Commonwealth of Massachusetts
Executive Office of Technology Services and Security (EOTSS)
Enterprise Security Office

Information Security Incident Management Standard

Document Name: Information Security Incident Management
Document ID: IS.009

Table of contents

1. Purpose ......................................................................................................................... 2
2. Authority ....................................................................................................................... 2
3. Scope ............................................................................................................................. 2
4. Responsibility ............................................................................................................... 2
5. Compliance ................................................................................................................... 2
6. Standard Statements .................................................................................................... 3
   6.1. Incident Response Program .................................................................................. 3
   6.2. Security Incident Response Team (SIRT) ............................................................. 3
   6.3. Incident Identification, Investigation and Analysis ..................................................... 4
   6.4. Incident Reporting and Escalation ......................................................................... 5
   6.5. Security Incident Response and Investigation ....................................................... 7
   6.6. Collection of Evidence .......................................................................................... 8
   6.7. Post-Incident Analysis ......................................................................................... 8
7. Control Mapping ............................................................................................................ 9
8. Related Documents ...................................................................................................... 9
9. Document Change Control .......................................................................................... 9
1. PURPOSE
   1.1. The standard documents the requirements for managing an information security incident; describes
        the actions to be taken should an incident occur; and details each phase of the incident
        management life cycle, including identification, investigation, response and remediation.

2. AUTHORITY
   2.1. M.G.L. Ch. 7d provides that “Notwithstanding any general or special law, rule, regulation,
        executive order, policy or procedure to the contrary, all executive department agencies shall,
        and other state agencies may, adhere to the policies, procedures and objectives established by
        the executive office of technology services and security with respect to activities concerning
        information technology.”

3. SCOPE
   3.1. This document applies to the use of information, information systems, electronic and computing
        devices, applications, and network resources used to conduct business on behalf of the
        Commonwealth. The document applies to the Executive Department including all executive
        offices, and all boards, commissions, agencies, departments, divisions, councils, and bureaus.
        Other Commonwealth entities that voluntarily use or participate in services provided by the
        Executive Office of Technology Services and Security, such as mass.gov, must agree to comply
        with this document as a condition of use. Executive Department agencies and offices are
        required to implement procedures that ensure their personnel comply with the requirements
        herein to safeguard information.

4. RESPONSIBILITY
   4.1. The Enterprise Security Office is responsible for the development and ongoing maintenance of
        this standard.
   4.2. The Enterprise Security Office is responsible for this standard and may enlist other
        departments to assist in the monitoring and maintenance of compliance with this standard.
   4.3. Any inquiries or comments regarding this standard shall be submitted to the Enterprise
   4.4. Additional information regarding this standard and its related standards may be found at
        https://www.mass.gov/cybersecurity/policies.

5. COMPLIANCE
   5.1. Compliance with this document is mandatory for the Executive Department including all
        executive offices, boards, commissions, agencies, departments, divisions, councils, and
        bureaus. Violations are subject to disciplinary action in accordance to applicable employment
        and collective bargaining agreements, up to and including the termination of their employment
        and/or assignment with the Commonwealth.

   Exceptions to any part of this document must be requested via email to the Security Office(EOTSS-DL-Security Office). A policy exception may be granted only if the benefits of the exception outweigh the increased risks, as determined by the Commonwealth CISO.
6. STANDARD STATEMENTS

6.1. Incident Response Program

The Enterprise Security Office shall be responsible for developing a program to effectively detect, respond and resolve incidents that affect the security of the Commonwealth’s information assets.

6.1.1. The incident response program shall entail:

6.1.1.1. Documented process that defines the incident response life cycle.

6.1.1.2. Definition of roles and responsibilities for internal and external stakeholders, including the formal establishment of a Security Incident Response Team.

6.1.1.3. Formal event reporting and escalation procedures.

6.1.1.4. Tools and enablers to facilitate incident management.

6.2. Security Incident Response Team (SIRT)

6.2.1. The roles and responsibilities for the members of the core and extended SIRT team must be clearly defined.

6.2.1.1. The Incident Response Coordinator (i.e., Commonwealth CISO or designee) shall:

6.2.1.1.1. Oversee and provide guidance and direction to the incident response team.

6.2.1.1.2. Serve as a communication liaison to internal and external entities, including Enterprise Security Office leadership, the agency leadership and other relevant stakeholders.

6.2.1.1.3. Validate the results of response actions.

6.2.1.1.4. Coordinate the development of training plans for the incident response plan.

6.2.1.1.5. Sponsor periodic (i.e., annually recommended) tabletop exercises to test incident response readiness.

6.2.1.1.6. Sustain, maintain and improve the information security incident response process.

6.2.1.1.7. Maintain compliance with record retention requirements.

6.2.1.2. The Incident Response Lead shall:

6.2.1.2.1. Oversee response efforts for a specific information security incident. (Note: Every incident may have a different IR Lead).

6.2.1.2.2. Serve as the escalation/communication liaison between the SIRT team and information security leadership as well as other relevant stakeholders.

