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Recommended Security Controls for Federal Information Systems and Organizations

JOINT TASK FORCE
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APPENDIX H

INTERNATIONAL INFORMATION SECURITY STANDARDS

SECURITY CONTROL MAPPINGS FOR ISO/IEC 27001

The mapping tables in this appendix provide organizations with a *general* indication of security control coverage with respect to ISO/IEC 27001, *Information technology–Security techniques–Information security management systems–Requirements*.[76] ISO/IEC 27001 applies to all types of organizations (e.g., commercial, government) and specifies requirements for establishing, implementing, operating, monitoring, reviewing, maintaining, and improving a documented information security management system (ISMS) within the context of the organization's overall business risks. While the risk management approach established by NIST originally focused on managing risk from information systems (as required by FISMA and described in NIST Special Publication 800-39), the approach is being expanded to include risk management at the organizational level. A forthcoming version of NIST Special Publication 800-39 will incorporate ISO/IEC 27001 to manage organizational information security risk through the establishment of an ISMS. Since NIST's mission includes the adoption of international and national standards where appropriate, NIST intends to pursue convergence to reduce the burden on organizations that must conform to both sets of standards. The convergence initiative will be carried out in three phases. Phase I, the subject of this appendix, provides a two-way mapping between the security controls in NIST Special Publication 800-53 and the controls in ISO/IEC 27001 (Annex A). Phase II will provide a two-way mapping between the organization-level risk management concepts in NIST Special Publication 800-39 (forthcoming version) and general requirements in ISO/IEC 27001. Phase III will use the results from Phase I and II to fully integrate ISO/IEC 27001 into NIST's risk management approach such that an organization that complies with NIST standards and guidelines can also comply with ISO/IEC 27001 (subject to appropriate assessment requirements for ISO/IEC 27001 certification).

Table H-1 provides a forward mapping from the security controls in NIST Special Publication 800-53 to the controls in ISO/IEC 27001 (Annex A). The mappings are created by using the primary security topic identified in each of the Special Publication 800-53 security controls and associated control enhancements (if any) and searching for a similar security topic in ISO/IEC 27001 (Annex A). Security controls with similar functional meaning are included in the mapping table. For example, Special Publication 800-53 contingency planning and ISO/IEC 27001 (Annex A) business continuity were deemed to have similar, but not the same, functionality. In some cases, similar topics are addressed in the security control sets but provide a different context, perspective, or scope. For example, Special Publication 800-53 addresses information flow control broadly in terms of approved authorizations for controlling access between source and destination objects, whereas ISO/IEC 27001 (Annex A) addresses the information flow more narrowly as it applies to interconnected network domains. Table H-2 provides a reverse mapping from the security controls in ISO/IEC 27001 (Annex A) to the security controls in Special Publication 800-53.[77]

[76] ISO/IEC 27001 was published in October 2005 by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

[77] The use of the term *XX-1 controls* in mapping Table H-2 refers to the set of security controls represented by the first control in each family in NIST Special Publication 800-53, where *XX* is a placeholder for the two-letter family identifier. These security controls primarily focus on policies and procedures for each topic area addressed by the respective security control family.

Organizations are encouraged to use the mapping tables as a starting point for conducting further analyses and interpretation of the extent of compliance with ISO/IEC 27001 from compliance with the NIST security standards and guidelines and visa versa. Organizations that use the security controls in Special Publication 800-53 as an extension to the security controls in Annex A in their ISO/IEC 27001 implementations will have a higher probability of complying with NIST security standards and guidelines than those organizations that use only Annex A.

TABLE H-1: MAPPING NIST SP 800-53 TO ISO/IEC 27001 (ANNEX A)

