



[Enter Organization Name]

Maritime Ports CISA Tabletop Exercise Package – Multi- Jurisdictional

<Exercise Date>

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

<Exercise Title> Tabletop Exercise
Situation Manual**Table of Contents**

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Exercise Overview

Exercise Name	Exercise Name	
Exercise Date, Time, and Location	Exercise Date Time (e.g., 9:00 a.m. – 12:00 p.m.) Exercise Location	
Exercise Schedule	Time	Activity
	7:45 a.m. - 8:30 a.m.	Registration
	8:30 a.m. - 8:40 a.m.	Welcome and Opening Remarks
	8:40 a.m. - 9:00 a.m.	Exercise Overview
	9:00 a.m. - 10:00 a.m.	Module One: Managing Cyber Risk, Information Sharing, and Initial Actions
	10:00 a.m. - 10:10 a.m.	Break
	10:10 a.m. - 11:10 a.m.	Module Two: Response & Recovery
	11:10 a.m. - 11:30 a.m.	Hot Wash and Closing Remarks
Scope	X hour facilitated, discussion-based Tabletop Exercise	
Purpose	Provide the <Organization> an opportunity to examine readiness, assess internal and external information sharing and communication methods, and discuss and enhance processes to detect and respond to malicious cyber incidents while maintaining operations.	
NIST Functions	Identify, Protect, Detect, Respond, Recover	
Objectives	<ol style="list-style-type: none"> 1. Increase cyber threat awareness and discuss coordination and collaboration throughout the Marine Transportation System (MTS). 2. Discuss plans, procedures, roles, responsibilities, and capabilities for responding to a cyber incident. 3. Explore key cyber incident prevention and response capabilities among the maritime community. 4. Discuss coordination efforts within the maritime industry to develop and disseminate information, alerts, and warnings to the public and the media in response to a disruptive cyber incident. 	
Threat or Hazard	Cyber	
Scenario	An advanced persistent threat (APT) targets <Organization> using malware and a supply-chain attack to impact terminal operations and disrupt maritime navigation capabilities.	
Sponsor	Exercise Sponsor	

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Exercise Name	Exercise Name	
Participating Organizations	[Insert a brief summary of the total number of participants and participation level (i.e., maritime port, USCG, private sector, and/or international agencies).	
Points of Contact	Insert Organization POC(s) Contact info	DHS CISA Exercises CEP@hq.dhs.gov CISAServiceDesk@us-cert.gov

General Information

Participant Roles and Responsibilities

The term *participant* encompasses many groups of people, not just those playing in the exercise. Groups of participants involved in the exercise, and their respective roles and responsibilities, are as follows:

Players have an active role in discussing or performing their regular roles and responsibilities during the exercise. Players discuss or initiate actions in response to the simulated emergency.

Observers do not directly participate in the exercise. However, they may support the development of player responses to the situation during the discussion by asking relevant questions or providing subject matter expertise.

Facilitators provide situation updates and moderate discussions. They also provide additional information or resolve questions as required. Key Exercise Planning Team members may also assist with facilitation as subject matter experts during the exercise.

Note-takers are assigned to observe and document exercise activities. Their primary role is to document player discussions, including how and if those discussions conform to plans, policies, and procedures.

Exercise Structure

This exercise will be a multimedia, facilitated exercise. Players will participate in the following:

- Cyber threat briefing (if desired)
- Scenario modules:
 - **Module 1:** This module introduces a heightened threat environment followed by several anomalous events of concern affecting terminal operations and navigation equipment.
 - **Module 2:** This module includes the execution of malware that disrupts terminal operations, discovery of a supply-chain vulnerability in navigation equipment, and subsequent media coverage of disruption to maritime capabilities.
- Hotwash

Exercise Guidelines

- This exercise will be held in an open, no-fault environment. Varying viewpoints are expected.
- Respond to the scenario using your knowledge of existing plans and capabilities, and insights derived from your training and experience.
- Decisions are not precedent setting and may not reflect your organization's final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions and/or suggested actions to resolve or mitigate a problem.
- There is no hidden agenda, and there are no trick questions. The resources and written materials provided are the basis for discussion.
- The scenario has been developed in collaboration with subject matter experts and exercise planners from your organization.

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- In any exercise, assumptions and artificialities are necessary to complete play in the time allotted, to achieve training objectives, and/or account for logistical limitations. Please do not allow these considerations to negatively impact your participation in the exercise.

Exercise Hotwash and Evaluation

The facilitator will lead a hotwash with participants at the end of the exercise to address any ideas or issues that emerge from the exercise discussions.

Module 1: Managing Cyber Risk, Information Sharing, and Initial Actions

(Day 0)

(International Sanctions Announcement) The U.S. reinforces economic and trade sanctions on a foreign country, citing currency manipulation, human rights abuses, and a violation of international treaties. Officials from the foreign country vow a “crushing response to U.S. bullying” after the announcement.