6.2.1.2.3. Act as or engage the appropriate subject matter resources when key decisions need to be made during the information security incident response process.
6.2.1.3 The *Incident* Response Analyst (i.e., subject-matter resources) shall:

6.2.1.3.1 Ensure investigations are conducted in accordance with documented procedures and that evidence is handled appropriately.

6.2.1.3.2 Collect, process and maintain information security *incident* information.

6.2.1.3.3 Manage information security *incident* status documentation.

6.2.1.3.4 Communicate and escalate *incidents*, as required.

6.2.1.3.5 Manage security *incidents* through post-*incident* review.

6.2.2.4. The extended *incident* response team includes cross-functional resources that will provide support as appropriate.

6.2.2.4.1. Digital Forensics Service Provider: Maintains a forensics service provider on retainer to assist with the recovery and investigation of information in digital formats as needed.

6.2.2.4.2. Legal: Provides advice regarding liability issues if an *incident* affects customers or third parties, or may lead to litigation.

6.2.2.4.3. Human Resources: Provides advice on managing *incidents* that involve *personnel*.

6.2.2.4.4. Public Relations/Communications: Communicates the details of security *incidents* to external stakeholders, including state and federal law enforcement and regulators. Manages crisis communication.

6.3. *Incident* Identification, Investigation and Analysis

6.3.1. Defining potential information security *incidents*

A security *incident* is defined as any event which has the potential or has already resulted in the unauthorized acquisition, misappropriation, use or manipulation of information that compromises the confidentiality, integrity or availability of the Commonwealth’s *information assets*. Examples include, but are not limited to:

6.3.1.1. Unauthorized and illegal disclosure, destruction and/or alteration of files, Commonwealth IT systems and information, including *confidential information*.

6.3.1.2. Unauthorized use of a Commonwealth IT system for the transmission, processing or storage of information.

6.3.1.3. Changes to system hardware, firmware or software characteristics intentionally concealed from the IT *Information Owner* and made without their knowledge or consent.

6.3.1.4. Detection of malware or malicious code (viruses, worms, etc.).

6.3.1.5. Unauthorized probes, scans or sniffers on the Commonwealth’s internal network.

6.3.1.6. Denial of Service (DOS) or Distributed Denial of Service (DDOS) attacks.

6.3.1.7. Harassment and threats conducted via Commonwealth email resources.
6.3.1.8. Web page defacement, unauthorized use of system privileges and attempts (either failed or successful) to gain unauthorized access to a system or its information.

6.3.1.9. Legal or regulatory violations involving Commonwealth information assets.

6.3.1.10. Violation of the Commonwealth’s information security policies.

6.3.1.11. Cyber-stalking, identity theft or child pornography.

6.3.1.12. Unauthorized physical access to a secure area (e.g., data centers).

6.3.2. Per the Logging and Event Monitoring Standard, security alerts from security monitoring systems, including but not limited to intrusion detection and prevention, firewalls, email and file-integrity monitoring systems shall be collected and monitored.

6.3.2.1. The Security Operations Center (SOC) shall analyze log information from security monitoring systems to establish a baseline of events expected for the normal system and network operations. Commonwealth Executive Offices and Agencies must ensure that any exceptions from these baseline events shall be reported to the responsible Information Owner.

6.3.2.2. External feed sources, including resources from the Fusion Center, shall be leveraged to assist with the incident response process.

6.4. Incident Reporting and Escalation

Commonwealth Executive Offices and Agencies must establish, document, and distribute security incident response and escalation procedures to ensure timely and effective handling of incidents.

6.4.1. Information security incident impact rating

<table>
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<tr>
<th>Impact</th>
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<th>Response time</th>
<th>Notification Level</th>
<th>Post-incident report req.</th>
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<tr>
<td>High</td>
<td>Threat to human safety. Adverse impact on a “Critical” or “High” risk rated information asset, including infrastructure, applications and services (see Asset Management Standard). Financial or legal liability equal to $1m and above to the Commonwealth. Potential compromise of information classified as confidential information, including PII and other regulated information.</td>
<td>Immediate</td>
<td>Risk Governance Committee, Commonwealth CIO, CISO and agency heads</td>
<td>Yes</td>
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<td>Medium</td>
<td>Adverse impact on a “Medium” risk rated information asset, including infrastructure, applications and services (see Asset Management Standard). Financial or legal liability between $1m and $100,000. Potential compromise of information not intended for public disclosure.</td>
<td>4 hours</td>
<td>Commonwealth CISO, agency heads</td>
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<tr>
<td>Low</td>
<td>Adverse impact on a “Low” risk rated information asset,</td>
<td>Next</td>
<td>Technical support</td>
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</table>

1 Note: This is not resolution time but the start time of the incident response process.
6.4.2. Information security incident reporting and escalation

6.4.2.1 Define regular metrics and reporting cadence to the appropriate audience.

6.4.2.2 Security incidents, whether potential or actual, shall be reported immediately to the helpdesk or Enterprise Security Office (See contact information in Appendix)

6.4.2.3 Commonwealth Executive Offices and Agencies must ensure that personnel are required to cooperate with the SIRT team by providing accurate and timely information.

6.4.2.4 As the first line of defense, Commonwealth Executive Offices and Agencies must ensure that personnel are responsible for reporting suspicious activities.