NIST SP 800-53 CONTROLS		ISO/IEC 27001 (Annex A) CONTROLS
AC-1	Access Control Policy and Procedures	A5.1.1, A5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A10.1.1, A.10.8.1, A.11.1.1, A.11.2.1, A11.2.2, A11.4.1, A.11.7.1, A.11.7.2, A.15.1.1, A.15.2.1
AC-2	Account Management	A.8.3.3, A.11.2.1, A.11.2.2, A.11.2.4, A15.2.1
AC-3	Access Enforcement	A.10.8.1 A.11.4.4, A.11.4.6, A.11.5.4, A.11.6.1, A.12.4.2
AC-4	Information Flow Enforcement	A.10.6.1, A.10.8.1, A.11.4.5, A.11.4.7, A.11.7.2, A.12.4.2, A.12.5.4
AC-5	Separation of Duties	A.6.1.3, A.8.1.1, A.10.1.3, A.11.1.1, A.11.4.1
AC-6	Least Privilege	A.6.1.3, A.8.1.1, A.11.1.1, A.11.2.2, A.11.4.1, A.11.4.4, A.11.4.6, A.11.5.4, A.11.6.1, A.12.4.3
AC-7	Unsuccessful Login Attempts	A.11.5.1
AC-8	System Use Notification	A.6.2.2, A.8.1.1, A.11.5.1, A.15.1.5
AC-9	Previous Logon (Access) Notification	A.11.5.1
AC-10	Concurrent Session Control	A.11.5.1
AC-11	Session Lock	A.11.3.2, A.11.3.3, A.11.5.5
AC-12	**Withdrawn**	---
AC-13	**Withdrawn**	---
AC-14	Permitted Actions without Identification or Authentication	A.11.6.1
AC-15	**Withdrawn**	---
AC-16	Security Attributes	A.7.2.2
AC-17	Remote Access	A.10.6.1, A.10.8.1, A.11.1.1, A.11.4.1, A.11.4.2, A.11.4.4, A.11.4.6, A.11.4.7, A.11.7.1, A.11.7.2
AC-18	Wireless Access	A.10.6.1, A.10.8.1, A.11.1.1, A.11.4.1, A.11.4.2, A.11.4.4, A.11.4.6, A.11.4.7, A.11.7.1, A.11.7.2
AC-19	Access Control for Mobile Devices	A.10.4.1, A.11.1.1, A.11.4.3, A.11.7.1
AC-20	Use of External Information Systems	A.7.1.3, A.8.1.1, A.8.1.3, A.10.6.1, A.10.8.1, A.11.4.1, A.11.4.2
AC-21	User-Based Collaboration and Information Sharing	A.11.2.1, A.11.2.2
AC-22	Publicly Accessible Content	None
AT-1	Security Awareness and Training Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
AT-2	Security Awareness	A.6.2.2, A.8.1.1, A.8.2.2, A.9.1.5, A.10.4.1
AT-3	Security Training	A.8.1.1, A.8.2.2, A.9.1.5
AT-4	Security Training Records	None
AT-5	Contacts with Security Groups and Associations	A.6.1.7
AU-1	Audit and Accountability Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.10.10.2, A.15.1.1, A.15.2.1, A.15.3.1
AU-2	Auditable Events	A.10.10.1, A.10.10.4, A.10.10.5, A.15.3.1
AU-3	Content of Audit Records	A.10.10.1
AU-4	Audit Storage Capacity	A.10.10.1, A.10.3.1
AU-5	Response to Audit Processing Failures	A.10.3.1, A.10.10.1
AU-6	Audit Review, Analysis, and Reporting	A.10.10.2, A.10.10.5, A.13.1.1, A.15.1.5
AU-7	Audit Reduction and Report Generation	A.10.10.2
AU-8	Time Stamps	A.10.10.1, A.10.10.6
AU-9	Protection of Audit Information	A.10.10.3, A.13.2.3, A.15.1.3, A.15.3.2
AU-10	Non-repudiation	A.10.9.1, A.12.2.3
AU-11	Audit Record Retention	A.10.10.1, A.10.10.2, A.15.1.3

