



# UNIVERSITY SYSTEM OF GEORGIA

## *CROSSWALK: A USG IT HANDBOOK COMPANION GUIDE*

---

*VERSION 3.0*

*3/1/2023*

*PUBLIC*

**Abstract:** The purpose of this companion guideline is to complement the *USG IT Handbook* by providing a NIST Cybersecurity Framework (CSF) centered perspective with the corresponding standards and regulations cross-walked to the CSF.

## REVISION & SIGN-OFF

### Change Record

Date	Author	Version	Change Reference
20200722	Alfred Barker	1.0	Reviewed – Added NIST 800-171 – and – Updated PCI V3 to V3.2.1.
20200805	Alfred Barker	1.0	Reviewed for Harmful Language.
20201003	Alfred Barker	2.0	Reordered and minor editing to improve usage.
20230301	Alfred Barker	3.0	Updated CIS CSC v7 to v8

### Document Properties

Item	Details
Document Title	Crosswalk: A USG IT Handbook Companion Guide
Document Type	Guideline (Internal Use Only)
Author	Alfred Barker
Document Manager	Alfred Barker
Creation Date	20200224
Last Updated	20230301
Document Classification	Public

## TABLE OF CONTENTS

<i>Crosswalk: A USG IT Handbook Companion Guide</i> .....	1
Revision & Sign-off .....	2
Table of Contents .....	3
Introduction .....	4
USG IT Handbook Crosswalk to NIST Cybersecurity Framework (CSF)/Privacy Framework (PF) .....	5
Section 1. Information Technology (IT) Governance .....	5
Section 2. Project and Service Administration .....	5
Section 3. Information Technology Management .....	5
Section 5. Cybersecurity .....	7
Section 6. Data Privacy .....	19
Section 8. Mobile Device Management .....	19
NIST Cybersecurity Framework Crosswalk to References .....	21
Identify (ID) .....	21
Asset Management (ID.AM) .....	21
Business Environment (ID.BE) .....	23
Governance (ID.GV) .....	24
Risk Assessment (ID.RA) .....	26
Risk Management Strategy (ID.RM) .....	28
Protect (PR) .....	29
Access Control (PR.AC) .....	29
Awareness and Training (PR.AT) .....	31
Data Security (PR.DS) .....	33
Information Protection Processes and Procedures (PR.IP) .....	36
Maintenance (PR.MA) .....	40
Protective Technology (PR.PT) .....	41
Detect (DE) .....	42
Anomalies and Events (DE.AE) .....	42
Security Continuous Monitoring (DE.CM) .....	44
Detection Processes (DE.DP) .....	47
Respond (RS) .....	48
Analysis (RS.AN) .....	48
Communications (RS.CO) .....	50
Improvements (RS.IM) .....	51
Mitigation (RS.MI) .....	52
Response Planning (RS.RP) .....	53
Recover (RC) .....	53
Recovery Planning (RC.RP) .....	53
Improvements (RC.IM) .....	54
Communications (RC.CO) .....	55
USG Business Procedures Manual to Cybersecurity Framework (CSF)/Privacy Framework (PF) .....	56
Section 12: Data Governance and Management .....	56
12.2.1 Governance and Organizational Structure - Data Owner .....	56
Appendix A: References .....	57
Appendix B: Acronyms (Common Abbreviations) .....	58

## INTRODUCTION

This guideline is classified as Public and was developed for internal use. The purpose of the guideline is to complement the *USG IT Handbook* by providing a NIST Cybersecurity Framework (CSF) centered perspective with the corresponding federal and state standards and regulations crosswalked to the CSF, the NIST Privacy Framework and the USG Business Procedures Manual where appropriate. The University System of Georgia (USG) has chosen to align with National Institute of Standards and Technology (NIST) standards and guidelines in the development of their cybersecurity program. This is intentional as many federal regulations map to NIST. More specifically, the U.S. Department of Education (ED) has mandated that all institutions of higher education entities (IHE) are to demonstrate Gramm-Leach-Bliley Act (GLBA) compliance through the implementation of NIST SP 800-171 Rev1. Failure to demonstrate compliance can result in IHEs losing the ability to administer federal student financial aid. Moreover, the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) has decided that GLBA compliance is to be a determining factor in accreditation. Failure to demonstrate compliance here can result in the loss of accreditation. The regulations mapped are defined in Appendix A. Abbreviations are used and are defined in Appendix B, which provides a short-hand clean way to capture the information. Every effort has been taken to provide versioning information as well.

The guide was designed to allow the user to first locate the *USG IT Handbook* section and determine if it maps to either the NIST Cybersecurity Framework (or the NIST Privacy Framework). If a section does map to the framework, make note of the framework section ID – PR.IP-2 for example – and locate the framework crosswalk’s section ID to review all the references associated. An extra effort was taken to locate and map the Georgia State policies and standards governing state-agencies in support of the Georgia Cybersecurity Board initiatives.

As with all our documents, they are dynamic and considered works in progress. If you discover an error or have an additional standard or regulation that the community would benefit from mapping, please submit your comment to [cybersecurity@usg.edu](mailto:cybersecurity@usg.edu) for correction or consideration.

# USG IT HANDBOOK CROSSWALK TO NIST CYBERSECURITY FRAMEWORK (CSF)/PRIVACY FRAMEWORK (PF)

## *SECTION 1. INFORMATION TECHNOLOGY (IT) GOVERNANCE*

CIO role and responsibilities, IT governance structure, IT roles and responsibilities, strategic planning and resource management.

### *1.4.3: Development and Acquisition Standards*

System Development Life Cycle to manage systems is implemented.

#### **References:**

- CSF v1.1, PR.IP-2
- PF v1.0, CT.PO-P4

### *1.5: Resource Management*

Capacity and data availability managed.

#### **References:**

- CSF v1.1, PR.DS-4
- PF v1.0, PR.DS-P4

## *SECTION 2. PROJECT AND SERVICE ADMINISTRATION*

Service administration, project administration and project documentation.

### *2.1.3 Service Support*

Maintenance and repair of organizational assets are performed and logged, with approved and controlled tools.

#### **References:**

- CSF v1.1, PR.MA-1
- PF v1.0, PR.MA-P1

## *SECTION 3. INFORMATION TECHNOLOGY MANAGEMENT*

Information system user account management, log management, continuity of operations planning and network services standards.

### *3.1.1: Information System User Account Management*

Identities/credentials issued, managed, verified, revoked, and audited for authorized devices, users and processes; identities and credentials confirmed; and, cybersecurity is included in human resources practices (e.g., deprovisioning, personnel screening).

#### **References:**

- CSF v1.1, PR.AC-1, PR.AC-6, PR.IP-11
- PF v1.0, PR.AC-P1, PR.AC-P6, PR.PO-P9

### *3.1.1.1 Information System User Account Management Procedures*

Critical systems identification plan and communicated. Access permissions/authorizations are managed, using principles of least privilege and separation of duties.

#### **References:**

- CSF v1.1, ID.BE-2, PR.AC-4
- PF v1.0, PR.AC-P4

### *3.1.2: Managing Multifactor Authentication*

Critical systems identification plan and communicated and Authentication of authorized devices (MFA).

#### **References:**

- CSF v1.1, ID.BE-2, PR.AC-7
- PF v1.0, PR.AC-P6

### *3.2: Log Management*

Purpose, objectives and standards. Maintenance and repair of organizational assets are performed and logged, with approved and controlled tools; and audit/log records are determined, documented, implemented, and reviewed in accordance with policy.

#### **References:**

- CSF v1.1, PR.PT-1
- PF v1.0, CT.DM-P8, PR.MA-P1

### *3.3.1: USG Continuity of Operations Planning Standard*

Recovery planning. Backups of information are conducted, maintained, and tested. Recovery plans executed on or after incident.

#### **References:**

- CSF v1.1, PR.IP-4, RC.RP-1
- PF v1.0, PR.PO-P3

Recovery plans includes lessons learned, and recovery strategies updated.

#### **References:**

- CSF v1.1, RC.IM-1, RC.IM-2

Communications. Public relations managed, reputation repaired after incident, and recovery activities are communicated to internal, external stakeholders and executive, management teams.

#### **References:**

- CSF v1.1, RC.CO-1, RC.CO-2, RC.CO-3

Incident Response/Business Continuity and Incident Recovery/Disaster Recovery plans are in place and managed.

#### **References:**

- CSF v1.1, PR.IP-9
- PF v1.0, PR.PO-P7

Critical systems dependencies established and communicated.

**References:**

- CSF v1.1, ID.BE-4

*3.4.1: Network Services Standard*

Communications and control networks are protected.

**References:**

- CSF v1.1, PR.PT-4
- PF v1.0, PR.PT-P3

## *SECTION 5. CYBERSECURITY*

Program charter, organization and administration, incident management, asset management, risk management, systems categorization, information classification, endpoint security, awareness training, required reporting, password security, DNS security and email use and protection.

*5.0: Charter*

Effectiveness of protection technologies is shared.

**References:**

- CSF v1.1, PR.IP-8
- PF v1.0, PR.PO-P7

*5.1: USG Cybersecurity Program*

Priorities for mission, objectives, and activities established and communicated.

**References:**

- CSF v1.1, ID.BE-3
- PF v1.0, ID.BE-P2

Cybersecurity policy and organizational responsibilities are established and communicated.

**References:**

- CSF v1.1, ID.GV-1
- PF v1.0, GV.PO-P1

*5.1.3 Policy, Standards, Processes, and Procedure Management Requirements*

Configuration change control processes are in place.

**References:**

- CSF v1.1, PR.IP-3
- PF v1.0, PR.PO-P2

Cybersecurity roles and responsibilities for workforce and third-party stakeholders are established.

**References:**

- CSF v1.1, ID.AM-6

- PF v1.0, GV.PO-P3

Communication and data flows mapped (diagrams).

**References:**

- CSF v1.1, ID.AM-3
- PF v1.0, ID.IM-P8

Data-at-rest is protected.

**References:**

- CSF v1.1, PR.DS-1
- PF v1.0, PR.DS-P1

A vulnerability management plan is developed and implemented.

**References:**

- CSF v1.1, PR.IP-12
- PF v1.0, PR.PO-P10

Removable media is protected, and its use restricted according to policy.

**References:**

- CSF v1.1, PR.PT-2
- PF v1.0, PR.PT-P1

The principle of least functionality is incorporated by configuring systems to provide only essential capabilities.

**References:**

- CSF v1.1, PR.PT-3
- PF v1.0, PR.PT-P2

A baseline of network operations and expected data flows for users and systems is established and managed.

**References:**

- CSF v1.1, DE.AE-1

Vulnerability scans are performed.

- CSF v1.1, DE.CM-8

*5.1.4: Appropriate Usage Policy (AUP) Guidelines*

Cybersecurity roles and responsibilities are coordinated and aligned with internal roles and external partners.

**References:**

- CSF v1.1, ID.GV-2
- PF v1.0, GV.PO-P4



### *5.2.1: Cybersecurity Organization*

Role in the data processing ecosystem identified and communicated.

#### **References:**

- CSF v1.1, ID.BE-1
- PF v1.0, ID.BE-P1

### *5.2.2: Information Security Officer (ISO)*

Cybersecurity policy is established and communicated.

#### **References:**

- CSF v1.1, ID.GV-1
- PF v1.0, GV.PO-P1

### *5.3: Incident Management*

Incident Response/Business Continuity and Incident Recovery/Disaster Recovery plans are in place and managed.

#### **References:**

- CSF v1.1, PR.IP-9
- PF v1.0, PR.PO-P7

Response and recovery plans are tested.

#### **References:**

- CSF v1.1, PR.IP-10
- PF v1.0, PR.PO-P8

Roles and responsibilities for detection are well defined to ensure accountability.

#### **References:**

- CSF v1.1, DE.DP-1

Response plan is executed during or after an incident.

#### **References:**

- CSF v1.1, RS.RP-1

### *5.3.1 Cybersecurity Incident Response Plan Requirements*

Response plans includes lessons learned.

#### **References:**

- CSF v1.1, RS.IM-1

Response strategies updated.

#### **References:**

- CSF v1.1, RS.IM-2

Incidents are mitigated.

**References:**

- CSF v1.1, RS.MI-2

Notifications from detection systems are investigated.

**References:**

- CSF v1.1, RS.AN-1

Impact of the incident is understood.

**References:**

- CSF v1.1, RS.AN-2

Incidents are categorized consistent with response plans.

**References:**

- CSF v1.1, RS.AN-4

Incidents are contained.

**References:**

- CSF v1.1, RS.MI-1

Detection activities comply with all applicable requirements.

**References:**

- CSF v1.1, DE.DP-2

Detection processes are tested.

**References:**

- CSF v1.1, DE.DP-3

Event detection information is communicated.

**References:**

- CSF v1.1, DE.DP-4

Detection processes are continuously improved.

**References:**

- CSF v1.1, DE.DP-5

Incident alert thresholds are established.

**References:**

- CSF v1.1, DE.AE-5

### *5.3.2: Cybersecurity Incident Reporting Requirements*

Incidents are reported consistent with established criteria.

**References:**

- CSF v1.1, RS.CO-25.

Event detection information is communicated.