(Day 1)

(Joint Advisory) The Federal Bureau of Investigation (FBI) and Cybersecurity and Infrastructure Security Agency (CISA) release a Joint Advisory addressing increased attacks from cyber actors as a result of U.S. trade sanctions. The Joint Advisory highlights recent compromises by hacking groups. These groups reportedly receive material support from foreign governments that are targeting government networks, energy companies, and maritime entities.

The advisory highlights the tactics, techniques, and procedures (TTPs) used by the cyber actors and describes the measures that organizations can take to secure their networks.

(Day 5)

(Liquefied Petroleum Gas) Energy partners operating Liquefied Petroleum Gas (LPG) handling terminals located in the [Name] port report delays with operations due to unexplained network outages and fluctuating pipeline pressures in fluid transfer systems.

As a result, tanker vessel traffic is starting to back up; it is unclear how long it will be before normal operations resume.

(Day 5)

(Marine Traffic Monitoring System Issues) The U.S. Coast Guard (USCG) Navigation Center responsible for vessel tracking services (VTS) notices intermittent issues with the broadcast positions of aids to navigation (AtoN) buoys and jetty lights. Several AtoN stop communicating their position and reappear on maps hours later.

(Day 7)

(Navigation Issue) Vessels begin submitting reports of AtoN outages, issues, and discrepancies to the USCG Navigation Center. Reports of off station and missing AtoNs based on broadcast information are concentrated along the [Waterway/Area].

Module 1 Discussion Questions

Discussion questions included in each module may be modified as desired. Additional questions can be found in Appendix A.

Intelligence and Information Sharing

1. Through what channels would your organization receive the cybersecurity threat intelligence presented in the scenario?
 - a. What mechanisms are in place to facilitate rapid information sharing among maritime partners?
2. What actions would you take based on the cybersecurity threat intelligence presented in the scenario?
 - a. Who do you share cybersecurity threat intelligence with?

Risk Assessment

3. What is your organization's biggest concern at this time based on the scenario, to include cybersecurity threat and vulnerabilities and/or physical concerns?
 - a. How would the issues presented impact maritime sector operations?
4. What measures are taken to secure your network?
 - a. How often are antivirus and anti-malware programs updated on user workstations?

Cyber Incident Detection

5. If your organization discovered an indicator of compromise (IOC) or unusual activity, what information, if any, would you share with partners?
6. Would any of the events described in this module be identified as cyber incidents or events? If so, how would your organization analyze and validate them?
7. How does your cyber incident response plan (CIRP) address the events in the scenario?
 - a. How are your external dependencies (maritime partners, agencies, etc.) integrated into your security and continuity efforts?
 - b. What are your cybersecurity incident severity levels and/or escalation criteria?
 - c. Based on the scenario, would you activate your cyber incident response plan? If not, what threshold must be reached for the cyber incident response personnel to be activated?
8. What coordination efforts would be underway between maritime partners?
 - a. What entity is responsible for developing a common operating picture?

Module 2: Response & Recovery

(Day 8)

(Navigation Hazards) The USCG receives several reports of navigation issues as a result of ongoing AtoN issues. In one case, a ship navigation officer of a cargo vessel off the [Waterway/Area] coast reports having a near collision with another vessel. Other vessels have had to make emergency adjustments in their navigation paths due to incorrect information.

(Day 9)

(AIS Disruption) Multiple vessels along the [Waterway/Area] coast report similar issues with navigation information on their Automatic Identification Systems (AIS). They report needing to use visual AtoN due to transmission issues, and in some cases, falsified AtoN entries showing up on maps near their current location. Additionally, some vessels are using radar systems due to the severity of AIS disruptions.

(Day 10)

(Terminal Malware) Energy partners operating the LPG terminals have discovered that malware was deployed on their systems following a breach of their network. The malware was able to delete information and enabled hackers to disable services. As a result, they anticipate it will take up to a week to restore LPG terminal operations to normal.

(Day 12)

(Supply-Chain Compromise Uncovered) News media are reporting that a supply-chain compromise of AIS systems is responsible for navigation equipment issues and disruptions in the maritime sector. A national news agency releases an investigative report claiming to have credible information of compromises and has contacted your organization requesting comment on the report's contents.

(Day 13)

(Operational Impacts) There are reports of shipping and shipment delays across the port. The issues with AIS persist, as vessel traffic services (VTS) continue to have difficulty tracking vessels near the coast (e.g., position, speed, and navigational status).

Module 2 Discussion Questions

Discussion questions included in each module may be modified as desired. Additional questions can be found in Appendix A.

Incident Response

1. What are your response priorities at this point?
 - a. What resources are at your disposal to respond to these disruptions?
2. What cascading effects (secondary and tertiary impacts) do you anticipate due to these events?
 - a. How will the degraded operational environment risk affect the operations of other organizations in the maritime sector?
3. How is the coordinated response to significant cyber incidents managed?

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- a. What role do government (Federal, state, and local), ports, and maritime industry partners play in the response and recovery?