NIST SP 800-53 CONTROLS		ISO/IEC 27001 (Annex A) CONTROLS
AU-12	Audit Generation	A.10.10.1, A.10.10.4, A.10.10.5
AU-13	Monitoring for Information Disclosure	None
AU-14	Session Audit	None
CA-1	Security Assessment and Authorization Policies and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3 A.6.1.4, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
CA-2	Security Assessments	A.6.1.8, A.10.3.2, A.15.2.1, A.15.2.2
CA-3	Information System Connections	A.6.2.1, A.6.2.3, A.10.6.1, A.10.8.1, A.10.8.2, A.10.8.5, A.11.4.2
CA-4	**Withdrawn**	---
CA-5	Plan of Action and Milestones	None
CA-6	Security Authorization	A.6.1.4, A.10.3.2
CA-7	Continuous Monitoring	A.6.1.8, A.15.2.1, A.15.2.2
CM-1	Configuration Management Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.10.1.2, A.12.4.1, A.12.5.1, A.15.1.1, A.15.2.1
CM-2	Baseline Configuration	A.12.4.1, A.10.1.4
CM-3	Configuration Change Control	A.10.1.1, A.10.1.2, A.10.3.2, A.12.4.1, A.12.5.1, A.12.5.2, A.12.5.3
CM-4	Security Impact Analysis	A.10.1.2, A.10.3.2, A.12.4.1, A.12.5.2, A.12.5.3
CM-5	Access Restrictions for Change	A.10.1.2, A.11.1.1, A.11.6.1, A.12.4.1, A.12.4.3, A.12.5.3
CM-6	Configuration Settings	None
CM-7	Least Functionality	None
CM-8	Information System Component Inventory	A.7.1.1, A.7.1.2
CM-9	Configuration Management Plan	A.6.1.3. A.7.1.1, A.7.1.2, A.8.1.1, A.10.1.1, A.10.1.2, A.10.3.2, A.12.4.1, A.12.4.3, A.12.5.1, A.12.5.2, A.12.5.3
CP-1	Contingency Planning Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.9.1.4, A.10.1.1, A.10.1.2, A.14.1.1, A.14.1.3, A.15.1.1, A.15.2.1
CP-2	Contingency Plan	A.6.1.2, A.9.1.4, A.10.3.1, A.14.1.1, A.14.1.2, A.14.1.3, A.14.1.4, A.14.1.5
CP-3	Contingency Training	A.8.2.2, A.9.1.4, A.14.1.3
CP-4	Contingency Plan Testing and Exercises	A.6.1.2, A.9.1.4, A.14.1.1, A.14.1.3, A.14.1.4, A.14.1.5
CP-5	**Withdrawn**	---
CP-6	Alternate Storage Site	A.9.1.4, A.14.1.3
CP-7	Alternate Processing Site	A.9.1.4, A.14.1.3
CP-8	Telecommunications Services	A.9.1.4, A.10.6.1, A.14.1.3
CP-9	Information System Backup	A.9.1.4, A.10.5.1, A.14.1.3, A.15.1.3
CP-10	Information System Recovery and Reconstitution	A.9.1.4, A.14.1.3
IA-1	Identification and Authentication Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.11.2.1, A.15.1.1, A.15.2.1
IA-2	Identification and Authentication (Organizational Users)	A.11.3.2, A.11.5.1, A.11.5.2, A.11.5.3
IA-3	Device Identification and Authentication	A.11.4.3
IA-4	Identifier Management	A.11.5.2
IA-5	Authenticator Management	A.11.2.1, A.11.2.3, A.11.3.1, A.11.5.2, A.11.5.3
IA-6	Authenticator Feedback	A.11.5.1
IA-7	Cryptographic Module Authentication	A.12.3.1, A.15.1.1, A.15.1.6, A.15.2.1
IA-8	Identification and Authentication (Non-Organizational Users)	A.10.9.1, A.11.4.2, A.11.5.1, A.11.5.2
IR-1	Incident Response Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.13.1.1, A.13.2.1, A.15.1.1, A.15.2.1
IR-2	Incident Response Training	A.8.2.2
IR-3	Incident Response Testing and Exercises	None
IR-4	Incident Handling	A.6.1.2, A.13.2.2, A.13.2.3
IR-5	Incident Monitoring	None
IR-6	Incident Reporting	A.6.1.6, A.13.1.1
IR-7	Incident Response Assistance	None
IR-8	Incident Response Plan	None
MA-1	System Maintenance Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.9.2.4, A.10.1.1, A.15.1.1, A.15.2.1
MA-2	Controlled Maintenance	A.9.2.4

