# Cyber Security Audit for Botium Toys

# August 2023

# By Ephrem Shiferaw Ewnetu

# Compliance checklist

# **\_\_\_\_\_ The Federal Energy Regulatory Commission - North American Electric**

**Reliability Corporation (FERC-NERC)**

This regulation applies to organizations that work with electricity or that are involved with the U.S. and North American power grid. Organizations have an obligation to prepare for, mitigate, and report any potential security incident that can negatively affect the power grid. Organizations are legally required to adhere to the Critical Infrastructure Protection Reliability Standards (CIP) defined by the Federal Energy Regulatory Commission (FERC).

**Explanation:** NA

**\_\_X\_\_ General Data Protection Regulation (GDPR)**

GDPR is a European Union (E.U.) general data regulation that protects the processing of E.U. citizens’ data and their right to privacy in and out of E.U. territory. Additionally, if a breach occurs and an E.U. citizen’s data is compromised, they must be informed within 72 hours of the incident.

**Explanation:** Botium Toys needs to adhere to GDPR because they conduct business and collect personal information from people worldwide, including the E.U.

**\_\_X\_\_ Payment Card Industry Data Security Standard (PCI DSS)**

PCI DSS is an international security standard meant to ensure that organizations storing, accepting, processing, and transmitting credit card information do so in a secure environment.

**Explanation:** Botium Toys needs to adhere to PCI DSS because they store, accept, process, and transmit credit card information in person and online.

**\_\_\_\_\_ The Health Insurance Portability and Accountability Act (HIPAA)**

HIPAA is a federal law established in 1996 to protect U.S. patients' health information. This law prohibits patient information from being shared without their consent. Organizations have a legal obligation to inform patients of a breach.

**Explanation:** NA

**\_\_X\_\_ System and Organizations Controls (SOC type 1, SOC type 2)**

The SOC1 and SOC2 are a series of reports that focus on an organization's user access policies at different organizational levels. They are used to assess an organization’s financial compliance and levels of risk. They also cover confidentiality, privacy, integrity, availability, security, and overall data safety. Control failures in these areas can lead to fraud.

**Explanation:** Botium Toys needs to establish and enforce appropriate user access for internal and external (third-party vendor) personnel to mitigate risk and ensure data safety.

Controls assessment

Current assets

Assets managed by the IT Department include:

* On-premises equipment for in-office business needs
* Employee equipment: end-user devices (desktops/laptops, smartphones), remote workstations, headsets, cables, keyboards, mice, docking stations, surveillance cameras, etc.
* Management of systems, software, and services: accounting, telecommunication, database, security, ecommerce, and inventory management
* Internet access
* Internal network
* Vendor access management
* Data center hosting services
* Data retention and storage
* Badge readers
* Legacy system maintenance: end-of-life systems that require human monitoring.

| **Administrative Controls** | | | |
| --- | --- | --- | --- |
| **Control Name** | **Control type and explanation** | **Needs to be implemented (X)** | **Priority** |
| Least Privilege | Preventative: reduces risk by making sure vendors and non-authorized staff only have access to the assets/data they need to do their jobs | X | High |
| Disaster recovery plans | Corrective: business continuity to ensure systems are able to run in the event of an incident/there is limited to no loss of productivity downtime/impact to system components, including: computer room environment (air conditioning, power supply, etc.); hardware (servers, employee equipment); connectivity (internal network, wireless); applications (email, electronic data); data and restoration | X | High |
| Password policies | Preventative: establish password strength rules to improve security/reduce likelihood of account compromise through brute force or dictionary attack techniques | X | High |
| Access control policies | Preventative; increase confidentiality and integrity of data | X | High |
| Account management policies | Preventative; reduce attack surface and limit overall impact from disgruntled/former employees | X | High/  Medium |
| Separation of duties | Preventative: ensure no one has so much access that they can abuse the system for personal gain | X | High |

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| **Technical Controls** | | | |
| **Control Name** | **Control type and explanation** | **Needs to be implemented**  **(X)** | **Priority** |
| Firewall | Preventative: firewalls are already in place to filter unwanted/malicious traffic from entering internal network | NA | NA |
| Intrusion Detection System (IDS) | Detective: allows IT team to identify possible intrusions (e.g., anomalous traffic) quickly | X | High |
| Encryption | Deterrent; makes confidential information/data more secure (e.g., website payment transactions) | X | High/  Medium |
| Backups | Corrective; supports ongoing productivity in the case of an event; aligns to the disaster recovery plan | X | High |
| Password management system | Corrective: password recovery, reset, lock out notifications | X | High/  Medium |
| Antivirus (AV) software | Corrective; detect and quarantine known threats | X | High |
| Manual monitoring, maintenance, and intervention | Preventative/corrective; required for legacy systems to identify and mitigate potential threats, risks, and vulnerabilities | X | High |