Equipment Compromise

4. What information-sharing mechanisms exist to notify maritime partners about a compromise of navigation equipment?
 - a. What are your vendor reporting requirements under this scenario?
5. What are your contingency plans to deal with compromised and unreliable navigation equipment?
 - a. What backup systems are available to mitigate the operational impacts if systems are inoperable for extended periods of time?

Public Relations

6. What information is your organization releasing to the public through news outlets and/or social media during this scenario?
 - a. What mechanisms exist to coordinate public information across maritime partners?

Recovery

7. What indicators are used to determine if issues impacting service providers and/or maritime sector partners are resolved?
8. What measures are you taking to secure your network from a similar incident happening in the future?

Appendix A: Additional Discussion Questions

The following section includes supplemental discussion questions to guide exercise play. Questions are aligned to the NIST functional areas and leadership roles. Exercise planners are encouraged to select additional, applicable discussion questions to the chosen scenario to bolster participant conversation. *This instructional page, as well as undesired discussion questions, should be deleted.*

Identify

1. What has your organization done to identify organization-specific threats and vulnerabilities?
 - a. What are your most significant threats and vulnerabilities?
 - b. What are your highest cyber security risks?
2. What data and systems are considered the most critical?
 - a. What potential impact would a security breach to this data have on your organization?
3. How does your organization integrate cybersecurity into the system development life cycle (i.e., design, procurement, installation, operation, and disposal)?
4. Discuss the role of cybersecurity in contracts with third-party support vendors and crucial suppliers. Have you discussed these types of concerns and risks with them?
5. Discuss your supply chain concerns related to cybersecurity.
6. What role does organizational leadership play in cybersecurity? Does this role differ during steady-state and incident response?
7. What level of funding and/or resources are devoted to cyber preparedness? Based on your risk assessment, what is the range of potential losses from a cyber incident?
8. Discuss cyber preparedness integration with your current all-hazards preparedness efforts. Who are your cyber preparedness stakeholders (public, private, non-profit, other)?
9. What mission essential functions depend on information technology and what are the cascading effects of their disruption?
10. When was your last external review or audit of your IT plans, policies, or procedures?
11. Discuss the current network security architecture for crucial suppliers with remote access.
12. What is your policy on conducting background checks for IT, security and key supporting personnel?
13. Is there a manager/department in charge of cybersecurity management? If yes, is this the primary function of that manager?
14. How does your organization recruit, develop, and retain cybersecurity staff?
15. How would your organization receive the information presented in the scenario?
 - a. Through what channels would this information be received and disseminated?
 - b. Are there established mechanisms to facilitate rapid information dissemination?
 - c. What are the known communication gaps? If so, who in your organization is responsible for addressing those gaps?
 - d. What actions, if any, would your organization take based on this information?

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16. What other sources of cybersecurity threat intelligence does your organization receive? For example, information from Federal Bureau of Investigation (FBI), InfraGard, open source reporting, security service providers, others?
 - a. What cyber threat information is most useful?
 - b. How timely is the information you receive?
 - c. Who is responsible for collating information across the organization?
17. What mechanisms and products are used to share cyber threat information within your organization and external to your organization (e.g., distribution lists, information sharing portals)?
18. Describe how variables in threat information (timeframe, credibility, and specificity) impact decision making.
19. How well-defined is cybersecurity in relation to contracts with third-party support vendors and crucial suppliers?
 - a. How often are contracts reviewed?
 - b. How well do your service level agreements address incident response?

Protect

1. Does your organization have established cybersecurity governance? When was it signed?
2. How is cybersecurity integrated into both organizational and project risk assessments and management?
3. What is the formal sanctions process for personnel failing to comply with established information security policies and procedures? If so, has this been communicated to employees?
4. What is your cybersecurity incident response plan? When was it issued? When was the incident response plan last revised?
5. Does your organization use multi-factor authentication to mitigate the potential effects of phishing?
6. What is your IT department's patch management plan?
 - a. Are risk assessments performed on all servers on the network?
 - b. What processes are in place to proactively evaluate each server's criticality and service lifecycle (e.g., applicability to software patches)?
 - c. Does this plan include a risk management strategy that addresses the following considerations?
 - i. The risks of not patching reported vulnerabilities?
 - ii. Extended downtime?
 - iii. Impaired functionality?
 - iv. The loss of data?
7. What active measure(s) does your organization employ to prevent denial of service (DDoS) attacks against your websites and operational systems?
8. Do you have a method for tracking and/or identifying problematic pieces of firmware in your organization, should a vulnerability be identified?