6.4.3. Management reporting and escalation

The SIRT team shall notify the Risk Governance Committee about security incidents that have an impact rating of “high.” The report shall include (as applicable):

6.4.3.1. Date and time of notification

6.4.3.2. Type of incident detected

6.4.3.3. Description of the incident

6.4.3.4. Incident response status

6.4.3.5. Location

6.4.3.6. Affected systems

6.4.3.7. User groups affected

6.4.3.8. Recover time expectations

6.4.3.9. Internal and external stakeholder contacts that need to be notified

6.4.3.10. Identification, containment and eradication measures

6.4.3.11. Evidence collected

6.4.3.12. Pending actions (if any)

6.4.4. Communication protocols

All information pertaining to an incident investigation shall be handled with discretion and disclosed only on a need-to-know basis. Incident reports shall be categorized as confidential at the discretion of the Enterprise Security Office. The Commonwealth CISO shall be designated the owner for all incident investigation related documentation.
6.5. Security Incident Response and Investigation

The Enterprise Security Office with the relevant stakeholders must take appropriate steps to ensure proper documentation, investigation, risk analysis, impact analysis and containment measures are taken in order to minimize the risk to the Commonwealth once a security event is identified.

6.5.1. **Incident** response procedures

Commonwealth offices and agencies must document procedures for responding to security *incidents* to limit further damage to the Commonwealth’s *information assets*. Procedures shall include:

6.5.1.1. Identification of the cause of the *incident*

6.5.1.2. Execution of corrective actions

6.5.1.3. Post-*incident* analysis

6.5.1.4. Communication strategy

6.5.2. **Incident** response plan

Commonwealth Offices and Agencies shall establish an *incident* response plan. The *incident* response plan shall include, at a minimum:

6.5.2.1. Roles, responsibilities, and communication and contact strategies in the event of a compromise, including notification of required internal and external parties.

6.5.2.2. Specific *incident* response procedures.

6.5.2.3. Execution of corrective actions and post-*incident* analysis.

6.5.2.4. Establish criteria to activate business recovery and continuity processes (*See Business Continuity and Disaster Recovery Standard*).

6.5.2.5. Data backup processes (*See Data Backup and Restoration in the Asset Management Standard*).

6.5.2.6. Analysis of legal requirements for reporting compromises.

6.5.2.7. Reference or inclusion of *incident* response procedures from required external parties.

Commonwealth Offices and Agencies shall establish a process to modify and evolve the *incident* response plan and procedures according to lessons learned. The *incident* response plan and procedures shall be tested at least annually.

6.5.3. **Incident** containment

6.5.3.1. The SIRT team shall confirm the validity of the reported *incident*, containing and minimizing the impact of the *incident* in collaboration with the relevant stakeholders.

6.5.3.2. The *information asset* should be removed or quarantined from all Commonwealth networks where technically feasible.

6.5.4. **Incident** investigation

The SIRT team shall perform the following as part of the *incident* investigation process:
6.5.4.1. Gather information regarding the situation and elements involved (e.g., log correlation analysis).

6.5.4.2. Determine the scope, severity, impact and nature of the incident.

6.5.4.3. Determine root cause.

6.5.4.4. Determine response and recovery timelines.

6.5.4.5. Contextualize the evidence collected and document facts of the incident.

6.5.4.6. Gather system events and/or audit records.

6.6. Collection of Evidence

Evidence in whichever form it exists (digital, physical, original or copied) may be collected. Evidence shall be collected and preserved in a manner that is consistent with legal and record retention requirements.

6.6.1. A file comparison utility shall be run to identify all changes to information systems (where applicable).

6.6.2. Log(s) shall be copied to separate media and stored appropriately.

6.6.3. The information asset shall be restored from trusted backup copies.

6.6.4. If there is an expectation that there may be legal implications, appropriate chain of custody requirements must be met. The SIRT team shall consult with Legal on whether a certified forensics professional is engaged.

6.6.5. Information describing all reported information security incidents shall be retained for a minimum of three (3) years or as determined by Legal.

6.7. Post-incident Analysis

The post-incident analysis shall be conducted in a timely manner to determine the organizational impact and confirm the causes, motives of the attack, and any potential mitigating actions. The analysis shall include:

6.7.1. Post-incident inventory to account for all the information systems owned or managed by the Commonwealth that may have been impacted.

6.7.2. Assessment of the involved systems to ensure that once they are returned to service only those with access needs are granted access to the system.

6.7.3. Risk-analysis of critical systems based on knowledge acquired and lessons learned.

6.7.4. Based on lessons learned, policies, processes or controls should be reviewed to determine whether there are opportunities for improvement.
7. CONTROL MAPPING

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8. RELATED DOCUMENTS

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9. DOCUMENT CHANGE CONTROL

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The owner of this document is the Commonwealth CISO (or designee). It is the responsibility of the document owner to maintain, update and communicate the content of this document. Questions or suggestions for improvement shall be submitted to the document owner.

9.1 Annual Review
This *Information Security Incident Management Standard* document shall be reviewed and updated by the document owner on an annual basis or when significant policy or procedure changes necessitate an amendment.