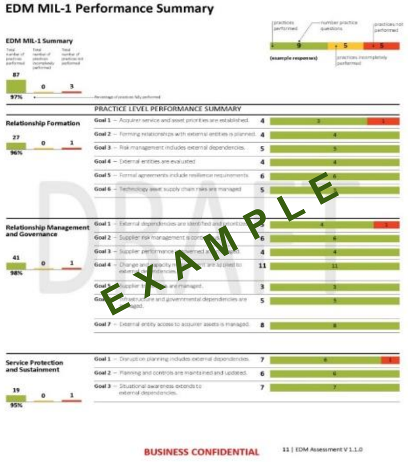
RELATIONSHIP LIFECYCLE
Relationship Formation
Relationship Management and Governance
Service Protection and Sustainment
G1
G2
G3
G4
G5
G6
G7
EXAMPLE

- Comparison data with other EDM participants



EDM MIL-1 Performance Summary

EDM MIL-1 Summary

(example responses)

PRACTICE LEVEL PERFORMANCE SUMMARY

Relationship Formation

Goal 1 – Acquirer service and asset priorities are established. 4
Goal 2 – Forming relationships with external entities is planned. 4
Goal 3 – Risk management includes external dependencies. 5
Goal 4 – External entities are evaluated. 4
Goal 5 – Formal agreements include resilience requirements. 6
Goal 6 – Technology asset supply chain risks are managed. 5

Relationship Management and Governance

Goal 1 – External dependencies are identified and prioritized.
Goal 2 – Supplier risk management is continuous. 6
Goal 3 – Supplier performance is governed and managed. 4
Goal 4 – Change and capacity management are applied to external dependencies. 11
Goal 5 – Supplier transitions are managed. 3
Goal 6 – Infrastructure and governmental dependencies are managed. 5
Goal 7 – External entity access to acquirer assets is managed. 8

Service Protection and Sustainment

Goal 1 – Disruption planning includes external dependencies. 7
Goal 2 – Planning and controls are maintained and updated. 6
Goal 3 – Situational awareness extends to external dependencies. 7

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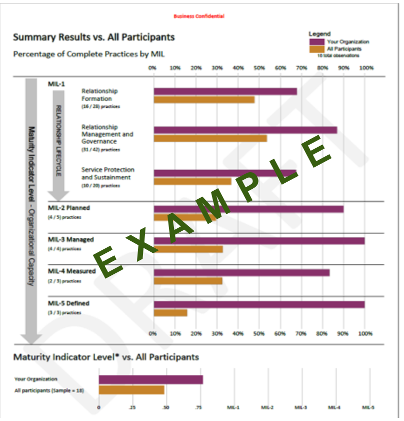
11 | EDM Assessment V 1.1.0



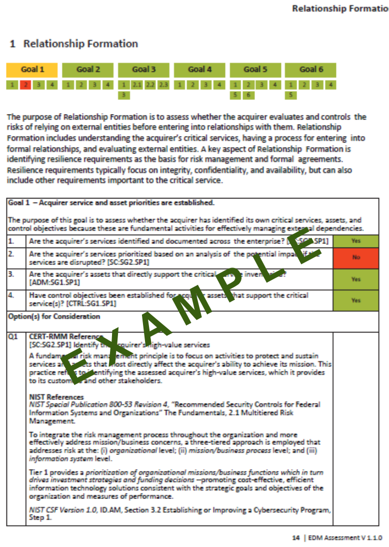
Business Confidential

Summary Results vs. All Participants

Percentage of Complete Practices by MIL

Maturity Indicator Level* vs. All Participants

- Sub-domain performance of existing capability managing external dependencies and options for consideration for all responses



Relationship Formation

1 Relationship Formation

Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6
1 2 3 4	1 2 3 4	1 2.1 2.2 2.3 3	1 2 3 4	1 2 3 4 5 6	1 2 3 4 5

The purpose of Relationship Formation is to assess whether the acquirer evaluates and controls the risks of relying on external entities before entering into relationships with them. Relationship Formation includes understanding the acquirer's critical services, having a process for entering into formal relationships, and evaluating external entities. A key aspect of Relationship Formation is identifying resilience requirements as the basis for risk management and formal agreements. Resilience requirements typically focus on integrity, confidentiality, and availability, but can also include other requirements important to the critical service.

Goal 1 – Acquirer service and asset priorities are established. The purpose of this goal is to assess whether the acquirer has identified its own critical services, assets, and control objectives because these are fundamental activities for effectively managing external dependencies.		
1.	Are the acquirer's services identified and documented across the enterprise? [SC:SG1.SP1]	Yes
2.	Are the acquirer's services prioritized based on an analysis of the potential impact if the services are disrupted? [SC:SG2.SP1]	No
3.	Are the acquirer's assets that directly support the critical service inventoried? [ADM:SG1.SP1]	Yes
4.	Have control objectives been established for acquirer assets that support the critical service(s)? [CTRL:SG1.SP1]	Yes
Option(s) for Consideration		
Q1	**CERT-RMM Reference** [SC:SG2.SP1] Identify the acquirer's high-value services A fundamental risk management principle is to focus on activities to protect and sustain services and assets that most directly affect the acquirer's ability to achieve its mission. This practice refers to identifying the assessed acquirer's high-value services, which it provides to its customers and other stakeholders. **NIST References** *NIST Special Publication 800-53 Revision 4*, "Recommended Security Controls for Federal Information Systems and Organizations" The Fundamentals, 2.1 Multitiered Risk Management. To integrate the risk management process throughout the organization and more effectively address mission/business concerns, a three-tiered approach is employed that addresses risk at the: (i) *organizational* level; (ii) *mission/business process* level; and (iii) *information system* level. Tier 1 provides a *prioritization of organizational missions/business functions which in turn drives investment strategies and funding decisions* --promoting cost-effective, efficient information technology solutions consistent with the strategic goals and objectives of the organization and measures of performance. *NIST CSF Version 1.0*, ID.AM, Section 3.2 Establishing or Improving a Cybersecurity Program, Step 1.	

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Stanton Gatewood

DHS/CISA

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CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY

CISA