- CSF v1.1, DE.DP-4

#### *5.3.3: Incident Follow-up Report*

Information is shared consistent with response plans.

#### **References:**

- CSF v1.1, RS.CO-3

#### *5.3.4: Incidents Involving Personal Information*

Personnel know their roles and order of operations when a response is needed.

#### **References:**

- CSF v1.1, RS.CO-1, PR.IP-9

Incident Response/Business Continuity and Incident Recovery/Disaster Recovery plans are in place and managed.

#### **References:**

- CSF v1.1, PR.IP-9, RS.CO-1
- PF v1.0, PR.PO-P7

#### *5.3.5: USG Computer Security Incident Management Requirements*

Personnel know their roles and order of operations when a response is needed.

#### **References:**

- CSF v1.1, RS.CO-1

#### *5.3.6: USG Incident Response and Reporting Requirements*

Information is shared consistent with response plans.

#### **References:**

- CSF v1.1, RS.CO-3

#### *5.4: USG Information Asset Management and Protection*

Physical devices and systems within the organization are inventoried.

#### **References:**

- CSF v1.1, ID.AM-1
- PF v1.0, ID.IM-P1, P2, P7

Assets are formally managed throughout removal, transfers, and disposition.

#### **References:**

- CSF v1.1, PR.DS-3
- PF v1.0, PR.DS-P3

#### *5.4.1: USG Information Asset Management Requirements*

Software platforms and applications within the organization are inventoried.

**References:**

- CSF v1.1, ID.AM-2
- PF v1.0, ID.IM-P1, P7

Asset vulnerabilities are identified and documented.

**References:**

- CSF v1.1, ID.RA-1

System Development Life Cycle to manage systems is implemented.

**References:**

- CSF v1.1, PR.IP-2
- PF v1.0, CT.PO-P4

*5.4.2: USG Information Asset Protection Requirements*

Identities/credentials issued, managed, verified, revoked, and audited for authorized devices, users and processes.

**References:**

- CSF v1.1, PR.AC-1
- PF v1.0, PR.AC-P1

*5.5.1: USG Organizations Responsibilities*

Cybersecurity roles and responsibilities are coordinated and aligned with internal roles and external partners.

**References:**

- CSF v1.1, ID.GV-2
- PF v1.0, GV.PO-P4

*5.5.2: Risk Assessment and Analysis*

Critical systems identification plan and communicated.

**References:**

- CSF v1.1, ID.BE-2

Threats, vulnerabilities, likelihoods, and impacts are used to determine risk.

**References:**

- CSF v1.1, ID.RA-5
- PF v1.0, ID.RA-P4

Threats, both internal and external, are identified and documented.

**References:**

- CSF v1.1, ID.RA-3

Potential business impacts and likelihoods are identified.

**References:**

- CSF v1.1, ID.RA-4
- PF v1.0, ID.RA-P4

Risk responses are identified and prioritized.

**References:**

- CSF v1.1, ID.RA-6
- PF v1.0, ID.RA-P5

Detected events are analyzed to understand attack targets and methods.

**References:**

- CSF v1.1, DE.AE-2

Event data are collected and correlated from multiple sources and sensors.

**References:**

- CSF v1.1, DE.AE-3

Impact of events is determined.

**References:**

- CSF v1.1, DE.AE-4

Newly identified vulnerabilities are mitigated or documented as accepted risks.

**References:**

- CSF v1.1, RS.MI-3

*5.5.3: USG Organizations Risk Management Programs*

Governance and risk management processes address cybersecurity risks.

**References:**

- CSF v1.1, ID.GV-4
- PF v1.0, GV.PO-P6

*5.5.4: USG Risk Management Requirements*

Governance and risk management processes address cybersecurity risks.

**References:**

- CSF v1.1, ID.GV-4
- PF v1.0, GV.PO-P6

*5.5.5: USG Cybersecurity Risk Management Process*

Risk management processes are established, managed, and agreed to by organizational stakeholders.

**References:**

- CSF v1.1, ID.RM-1
- PF v1.0, GV.RM-P1

The network is monitored to detect potential cybersecurity events.

**References:**

- CSF v1.1, DE.CM-1

Malicious code is detected.

**References:**

- CSF v1.1, DE.CM-4

The physical environment is monitored to detect potential cybersecurity events.

**References:**

- CSF v1.1, DE.CM-2

Personnel activity is monitored to detect potential cybersecurity events.

**References:**

- CSF v1.1, DE.CM-3

Unauthorized mobile code is detected.

**References:**

- CSF v1.1, DE.CM-5

#### *5.6: USG Information System Categorization*

Policy and regulations regarding the physical operating environment for organizational assets are met.

**References:**

- CSF v1.1, PR.IP-5
- PF v1.0, PR.PO-P4

#### *5.6.1: Security Categories*

Policy and regulations regarding the physical operating environment for organizational assets are met.

**References:**

- CSF v1.1, PR.IP-5
- PF v1.0, PR.PO-P4

#### *5.6.2: Requirements*

Policy and regulations regarding the physical operating environment for organizational assets are met.

**References:**

- CSF v1.1, PR.IP-5
- PF v1.0, PR.PO-P4

#### *5.7: USG Classification of Information*

Resources are prioritized based on their classification, criticality, and business value.

**References:**

- CSF v1.1, ID.AM-5

### *5.8: Endpoint Security*

Physical devices and systems within the organization are inventoried.

- CSF v1.1, ID.AM-1
- PF v1.0, ID.IM-P1, P2, P7

Monitoring for unauthorized personnel, connections, devices, and software is performed.

- CSF v1.1, DE.CM-7

#### *5.8.1: Purpose*

Physical devices and systems within the organization are inventoried.

##### **References:**

- CSF v1.1, ID.AM-1
- PF v1.0, ID.IM-P1, P2, P7

#### *5.8.2: Discovery and Inventory*

Physical devices and systems within the organization are inventoried.

##### **References:**

- CSF v1.1, ID.AM-1
- PF v1.0, ID.IM-P1, P2, P7

#### *5.8.3: Anti-virus, Anti-malware, Anti-spyware Controls*

Malicious code is detected.

##### **References:**

- CSF v1.1, DE.CM-4

#### *5.8.4: Operating System (OS) / Application Patch Management*

Baseline configuration of IT systems created and maintained incorporating concept of least functionality.

- CSF v1.1, PR.IP-1
- PF v1.0, PR.PO-P1

#### *5.8.5 Maintenance*

Maintenance and repair of organizational assets are performed and logged, with approved and controlled tools

- CSF v1.1, PR.MA-1
- PF v1.0, PR.MA-P1

Remote asset maintenance is approved, logged, and performed in a manner that prevents unauthorized access.

- CSF v1.1, PR.MA-2
- PF v1.0, PR.MA-P2

### *5.9: Security Awareness, Training and Education*

All users are informed and trained.

- CSF v1.1, PR.AT-1
- PF v1.0, GV.AT-P1

#### *5.9.1 Roles and Responsibilities*

Privileged/Administrators understand roles & responsibilities.

- CSF v1.1, PR.AT-2
- PF v1.0, GV.AT-P1

3rd Party Users understand roles & responsibilities.

- CSF v1.1, PR.AT-3
- PF v1.0, GV.AT-P4

Senior executives understand their roles & responsibilities.

- CSF v1.1, PR.AT-4
- PF v1.0, GV.AT-P2

Physical and Cybersecurity roles & responsibilities

- CSF v1.1, PR.AT-5

Cybersecurity roles and responsibilities are coordinated and aligned with internal roles and external partners.

- CSF v1.1, ID.GV-2
- PF v1.0, GV.PO-P4

#### *5.9.2: Security Awareness, Training and Education Requirements*

All users are informed and trained.

- CSF v1.1, PR.AT-1
- PF v1.0, GV.AT-P1

#### *5.10: Required Reporting*

Response and recovery plans are tested.

##### **References:**

- CSF v1.1, PR.IP-10
- PF v1.0, PR.PO-P8

#### *5.10.1: Required Reporting Activities*

System Development Life Cycle to manage systems is implemented.

##### **References:**

- CSF v1.1, PR.IP-2
- PF v1.0, CT.PO-P4

Event detection information is communicated.

##### **References:**

- CSF v1.1, DE.DP-4



#### *5.10.2: Cybersecurity Program Review*

Priorities for mission, objectives, and activities established and communicated.

##### **References:**

- CSF v1.1, ID.BE-3
- PF v1.0, ID.BE-P2

Governance and risk management processes address cybersecurity risks.

##### **References:**

- CSF v1.1, ID.GV-4
- PF v1.0, GV.PO-P6

#### *5.11.2: Anti-virus, Anti-spam, and Anti-phishing Software*

Malicious code is detected.

##### **References:**

- CSF v1.1, DE.CM-4

#### *5.11.3: Host-based Firewall or Host-based Intrusion Prevention Software*

Network integrity is protected, network segregation, network segmentation.

##### **References:**

- CSF v1.1, PR.AC-5
- PF v1.0, PR.AC-P5

#### *5.11.4: Passwords*

Identities/credentials issued, managed, verified, revoked, and audited for authorized devices, users and processes.

##### **References:**

- CSF v1.1, PR.AC-1
- PF v1.0, PR.AC-P1

#### *5.11.5: Encrypted Authentication*

Remote access is managed.

##### **References:**

- CSF v1.1, PR.AC-3
- PR.AC-P3

#### *5.11.6: Physical Security*

Physical access to assets is managed and protected.

##### **References:**

- CSF v1.1, PR.AC-2
- PF v1.0, PR.AC-P2

#### *5.11.7: Unnecessary Services*

The principle of least functionality is incorporated by configuring systems to provide only essential capabilities.

##### **References:**

- CSF v1.1, PR.PT-3
- PF v1.0, PR.PT-P2

#### *5.11.8: Integrity and Segmentation*

Hardware integrity checking implemented.

##### **References:**

- CSF v1.1, PR.DS-8
- PF v1.0, PR.DS-P8

Network integrity is protected, network segregation, network segmentation.

##### **References:**

- CSF v1.1, PR.AC-5
- PF v1.0, PR.AC-P5

#### *5.12.1: User Access Controls*

Access permissions/authorizations are managed, using principles of least privilege and separation of duties.

##### **References:**

- CSF v1.1, PR.AC-4
- PF v1.0, PR.AC-P4

#### *5.12.2: USG Password Authentication Standard*

Remote access is managed.

##### **References:**

- CSF v1.1, PR.AC-3
- PF v1.0, PR.AC-P3

#### *5.12.3: USG Password Security and Composition Requirement*

Remote access is managed.

##### **References:**

- CSF v1.1, PR.AC-3
- PF v1.0, PR.AC-P3

#### *5.14: Information Protection Management*

Legal, regulatory, privacy, and civil liberties requirements regarding cybersecurity are understood and managed to include identifying, detecting and responding to red flags.

##### **References:**

- CSF v1.1, ID.GV-3

- PF v1.0, GV.PO-P5

#### *5.14.5: Protecting Personal Information*

Data-at-rest is protected.

##### **References:**

- CSF v1.1, PR.DS-1
- PF v1.0, PR.DS-P1

Data in transit is protected.

##### **References:**

- CSF v1.1, PR.DS-2
- PF v1.0, PR.DS-P2

Data is destroyed according to policy.

##### **References:**

- CSF v1.1, PR.IP-6
- PF v1.0, CT.DM-P5

Protection processes are improved.

##### **References:**

- CSF v1.1, PR.IP-7
- PF v1.0, PR.PO-P6

#### *5.15: Email Use and Protection*

Communications and control networks are protected.

##### **References:**

- CSF v1.1, PR.PT-4
- PF v1.0, PR.PT-P3

## *SECTION 6. DATA PRIVACY*

Purpose, standard, applicability (collection and use) and compliance; Web privacy standard; and data privacy risks.

#### *6.1: USG Data Privacy Standard*

Legal, regulatory, privacy, and civil liberties requirements regarding cybersecurity are understood and managed.

- CSF v1.1, ID.GV-3
- PF v1.0, GV.PO-P5

## *SECTION 8. MOBILE DEVICE MANAGEMENT*

Purpose, applicability, standards, non-compliance and declaration.

### *8.1: General Requirements to Manage Mobile Devices*

Remote access is managed.

- CSF v1.1, PR.AC-3
- PF v1.0, PR.AC-P3

Data-at-rest is protected.

- CSF v1.1, PR.DS-1
- PF v1.0, PR.DS-P1

Data in transit is protected.

- CSF v1.1, PR.DS-2
- PF v1.0, PR.DS-P2

# NIST CYBERSECURITY FRAMEWORK CROSSWALK TO REFERENCES

## *IDENTIFY (ID)*

### ASSET MANAGEMENT (ID.AM)

The data, personnel, devices, systems, and facilities that enable USG organizations to achieve business purposes are identified and managed consistent with their relative importance to business objectives and the organization's risk strategy. To demonstrate this, USG organizations must ensure:

#### *ID.AM-1: Physical Inventory*

Physical devices and systems within the organization are inventoried.