NIST SP 800-53 CONTROLS		ISO/IEC 27001 (Annex A) CONTROLS
MA-3	Maintenance Tools	A.9.2.4, A.11.4.4
MA-4	Non-Local Maintenance	A.9.2.4, A.11.4.4
MA-5	Maintenance Personnel	A.9.2.4, A.12.4.3
MA-6	Timely Maintenance	A.9.2.4
MP-1	Media Protection Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.10.7.1, A.10.7.2, A.10.7.3, A.11.1.1, A.15.1.1, A.15.1.3, A.15.2.1
MP-2	Media Access	A.7.2.2, A.10.7.1, A.10.7.3
MP-3	Media Marking	A.7.2.2, A.10.7.1, A.10.7.3
MP-4	Media Storage	A.10.7.1, A.10.7.3, A.10.7.4, A.15.1.3
MP-5	Media Transport	A.9.2.5, A.9.2.7, A.10.7.1, A.10.7.3, A.10.8.3
MP-6	Media Sanitization	A.9.2.6, A.10.7.1, A.10.7.2, A.10.7.3
PE-1	Physical and Environmental Protection Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.9.1.4, A.9.2.1, A.9.2.2, A.10.1.1, A.11.1.1, A.11.2.1, A.11.2.2, A.15.1.1, A.15.2.1
PE-2	Physical Access Authorizations	A.9.1.5, A.11.2.1, A.11.2.2, A.11.2.4
PE-3	Physical Access Control	A.9.1.1, A.9.1.2, A.9.1.3, A.9.1.5, A.9.1.6, A.11.3.2, A.11.4.4
PE-4	Access Control for Transmission Medium	A.9.1.3, A.9.1.5, A.9.2.3
PE-5	Access Control for Output Devices	A.9.1.2, A.9.1.3, A.10.6.1, A.11.3.2
PE-6	Monitoring Physical Access	A.9.1.2, A.9.1.5, A.10.10.2
PE-7	Visitor Control	A.9.1.2, A.9.1.5, A.9.1.6
PE-8	Access Records	A.9.1.5, A.10.10.2, A.15.2.1
PE-9	Power Equipment and Power Cabling	A.9.1.4, A.9.2.2, A.9.2.3
PE-10	Emergency Shutoff	A.9.1.4
PE-11	Emergency Power	A.9.1.4, A.9.2.2
PE-12	Emergency Lighting	A.9.2.2
PE-13	Fire Protection	A.9.1.4
PE-14	Temperature and Humidity Controls	A.9.2.2
PE-15	Water Damage Protection	A.9.1.4
PE-16	Delivery and Removal	A.9.1.6, A.9.2.7, A.10.7.1
PE-17	Alternate Work Site	A.9.2.5, A.11.7.2
PE-18	Location of Information System Components	A.9.2.1, A.11.3.2
PE-19	Information Leakage	A.12.5.4
PL-1	Security Planning Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.2, A.6.1.3, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
PL-2	System Security Plan	None
PL-3	**Withdrawn**	---
PL-4	Rules of Behavior	A.6.1.5, A.6.2.2, A.7.1.3. A.8.1.1, A.8.1.3, A.8.2.1, A.9.1.5, A.10.8.1, A.11.7.1, A.11.7.2, A.12.4.1, A.13.1.2, A.15.1.5
PL-5	Privacy Impact Assessment	A.15.1.4
PL-6	Security-Related Activity Planning	A.6.1.2, A.15.3.1
PS-1	Personnel Security Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
PS-2	Position Categorization	A.8.1.1
PS-3	Personnel Screening	A.8.1.2
PS-4	Personnel Termination	A.8.3.1, A.8.3.2, A.8.3.3
PS-5	Personnel Transfer	A.8.3.1, A.8.3.2, A.8.3.3
PS-6	Access Agreements	A.6.1.5, A.8.1.1, A.8.1.3, A.8.2.1, A.9.1.5, A.10.8.1, A.11.7.1, A.11.7.2, A.15.1.5
PS-7	Third-Party Personnel Security	A.6.2.3, A.8.1.1, A.8.2.1, A.8.1.3
PS-8	Personnel Sanctions	A.8.2.3, A.15.1.5
RA-1	Risk Assessment Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.14.1.2, A.15.1.1, A.15.2.1
RA-2	Security Categorization	A.7.2.1, A.14.1.2
RA-3	Risk Assessment	A.6.2.1, A.10.2.3, A.12.6.1, A.14.1.2
RA-4	**Withdrawn**	---
RA-5	Vulnerability Scanning	A.12.6.1, A.15.2.2
SA-1	System and Services Acquisition Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.6.2.1, A.8.1.1, A.10.1.1, A.12.1.1, A.12.5.5, A.15.1.1, A.15.2.1
SA-2	Allocation of Resources	A.6.1.2, A.10.3.1