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9. What processes does your organization have in place for when an employee is terminated or resigns?
 - a. Are there any additional processes that are implemented if the employee's termination is contentious?
 - b. Does your organization retrieve all information system-related property (e.g., authentication key, system administration's handbook/manual, keys, identification cards, etc.) during the employment termination process?
10. Do any third-party vendors have unmitigated access into your network?
 - a. What protections do you have in place to protect against malicious intent by those vendors or outside parties that have access to your network?
11. Discuss the status of cyber preparedness planning within your organization.
 - a. Have you completed a business impact analysis? Does the analysis include information technology (IT) infrastructure supporting mission essential functions identified in continuity of operations and continuity of government plans?
 - b. Is cybersecurity integrated in your business continuity plans? Does your business continuity and/or disaster recovery planning have a prioritized list of information technology infrastructure for restoration?
 - c. How have IT specific plans been coordinated with other planning efforts such as an Emergency Operations Plan (EOP) or Continuity of Operations Plan (COOP)?
12. What are your identified responsibilities for, and capabilities to, prevent cyber incidents?
13. Who is responsible for network and information security management?
14. Does your EOP have a Cyber Incident Annex? When was it last revised? Who is responsible for maintaining the annex?
15. Does your organization follow a cybersecurity standard of practice (NIST Cybersecurity Framework/800 Series, ISO/IEC, etc.)? If so, which?
16. Are there flowcharts showing the high-level relationships and crisis lines of communication (i.e., who calls who) specifically for a cyber incident? Are they part of the response or continuity planning documents?
17. Does your organization have a formal or informal policy or procedures pertaining to IT account management?
 - a. Do these policies or procedures include protocols for establishing, activating, modifying, disabling, and removing accounts?
 - b. Do these policies or procedures include protocols/steps for notifying IT account managers/administrators when users are terminated?
18. Are IT and business continuity functions coordinated with physical security? Are all three then collaborating with public relations, human resources, and legal departments?
19. Do you have processes to ensure that your external dependencies (contractors, power, water, etc.) are integrated into your security and continuity planning and programs?
20. Describe the decision-making process for protective actions in a cyber incident. What options are available? Have these options been documented in plans? How are they activated?

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21. What immediate protection and mitigation actions would be taken at your organization in this scenario? Who is responsible for those actions?
22. What protective actions would you take across non-impacted systems or agencies in the scenario presented? Who is responsible for protective action decision-making? How are actions coordinated across parts of the organization?
23. Compare and contrast physical and cyber incident notifications and protective action decision-making.

Detect

1. How do employees report suspected phishing attempts?
 - a. What actions does your department take when suspicious emails are reported?
 - b. Are there formal policies or plans that would be followed?
 - c. Does your department conduct phishing self-assessments?
 - d. Does your organization have a response time goal once a report is received?
2. What process does the general workforce follow to report suspected cyber incidents? Is this a formal process on which they have been trained?
3. Do you have defined cybersecurity incident escalation criteria, notifications, activations, and/or courses of action?
 - a. If so, what actions would be taken at this point? By who?
 - b. Would leadership be notified?
4. How does your organization baseline network activity? How would you be able to distinguish between normal and abnormal traffic?
5. Does the organization report cybersecurity incidents to outside organizations? If so, to whom? What, if any, mandatory reporting requirements do you have?
6. Do detection and analysis procedures differ for loss of personally identifiable information (PII), phishing attempts, data exfiltration, data modification, or other incidents?
7. Would this be considered the most severe tier of security incident for your organization? What, if any, additional notifications or actions would this prompt?
8. What process is in place to document all actions, decisions, and data regarding the incident (e.g., for later use in legal or insurance matters)?
 - a. Who is responsible for correlating information across different organizational-level incidents?
9. What resources and capabilities are available to analyze the intrusions:
 - a. Internally?
 - b. Externally through government partners?
 - c. Through contracts with private sector entities?
10. How is information shared among your internal and external stakeholders? Through formal or informal relationships? What information sharing mechanisms are in place?
11. Discuss your organization's intrusion detection capabilities and analytics that alert you to a cyber incident.

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12. What type of hardware and/or software does your organization use to detect/prevent malicious activity of unknown origin on your systems/network?

Respond

1. What is your planned cyber incident management structure?
 - a. Who (by department and position) leads incident management and why?
 - b. How are they notified?
 - c. When did they last exercise their role?
 - d. What is the length of your operational period (i.e., your “battle rhythm”)?
 - e. What are the primary and contingency communication mechanisms necessary to support incident management?
2. What level of leadership/management would be notified at this point in the scenario? Is there a plan in place detailing the thresholds at which different notifications are made and what information is provided?
3. What is your department or agency’s primary concern? Mitigation of the incident (resolving the issue) or investigation (preserving the evidence to build a criminal case)? Who would make this decision? Are these mutually exclusive?
4. What response actions would your organization have taken at this point? Are these actions driven by a plan?
5. Whom will you notify, internally and externally, of these incidents?
 - a. Is there a process or plan in place that outlines the severity thresholds for which different notifications are made and what information is to be conveyed?
 - b. Are you keeping senior leadership updated? What information is provided and how is it communicated?
 - c. Would you make any notification to the public?
 - i. If so, how are you coordinating your messaging within your organization?
 - ii. Do you have pre-canned messaging or holding statements for such an event?
6. How are you ensuring unity of message between your organization, the public sector, and elected officials?
7. How would these events affect your organization’s business operation/processes?
8. Do these incidents generate any concerns that have not been addressed?
9. What resources are required for incident investigation and attribution? Are sufficient resources available in-house?
10. Would the events presented in the scenario trigger activation of your emergency operations plan cyber incident annex? If so, would that alter any roles and responsibilities?
 - a. At what point in the scenario would you contact law enforcement and/or the state Attorney General?
 - b. How would relationships with law enforcement and other partners be managed? Where is the process documented?

