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| **[entity]**  **Information Technology Standard** | **No:** |
| **IT Standard**:  **Vulnerability Scanning** | **Updated:** |
| **Issued By:**  **Owner:** |

# 1.0 Purpose and Benefits

Entities utilize automated tools to scan systems, computing and network devices, web applications and application code. The results of these scans help inform management and system administrators of known and potential vulnerabilities.

Vulnerability management is a process by which the vulnerabilities identified through scanning are tracked, evaluated, prioritized and managed until the vulnerabilities are remediated or otherwise appropriately resolved. Managing the vulnerabilities identified during scans ensures that appropriate actions are taken to reduce the potential that these vulnerabilities are exploited and thereby reduce risk of compromise to the confidentiality, integrity and availability of information assets.

# 2.0 Authority

*[Authority Needed]*

# 3.0 Scope

[Scope Needed]

# 4.0 Information Statement

As per the Information Security Policy, all systems must be scanned for vulnerabilities. In addition, each system must be inventoried and have an individual or group assigned responsibility for maintenance and administration.

### Types of Scans

The type of vulnerability scans appropriate for a given target depends on the target type (i.e., hardware, software, source code) and the target’s location (i.e., internal or external to the network). The table below lists the types of vulnerability scans required by this standard.

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| **Type** | **Description** |
| **External Infrastructure Scan** | Scans of the perimeter of networks or any externally available hosted infrastructure to identify potential vulnerabilities in Internet accessible IT infrastructure. |
| **Internal Infrastructure**  **Scan** | Scans of IT infrastructure on protected networks or any hosted infrastructure to identify potential vulnerabilities. |
| **“Lite” Web Application Scan** | Cursory unauthenticated scans of externally facing production web applications to identify security vulnerabilities. |
| **In-depth Web Application Scan** | When implemented, authenticated in-depth scans of web applications to identify security vulnerabilities. |
| **Application Source Code Analysis** | Scans of application source code run during development to identify problems in the code that could cause potential vulnerabilities. |

### Scanning

Entities are responsible for confirming that vulnerability scans are conducted. Entities must use a scanning tool approved by the ISO/designated security representative. Any approved scanning tool must be able to provide remediation suggestions and be able to associate a severity value to each vulnerability discovered based on the relative impact of the vulnerability to the affected system.

As per the Information Classification Standard, scan reports are classified with moderate confidentiality and moderate integrity and should be protected as such.

Entities are required to provide all external IP addresses and Uniform Resource Locators (URLs) for all externally facing web applications to the ISO/designated security representatives.

Network and system administrators must provide sufficient access to allow the vulnerability scan engine to scan all services provided by the system. No devices connected to the network shall be specifically configured to block vulnerability scans from authorized scanning engines.

Scans must be performed within the system development life cycle (see SSDLC Standard) while in pre-deployment environments, when deployed into the target implementation environment, and periodically thereafter as specified below:

* 1. Pre-deployment scans occur prior to the move of the system or web application to the target implementation environment:

1. All systems must undergo an authenticated internal infrastructure scan, where technically feasible or required, before being deployed to the target implementation environment. Any infrastructure vulnerability discovered must be remediated or determined to be a false positive or insignificant risk, by the Information Security Officer (ISO)/designated security representative, prior to the system being deployed for intended use.
2. When source code is available, applications must undergo source code scanning before the updated code moves into the target implementation environment if there has been a change to application code.
3. Scans must be authenticated when the application requires authentication before being deployed into the target implementation environment or into an environment that is externally accessible. When authentication is required to access the application, scans must be run with authenticated access at each access level (e.g., user, admin) supported by the application, except where limitations in the tool prevent authenticated scanning. Any web application vulnerability discovered must be remediated or determined to be a false positive or insignificant risk by the ISO/designated security representative, prior to the system being placed into the target implementation environment.
4. Any system or application deployed to its target implementation environment with un-remediated vulnerabilities must have a formal remediation plan and the documented approval of the executive responsible for risk management or their designee.
   1. Implementation scans occur the first time a system or web application is moved to its target implementation environment:
5. Systems must be scanned immediately upon being placed into the target implementation environment with an authenticated internal infrastructure scan, where technically feasible or required. If the system is accessible from the internet or an external network, then the system must be scanned with an external infrastructure scan.
6. Web applications must be scanned within the first month of being placed into the target implementation environment. An authenticated in-depth web application scan is required if feasible, but at minimum a “lite” web application scan is required. Sensitivity and criticality of the application must be considered when determining the schedule for the initial implementation scan.
   1. Recurring Scans: After the initial scan in the target implementation environment, the frequency of scans are to occur according to the system or application’s risk rating (see Table 2).
7. When performing internal infrastructure scans on systems built using a shared image, such as workstations, scans may be run on a sampling of systems but the sample set must vary from scan to scan.
8. Web applications in production are required to undergo recurring scans. At minimum, web applications in production are required to undergo recurring “lite” application scans.
9. All vulnerabilities found during scans must be addressed as per the [remediation section](#remediation) below.