NIST SP 800-53 CONTROLS		ISO/IEC 27001 (Annex A) CONTROLS
SA-3	Life Cycle Support	A.12.1.1
SA-4	Acquisitions	A.12.1.1, A.12.5.5
SA-5	Information System Documentation	A.10.7.4, A.15.1.3
SA-6	Software Usage Restrictions	A.12.4.1, A.12.5.5, A.15.1.2
SA-7	User-Installed Software	A.12.4.1, A.12.5.5, A.15.1.5
SA-8	Security Engineering Principles	A.10.4.1, A.10.4.2, A.11.4.5, A.12.5.5
SA-9	External Information System Services	A.6.1.5, A.6.2.1, A.6.2.3, A.8.1.1, A.8.2.1, A.10.2.1, A.10.2.2, A.10.2.3, A.10.6.2, A.10.8.2, A.12.5.5
SA-10	Developer Configuration Management	A.12.4.3, A.12.5.1, A.12.5.5
SA-11	Developer Security Testing	A.10.3.2, A.12.5.5
SA-12	Supply Chain Protections	A.12.5.5
SA-13	Trustworthiness	A.12.5.5
SA-14	Critical Information System Components	None
SC-1	System and Communications Protection Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
SC-2	Application Partitioning	A.10.4.1, A.10.4.2
SC-3	Security Function Isolation	A.10.4.1, A.10.4.2, A.10.9.1, A.10.9.2
SC-4	Information In Shared Resources	None
SC-5	Denial of Service Protection	A.10.3.1
SC-6	Resource Priority	None
SC-7	Boundary Protection	A.6.2.1, A.10.4.1, A.10.4.2, A.10.6.1, A.10.8.1, A.10.9.1, A.10.9.2, A.10.10.2, A.11.4.5, A.11.4.6
SC-8	Transmission Integrity	A.10.4.2, A.10.6.1, A.10.6.2, A.10.9.1, A.10.9.2, A.12.2.3, A.12.3.1
SC-9	Transmission Confidentiality	A.10.6.1, A.10.6.2, A.10.9.1, A.10.9.2, A.12.3.1
SC-10	Network Disconnect	A.10.6.1, A.11.3.2, A.11.5.1, A.11.5.5
SC-11	Trusted Path	None
SC-12	Cryptographic Key Establishment and Management	A.12.3.2
SC-13	Use of Cryptography	A.12.3.1, A.15.1.6
SC-14	Public Access Protections	A.10.4.1, A.10.4.2, A.10.9.1, A.10.9.2, A.10.9.3
SC-15	Collaborative Computing Devices	None
SC-16	Transmission of Security Attributes	A.7.2.2, A.10.8.1
SC-17	Public Key Infrastructure Certificates	A.12.3.2
SC-18	Mobile Code	A.10.4.2
SC-19	Voice Over Internet Protocol	A.10.6.1
SC-20	Secure Name /Address Resolution Service (Authoritative Source)	A.10.6.1
SC-21	Secure Name /Address Resolution Service (Recursive or Caching Resolver)	A.10.6.1
SC-22	Architecture and Provisioning for Name/Address Resolution Service	A.10.6.1
SC-23	Session Authenticity	A.10.6.1
SC-24	Fail in Known State	None
SC-25	Thin Nodes	None
SC-26	Honeypots	None
SC-27	Operating System-Independent Applications	None
SC-28	Protection of Information at Rest	None
SC-29	Heterogeneity	None
SC-30	Virtualization Techniques	None
SC-31	Covert Channel Analysis	None
SC-32	Information System Partitioning	None
SC-33	Transmission Preparation Integrity	None
SC-34	Non-Modifiable Executable Programs	None
SI-1	System and Information Integrity Policy and Procedures	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3, A.8.1.1, A.10.1.1, A.15.1.1, A.15.2.1
SI-2	Flaw Remediation	A.10.10.5, A.12.5.2, A.12.6.1, A.13.1.2
SI-3	Malicious Code Protection	A.10.4.1
SI-4	Information System Monitoring	A.10.10.2, A.13.1.1, A.13.1.2