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- c. How does a law enforcement investigation impact containment, eradication, and recovery efforts?
11. What processes and resources are in place for evidence preservation and collection?
 12. Discuss the difference between network and host forensics. How are you equipped and staffed to address this?
 13. Do you have a network operations center? Security operations center? What are their roles during a response?
 14. What are your essential elements of information and key information questions necessary for operational and executive-level responses to cyber incidents?
 15. What mission essential functions are impacted by the incidents described in the scenario?
 16. Is there a way to maintain service availability of key assets (e.g., network connectivity, etc.)?
 - a. What capabilities and resources are required for responding to this series of incidents?
 - b. What internal resources do you depend on? Are your current resources sufficient?
 - c. Whom do you contact if you're in need of additional third-party assistance?
 - d. What resources are available within the state or locally? How do you request these resources?
 - e. Do you have personnel tasked with incident response or a designated cyber incident response team within your organization?
 - i. If so, what threshold must be reached for the cyber incident response personnel to be activated? Does this scenario reach that threshold?
 - ii. Who is responsible for activating the cyber incident response personnel and under what circumstances?
 - iii. What are the cyber incident response team/personnel's roles and responsibilities?
 17. Does this exceed your organization's ability to respond?
 - a. If so, are there established procedures to request additional support?
 18. What are your organization's response priorities?
 - a. Who would be notified at this point in the scenario? Is there a plan in place detailing the thresholds at which different notifications are made and what information is provided?
 - b. What response actions would the IT/IS department take at this point? Are these actions driven by a plan?
 - c. What response capabilities and resources are required to respond to these incidents?
 19. Do you pay the ransom?
 - a. What are the advantages/disadvantages to paying?
 20. Where do you receive cyber response technical assistance? Do you have plans, procedures or policies in place to access this assistance?
 21. Have you proactively identified and established the service provider relationships needed for incident/breach response issues (e.g., credit counseling, forensic/computer security services)?

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- a. What are some challenges that are experienced by information technology and business continuity planning in terms of information sharing?
 - b. Is information flowing in both directions?
22. What processes are used to contact critical personnel at any time, day or night?
- a. How do you proceed if critical personnel are unreachable or unavailable?

Recover

1. When does your organization determine a cyber incident is closed?
 - a. Who makes this decision?
2. What actions would your organization take if your IT/incident response staff could not confirm the integrity of your systems/data?
 - a. Would senior leaders consider re-activating critical business processes and systems? What is the risk associated with doing so?
 - b. Would your organization consider a complete rebuild of these systems? How long and costly would that process be?
 - c. What factors do you consider when making these decisions?
3. What formal policies and procedures does your organization use to decide when and how to restore backed-up data, including measures for ensuring the integrity of backed-up data before restoration?
4. Does your organization have back-ups of vital records in a location that is separated from your primary working copies of your files?
 - a. How long do you keep any copies of archived files backed up?
 - b. How long of a downtime would exist between your primary files and the restoration of files via your back-up?
5. What redundant systems are in place if the impacted system(s) is compromised?
6. Describe your role in post-incident activity.
7. How would you work with critical infrastructure providers to determine the incident is over?
8. How does post incident-activity differ when critical infrastructure is involved?
9. Does your organization have a continuity of operations plan (COOP) for conducting its functions at a location other than your main building?
 - a. If so, how would a suspected cyber incursion impact your organization's ability to activate its COOP Plan?
10. Are alternative systems or manual processes in place to continue operations if a critical system is unavailable for a significant period of time?
 - a. Who can authorize use of alternate systems or procedures?

Training and Exercises

1. Does your organization provide basic cybersecurity and/or IT security awareness training to all users (including managers and senior executives)?
 - a. How often is training provided? Does it cover:
 - i. Review of department and/or agency acceptable use and IT policies,

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- ii. Prominent cyber threat awareness,
 - iii. Password procedures, and
 - iv. Whom to contact and how to report suspicious activities?
- b. Is training required to obtain network access?
- c. What security-related training does your department or agency provide to, or contractually require of, IT personnel and vendors with access to your city's or county's information systems? How often do they receive the training?
- 2. Do your cybersecurity incident response team members undergo any special training to detect, analyze, and report this activity? If so, can you describe this training?
 - a. Is your staff sufficiently trained to read and analyze your intrusion detection system logs?
- 3. What training do you provide in support of your Cybersecurity Incident Response Plan (CIRP), Business Continuity Plan (BCP), Emergency Operations Plan (EOP) Cyber Incident Annex, or other related plans?
 - a. Do employees know what constitutes suspicious cybersecurity activities or incidents?
 - b. Do they know what actions to take when one arises?
- 4. If you have a cyber incident response plan, how often does your organization exercise the plan?
 - a. Who is responsible for the exercise planning?
 - b. What agencies are involved in the exercise?
 - c. What level of the organization is required to participate?
 - d. What actions follow the exercise?
- 5. How do your organization's annual Training and Exercise Planning Workshop and Multi-Year Training and Exercise Plan address cybersecurity?
- 6. What are your cybersecurity incident response team's exercise requirements?
- 7. Do your organization's exercise efforts include both physical and cyber risks?
- 8. Have senior or elected officials participated in a cybersecurity exercise?
- 9. Are there additional training and/or exercising requirements for your organization?