#### **References:**

- CIS CSC V8, 1.1
- COBIT 5, BAI09.01-02
- FERPA (PTAC), Inventory of Assets
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.310(a)(2)(ii), 164.310(d)
- ISO/IEC 27001:2013, A.8.1.1-2
- NIST Privacy Framework V1.0, ID.IM-P1, P2, P7
- NIST SP 800-53 Rev. 4, CM-8, PM-5
- NIST SP 800-171 Rev. 1, 3.4.1
- PCI DSS V3.2.1, 2.4, 9.9, 11.1.1, 12.3.3
- State PSG, PS-08-002
- USG IT Handbook V2.9.7, 5.4, 5.8

#### *ID.AM-2: Software Inventory*

Software platforms and applications within the organization are inventoried.

#### **References:**

- CIS CSC V8, 2.1-2, 16.4
- COBIT 5, BAI09.01-02, 05
- FERPA (PTAC), Inventory of Assets
- GLBA (NIST SP 800-171 REV. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A)&(E)
- ISO/IEC 27001:2013, A.8.1.1-2, A.12.5.1
- NIST Privacy Framework V1.0, ID.IM-P1, P7
- NIST SP 800-53 Rev. 4, CM-8
- NIST SP 800-171 Rev. 1, 3.4.1
- PCI DSS V3.2.1, 2.4, 12.3.7
- State PSG, PS-08-002
- USG IT Handbook V2.9.7, 5.4.1

#### *ID.AM-3: Data Flow Diagram*

Organizational communication and data flows are mapped.

**References:**

- CIS CSC V8, 3.8
- COBIT 5, DSS05.02
- GLBA (NIST SP 800-171 REV. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(3)(ii)(A), 164.308(a)(8), 164.310(d)
- ISO/IEC 27001:2013, A.13.2.1
- NIST Privacy Framework V1.0, ID.IM-P8
- NIST SP 800-53 Rev. 4, AC-4, CA-3, CA-9, PL-8
- NIST SP 800-171 Rev. 1, 3.1.3, 3.13.1
- PCI DSS 3.2.1, 1.1.2-3
- USG IT Handbook V2.9.7, 5.1.3

*ID.AM-4: Systems Catalogue*

External information systems are catalogued.

**References:**

- CIS CSC V8, 12.4
- COBIT 5, APO02.02, APO10.4, DSS01.02
- GLBA (NIST SP 800-171 REV. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(4)(ii)(A), 164.308(b), 164.314(a)(1), 164.314(a)(2)(i)(B), 164.314(a)(2)(ii), 164.316(b)(2)
- ISO/IEC 27001:2013, A.11.2.6
- NIST Privacy Framework V1.0, ID.IM-P2, P7
- NIST SP 800-53 Rev. 4, AC-20, SA-9
- NIST SP 800-171 Rev. 1, 3.1.20-21
- PCI DSS V3.2.1, 1.1.1-3, 2.4

*ID.AM-5: Prioritize Resource*

Resources (e.g., hardware, devices, data, and software) are prioritized based on their classification, criticality, and business value.

**References:**

- CIS CSC V8, 3.2, 3.7
- COBIT 5, APO03.03-04, APO12.01, BAI04.02, BAI09.02
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(7)(ii)(E)
- ISO/IEC 27001:2013, A.8.2.1
- NIST SP 800-53 Rev. 4, CP-2, RA-2, SA-14, SC-6
- PCI DSS V3.2.1, 9.6.1, 12.2
- State PSG, SS-08-002, SS-08-014, PS-08-012,
- USG Business Procedures Manual, 12
- USG IT Handbook V2.9.7, 5.7

*ID.AM-6: Role and Responsibility*

Cybersecurity roles and responsibilities for the entire workforce and third-party stakeholders (e.g., suppliers, customers, and partners) are established.

## References:

- CIS CSC V8, 14.1
- COBIT 5, APO01.02, APO07.06, APO13.01, DSS06.03
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2)-(4), 164.308(b)(1), 164.314
- ISO/IEC 27001:2013, A.6.1.1
- NIST Privacy Framework V1.0, GV.PO-P3
- NIST SP 800-53 Rev. 4, CP-2, PS-7, PM-11
- PCI DSS V3.2.1, 12.4-5, 12.8-9
- USG IT Handbook V2.9.7, 5.1.3

## BUSINESS ENVIRONMENT (ID.BE)

USG organization's must understand and prioritize its mission, objectives, stakeholders, and activities; this information is used to inform cybersecurity roles, responsibilities, and risk management decisions. To achieve this, USG organizations must verify:

### *ID.BE-1: Supply Chain Role*

USG organization's role in the supply chain is identified and communicated where applicable.

## References:

- COBIT 5, APO08.01,04-05, APO10.03-5
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(4)(ii), 164.308(a)(7)(ii)(C), 164.308(a)(7)(ii)(E), 164.308(a)(8), 164.310(a)(2)(i), 164.314, 164.316
- ISO/IEC 27001:2013, A.15.1.1-3, A.15.2.1-2
- NIST Privacy Framework V1.0, ID.BE-P1
- NIST SP 800-53 Rev. 4, CP-2, SA-12
- USG IT Handbook V2.9.7, 5.2.1

### *ID.BE-2: Critical Infrastructure*

USG organization's role in the critical infrastructure is identified and communicated where applicable.

## References:

- COBIT 5, APO02.06, APO03.01
- FERPA (PTAC), Layered Defense
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(4)(ii), 164.308(a)(7)(ii)(C), 164.308(a)(7)(ii)(E), 164.308(a)(8), 164.310(a)(2)(i), 164.314, 164.316
- ISO/IEC 27001:2013 Clause 4.1
- NIST SP 800-53 Rev. 4, PM-8
- USG IT Handbook V2.9.7, 3.1, 5.5

### *ID.BE-3: Mission, Objectives and Activities*

Priorities for organizational mission, objectives, and activities are established and communicated.

## References:

- COBIT 5, APO02.01, APO02.06, APO03.01
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(C), 164.308(a)(7)(ii)(D), 164.308(a)(7)(ii)(E), 164.310(a)(2)(i), 164.316

- NIST Privacy Framework V1.0, ID.BE-P2
- NIST SP 800-53 Rev. 4, PM-11, SA-14
- USG IT Handbook V2.9.7, 5.1, 5.10

#### *ID.BE-4: Dependencies*

Dependencies and critical functions for delivery of critical services are established.

#### **References:**

- COBIT 5, BAI03.02, DSS04.02
- FERPA (PTAC), Layered Defense
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(i), 164.308.(a)(7)(ii)(E), 164.310(a)(2)(i), 164.312(a)(2)(ii), 164.314(a)(1), 164.314(b)(2)(i)
- ISO/IEC 27001:2013, A.11.2.2, A.11.2.3, A.12.1.3
- NIST SP 800-53 Rev. 4, CP-8, PE-9, PE-11, PM-8, SA-14
- USG IT Handbook V2.9.7, 3.3.1

#### *ID.BE-5: Contingency Planning*

Resilience requirements to support delivery of critical services are established.

#### **References:**

- COBIT 5, BAI03.02, DSS04.02
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(B), 164.308(a)(6)(ii), 164.308(a)(7), 164.308(a)(8), 164.310(a)(2)(i), 164.312(a)(2)(ii), 164.314(b)(2)(i)
- ISO/IEC 27001:2013, A.11.1.4, A.17.1.1-2, A.17.2.1
- NIST SP 800-53 Rev. 4, CP-2, CP-11, SA-13-14

## **GOVERNANCE (ID.GV)**

USG policies, procedures, and processes to manage and monitor the organization’s regulatory, legal, risk, environmental, and operational requirements are understood and inform the management of cybersecurity risk by ensuring:

#### *ID.GV-1: Policy, Plans and Procedures*

Organizational cybersecurity policy is established.

#### **References:**

- CIS CSC V8, 4.1
- COBIT 5, APO01.03, APO13.01, EDM01.01-2
- FERPA (PTAC), Policy and Governance
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.316
- NIST Privacy Framework V1.0, GV.PO-P1
- NIST SP 800-53 Rev. 4, Controls from all families
- PCI DSS V3.2.1, 1.5, 2.5, 3.7, 4.3, 5.4, 6.7, 7.3, 8.8, 9.10, 10.8, 11.6, 12.1
- State PSG, SS-08-001, PS-08-003.2
- USG IT Handbook V2.9.7, 5.1, 5.2



### *ID.GV-2: Roles and Responsibilities*

Cybersecurity roles & responsibilities are coordinated and aligned with internal roles and external partners.

#### **References:**

- CIS CSC V8, 15.2, 17.4
- COBIT 5, APO01.02, APO10.03, APO13.12, DSS05.04
- FERPA (PTAC), Personnel Security
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(2)-(4), 164.308(b), 164.314
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.1, A.15.1.1
- NIST Privacy Framework V1.0, GV.PO-P4
- NIST SP 800-53 Rev. 4, PM-1-2, PS-7
- PCI DSS v3.2.1 12.4, 12.5, 12.8, 12.9
- State PSG, SS-08-001, PS-08-003.2
- USG Business Procedures Manual, 12
- USG IT Handbook V2.9.7, 5.1, 5.5, 5.9

### *ID.GV-3: Compliance Management*

Legal and regulatory requirements regarding cybersecurity, including privacy and civil liberties obligations, are understood and managed.

#### **References:**

- COBIT 5, BAI02.01, MEA03.01, MEA03.04
- HIPAA Security Rule 45 C.F.R. §§ 164.306, 164.308, 164.310, 164.312, 164.314, 164.316
- ISO/IEC 27001:2013, A.18.1.1-5
- NIST Privacy Framework V1.0, GV.PO-P5
- NIST SP 800-53 Rev. 4, Controls from all families
- PCI DSS v3.2.1, 3.1, 12.10
- State PSG, SS-08-001, PS-08-003.2
- USG Business Procedures Manual, 12
- USG IT Handbook V2.9.7, 5.14, 6.1, 6.2

### *ID.GV-4: Risk Management Plan*

Governance and risk management processes address cybersecurity risks.

#### **References:**

- COBIT 5, EDM03.02, APO12.03,05, DSS04.02
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1), 164.308(b)
- ISO/IEC 27001:2013, Clause 6
- NIST Privacy Framework V1.0, GV.PO-P6
- NIST SP 800-53 Rev. 4, SA-2, PM-3,7,9-11
- PCI DSS v3.2.1, 1.5, 2.5, 3.7, 4.3, 5.4, 6.7, 7.3, 8.8, 9.10, 10.8, 11.6, 12.1, 12.2
- USG IT Handbook V2.9.7, 5.5, 5.10

## RISK ASSESSMENT (ID.RA)

USG organizations must understand the cybersecurity risk to organizational operations (including mission, functions, image, or reputation), organizational assets, and individuals. This is achieved by verifying:

### *ID.RA-1: Vulnerability Assessment*

Asset vulnerabilities are identified and documented.

#### **References:**

- CIS CSC V8, 7.1-2, 7.4
- COBIT 5, APO12.01-04, DSS05.01-02
- FERPA (PTAC), Audit and Compliance Monitoring, Secure Configuration, Automated Vulnerability Scanning
- GLBA (NIST SP 800-171 REV. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(7)(ii)(E), 164.308(a)(8), 164.310(a)(1), 164.312(a)(1), 164.316(b)(2)(iii)
- ISO/IEC 27001:2013, A.12.6.1, A.18.2.3
- NIST SP 800-53 Rev. 4, CA-2,7-8, RA-3,5, SA-5,11, SI-2,4-5
- NIST SP 800-171 Rev. 1, 3.11.1-2, 3.12.1, 3.12.3, 3.14.1, 3.14.3, 3.14.6-7
- PCI DSS v3.2.1, 6.1, 11.2, 11.3, 12.2
- State PSG, PS-08-031
- USG IT Handbook V2.9.7, 5.4.1

### *ID.RA-2: Information Sharing*

Threat and vulnerability information is received from information sharing forums and sources.

#### **References:**

- COBIT 5, BAI08.01
- GLBA (NIST SP 800-171 REV. 1)
- ISO/IEC 27001:2013, A.6.1.4
- NIST SP 800-53 Rev. 4, PM-15-16, SI-5
- NIST SP 800-171 Rev. 1, 3.14.1, 3.14.3
- PCI DSS v3.2.1, 6.1
- State PSG, PS-08-031

### *ID.RA-3: Threat Assessment*

Threats, both internal and external, are identified and documented.

#### **References:**

- COBIT 5, APO12.01-4, PS-08-031
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(D), 164.308(a)(3), 164.308(a)(4), 164.308(a)(5)(ii)(A), 164.310(a)(1), 164.310(a)(2)(iii), 164.312(a)(1), 164.312(c), 164.312(e), 164.314, 164.316
- ISO/IEC 27001:2013, Clause 6.1.2
- NIST SP 800-53 Rev. 4, RA-3, SI-5, PM-12,16
- NIST SP 800-171 Rev. 1, 3.11.1, 3.14.1, 3.14.3

- PCI DSS v3.2.1, 12.2
- State PSG, PS-08-031
- USG IT Handbook V2.9.7, 5.5

#### *ID.RA-4: Impact and Likelihood Assessment*

Potential business impacts and likelihoods are identified.