NIST SP 800-53 CONTROLS		ISO/IEC 27001 (Annex A) CONTROLS
SI-5	Security Alerts, Advisories, and Directives	A.6.1.6, A.12.6.1, A.13.1.1, A.13.1.2
SI-6	Security Functionality Verification	None
SI-7	Software and Information Integrity	A.10.4.1, A.12.2.2, A.12.2.3
SI-8	Spam Protection	None
SI-9	Information Input Restrictions	A.10.8.1, A.11.1.1, A.11.2.2, A.12.2.2
SI-10	Information Input Validation	A.12.2.1, A.12.2.2
SI-11	Error Handling	None
SI-12	Information Output Handling and Retention	A.10.7.3, A.15.1.3, A.15.1.4, A.15.2.1
SI-13	Predictable Failure Prevention	None
PM-1	Information Security Program Plan	A.5.1.1, A.5.1.2, A.6.1.1, A.6.1.3 A.8.1.1, A.15.1.1, A.15.2.1
PM-2	Senior Information Security Officer	A.6.1.1, A.6.1.2, A.6.1.3
PM-3	Information Security Resources	None
PM-4	Plan of Action and Milestones Process	None
PM-5	Information System Inventory	A.7.1.1, A.7.1.2
PM-6	Information Security Measures of Performance	None
PM-7	Enterprise Architecture	None
PM-8	Critical Infrastructure Plan	None
PM-9	Risk Management Strategy	A.6.2.1, A.14.1.2
PM-10	Security Authorization Process	A.6.1.4
PM-11	Mission/Business Process Definition	None

TABLE H-2: MAPPING ISO/IEC 27001 (ANNEX A) TO NIST SP 800-53

ISO/IEC 27001 (Annex A) CONTROLS	NIST SP 800-53 CONTROLS
A.5 Security Policy	
A.5.1 Information security policy	
A.5.1.1 Information security policy document	XX-1 controls
A.5.1.2 Review of the information security policy	XX-1 controls
A.6 Organization of information security	
A.6.1 Internal	
A.6.1.1 Management commitment to information security	XX-1 controls, PM-2; SP 800-39, SP 800-37
A.6.1.2 Information security coordination	CP-2, CP-4, IR-4, PL-1, PL-6, PM-2, SA-2; SP 800-39, SP 800-37
A.6.1.3 Allocation of information security responsibilities	XX-1 controls, AC-5, AC-6, CM-9. PM-2; SP 800-39, SP 800-37
A.6.1.4 Authorization process for information processing facilities	CA-1, CA-6, PM-10; SP 800-37
A.6.1.5 Confidentiality agreements	PL-4, PS-6, SA-9
A.6.1.6 Contact with authorities	Multiple controls with contact reference (e.g., IR-6, SI-5); SP 800-39; SP 800-37
A.6.1.7 Contact with special interest groups	AT-5
A.6.1.8 Independent review of information security	CA-2, CA-7; SP 800-39, SP 800-37
A.6.2 External Parties	
A.6.2.1 Identification of risks related to external parties	CA-3, PM-9, RA-3, SA-1, SA-9, SC-7
A.6.2.2 Addressing security when dealing with customers	AC-8 , AT-2, PL-4
A.6.2.3 Addressing security in third party agreements	CA-3, PS-7, SA-9
A.7 Asset Management	
A.7.1 Responsibility for assets	
A.7.1.1 Inventory of assets	CM-8, CM-9, PM-5
A.7.1.2 Ownership of assets	CM-8, CM-9, PM-5
A.7.1.3 Acceptable use of assets	AC-20, PL-4
A.7.2 Information Classification	
A.7.2.1 Classification Guidelines	RA-2
A.7.2.2 Information labeling and handling	AC-16, MP-2, MP-3, SC-16
A.8 Human Resources Security	
A.8.1 Prior to Employment	
A.8.1.1 Roles and Responsibilities	XX-1 controls, AC-5, AC-6, AC-8, AC-20, AT-2, AT-3, CM-9, PL-4, PS-2, PS-6, PS-7, SA-9
A.8.1.2 Screening	PS-3
A.8.1.3 Terms and conditions of employment	AC-20, PL-4, PS-6, PS-7
A.8.2 During employment	
A.8.2.1 Management responsibilities	PL-4, PS-6, PS-7, SA-9
A.8.2.2 Awareness, education, and training	AT-2, AT-3, IR-2
A.8.2.3 Disciplinary process	PS-8
A.8.3 Termination or change of employment	
A.8.3.1 Termination responsibilities	PS-4, PS-5
A.8.3.2 Return of assets	PS-4, PS-5
A.8.3.3 Removal of access rights	AC-2, PS-4, PS-5
A.9 Physical and environmental security	
A.9.1 Secure areas	
A.9.1.1 Physical security perimeter	PE-3
A.9.1.2 Physical entry controls	PE-3, PE-5, PE-6, PE-7
A.9.1.3 Securing offices, rooms, facilities	PE-3, PE-4, PE-5
A.9.1.4 Protecting against external and environmental threats	CP Family; PE-1, PE-9, PE-10, PE-11, PE-13, PE-15
A.9.1.5 Working in secure areas	AT-2, AT-3 , PL-4, PS-6, PE-2, PE-3, PE-4, PE-6, PE-7, PE-8
A.9.1.6 Public access, delivery and loading areas	PE-3 , PE-7, PE-16
A.9.2 Equipment security	
A.9.2.1 Equipment siting and protection	PE-1, PE-18
A.9.2.2 Supporting utilities	PE-1, PE-9, PE-11, PE-12, PE-14
A.9.2.3 Cabling security	PE-4, PE-9
A.9.2.4 Equipment maintenance	MA Family