Senior Leaders and Elected Officials

- 1. What is your cybersecurity culture? As a leader in your organization, what cybersecurity goals have you set? How have they been communicated?
- 2. As it relates to your jurisdiction, what cybersecurity information do you request? What do you receive?
- 3. What are your cybersecurity risks?
- 4. Who develops your region's/district's cybersecurity risk profile? What are their reporting requirements? Are they directed to, required by statute, or other? How often do they report?
- 5. Is your cybersecurity risk integrated with physical risk for an integrated jurisdictional risk assessment?
- 6. What is your jurisdiction's greatest cybersecurity concern? Why do you rate this concern as your greatest concern? Who reports to you on cyber threats?

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7. What, if any, infrastructure does your jurisdiction own, operate, and/or regulate?
8. What relationships do you have with critical infrastructure owners and operators?
9. What priorities have you set related to the cybersecurity of critical infrastructure?
10. What is your most important critical infrastructure?
11. What are your regulatory requirements related to critical infrastructure, if any?
12. What is the greatest threat facing your critical infrastructure? What, if anything, is your jurisdiction able to do to mitigate it?
13. When did you last receive a cyber threat briefing for your jurisdiction?
14. How has your jurisdiction prepared for a cyber incident?
 - a. Does your jurisdiction have cybersecurity plans in place? How many information security officers do you have?
 - b. Does the plan indicate how they will work together?
15. Have your information security officers and emergency managers jointly planned for cybersecurity incidents?
16. What are your cybersecurity workforce gaps? How does your jurisdiction recruit, develop, and retain cybersecurity staff?
17. What cybersecurity training do you have planned for cybersecurity staff, managers, and general workforce?
18. What magnitude of incident would require your notification? How does that notification process work? Is it planned?
19. What requirements or agreements, if any, exist for critical infrastructure to notify you of a cyber incident?
20. Who advises you on cyber threats? What are your essential elements of information or critical information requirements?
21. What is your planned role in protective action decision-making?
22. What is your planned cyber incident management structure? What parts of the government need to be engaged?
23. Would your jurisdiction's Emergency Operations Center (EOC) be activated in a cyber incident? How? Why?
24. What is your role in a cyber incident?
25. How does a law enforcement investigation impact your response?
26. What is your role in communicating to the public?
27. How are costs of the response calculated?
28. What information do you need to support your decision-making process?
29. Who is your jurisdiction's cybersecurity liaison to privately-owned and operated critical infrastructure?
30. What are your expectations of the State and Federal Government?
31. Describe your role in post-incident activity.
32. What is your role in restoring and/or maintaining public confidence?

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Media

1. What are your public affairs concerns? Who is responsible for coordinating the public message? Is this process a part of any established plan?
 - a. How would your department respond to the local media reports?
 - b. What information are you sharing with citizens? Employees?
 - c. Are public information personnel trained to manage messaging related to cyber incidents?
 - d. Does your department have pre-drafted statements in place to respond to media outlets?
 - e. Are they trained to manage your social media presence?
 - f. Are all personnel trained to report any contact with the media to appropriate public information personnel?
2. Who is responsible for public information related to the incident? What training or preparation have they received?

Legal

1. What are the legal issues you must address?
2. What policies should your organization have? Does it exercise these policies? If so, how often?
3. What legal documents should your organization have in place (for example with third-party vendors)?
4. What is the role of the legal department in this scenario?
5. Does your state have security breach notification laws? If so, what do they include?

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Appendix B: Acronyms

Acronym	Definition
AAR	After-Action Report
AIS	Automatic Identification System
AMSC	Area Maritime Security Committee
AtoN	Aids to Navigation
ATP	Advanced Persistent Threat
BCP	Business Continuity Plan
CEP	Cyber Exercise Program
CIRP	Cyber Incident Response Plan
CISA	Cybersecurity and Infrastructure Security Agency
COOP	Continuity of Operations Plan
CTEP	CISA Tabletop Exercise Package
DDoS	Distributed Denial of Service
DHS	U.S. Department of Homeland Security
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FBI	Federal Bureau of Investigation
HR	Human Resources
HSIN	Homeland Security Information Network
ICS	Industrial Control System
IOC	Indicator of Compromise
ISAC	Information Sharing and Analysis Center
ISAO	Information Sharing and Analysis Organization
IT	Information Technology
LPG	Liquid Petroleum Gas
MSU	Marine Safety Unit