### Determine Risk Rating and Frequency of Scans

The risk that vulnerabilities pose to systems and applications is based on the likelihood of a vulnerability being exploited and the impact if the confidentiality, integrity or availability of the information assets were compromised. The likelihood of a vulnerability being exploited is increased in direct relation to the system’s or application’s accessibility from other systems.

The impact to the information assets is based on the asset’s information classification (see Information Classification Standard). Impact (i.e., high, moderate or low) if the confidentiality, integrity or availability is compromised must be considered and the highest individual impact rating for confidentiality, integrity or availability utilized within the table below.

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| **Table 2: RISK RATING** | | | |
| **Impact**  **(Confidentiality, Integrity, Availability)** | **Exposure** | | |
| **Systems with no network connectivity to production data** | **Systems with network connectivity to production data (not internet facing)** | **System that is publicly available from the internet** |
| **High** | **Medium** | **High** | **High** |
| **Medium** | **Low** | **Medium** | **High** |
| **Low** | **Low** | **Low** | **Medium** |

Minimum frequency of scans is dependent on the risk rating. Systems without a risk rating must be scanned as if they had a risk rating of “High” until they are rated.

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| **TABLE 3: FREQUENCY OF SCANS** | |
| **Risk Rating** | **Frequency** |
| **Infrastructure scans** | |
| High | Monthly |
| Medium | Quarterly |
| Low | Semi-annually |
| **Web Application Scans** | |
| High | Quarterly or after significant change |
| Medium | Semi-annually |
| Low | Annually |

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### Remediation

Vulnerabilities discovered during scans must be remediated based on risk rating (see [Table 2](#Table2)) and vulnerability severity identified by the scanning tool as per the table below.

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| **TABLE 4: REMEDIATION TIMEFRAMES** | | | |
| **Risk Rating (from** [**Table 2**](#Table2)**)** | **Vulnerability Severity** | | |
| Low or Below | Above Low to Below High | High or Above |
| **High** | At the discretion of the ISO/designated security representative | Action Plan in 2 Weeks, Resolved in 6 Months | Action Plan in 1 Week, Resolved in 1 Month |
| **Medium** | At the discretion of the ISO/designated security representative | Action Plan in 3 Weeks, Resolved in 1 year | Action Plan in 2 Weeks, Resolved in 6 Months |
| **Low** | At the discretion of the ISO/designated security representative | At the discretion of the ISO/designated security representative | Action Plan in 3 Weeks, Resolved 1 year |

The ISO/designated security representative may review vulnerabilities to adjust the severity rating if necessary. Testing must be done to verify that remediation has been completed.

Individuals managing vulnerability scans are required to notify the ISO/designated security representative within 1 business day of scan completion for new vulnerabilities and at least monthly of un-remediated vulnerabilities on systems or applications that are running in production.

ISOs/designated security representatives must notify management of any un-remediated vulnerabilities not addressed in the timeframes prescribed in this standard, so that risk is accepted by the appropriate party.

# 5.0 Compliance

This standard shall take effect upon publication. Compliance is expected with all enterprise policies and standards. Policies and standards may be amended at any time; compliance with amended policies and standards is expected.

If compliance with this standard is not feasible or technically possible, or if deviation from this policy is necessary to support a business function, Entities shall request an exception through the Chief Information Security Officer’s exception process.

# 6.0 Definitions of Key Terms

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| **Term** | Definition |
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# 7.0 Contact Information

Submit all inquiries and requests for future enhancements to the policy owner at:

**[Entity Address]**

# 8.0 Revision History

This standard shall be subject to periodic review to ensure relevancy.

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| **Date** | **Description of Change** | **Reviewer** |
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# 9.0 Related Documents

Patch Management Standard