#### **References:**

- COBIT 5, DSS04.02
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(B), 164.308(a)(6), 164.308(a)(7)(ii)(E), 164.308(a)(8), 164.316(a)
- ISO/IEC 27001:2013, A16.1.6, Clause 6.1.2
- NIST Privacy Framework V1.0, ID.RA-P4
- NIST SP 800-171 Rev. 1, 3.11.1
- NIST SP 800-53 Rev. 4, RA-2-3, PM-9,11, SA-14
- PCI DSS v3.2.1, 6.1
- State PSG, PS-08-031
- USG IT Handbook V2.9.7, 5.5

#### *ID.RA-5: Risk Assessment*

Threats, vulnerabilities, likelihoods, and impacts are used to determine risk.

#### **References:**

- CIS CSC V8, 3.7, 7.6
- COBIT 5, APO12.02
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(B), 164.308(a)(1)(ii)(D), 164.308(a)(7)(ii)(D), 164.308(a)(7)(ii)(E), 164.316(a)
- ISO/IEC 27001:2013, A.12.6.1
- NIST Privacy Framework V1.0, ID.RA-P4
- NIST SP 800-53 Rev. 4, RA-2-3, PM-16
- NIST SP 800-171 Rev. 1, 3.11.1
- PCI DSS v3.2.1, 12.2
- State PSG, PS-08-031
- USG IT Handbook V2.9.7, 5.5

#### *ID.RA-6: Response Assessment*

Risk responses are identified and prioritized.

#### **References:**

- COBIT 5, APO12.04-05, APO13.02
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(B), 164.314(a)(2)(i)(C), 164.314(b)(2)(iv)
- ISO/IEC Clause 6.1.3
- NIST Privacy Framework V1.0, ID.RA-P5
- NIST SP 800-53 Rev. 4, PM-4,9
- PCI DSS v3.2.1, 12.10.1

- State PSG, PS-08-031
- USG IT Handbook V2.9.7, 5.5

## RISK MANAGEMENT STRATEGY (ID.RM)

USG organizations must ensure priorities, constraints, risk tolerances, and assumptions are established and used to support operational risk decisions. This is demonstrated by showing:

### *ID.RM-1: Risk Management Procedures*

Risk management processes are established, managed, and agreed to by organizational stakeholders.

#### **References:**

- COBIT 5, APO12.04-05, APO13.02, BAI02.03, BAI04.02
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(1)(ii)(B)
- ISO/IEC 27001: 2013, Clause 6.1.3, Clause 8.3, Clause 9.3
- NIST Privacy Framework V1.0, GV.RM-P1
- NIST SP 800-53 Rev. 4, PM-9
- PCI DSS v3.2.1, 12.2
- State PSG, PS-08-031, SS-08-041
- USG IT Handbook V2.9.7, 5.5

### *ID.RM-2: Risk Tolerance*

Organizational risk tolerance is determined and clearly expressed.

#### **References:**

- COBIT 5, APO12.06
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(1)(ii)(B)
- ISO/IEC 27001:2013, Clause 6.1.3, Clause 8.3
- NIST Privacy Framework V1.0, GV.RM-P2
- NIST SP 800-53 Rev. 4, PM-9
- PCI DSS v3.2.1, 12.2
- State PSG, PS-08-031

### *ID.RM-3: Strategic Analysis*

The organization's determination of risk tolerance is informed by its role in the IHE sector specific risk analysis.

#### **References:**

- COBIT 5 APO12.02
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(B), 164.308(a)(6)(ii), 164.308(a)(7)(i), 164.308(a)(7)(ii)(C), 164.308(a)(7)(ii)(E), 164.310(a)(2)(i)
- ISO/IEC 27001:2013, Clause 6.1.3, Clause 8.3
- NIST Privacy Framework V1.0, GV.RM-P3
- NIST SP 800-53 Rev. 4, PM-8-9,11, SA-14
- PCI DSS v3.2.1, 12.2
- State PSG, PS-08-031

## *PROTECT (PR)*

### ACCESS CONTROL (PR.AC)

USG organizations must demonstrate access to assets and associated facilities is limited to authorized users, processes, or devices, and to authorized activities and transactions. This is achieved by ensuring:

#### *PR.AC-1: Identities and Credentials*

Identities and credentials are managed for authorized devices and users.

#### **References:**

- CIS CSC V8, 7.7, 5.1, 5.3, 5.5, 6.1-2, 6.6-7, 13.9, 15.7
- COBIT 5, DSS05.04, DSS06.03
- FERPA (PTAC), Authentication
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3)(ii)(B), 164.308(a)(3)(ii)(C), 164.308(a)(4)(i), 164.308(a)(4)(ii)(B), 164.308(a)(4)(ii)(C), 164.312(a)(2)(i), 164.312(a)(2)(ii), 164.312(a)(2)(iii), 164.312(d)
- ISO/IEC 27001:2013, A.9.2.1-2,4, A.9.3.1, A.9.4.2-3
- NIST Privacy Framework V1.0, PR.AC-P1
- NIST SP 800-53 Rev.4, AC-1-2, IA-1-11
- NIST SP 800-171 Rev. 1, 3.5.1-2, 3.5.5-11
- PCI DSS v3.2.1, 2.1, 8.1, 8.2, 8.5, 8.6, 12.3
- USG IT Handbook V2.9.7, 3.1, 5.4, 5.11

#### *PR.AC-2: Physical Access*

Physical access to assets is managed and protected.

#### **References:**

- COBIT 5, DSS01.04, DSS05.05
- FERPA (PTAC), Physical Security, Secure Configuration
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(B), 164.308(a)(7)(i), 164.308(a)(7)(ii)(A), 164.310(a)(1), 164.310(a)(2)(i), 164.310(a)(2)(ii), 164.310(a)(2)(iii), 164.310(b), 164.310(c), 164.310(d)(1), 164.310(d)(2)(iii)
- ISO/IEC 27001:2013, A.11.1.1-6, A.11.2.1,3,5-8
- NIST Privacy Framework V1.0, PR.AC-P2
- NIST SP 800-53 Rev.4, PE-2-6,9
- NIST SP 800-171 Rev. 1, 3.10.1-5
- PCI DSS v3.2.1, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.9, 9.10
- State PSG, PS-08-009, PS-08-013
- USG IT Handbook V2.9.7, 5.11

#### *PR.AC-3: Remote Access*

Remote access is managed.

#### **References:**

- CIS CSC V8, 4.11, 6.4, 6.6, 12.7, 13.5
- COBIT 5, APO13.01, DSS01.04, DSS05.03
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(4)(i), 164.308(b)(1), 164.308(b)(3), 164.310(b), 164.312(e)(1), 164.312(e)(2)(ii)
- ISO/IEC 27001:2013, A.6.2.1-2, A.11.2.6, A.13.1.1, A.13.2.1
- NIST Privacy Framework V1.0, PR.AC-P3
- NIST SP 800-53 Rev.4, AC-1,17,19-20, SC-15
- NIST SP 800-171 Rev. 1, 3.1.1-2, 3.1.14-15, 3.1.18, 3.1.20, 3.13.9, 3.13.12
- PCI DSS v3.2.1, 2.3, 8.1.5, 8.3, 8.5.1, 12.3.8, 12.3.9, 12.3.10
- State PSG, PS-08-009, SS-08-048, PS-08-023, SS-08-038
- USG IT Handbook V2.9.7, 5.11, 5.12, 8.0

#### *PR.AC-4: Access Permissions*

Access permissions are managed, incorporating the principles of least privilege and separation of duties.

#### **References:**

- CIS CSC V8, 3.2, 5.4, 6.8
- COBIT 5, DSS05.04
- FERPA (PTAC), Access Control
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3), 164.308(a)(4), 164.310(a)(2)(iii), 164.310(b), 164.312(a)(1), 164.312(a)(2)(i), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.6.1.2, A.9.1.2, A.9.2.3, A.9.4.1,4-5
- NIST Privacy Framework V1.0, PR.AC-P4
- NIST SP 800-53 Rev.4, AC-1-3,5-6,14,16,24
- NIST SP 800-171 Rev. 1, 3.1.1-2, 3.1.4-8, 3.1.10-11, 3.5.3-4, 3.13.3-4
- PCI DSS v3.2.1, 6.4.2, 7.1, 7.2, 8.7, 9.3
- State PSG, PS-09-009, SS-08-010, SS-08-048
- USG Business Procedures Manual, 12
- USG IT Handbook V2.9.7, 3.1, 5.12

#### *PR.AC-5: Segregation and Segmentation*

Network integrity is protected, incorporating network segregation where appropriate.

#### **References:**

- CIS CSC V8, 3.12, 9.2-3, 9.6, 12.2, 12.8, 13.4, 16.4
- COBIT 5, DSS01.05, DSS05.02
- FERPA (PTAC), Firewalls and IDPS
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(4)(ii)(B), 164.310(a)(1), 164.310(b), 164.312(a)(1), 164.312(b), 164.312(c), 164.312(e)
- ISO/IEC 27001:2013, A.13.1.1,3, A.13.2.1, A.14.1.2,3
- NIST Privacy Framework V1.0, PR.AC-P5
- NIST SP 800-53 Rev.4, AC-4,10, SC-7
- NIST SP 800-171 Rev. 1, 3.1.3, 3.13.1-2, 3.13.5-7
- PCI DSS v3.2.1, 1.1, 1.2, 1.3, 2.2, 6.2, 10.8, 11.3

- State PSG, SS-08-047
- USG IT Handbook V2.9.7, 5.11

#### *PR.AC-6: Identity Proofing*

Identities are proofed (verified) and bound to credentials and asserted in interactions.

#### **References:**

- COBIT 5, DSS05.04-05, 07, DSS06.03
- FERPA (PTAC), Authentication, Personnel Security
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(4)(ii)(B), 164.310(a)(1), 164.310(b), 164.312(a)(1), 164.312(b), 164.312(c), 164.312(e)
- ISO/IEC 27001:2013, A.7.1.1, A.9.2.1
- NIST Privacy Framework V1.0, PR.AC-P6
- NIST SP 800-53 Rev.4, AC-1-3, 16, 19, 24, IA-1-2, 4-5, 8, PE-2, PS-3
- PCI DSS v3.2.1 7.1.4, 8.1, 8.2.2
- USG IT Handbook V2.9.7, 3.1

#### *PR.AC-7: User and Device Authentication*

Users, devices, and other assets are authenticated (e.g., single factor with multifactor authentication) commensurate with the risk of the transaction (e.g., individuals' security and privacy risks and other organizational risks).

#### **References:**

- CIS CSC V8, 6.3-5, 12.3, 12.6-7, 13.5
- COBIT 5, DSS05.04, 10, DSS06.10
- FERPA (PTAC), Authentication, Mobile Devices
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(4)(ii)(B), 164.310(a)(1), 164.310(b), 164.312(a)(1), 164.312(b), 164.312(c), 164.312(e)
- ISO/IEC 27001:2013, A.9.2.1,4, A.9.3.1, A.9.4.2-3, A.18.1.4
- NIST Privacy Framework V1.0, PR.AC-P6
- NIST SP 800-53 Rev.4, AC-7-9,11-12,14, IA-1-5,8-11
- PCI DSS v3.2.1, 8.2, 8.3
- State PSG, PS-19-001, PS-08-006, SS-08-007, SS-08-008
- USG IT Handbook V2.9.7, 3.1

## **AWARENESS AND TRAINING (PR.AT)**

USG organization's personnel and partners are provided cybersecurity awareness education and are adequately trained to perform their information security-related duties and responsibilities consistent with related policies, procedures, and agreements. To demonstrate this, USG organizations must show:

#### *PR.AT-1: Awareness Training*

All users are informed and trained.

#### **References:**

- CIS CSC V8, 14.1-9, 16.9, 17.3
- COBIT 5, APO07.03, BAI05.07
- FERPA (PTAC), Personnel Security

- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(5)
- ISO/IEC 27001:2013, A.7.2.2, A.12.2.1
- NIST Privacy Framework V1.0, GV.AT-P1
- NIST SP 800-53 Rev.4, AT-2, PM-13
- NIST SP 800-171 Rev. 1, 3.2.1-3
- PCI DSS v3.2.1, 6.7, 7.3, 8.4, 9.9.3, 12.4, 12.6
- State PSG, PS-08-010, SS-08-012
- USG IT Handbook V2.9.7, 5.9

*PR.AT-2: Roles-Based Training – Privilege Users*

Privileged users understand roles & responsibilities.

**References:**

- CIS CSC V8, 5, 14.9, 16.9
- COBIT 5, APO07.02, DSS05.04, DSS06.03
- FERPA (PTAC), Emailing Confidential Data
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2), 164.308(a)(3)(i), 164.308(a)(5)(i), 164.308(a)(5)(ii)(A), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(5)(ii)(D)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.2
- NIST Privacy Framework V1.0, GV.AT-P1
- NIST SP 800-53 Rev.4, AT-3, PM-13
- NIST SP 800-171 Rev. 1, 3.2.1-2
- PCI DSS v3.2.1, 1.1.5, 7.1, 7.2, 7.3, 12.4, 12.6
- USG IT Handbook V2.9.7, 5.9

*PR.AT-3: Roles-Based Training – 3rd Party Stakeholders*

Third-party stakeholders (e.g., suppliers, customers, and partners) understand roles & responsibilities.