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Acronym	Definition
MTS	Marine Transportation System
NIST	National Institute of Standards and Technology
OS	Operating System
OT	Operational Technology
PII	Personally Identifiable Information
PPD	Presidential Policy Directive
SCADA	Supervisory Control and Data Acquisition
TLP	Traffic Light Protocol
USCG	United States Coast Guard
US-CERT	United States Computer Emergency Readiness Team
VTs	Vehicle Traffic Service

Appendix C: Case Studies

Emotet Malware Infection

As of July 30, 2018, a multi-pronged, zero-day attack affected Matanuska-Susitna Borough, Alaska¹, forcing a declared disaster that crippled the borough's computer infrastructure, including servers, telephones, and email exchange. According to Matanuska-Susitna Borough's IT Director, components of the attack included the Emotet Trojan, BitPaymer ransomware, and an actual hacker logging into the borough's network. Some of the malware was dormant on the borough's computers since as early as May 3, 2018. Overall, nearly all of the borough's 500 workstations and 120 out of 150 servers were affected.

In another example, nearly 3,000 patients of the Oregon Endodontic Group had their dates of birth, diagnoses, treatments, and health insurance data exposed² after an email account was infected with Emotet malware. About 41 patients saw their Social Security number exposed, while seven patients had financial data breached and two had their driver's licenses exposed. The Emotet breach marked the third significant breach of Minnesota-based Healthcare entities in the span of a year.

Distributed Denial of Service Attack

On February 28, 2018, GitHub, a popular developer platform, was hit³ with a flood of record-breaking traffic that clocked in at 1.35 terabits per second. According to GitHub, the traffic was traced back to over a thousand different autonomous systems (ASNs) across tens of thousands of unique endpoints.

Social Engineering

UnityPoint Health experienced the largest U.S. breach in 2018, as the records of 1.4 million patients were compromised by a phishing attack that gave hackers access to internal email accounts⁴. The investigation found that the hackers were likely trying to use the email system to divert vendor or payroll payments. However, officials stated that the electronic health record (EHR) and billing systems weren't impacted by the attack. The hacked accounts included protected health information and, for some of the 1.4 million patients, payment card and social security numbers. As a result of the attack, UnityPoint reset the passwords on the compromised accounts, conducted mandatory phishing education for employees, added security tools to identify suspicious emails, and implemented multi-factor authentication.

Ransomware

On May 12, 2018, one of the most notorious ransomware attacks began affecting systems across the globe. Experts estimate more than 300,000 systems have been affected by the variant known as WannaCry across the globe. A common way for this ransomware to spread is through standard file sharing technology, i.e. through vulnerabilities in Microsoft Windows Server Message Block (SMB). The vulnerability used in this attack was exploited to drop a file on the vulnerable system and then

¹ (Sullivan, 2018)

² (Davis, Minnesota DHS Reports Health Data Breach from 2018 Email Hack, 2019)

³ (Kottler, 2018)

⁴ (Davis, 1.4 million patient records breached in UnityPoint Health phishing attack, 2018)

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executed as a service, encrypting files (commonly used by Microsoft Office, databases, file archives, multimedia files, and various programming languages) with the .WNCRY extension⁵.

In 2019, WannaCry continued to affect many organizations, particularly in the healthcare and manufacturing sectors. According to a research report from internet of things security company, Armis, WannaCry continues to be an active threat. Armis claims WannaCry was “reportedly responsible for 30% of all ransomware attacks worldwide in Q3 2018, and over 145,000 devices worldwide are still compromised”.⁶

⁵ (Symantec Threat Intelligence, 2017)

⁶ ("Wannacry Two Years Later: How Did We Get The Data?", 2019)

Appendix D: Attacks and Facts

Social Engineering

One of the most prominent tactics attackers use to exploit network and system vulnerabilities is social engineering—the manipulation of users through human interaction and the formation of trust and confidence to compromise proprietary information. Techniques for uncovering this information largely involve the use of phishing, i.e. email or malicious websites that solicit personal information by posing as a trustworthy source. Social engineering is effective for breaching networks, evading intrusion detection systems without leaving a log trail, and is completely operating system platform dependent. While technical exploits aim to bypass security software, social engineering exploits are more difficult to guard against due to the human factor. Organizations should take steps towards strengthening employee cybersecurity awareness training, to include training personnel to be cautious of suspicious emails, know where to forward them and keeping software and systems up-to-date.

Additional Resources

- Avoiding Social Engineering and Phishing Attacks (<https://us-cert.cisa.gov/ncas/tips/ST04-014>)
- The Most Common Social Engineering Attacks (<https://resources.infosecinstitute.com/common-social-engineering-attacks/>)

Ransomware

Ransomware is a type of malware that denies access to victims' data or systems through encryption with a key only known by the malicious actor who deployed the malware. Once encrypted, the ransomware directs the victim to pay the attacker, typically in the form of cryptocurrency, so the victim can receive a decryption key. Ransomware typically spreads through phishing emails or by unknowingly visiting an infected website. Recovery can be an arduous process and there is no guarantee the victim will receive access to their data or systems if the ransom is paid. For more information on best practices to protect users from the threat of ransomware, as well as recent Alerts on specific ransomware threats, see the resource list below.