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| **Physical Controls** | | | |
| **Control Name** | **Control type and explanation** | **Needs to be implemented**  **(X)** | **Priority** |
| Time-controlled safe | Deterrent; reduce attack surface/impact of physical threats | X | Medium/  Low |
| Adequate lighting | Deterrent: limit “hiding” places to deter threats | X | Medium/  Low |
| Closed-circuit television (CCTV) surveillance | Preventative/detective; can reduce risk of certain events; can be used after event for investigation | X | High/  Medium |
| Locking cabinets (for network gear) | Preventative: increase integrity by preventing unauthorized personnel/individuals from physically accessing/modifying network infrastructure gear | X | Medium |
| Signage indicating alarm service provider | Deterrent: makes the likelihood of a successful attack seem low | X | Low |
| Locks | Preventative: physical and digital assets are more secure | X | High |
| Fire detection and prevention (fire alarm, sprinkler system, etc.) | Detective/Preventative; detect fire in the toy store’s physical location to prevent damage to inventory, servers, etc. | X | Medium/  Low |

# Stakeholder memorandum

TO: IT Manager, stakeholders

FROM: Ephrem  
DATE: August 31.2023  
SUBJECT: Internal IT audit findings and recommendations

Dear Colleagues,

Please review the following information regarding the Botium Toys internal audit scope, goals, critical findings, summary, and recommendations.

**Scope:**

* The following systems are in scope: accounting, end point detection, firewalls, intrusion detection system, SIEM tool. The systems will be evaluated for:
  + Current user permissions
  + Current implemented controls
  + Current procedures and protocols
* Ensure current user permissions, controls, procedures, and protocols in place align with PCI DSS and GDPR compliance requirements.
* Ensure current technology is accounted for both hardware and system access.

**Goals:**

* Adhere to the NIST CSF.
* Establish a better process for their systems to ensure they are compliant.
* Fortify system controls.
* Adapt to the concept of least permissions when it comes to user credential management.
* Establish their policies and procedures, which includes their playbooks.
* Ensure they are meeting compliance requirements.

**Critical findings** (must be addressed immediately):

* Multiple controls need to be developed and implemented to meet the audit goals, including:
  + Control of Least Privilege and Separation of Duties
  + Disaster recovery plans
  + Password, access control, and account management policies, including the implementation of a password management system.
  + Encryption (for secure website transactions)
  + IDS
  + Backups
  + AV software
  + CCTV
  + Locks
  + Manual monitoring, maintenance, and intervention for legacy systems
  + Fire detection and prevention systems
* Policies need to be developed and implemented to meet PCI DSS and GDPR compliance requirements.
* Policies need to be developed and implemented to align to SOC1 and SOC2 guidance related to user access policies and overall data safety.

**Findings** (should be addressed, but no immediate need):

* The following controls should be implemented when possible:
  + Time-controlled safe
  + Adequate lighting
  + Locking cabinets
  + Signage indicating alarm service provider.

**Summary/Recommendations:** It is recommended that critical findings relating to compliance with PCI DSS and GDPR be promptly addressed since Botium Toys accepts online payments from customers worldwide, including the E.U. Additionally, since one of the goals of the audit is to adapt to the concept of least permissions, SOC1 and SOC2 guidance related to user access policies and overall data safety should be used to develop appropriate policies and procedures. Having disaster recovery plans and backups is also critical because they support business continuity in the event of an incident. Integrating an IDS and AV software into the current systems will support our ability to identify and mitigate potential risks, and could help with intrusion detection, since existing legacy systems require manual monitoring and intervention. To further secure assets housed at Botium Toys’ single physical location, locks and CCTV should be used to secure physical assets (including equipment) and to monitor and investigate potential threats. While not necessary immediately, using encryption and having a time-controlled safe, adequate lighting, locking cabinets, fire detection and prevention systems, and signage indicating alarm service provider will further improve Botium Toys’ security posture.