**References:**

- CIS CSC V8, 15.4
- COBIT 5, APO07.03,06, APO10.04-05
- FERPA (PTAC), Emailing Confidential Data
- HIPAA Security Rule 45 C.F.R. §§ 164.308(b), 164.314(a)(1), 164.314(a)(2)(i), 164.314(a)(2)(ii)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.1-2
- NIST Privacy Framework V1.0, GV.AT-P4
- NIST SP 800-53 Rev.4, PS-7, SA-9,16
- PCI DSS v3.2.1, 12.8.2, 12.9
- USG IT Handbook V2.9.7, 5.9

*PR.AT-4: Roles-Based Training – Senior Executives*

Senior executives understand roles & responsibilities.

**References:**

- CIS CSC V8, 14.9
- COBIT 5, EDM01.01, APO01.02, APO07.03



- FERPA (PTAC), Emailing Confidential Data
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2), 164.308(a)(3)(i), 164.308(a)(5)(i), 164.308(a)(5)(ii)(A), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(5)(ii)(D)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.2
- NIST Privacy Framework V1.0, GV.AT-P2
- NIST SP 800-53 Rev.4, AT-3, PM-13
- NIST SP 800-171 Rev. 1, 3.2.1-2
- PCI DSS v3.2.1, 12.4, 12.5
- USG IT Handbook V2.9.7, 5.9

*PR.AT-5: Roles-Based Training – Cybersecurity*

Physical and information security personnel understand roles & responsibilities.

**References:**

- CIS CSC V8, 14.9
- COBIT 5, APO07.03
- FERPA (PTAC), Emailing Confidential Data
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2), 164.308(a)(3)(i), 164.308(a)(5)(i), 164.308(a)(5)(ii)(A), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(5)(ii)(D), 164.530(b)(1)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.2
- NIST Privacy Framework V1.0, GV.AT-P3
- NIST SP 800-53 Rev.4, AT-3, IR-3, PM-13
- NIST SP 800-171 Rev. 1, 3.2.1-2
- PCI DSS v3.2.1, 12.4, 12.5
- USG IT Handbook V2.9.7, 5.9

**DATA SECURITY (PR.DS)**

Information and records (data) are managed consistent with the USG organization’s risk strategy to protect the confidentiality, integrity, and availability of information. To accomplish this, USG organizations must ensure:

*PR.DS-1: Data-at-Rest Protections*

Data-at-rest is protected.

**References:**

- CIS CSC V8, 3.11, 16.11
- COBIT 5, APO01.06, BAI02.01, BAI06.01, DSS04.07, DSS05.03, DSS06.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(b)(1), 164.310(d), 164.312(a)(1), 164.312(a)(2)(iii), 164.312(a)(2)(iv), 164.312(b), 164.312(c), 164.314(b)(2)(i), 164.312(d)
- ISO/IEC 27001:2013, A.8.2.3
- NIST Privacy Framework V1.0, PR.DS-P1
- NIST SP 800-53 Rev.4, MP-8, SC-12,28
- NIST SP 800-171 Rev. 1, 3.1.19, 3.8.1, 3.8.9, 3.13.10, 3.13.16

- PCI DSS v3.2.1, 3 (all), 8.2.1
- State PSG, SS-08-003, SS-15-002, PS-08-026
- USG IT Handbook V2.9.7, 5.1, 5.14, 8.3

*PR.DS-2: Data-in-Transit Protections*

Data-in-transit is protected.

**References:**

- CIS CSC V8, 3.10, 12.3, 12.6, 16.11
- COBIT 5, APO01.06, DSS05.02, DSS06.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(b)(1), 164.308(b)(2), 164.312(e)(1), 164.312(e)(2)(i), 164.312(e)(2)(ii), 164.314(b)(2)(i)
- ISO/IEC 27001:2013, A.8.2.3, A.13.1.1, A.13.2.1,3, A.14.1.2-3
- NIST Privacy Framework V1.0, PR.DS-P2
- NIST SP 800-53 Rev.4, SC-8,11-12
- NIST SP 800-171 Rev. 1, 3.1.13, 3.1.17, 3.8.5, 3.13.8, 3.13.10
- PCI DSS v3.2.1, 3 (all), 8.2.1
- State PSG, SS-08-003, PS-08-026
- USG IT Handbook V2.9.7, 5.14, 8.3

*PR.DS-3: Inventory, Sanitation and Physical Access*

Assets are formally managed throughout removal, transfers, and disposition.

**References:**

- CIS CSC V8, 1.1, 3.5
- COBIT 5, BAI09.03
- FERPA (PTAC), Inventory of Assets
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.310(a)(2)(ii), 164.310(a)(2)(iii), 164.310(a)(2)(iv), 164.310(d)(1), 164.310(d)(2)
- ISO/IEC 27001:2013, A.8.2.3, A.8.3.1-3, A.11.2.5,7
- NIST Privacy Framework V1.0, PR.DS-P3
- NIST SP 800-53 Rev.4, CM-8, MP-6, PE-16
- NIST SP 800-171 Rev. 1, 3.4.1, 3.8.1-3, 3.8.5
- PCI DSS v3.2.1, 2.4, 9.5, 9.6, 9.7, 9.8, 9.9
- State PSG, SS-08-003, GM-13-001
- USG IT Handbook V2.9.7, 5.4

*PR.DS-4: Capacity, Contingency and Protection*

Adequate capacity to ensure availability is maintained.

**References:**

- COBIT 5, APO13.01, BAI04.04
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(B), 164.308(a)(7), 164.310(a)(2)(i), 164.310(d)(2)(iv), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.12.1.3, A.17.2.1

- NIST Privacy Framework V1.0, PR.DS-P4
- NIST SP 800-53 Rev.4, AU-4, CP-2, SC-5
- USG IT Handbook V2.9.7, 1.5

*PR.DS-5: Data Leak Protection*

Protections against data leaks are implemented.

**References:**

- CIS CSC V8, 3.13, 16.4
- COBIT 5, APO01.06, DSS05.04,07, DSS06.02
- FERPA (PTAC), Firewalls and IDPS
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(3), 164.308(a)(4), 164.310(b), 164.310(c), 164.312(a), 164.312(e)
- ISO/IEC 27001:2013, A.6.1.2, A.7.1.1-2, A.7.3.1, A.8.2.2-3, A.9.1.1-2, A.9.2.3, A.9.4.1,4-5, A.13.1.3, A.13.2.1,3-4, A.14.1.2-3
- NIST Privacy Framework V1.0, PR.DS-P5
- NIST SP 800-53 Rev.4, AC-4-6, PE-19, PS-3,6, SC-7-8,13,31, SI-4
- NIST SP 800-171 Rev. 1, 3.1.4, 3.1.13, 3.2.3, 3.9.2, 3.13.1, 3.13.5-8, 3.13.11, 3.13.16, 3.14.6
- PCI DSS v3.2.1, 10.6

*PR.DS-6: Information Integrity Checking*

Integrity checking mechanisms are used to verify software, firmware, and information integrity.

**References:**

- CIS CSC V8, 11.5
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.312(b), 164.312(c)(1), 164.312(c)(2), 164.312(e)(2)(i)
- ISO/IEC 27001:2013, A.12.2.1, A.12.5.1, A.14.1.2-3, A.14.2.4
- NIST Privacy Framework V1.0, PR.DS-P6
- NIST SP 800-53 Rev.4, SC-16, SI-7
- PCI DSS v3.2.1, 11.5

*PR.DS-7: Testing and Development*

The development and testing environment(s) are separate from the production environment.

**References:**

- CIS CSC V8, 16.8
- COBIT 5, BAI03.08, BAI07.04
- FERPA (PTAC), Network Mapping
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(4)
- ISO/IEC 27001:2013, A.12.1.4
- NIST Privacy Framework V1.0, PR.DS-P7
- NIST SP 800-53 Rev.4, CM-2
- PCI DSS v3.2.1, 6.4.1, 6.4.2
- State PSG, SS-08-031, PS-08-020

### *PR.DS-8: Integrity Checking Hardware*

Integrity checking mechanisms are used to verify hardware integrity.

#### **References:**

- CIS CSC V8, 16.14
- COBIT 5, BAI03.05
- ISO/IEC 27001:2013, A.11.2.4
- NIST Privacy Framework V1.0, PR.DS-P8
- NIST SP 800-53 Rev.4, SA-10, SI-7
- PCI DSS v3.2.1, 9.9.2
- USG IT Handbook V2.9.7, 5.11

### **INFORMATION PROTECTION PROCESSES AND PROCEDURES (PR.IP)**

Security policies (that address purpose, scope, roles, responsibilities, management commitment, and coordination among USG organizations), processes, and procedures are maintained and used to manage protection of information systems and assets. This is accomplished by ensuring:

#### *PR.IP-1: Baseline Configurations*

A baseline configuration of information technology is created and maintained.

#### **References:**

- CIS CSC V8, 2.7, 4.1-3, 9.4, 9.4, 16.7, 17.7
- COBIT 5, BAI10.01-03,05
- FERPA (PTAC), Network Mapping, Secure Configurations
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(8), 164.308(a)(7)(i), 164.308(a)(7)(ii)
- ISO/IEC 27001:2013, A.12.1.2, A.12.5.1, A.12.6.2, A.14.2.2-4
- NIST Privacy Framework V1.0, PR.PO-P1
- NIST SP 800-53 Rev.4, CM-2-7,9, SA-10
- NIST SP 800-171 Rev. 1, 3.4.1-2, 3.4.6-8
- PCI DSS v3.2.1, 1.2, 2.2
- USG IT Handbook V2.9.7, 5.8

#### *PR.IP-2: Life-Cycle Development*

A System Development Life Cycle to manage systems is implemented.

#### **References:**

- CIS CSC V8, 16.5, 16.10, 16.12
- COBIT 5, APO13.01, BAI03.01-03
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(1)(i)
- ISO/IEC 27001:2013, A.6.1.5, A.14.1.1, A.14.2.1, A.14.2.5
- NIST Privacy Framework V1.0, PR.PO-P4
- NIST SP 800-53 Rev.4, SA-3-4,8,10-12,15,17, PL-8
- PCI DSS v3.2.1, 6.3, 6.4, 6.5, 6.6, 6.7
- State PSG, PM-14-009, SS-08-025, PS-08-018.02
- USG IT Handbook V2.9.7, 1.4, 5.4, 5.10

### *PR.IP-3: Change Control*

Configuration change control processes are in place.

#### **References:**

- COBIT 5, BAI01.06, BAI06.01
- FERPA (PTAC), Secure Configurations
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(8)
- ISO/IEC 27001:2013, A.12.1.2, A.12.5.1, A.12.6.2, A.14.2.2-4
- NIST Privacy Framework V1.0, PR.PO-P2
- NIST SP 800-53 Rev.4, CM-3-4, SA-10
- NIST SP 800-171 Rev. 1, 3.4.3-5
- PCI DSS v3.2.1, 6.4
- State PSG, GM-17-001, PS-08-015, SS-08-026
- USG IT Handbook V2.9.7, 5.1

### *PR.IP-4: Backup and Recovery*

Backups of information are conducted, maintained, and tested periodically.

#### **References:**

- CIS CSC v8, 11.2-3
- CMMC v0.6, RE-CO29-P1137
- COBIT 5, APO13.01, DSS01.01, DSS04.07
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(A), 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(D), 164.310(a)(2)(i), 164.310(d)(2)(iv)
- ISO/IEC 27001:2013, A.12.3.1, A.17.1.2-3, A.18.1.3
- NIST Privacy Framework V1.0, PR.PO-P3
- NIST SP 800-53 Rev.4, CP-4, CP-6, CP-9
- PCI DSS v3.2.1, 9.5.1, 12.10.1, 12.10.2
- State PSG, PS-08-025, PS-08-026, GM-13-001
- USG IT Handbook V2.9.7, 3.1

### *PR.IP-5: Compliance*

Policy and regulations regarding the physical operating environment for organizational assets are met.

#### **References:**

- COBIT 5, DSS01.04, DSS05.05
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(i), 164.308(a)(7)(ii)(C), 164.310, 164.316(b)(2)(iii)
- ISO/IEC 27001:2013, A.11.1.4, A.11.2.1-3
- NIST Privacy Framework V1.0, PR.PO-P4
- NIST SP 800-53 Rev.4, PE-10,12-15,18
- PCI DSS v3.2.1, 9 (all)
- USG IT Handbook V2.9.7, 5.6

### *PR.IP-6: Data Destruction*

Data is destroyed according to policy.

**References:**

- CIS CSC V8, 3.1, 3.5
- COBIT 5, BAI09.03, DSS05.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.310(d)(2)(i), 164.310(d)(2)(ii)
- ISO/IEC 27001:2013, A.8.2.3, A.8.3.1-2, A.11.2.7
- NIST Privacy Framework V1.0, CT.DM-P5
- NIST SP 800-53 Rev.4, MP-6
- NIST SP 800-171 Rev. 1, 3.8.3
- PCI DSS v3.2.1, 3.1, 9.8
- State PSG, SS-08-035
- USG IT Handbook V2.9.7, 5.14

*PR.IP-7: Process Improvement*

Protection processes are continuously improved.