Additional Resources

- CISA Stop Ransomware (<https://www.cisa.gov/stopransomware>)
- Protecting Against Ransomware (<https://us-cert.cisa.gov/ncas/tips/ST19-001>)
- Indicators Associated With WannaCry Ransomware (<https://us-cert.cisa.gov/ncas/alerts/TA17-132A>)
- Incident trends report (Ransomware) (<https://www.ncsc.gov.uk/report/incident-trends-report#ransomware>)

Appendix E: Doctrine and Resources

Laws

- National Cybersecurity Protection Act of 2014 (Dec 2014)
<https://www.congress.gov/113/plaws/publ282/PLAW-113publ282.pdf>
- Federal Information Security Modernization Act of 2014 (Dec 2014) <https://www.dhs.gov/fisma>
- OMB Memorandum: M-15-01, Fiscal Year 2014-2015: Guidance on Improving Federal Information Security and Privacy Management Practices (Oct 2014)
<https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2015/m-15-01.pdf>

Presidential Directives

- Executive Order 13800: [Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure](#) (May 2017)
- Presidential Policy Directive-41: United States Cyber Incident Coordination (Jul 2016)
<https://obamawhitehouse.archives.gov/the-press-office/2016/07/26/presidential-policy-directive-united-states-cyber-incident>
- Annex to Presidential Policy Directive-41: Annex to the Directive on United States Cyber Incident Coordination (Jul 2016) <https://www.hsdl.org/?view&did=797545>
- Presidential Policy Directive-8: National Preparedness (Mar 2011), (Updated Sep 2015)
<https://www.dhs.gov/presidential-policy-directive-8-national-preparedness>
- Presidential Policy Directive 21: Critical Infrastructure Security and Resilience (Feb 2013)
<https://obamawhitehouse.archives.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil>
- Executive Order 13636: Improving Critical Infrastructure Cybersecurity (Feb 2013)
<https://www.hsdl.org/?view&did=731040>

Strategies and Frameworks

- National Cyber Incident Response Plan (Dec 2016) <https://www.us-cert.gov/ncirp>
- [National Cyber Strategy of the United States of America](#) (Sep 2018)
- U.S Department of Homeland Security Cybersecurity Strategy (May 2018)
<https://www.hsdl.org/?view&did=810462>
- Framework for Improving Critical Infrastructure Cybersecurity (Apr 2018)
<https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf>
- National Protection Framework, Second Edition (Jun 2016) <https://www.hsdl.org/?abstract&did=793545>
- Office of Management and Budget (OMB) Memorandum: [M-16-04, Cybersecurity Strategy and Implementation Plan \(CSIP\) for the Federal Civilian Government](#) (Oct 2015)

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Key Points of Contact

- Department of Homeland Security/Cybersecurity and Infrastructure Security Agency (CISA) (contact: central@cisa.dhs.gov)
- Federal Bureau of Investigation (FBI)
 - Field Office Cyber Task Forces (contact: <https://www.fbi.gov/contact-us/field-offices>)
 - Internet Crime Complain Center (IC3) (contact: <http://www.ic3.gov>)
- National Cyber Investigative Joint Task Force (NCIJTF) CyWatch 24/7 Command Center (contact: cywatch@ic.fbi.gov; (855) 292-3937)
- United States Secret Service Field Offices and Electronic Crimes Task Force (ECTFs) (contact: <https://www.secretservice.gov/contact/field-offices/>)
- U.S. Coast Guard Reporting Suspicious Activity (SA) and Breaches of Security (BoS) Policy for use by Maritime Transportation Security Act (MTSA) regulated vessels and facilities ([Content - CG5P Policy Letter No. 08-16 \(uscg.mil\)](#))

Other Available Resources

- Multi-State Information Sharing and Analysis Center (MS-ISAC) (contact: info@msisac.org; (518) 266-3460)
- Cybersecurity and the States (National Association of State Chief Information Officers [NASCIO]) (<http://www.nascio.org/Advocacy/Cybersecurity>)
- National Governors Association (NGA) (<https://www.nga.org/>)
- DHS Cybersecurity Fusion Centers (<https://www.dhs.gov/state-and-major-urban-area-fusion-centers>)
- InfraGard (<https://www.infragard.org/>)
- Internet Security Alliance (<http://www.isalliance.org/>)
- Information Sharing and Analysis Centers (ISACs) and Information Sharing and Analysis Organizations (ISAOs) (<https://www.isao.org/information-sharing-groups/>)
- International Association of Certified ISAOs (<http://www.certifiedisao.org>; contact: operations@certifiedisao.org)
- National Council of ISACs (<https://www.nationalisacs.org/>)

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