**References:**

- CIS CSC V8, 16.14, 18.1
- COBIT 5, APO11.06, APO12.06, DSS04.05
- FERPA (PTAC), Audit and Compliance Monitoring
- HIPAA Security Rule 45 C.F.R. §§ 164.306(e), 164.308(a)(7)(ii)(D), 164.308(a)(8), 164.316(b)(2)(iii)
- ISO/IEC 27001:2013, A.16.1.6, Clause 9-10
- NIST Privacy Framework V1.0, PR.PO-P6
- NIST SP 800-53 Rev.4, CA-2,7, CP-2, IR-8, PL-2, PM-6
- PCI DSS v3.2.1, 10.8, 12.10.6, 12.11
- State PSG, GM-17-001
- USG IT Handbook V2.9.7, 5.14

*PR.IP-8: Information Sharing*

Effectiveness of protection technologies is shared with appropriate parties.

**References:**

- COBIT 5, BAI08.04, DSS03.04
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(ii)
- ISO/IEC 27001:2013, A.16.1.6
- NIST Privacy Framework V1.0, PR.PO-P7
- NIST SP 800-53 Rev.4, AC-21, CA-7, SI-4
- State PSG, PM-07-003
- USG IT Handbook V2.9.7, 5.0

*PR.IP-9: Incident, Disaster and Business Continuity Plans Implemented*

Response plans (Incident Response) and recovery plans (Disaster Recovery) are in place and managed.

**References:**

- CIS CSC V8, 11.1, 17.1, 17.3-4
- COBIT 5, APO12.06, DSS04.03
- GLBA (NIST SP 800-171 Rev. 1)

- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6), 164.308(a)(7), 164.310(a)(2)(i), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.16.1.1, A.17.1.1-3
- NIST Privacy Framework V1.0, PR.PO-P7
- NIST SP 800-53 Rev.4, CP-2,7,12-13, IR7-9,17
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 11.1.2, 12.5.3, 12.10
- State PSG, SS-08-045, SS-08-046
- USG IT Handbook V2.9.7, 3.3, 5.3

*PR.IP-10: Incident, Disaster and Business Continuity Plans Tested*

Response and recovery plans are tested.

**References:**

- CIS CSC V8, 17.7
- COBIT 5, DSS04.04
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(7)(ii)(D)
- ISO/IEC 27001:2013, A.17.1.3
- NIST Privacy Framework V1.0, PR.PO-P8
- NIST SP 800-53 Rev.4, CP-4, IR-3, PM-14
- NIST SP 800-171 Rev. 1, 3.6.3
- PCI DSS v3.2.1, 12.10.2
- State PSG, SS-08-046
- USG IT Handbook V2.9.7, 5.3, 5.10

*PR.IP-11: Human Resources Practices*

Cybersecurity is included in human resources practices (e.g., deprovisioning, personnel screening).

**References:**

- CIS CSC V8, 6.2
- COBIT 5, APO07.01-05
- FERPA (PTAC), Personnel Security
- GLBA (NIST SP 800-171 REV. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(C), 164.308(a)(3)
- ISO/IEC 27001:2013, A.7.1.1-2, A.7.2.1-3, A.7.3.1, A.8.1.4
- NIST Privacy Framework V1.0, PR.PO-P9
- NIST SP 800-53 Rev.4, PS-1-8, SA-21
- NIST SP 800-171 Rev. 1, 3.9.1-2
- PCI DSS v3.2.1, 8.1.3, 9.3, 12.7
- USG IT Handbook V2.9.7, 3.1

*PR.IP-12: Vulnerability Management Plan*

A vulnerability management plan is developed and implemented.

**References:**

- CIS CSC V8, 7.6
- COBIT 5, BAI03.10, BAI05.01-02

- FERPA (PTAC), Automated Vulnerability Scanning, Secure Configuration
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(B)
- ISO/IEC 27001:2013, A.12.6.1, A.14.2.3, A.6.1.3, A.18.2.2-3
- NIST Privacy Framework V1.0, PR.PO-P10
- NIST SP 800-53 Rev.4, RA-3,5, SI-2
- NIST SP 800-171 Rev. 1, 3.11.2-3, 3.12.2-3, 3.14.1-3
- PCI DSS v3.2.1, 6.1, 6.2, 6.5, 11.2
- State PSG, SA-10-010
- USG IT Handbook V2.9.7, 5.1

## MAINTENANCE (PR.MA)

Maintenance and repairs of information system components is performed consistent with policies and procedures. USG organizations must show:

### *PR.MA-1: Maintenance Program*

Maintenance and repair of organizational assets is performed and logged in a timely manner, with approved and controlled tools.

#### **References:**

- COBIT 5, BIA03.10, BAI09.02-03
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3)(ii)(A), 164.310(a)(2)(iv)
- ISO/IEC 27001:2013, A.11.1.2, A.11.2.4-6
- NIST Privacy Framework V1.0, PR.MA-P1
- NIST SP 800-53 Rev.4, MA-2-3,5-6
- NIST SP 800-171 Rev. 1, 3.7.1-4, 3.7.6
- PCI DSS v3.2.1, 6.2, 9.9.3
- USG IT Handbook V2.9.7, 2.1, 3.2, 5.8

### *PR.MA-2: Remote Maintenance Program*

Remote maintenance of organizational assets is approved, logged, and performed in a manner that prevents unauthorized access.

#### **References:**

- CIS CSC V8, 13.5
- COBIT 5, DSS05.04
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3)(ii)(A), 164.310(d)(1), 164.310(d)(2)(ii), 164.310(d)(2)(iii), 164.312(a), 164.312(a)(2)(ii), 164.312(a)(2)(iv), 164.312(b), 164.312(d), 164.312(e), 164.308(a)(1)(ii)(D)
- ISO/IEC 27001:2013, A.11.2.4, A.15.1.1, A.15.2.1
- NIST Privacy Framework V1.0, PR.MA-P2
- NIST SP 800-53 Rev.4, MA-4
- NIST SP 800-171 Rev. 1, 3.7.5
- PCI DSS v3.2.1, 8.1.5, 8.3, 8.5.1, 12.3.8, 12.3.9



- USG IT Handbook V2.9.7, 5.8

## PROTECTIVE TECHNOLOGY (PR.PT)

Technical cybersecurity solutions are managed to ensure the cybersecurity and resilience of USG systems and assets, consistent with related policies, procedures, and agreements. USG organizations shall ensure:

### *PR.PT-1: Log Management*

Audit/log records are determined, documented, implemented, and reviewed in accordance with policy.

#### **References:**

- CIS CSC V8, 8.2, 8.4, 8.8. 8.11
- COBIT 5, APO11.04, BAI03.05, DSS05.04,07, MEA02.01
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(C), 164.310(a)(2)(iv), 164.310(d)(2)(iii), 164.312(b)
- ISO/IEC 27001:2013, A.12.4.1-4, A.12.7.1
- NIST Privacy Framework V1.0, CT.DM-P8
- NIST SP 800-53 Rev.4, AU Family
- NIST SP 800-171 Rev. 1, 3.3.1-9
- PCI DSS v3.2.1, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6.1, 10.6.2, 10.7
- State PSG, SS-08-036, PS-08-022
- USG IT Handbook V2.9.7, 3.2

### *PR.PT-2: Removable Media*

Removable media is protected, and its use restricted according to policy.

#### **References:**

- CIS CSC V8, 3.9, 10.3
- COBIT 5, APO13.01, DSS05.02,06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3)(i), 164.308(a)(3)(ii)(A), 164.310(d)(1), 164.310(d)(2), 164.312(a)(1), 164.312(a)(2)(iv), 164.312(b)
- ISO/IEC 27001:2013, A.8.2.1-3, A.8.3.1, A.8.3.3, A.11.2.9
- NIST Privacy Framework V1.0, PR.PT-P1
- NIST SP 800-53 Rev.4, MP-2-5,7-8
- NIST SP 800-171 Rev. 1, 3.8.1-8
- PCI DSS v3.2.1, 3.4, 9.5, 9.6, 9.7, 9.8, 12.3, 12.3.10
- State PSG, SS-08-048
- USG IT Handbook V2.9.7, 5.1

### *PR.PT-3: Least Functionality*

Access to systems and assets is controlled, incorporating the principle of least functionality.

#### **References:**

- CIS CSC V8, 2.7, 13.10
- COBIT 5, DSS05.02,05-06

- FERPA (PTAC), Unnecessary Services
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(3), 164.308(a)(4), 164.310(a)(2)(iii), 164.310(b), 164.310(c), 164.312(a)(1), 164.312(a)(2)(i), 164.312(a)(2)(ii), 164.312(a)(2)(iv)
- ISO/IEC 27001:2013, A.9.1.2
- NIST Privacy Framework V1.0, PR.PT-P2
- NIST SP 800-53 Rev.4, AC-3, CM-7
- NIST SP 800-171 Rev. 1, 3.1.1-2, 3.4.6-8
- PCI DSS v3.2.1, 2.2, 7.1, 7.2, 9.3
- State PSG, SS-08-047
- USG IT Handbook V2.9.7, 5.1, 5.11

#### *PR.PT-4: Network Access Control*

Communications and control networks are protected.

#### **References:**

- COBIT 5, DSS05.02, APO13.01
- FERPA (PTAC), Firewalls and IDPS
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.312(a)(1), 164.312(b), 164.312(e)
- ISO/IEC 27001:2013, A.13.1.1, A.13.2.1, A.14.1.3
- NIST Privacy Framework V1.0, PR.PT-P3
- NIST SP 800-53 Rev.4, AC-4,17-18, CP-8, SC-7,19-25,29,32,36-41,43
- NIST SP 800-171 Rev. 1, 3.1.16-17, 3.13.1-2, 3.13.5-7, 3.13.15
- PCI DSS v3.2.1, 1 (all), 2 (all)
- State PSG, SS-08-040, PS-08-27
- USG IT Handbook V2.9.7, 3.4, 5.15

#### *PR.PT-5: Fault Tolerance Mechanisms*

Mechanisms (e.g., failsafe, load balancing, hot swap) are implemented to achieve resilience requirements in normal or adverse situations.

#### **References:**

- CIS CSC V8, 11.4
- COBIT 5, BAI04.01-5, DSS01.05
- ISO/IEC 27001:2013, A.17.1.2, A.17.2.1
- NIST Privacy Framework V1.0, PR.PT-P4
- NIST SP 800-53 Rev.4, CP-7-8,11,13, PL-8, SA-14, SC-6
- State PSG, PS-08-026

## *DETECT (DE)*

### **ANOMALIES AND EVENTS (DE.AE)**

Anomalous activity is detected in a timely manner and the potential impact of events is understood. This is accomplished by showing:

#### *DE.AE-1: Baselines and Diagrams*

A baseline of network operations and expected data flows for users and systems is established and managed.

##### **References:**

- CIS CSC V8, 3.8
- COBIT 5, DSS03.01
- FERPA (PTAC), Network Mapping
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.312(b)
- ISO/IEC 27001:2013, A.12.1.1-2, A.13.1.1-2
- NIST SP 800-53 Rev.4, AC-4, CA-3, CM-2, SI-4
- PCI DSS v3.2.1, 1.1.1, 1.1.2, 1.1.3
- USG IT Handbook V2.9.7, 5.1

#### *DE.AE-2: Analysis*

Detected events are analyzed to understand attack targets and methods.

##### **References:**

- CIS CSC V8, 8.11
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(6)(i)
- ISO/IEC 27001:2013, A.12.4.1, A.16.1.1, A.16.1.4
- NIST SP 800-53 Rev.4, AU-6, CA-7, IR-4, SI-4
- NIST SP 800-171 Rev. 1, 3.3.1-2, 3.3.5, 3.6.1, 3.14.6-7
- PCI DSS v3.2.1, 10.6 (all), 12.5.2
- USG IT Handbook V2.9.7, 5.5

#### *DE.AE-3: Aggregation and Correlation*

Event data are aggregated and correlated from multiple sources and sensors.

##### **References:**

- CIS CSC V8, 8.2, 8.5-8, 8.12
- COBIT 5, BAI08.02
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(6)(ii), 164.308(a)(8), 164.310(d)(2)(iii), 164.312(b), 164.314(a)(2)(i)(C), 164.314(a)(2)(iii)
- NIST SP 800-53 Rev.4, AU-6, CA-7, IR-4-5,8, SI-4
- NIST SP 800-171 Rev. 1, 3.3.5
- PCI DSS v3.2.1, 10.1, 12.10.5, 10.6
- USG IT Handbook V2.9.7, 5.5

#### *DE.AE-4: Impact assessment*

Impact of events is determined.

## References:

- COBIT 5, APO12.06, DSS03.01
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(ii)
- NIST SP 800-53 Rev.4, CP-2, IR-4, RA-3, SI -4
- NIST SP 800-171 Rev. 1, 3.11.1
- PCI DSS v3.2.1, 10.6.3, 12.5.2
- USG IT Handbook V2.9.7, 5.5

### *DE.AE-5) Incident Alerts*

Incident alert thresholds are established.

## References:

- CIS CSC V8, 13.11
- COBIT 5, APO12.06, DSS03.01
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(i)
- ISO/IEC 27001:2013, A.16.1.4
- NIST SP 800-53 Rev.4, IR-4-5, IR-8
- NIST SP 800-171 Rev. 1, 3.6-2
- PCI DSS v3.2.1, 12.5.2
- USG IT Handbook V2.9.7, 5.3

## SECURITY CONTINUOUS MONITORING (DE.CM)

USG information systems and assets are monitored at discrete intervals to identify cybersecurity events and verify the effectiveness of protective measures. This is achieved by ensuring:

### *DE.CM-1: Network Monitoring*

The network is monitored to detect potential cybersecurity events.

## References:

- COBIT 5, DSS01.03, DSS03.05, DSS05.07
- FERPA (PTAC), Firewalls and IDPS, Secure Configurations
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(8), 164.312(b), 164.312(e)(2)(i)
- NIST SP 800-53 Rev.4, AC-2, AU-12, CA-7, CM-3, SC-5,7, SI-4
- NIST SP 800-171 Rev. 1, 3.13.1, 3.14.6-7
- PCI DSS v3.2.1, 10.6.1, 10.6.2, 11.4
- USG IT Handbook V2.9.7, 5.5

### *DE.CM-2: Facilities Monitoring*

The physical environment is monitored to detect potential cybersecurity events.

## References:

- COBIT 5, DSS01.04-05
- FERPA (PTAC), Physical Security, Secure Configurations
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.310(a)(2)(ii), 164.310(a)(2)(iii)
- ISO/IEC 27001:2013, A11.1.1-2
- NIST SP 800-53 Rev.4, CA-7, PE-3,6,20
- NIST SP 800-171 Rev. 1, 3.10.2-3
- PCI DSS v3.2.1, 9.1.1
- USG IT Handbook V2.9.7, 5.5

*DE.CM-3: Logging Monitoring*

Personnel activity is monitored to detect potential cybersecurity events.

**References:**

- COBIT 5, DSS05.07
- FERPA (PTAC), Access Controls
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(3)(ii)(A), 164.308(a)(5)(ii)(C), 164.312(a)(2)(i), 164.312(b), 164.312(d), 164.312(e)
- ISO/IEC 27001:2013, A.12.4.1,3
- NIST SP 800-53 Rev.4, AC-2, AU-12-13, CA-7, CM-10-11
- NIST SP 800-171 Rev. 1, 3.1.12, 3.3.1-2, 3.4.9
- PCI DSS v3.2.1, 9.1.1
- USG IT Handbook V2.9.7, 5.5

*DE.CM-4: End-Point Monitoring*

Malicious code is detected.

**References:**

- CIS CSC V8, 10.1-2, 10.4-7
- COBIT 5, DSS05.01
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B)
- ISO/IEC 27001:2013, A.12.2.1
- NIST SP 800-53 Rev.4, SI-3,8
- NIST SP 800-171 Rev. 1, 3.14.1-5, 3.13.13
- PCI DSS v3.2.1, 5 (all)
- State PSG, SS-08-033, PS-08-021
- USG IT Handbook V2.9.7, 5.5, 5.8, 5.11

*DE.CM-5: Mobile Code Monitoring*

Unauthorized mobile code is detected.

**References:**

- COBIT 5, DSS05.01
- FERPA (PTAC), Mobile Devices
- GLBA (NIST SP 800-171 Rev. 1)

- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B)
- ISO/IEC 27001:2013, A.12.5.1, A.12.6.2
- NIST SP 800-53 Rev.4, SC-18, SI-4, SC-44
- NIST SP 800-171 Rev. 1, 3.13.13
- PCI DSS v3.2.1, 5 (all)
- State PSG, PS-08-021
- USG IT Handbook V2.9.7, 5.5

*DE.CM-6: 3rd Part Service Monitoring*

External service provider activity is monitored to detect potential cybersecurity events.

**References:**

- CIS CSC V8, 15.6
- COBIT 5, APO07.06, APO10.05
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(1)(ii)(D)
- ISO/IEC 27001:2013, A.14.2.7, A.15.2.1
- NIST SP 800-53 Rev.4, CA-7, PS-7, SA-4,9, SI-4
- NIST SP 800-171 Rev. 1, 3.14.6-7
- PCI DSS v3.2.1, 8.1.5, 10.6

*DE.CM-7: Access Monitoring*

Monitoring for unauthorized personnel, connections, devices, and software is performed.

**References:**

- CIS CSC V8, 1.3-5, 2.3-6, 9.6
- COBIT 5, DSS05.02,05
- FERPA (PTAC), Inventory of Assets, Physical Security, Secure Configurations
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.310(a)(1), 164.310(a)(2)(ii), 164.310(a)(2)(iii), 164.310(b), 164.310(c), 164.310(d)(1), 164.310(d)(2)(iii), 164.312(b), 164.314(b)(2)(i)
- ISO/IEC 27001:2013, A.12.4.1, A.14.2.7, A.15.2.1
- NIST SP 800-53 Rev.4, AU-12, CA-7, CM-3,8, PE-3,6,20, SI-4
- NIST SP 800-171 Rev. 1, 3.1.12, 3.3.1, 3.10.2-3, 3.14.6-7
- PCI DSS v3.2.1, 10.1, 10.6.1, 11.1, 11.4, 11.5, 12.10.5
- USG IT Handbook V2.9.7, 5.8

*DE.CM-8: Vulnerability Scanning*

Vulnerability scans are performed.

**References:**

- CIS CSC V8, 7.5
- FERPA (PTAC), Automated Vulnerability Scanning, Secure Configurations
- COBIT 5, BAI03.10, DSS05.01
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(8)

- ISO/IEC 27001:2013, A.12.6.1
- NIST SP 800-53 Rev.4, RA-5
- NIST SP 800-171 Rev. 1, 3.11.2
- PCI DSS v3.2.1, 11.2
- State PSG, PS-08-021
- USG IT Handbook V2.9.7, 5.1

## DETECTION PROCESSES (DE.DP)

Detection processes and procedures are maintained and tested to ensure timely and adequate awareness of anomalous events. USG organizations must demonstrate:

### *DE.DP-1: Roles and Responsibilities*

Roles and responsibilities for detection are well defined to ensure accountability.

#### **References:**

- CIS CSC V8, 17.1, 17.4
- COBIT 5, APO01.02, DSS05.01, DSS06.03
- FERPA (PTAC), Audit and Compliance Monitoring
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2), 164.308(a)(3)(ii)(A), 164.308(a)(3)(ii)(B), 164.308(a)(4), 164.310(a)(2)(iii), 164.312(a)(1), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.2
- NIST SP 800-53 Rev.4, CA-2,7, PM-14
- PCI DSS v3.2.1, 9.9.3, 12.5.2, 12.10
- USG IT Handbook V2.9.7, 5.3

### *DE.DP-2: Monitoring*

Detection activities comply with all applicable requirements.

#### **References:**

- COBIT 5, DSS06.01, MEA03.03-04
- FERPA (PTAC), Audit and Compliance Monitoring
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(8)
- ISO/IEC 27001:2013, A.18.1.4, A.18.2.2-3
- NIST SP 800-53 Rev.4, AC-25, CA-2,7, SA-18, SI-4, PM-14
- NIST SP 800-171 Rev. 1, 3.12.1, 3.12.3, 3.14.6-7
- PCI DSS v3.2.1, 10.9, 11.2, 11.3, 11.4, 12.10.1
- USG IT Handbook V2.9.7, 5.3

### *DE.DP-3: Testing*

Detection processes are tested .

#### **References:**

- COBIT 5, APO13.02, DSS05.02
- FERPA (PTAC), Audit and Compliance Monitoring, Physical Security
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.306(e)

- ISO/IEC 27001:2013, A.14.2.8
- NIST SP 800-53 Rev.4, CA-2,7, PE-3, PM-14, SI-3-4
- NIST SP 800-171 Rev. 1, 3.10.4, 3.12.1, 3.12.3
- PCI DSS v3.2.1, 10.6.1, 10.9, 11.2, 11.3, 12.10
- USG IT Handbook V2.9.7, 5.3

#### *DE.DP-4: Information Sharing*

Event detection information is communicated to appropriate parties.

#### **References:**

- CIS CSC V8, 17.5
- COBIT 5, APO08.04, APO12.06, DSS05.02
- FERPA (PTAC), Audit and Compliance Monitoring
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6)(ii), 164.314(a)(2)(i)(C), 164.314(a)(2)(iii)
- ISO/IEC 27001:2013, A.16.1.2-3
- NIST SP 800-53 Rev.4, AU-6, CA-2,7, RA-5, SI-4
- PCI DSS v3.2.1, 12.10
- USG IT Handbook V2.9.7, 5.3, 5.10

#### *DE.DP-5: Continuous Improvement*

Detection processes are continuously improved.

#### **References:**

- COBIT 5, APO11.06, APO12.06, DSS04.05
- FERPA (PTAC), Audit and Compliance Monitoring
- HIPAA Security Rule 45 C.F.R. §§ 164.306(e), 164.308(a)(8)
- ISO/IEC 27001:2013, A.16.1.6
- NIST SP 800-53 Rev.4, CA-2,7, PL-2, RA-5, SI-4, PM-14
- PCI DSS v3.2.1, 12.10.6
- USG IT Handbook V2.9.7, 5.3

## *RESPOND (RS)*

### **ANALYSIS (RS.AN)**

USG organization shall conduct analysis of adequate response and support recovery activities to ensure:

#### *RS.AN-1: Investigation*

Notifications from detection systems are investigated.

#### **References:**

- CIS CSC V8, 8.11, 16.3, 16.6
- COBIT 5, DSS02.04,07
- FERPA (PTAC), Incident Handling, Secure Configuration
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(i), 164.308(a)(1)(ii)(D), 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(6)(ii), 164.312(b)



- ISO/IEC 27001:2013, A.12.4.1,3, A.16.1.5
- NIST SP 800-53 Rev.4, AU-6, CA-7, IR-4-5, PE-6, SI-4
- NIST SP 800-171 Rev. 1, 3.3.5, 3.6.1-2
- PCI DSS v3.2.1, 10.6.3, 11.5.1, 12.5.2, 12.10.5
- USG IT Handbook V2.9.7, 5.3

*RS.AN-2: Impact Understood*

The impact of the incident is understood.

**References:**

- COBIT 5, DSS02.02
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6)(ii), 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(C), 164.308(a)(7)(ii)(E)
- ISO/IEC 27001:2013, A.16.1.4,6
- NIST SP 800-53 Rev.4, CP-2, IR-4
- NIST SP 800-171 Rev. 1, 3.11.1
- PCI DSS v3.2.1, 10.6.3, 11.5.1, 12.5.2
- USG IT Handbook V2.9.7, 5.3

*RS.AN-3: Forensics*

Forensics are performed.

**References:**

- COBIT 5, APO12.06, DSS03.02, DSS05.07
- FERPA (PTAC), Incident Handling
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)
- ISO/IEC 27001:2013, A.16.1.7
- NIST SP 800-53 Rev.4, AU-7, IR-4
- PCI DSS v3.2.1, 11.5.1, 12.5.2

*RS.AN-4: Incident Categorized*

Incidents are categorized consistent with response plans.

**References:**

- CIS CSC V8, 17.9
- COBIT 5, DSS02.02
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(ii)
- ISO/IEC 27001:2013, A.16.1.4
- NIST SP 800-53 Rev.4, CP-2, IR-4-5,8
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 11.5.1, 12.5.2
- USG IT Handbook V2.9.7, 5.3

### *RS.AN-5: Vulnerability Disclosure Response*

Processes are established to receive, analyze and respond to vulnerabilities disclosed to the organization from internal and external sources (e.g., internal and external testing, security bulletins, or security researchers).

- CIS CSC V8, 16.2
- CMMC v0.6, SII-CO41-P1214
- COBIT 5, EDM03.02, DSS05.07
- NIST SP 800-53 Rev.4, SI-5, PM-15
- PCI DSS v3.2.1, 6.1, 6.2

## COMMUNICATIONS (RS.CO)

Response activities are coordinated with internal and external stakeholders, as appropriate, to include external support from law enforcement agencies. This is achieved by ensuring:

### *RS.CO-1: Roles and Responsibilities*

Personnel know their roles and order of operations when a response is needed.

#### **References:**

- CIS CSC V8, 17.2, 17.4
- COBIT 5, APO01.02, APO12.03, EDM03.02
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(2), 164.308(a)(7)(ii)(A), 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(C), 164.310(a)(2)(i), 164.308(a)(6)(i), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.6.1.1, A.7.2.2, A.16.1.1
- NIST SP 800-53 Rev.4, CP-2-3, IR-3,8
- NIST SP 800-171 Rev. 1, 3.6.3
- PCI DSS v3.2, 12.10
- USG IT Handbook V2.9.7, 5.3

### *RS.CO-2: Event Notification*

Events are reported consistent with established criteria.

#### **References:**

- CIS CSC V8, 17.5
- COBIT 5, DSS01.03
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(6)(ii), 164.314(a)(2)(i)(C), 164.314(a)(2)(iii)
- ISO/IEC 27001:2013, A.6.1.3, A.16.1.2
- NIST SP 800-53 Rev.4, AU-6, IR-6, IR-8
- NIST SP 800-171 Rev. 1, 3.6.2
- PCI DSS v3.2.1, 10.8, 12.10
- USG IT Handbook V2.9.7, 5.3

### *RS.CO-3: Information Sharing – Internal*

Information is shared consistent with response plans.

**References:**

- CIS CSC V8, 17.5
- COBIT 5, DSS03.04
- Audit and Compliance Monitoring, Incident Handling, Secure Configurations
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(5)(ii)(B), 164.308(a)(5)(ii)(C), 164.308(a)(6)(ii), 164.314(a)(2)(i)(C)
- ISO/IEC 27001:2013, A.16.1.2, Clause 7.4, Clause 16.1.2
- NIST SP 800-53 Rev.4, CA-2,7, CP-2, IR-4,8, PE-6, RA-5, SI-4
- PCI DSS v3.2.1, 12.10
- USG IT Handbook V2.9.7, 5.3

*RS.CO-4: Coordination*

Coordination with stakeholders occurs consistent with response plans.

**References:**

- CIS CSC V8, 17.5
- COBIT 5, DSS03.04
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6), 164.308(a)(7), 164.310(a)(2)(i), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, Clause 7.4
- NIST SP 800-53 Rev. 4, CP-2, IR-4,8
- NIST SP 800-171 Rev. 1, 3.6.1
- PCI DSS v3.2.1, 12.10.1

*RS.CO-5: Information Sharing – External*

Voluntary information sharing occurs with external stakeholders to achieve broader cybersecurity situational awareness.

**References:**

- COBIT 5, BAI08.04
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)
- NIST SP 800-53 Rev.4, PM-15, SI-5
- PCI DSS 3.0, 12.10

**IMPROVEMENTS (RS.IM)**

Organizational response activities are improved by incorporating lessons learned from current and previous detection/response activities. USG organizations must show:

*RS.IM-1: Lessons Learned*

Response plans incorporate lessons learned.

**References:**

- CIS CSC V8, 17.8
- COBIT 5, BAI01.13
- FERPA (PTAC), Incident Handling

- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(D), 164.308(a)(8), 164.316(b)(2)(iii)
- ISO/IEC 27001:2013, A.16.1.6, Clause 10
- NIST SP 800-53 Rev.4, CP-2, IR-4, IR-8
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 12.10.6
- USG IT Handbook V2.9.7, 5.3

*RS.IM-2: Procedures Updated*

Response strategies are updated.

**References:**

- CIS CSC V8, 17.8
- COBIT 5, BAI01.13, DSS04.08
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(D), 164.308(a)(8)
- ISO/IEC 27001:2013, A.16.1.6, Clause 10
- NIST SP 800-53 Rev.4, CP-2, IR-4, IR-8
- NIST SP 800-171 Rev. 1, 3.6.2
- PCI DSS v3.2.1, 12.10.6
- USG IT Handbook V2.9.7, 5.3

**MITIGATION (RS.MI)**

Activities are performed to prevent expansion of an event, mitigate its effects, and eradicate the incident. USG organizations must verify:

*RS.MI-1: Incident Containment*

Incidents are contained.

**References:**

- COBIT 5, APO12.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(ii)
- ISO/IEC 27001:2013, A.12.2.1, A.16.1.5
- NIST SP 800-53 Rev.4, IR-4
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 11.5.1, 12.5.2
- USG IT Handbook V2.9.7, 5.3

*RS.MI-2: Incident Mitigation*

Incidents are mitigated.

**References:**

- COBIT 5, APO12.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(ii)
- ISO/IEC 27001:2013, A.12.2.1, A.16.1.5

- NIST SP 800-53 Rev.4, IR-4
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 11.5.1, 12.5.2
- USG IT Handbook V2.9.7, 5.3

#### *RS.MI-3: Vulnerability Mitigation*

Newly identified vulnerabilities are mitigated or documented as accepted risks.

#### **References:**

- COBIT 5, APO12.06
- FERPA (PTAC), Automated Vulnerability Monitoring, Secure Configuration
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(1)(ii)(A), 164.308(a)(1)(ii)(B), 164.308(a)(6)(ii)
- ISO/IEC 27001:2013, A.12.6.1
- NIST SP 800-53 Rev.4, CA-7, RA-3, RA-5
- NIST SP 800-171 Rev. 1, 3.11.1-3, 3.12.2, 3.12.4, 3.14.1
- PCI DSS v3.2.1, 6.1, 6.2, 10.6.3, 11.2, 11.5.1, 12.5.2, 12.10
- USG IT Handbook V2.9.7, 5.5

## **RESPONSE PLANNING (RS.RP)**

Response processes and procedures are executed and maintained, to ensure timely response to detected cybersecurity events. To achieve this, USG organizations must verify:

#### *RS.RP-1: Incident Response Plans and Procedures*

Response plans are executed during or after an event.

#### **References:**

- COBIT 5, APO12.06, BAI01.10
- FERPA (PTAC), Incident Handling
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6)(ii), 164.308(a)(7)(i), 164.308(a)(7)(ii)(A), 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(C), 164.310(a)(2)(i), 164.312(a)(2)(ii)
- ISO/IEC 27001:2013, A.16.1.5
- NIST SP 800-53 Rev.4, CP-2,10, IR-4,8
- NIST SP 800-171 Rev. 1, 3.6.2
- PCI DSS v3.2.1, 12.10
- State PSG, PS-08-004
- USG IT Handbook V2.9.7, 5.3

## *RECOVER (RC)*

### **RECOVERY PLANNING (RC.RP)**

Recovery processes and procedures are executed and maintained to ensure timely restoration of systems or assets affected by cybersecurity events. This is demonstrated by showing:

### *RC.RP-1: Recovery Plans Executed and Tested*

Recovery plans are executed during or after an event.

#### **References:**

- COBIT 5, APO12.06, DSS02.05, DSS03.04
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7), 164.310(a)(2)(i)
- ISO/IEC 27001:2013, A.16.1.5
- NIST SP 800-53 Rev.4, CP-10, IR-4, IR-8
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 12.10.6
- State PSG, PS-08-025, SS-08-004, SS-08-046
- USG IT Handbook V2.9.7, 3.3.1

### **IMPROVEMENTS (RC.IM)**

Recovery planning and processes are improved by incorporating lessons learned into future activities.

#### *RC.IM-1: Lessons Learned*

Recovery plans incorporate lessons learned.

#### **References:**

- COBIT 5, APO12.06, BAI05.07, DSS04.08
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(D), 164.308(a)(8), 164.316(b)(2)(iii)
- ISO/IEC 27001:2013, A.16.1.6, Clause 10
- NIST SP 800-53 Rev.4, CP-2, IR-4, IR-8
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 12.10.6
- USG IT Handbook V2.9.7, 3.3.1

#### *RC.IM-2: Procedures Updated*

Recovery strategies are updated.

#### **References:**

- COBIT 5, APO12.06, BAI07.08
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(7)(ii)(D), 164.308(a)(8)
- ISO/IEC 27001:2013, A.16.1.6, Clause 10
- NIST SP 800-53 Rev.4, CP-2, IR-4, IR-8
- NIST SP 800-171 Rev. 1, 3.6.1-2
- PCI DSS v3.2.1, 12.10.6
- USG IT Handbook V2.9.7, 3.3.1

## COMMUNICATIONS (RC.CO)

Restoration activities are coordinated with internal and external parties, such as USO/ITS/USG Cybersecurity, Internet Service Providers, owners of attacking systems, victims, other CSIRTs, and vendor-partners. This is achieved by ensuring:

### *RC.CO-1: Enterprise Communications*

Public relations are managed.

#### **References:**

- COBIT 5, EDM03.02
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(i)
- ISO/IEC 27001:2013, A.16.1.4, Clause 7.4
- USG IT Handbook V2.9.7, 3.3.1

### *RC.CO-2: Reputation Management*

Reputation after an event is repaired.

#### **References:**

- COBIT 5, MEA03.02
- HIPAA Security Rule 45 C.F.R. § 164.308(a)(6)(i)
- ISO/IEC 27001:2013, Clause 7.4
- USG IT Handbook V2.9.7, 3.3.1

### *RC.CO-3: Recovery Communications*

Recovery activities are communicated to internal stakeholders and executive and management teams.

#### **References:**

- COBIT 5, APO12.06
- GLBA (NIST SP 800-171 Rev. 1)
- HIPAA Security Rule 45 C.F.R. §§ 164.308(a)(6)(ii), 164.308(a)(7)(ii)(B), 164.308(a)(7)(ii)(C), 164.310(a)(2)(i), 164.314(a)(2)(i)(C)
- ISO/IEC 27001:2013, Clause 7.4
- NIST SP 800-53 Rev.4, CP-2, IR-4
- NIST SP 800-171 Rev. 1, 3.6.1-2
- USG IT Handbook V2.9.7, 3.3.1

# USG BUSINESS PROCEDURES MANUAL TO CYBERSECURITY FRAMEWORK (CSF)/PRIVACY FRAMEWORK (PF)

## *SECTION 12: DATA GOVERNANCE AND MANAGEMENT*

Governance structures and procedures; management documentation, elements, definitions, availability and lifecycle; cybersecurity safeguards, classification, access and segregation; compliance regulations, training, monitoring and audit; and privacy management, inventory, documentation, awareness and communication.

### 12.2.1 GOVERNANCE AND ORGANIZATIONAL STRUCTURE - DATA OWNER

Cybersecurity roles and responsibilities (data owner, data trustee, data stewards) are coordinated and aligned with internal roles and external partners.

- CSF v1.1, ID.GV-2
- PF v1.0, GV.PO-P4

#### *12.4.2 Data Classification*

Resources are prioritized based on their classification, criticality, and business value.

- CSF v1.1, ID.AM-5

#### *12.4.3 Access Procedures*

Access permissions/authorizations are documented and managed, using principles of least privilege and separation of duties.

- CSF v1.1, PR.AC-4
- PF v1.0, PR.AC-P4

#### *12.5.1 Regulatory Compliance*

Legal, regulatory, privacy, and civil liberties requirements regarding cybersecurity are understood and managed.

- CSF v1.1, ID.GV-3
- PF v1.0, GV.PO-P5



## APPENDIX A: REFERENCES

CIS	Critical Security Controls for Effective Cyber Defense v8 <a href="https://www.cisecurity.org">https://www.cisecurity.org</a>
CMMC	DoD Cybersecurity Maturity Model Certification v0.6 <a href="https://www.complianceforge.com">https://www.complianceforge.com</a>
CSF	Cybersecurity Framework <a href="https://www.nist.gov/cyberframework">https://www.nist.gov/cyberframework</a>
FERPA	FERPA (PTAC): Data Security Checklist <a href="https://studentprivacy.ed.gov/resources/data-security-checklist">https://studentprivacy.ed.gov/resources/data-security-checklist</a>
GLBA	GLBA “Safeguards Rule” <a href="https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/safeguards-rule">https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/safeguards-rule</a>
HIPAA	DHHS Office for Civil Rights   HIPAA Security Rule Crosswalk to NIST Cybersecurity Framework, 45 CFR 160, 162, and 164. <a href="https://www.hhs.gov/sites/default/files/nist-csf-to-hipaa-security-rule-crosswalk-02-22-2016-final.pdf">https://www.hhs.gov/sites/default/files/nist-csf-to-hipaa-security-rule-crosswalk-02-22-2016-final.pdf</a>
ISO/IEC 27001	Information Technology-Security Techniques... Requirements <a href="https://www.iso.org/standards/54534.html">https://www.iso.org/standards/54534.html</a>
Privacy Framework	NIST Privacy Framework: A Tool for Improving Privacy Through Enterprise Risk Management <a href="https://nist.gov/privacy-framework">https://nist.gov/privacy-framework</a>
NIST SP 800-53	NIST SP 800-53 Rev4, Security and Privacy Controls <a href="https://csrc.nist.gov/publications/sp800">https://csrc.nist.gov/publications/sp800</a>
NIST SP 800-171	NIST SP 800-171 Rev. 1 Informative Reference Details <a href="https://www.nist.gov/nist-sp-800-171-rev-1-informative-reference-details">https://www.nist.gov/nist-sp-800-171-rev-1-informative-reference-details</a> -OR- <a href="https://www.nist.gov/document/csf-sp800-171mappingxlsx">https://www.nist.gov/document/csf-sp800-171mappingxlsx</a>
PCI DSS 3.2.1	Mapping PCI DSS v3.2.1 to the NIST Cybersecurity Framework v1.1 <a href="https://www.pcisecuritystandards.org/pdfs/Mapping-PCI-DSS-to-NIST-Framework.pdf">https://www.pcisecuritystandards.org/pdfs/Mapping-PCI-DSS-to-NIST-Framework.pdf</a>

## APPENDIX B: ACRONYMS (COMMON ABBREVIATIONS)

CIS	Center for Internet Security
CMMC	Cybersecurity Maturity Model Certification
CSF	Cybersecurity Framework
FERPA	Family Educational Rights and Privacy Act
FSA	Federal Student Aid
GLBA	Gramm-Leach-Bliley Act
HIPAA	Health Insurance Portability and Accountability Act
IEC	International Electrotechnical Commission
IHE	Institutes of Higher Education
ISO/	International Organization for Standardization
NIST	National Institute of Standards and Technology
PCI DSS	Payment Card Industry Data Security Standard
PTAC	Privacy Technical Assistance Center
SP	Special Publication