ISO/IEC 27001 (Annex A) CONTROLS	NIST SP 800-53 CONTROLS
A.9.2.5 Security of equipment off-premises	MP-5, PE-17
A.9.2.6 Secure disposal or reuse of equipment	MP-6
A.9.2.7 Removal of property	MP-5, PE-16
A.10 Communications and operations management	
A.10.1 Operational procedures and responsibilities	
A.10.1.1 Documented operating procedures	XX-1 controls, CM-9
A.10.1.2 Change management	CM-1, CM-3, CM-4, CM-5, CM-9
A.10.1.3 Segregation of duties	AC-5
A.10.1.4 Separation of development, test and operational facilities	CM-2
A.10.2 Third-party service delivery management	
A.10.2.1 Service delivery	SA-9
A.10.2.2 Monitoring and review of third-party services	SA-9
A.10.2.3 Managing changes to third-party services	RA-3, SA-9
A.10.3 System planning and acceptance	
A.10.3.1 Capacity management	AU-4, AU-5, CP-2, SA-2, SC-5
A.10.3.2 System acceptance	CA-2, CA-6, CM-3, CM-4, CM-9, SA-11
A.10.4 Protection against malicious and mobile code	
A.10.4.1 Controls against malicious code	AC-19, AT-2, SA-8, SC-2, SC-3, SC-7, SC-14, SI-3, SI-7
A.10.4.2 Controls against mobile code	SA-8, SC-2, SC-3, SC-7, SC-14, SC-8, SC-18
A.10.5 Backup	
A.10.5.1 Information backup	CP-9
A.10.6 Network security management	
A.10.6.1 Network controls	AC-4, AC-17, AC-18, AC-20, CA-3, CP-8, PE-5, SC-7, SC-8, SC-9, SC-10, SC-19, SC-20, SC-21, SC-22, SC-23
A.10.6.2 Security of network services	SA-9, SC-8, SC-9
A.10.7 Media handling	
A.10.7.1 Management of removable media	MP Family, PE-16
A.10.7.2 Disposal of media	MP-6
A.10.7.3 Information handling procedures	MP Family, SI-12
A.10.7.4 Security of system documentation	MP-4, SA-5
A.10.8 Exchange of information	
A.10.8.1 Information exchange policies and procedures	AC-1, AC-3, AC-4, AC-17, AC-18, AC-20, CA-3, PL-4, PS-6, SC-7, SC-16, SI-9
A.10.8.2 Exchange agreements	CA-3, SA-9
A.10.8.3 Physical media in transit	MP-5
A.10.8.4 Electronic messaging	Multiple controls; electronic messaging not addressed separately in SP 800-53
A.10.8.5 Business information systems	CA-1, CA-3
A.10.9 Electronic commerce services	
A.10.9.1 Electronic commerce	AU-10, IA-8, SC-7, SC-8, SC-9, SC-3, SC-14
A.10.9.2 Online transactions	SC-3, SC-7, SC-8, SC-9, SC-14
A.10.9.3 Publicly available information	SC-14
A.10.10 Monitoring	
A.10.10.1 Audit logging	AU-1, AU-2, AU-3, AU-4, AU-5, AU-8, AU-11, AU-12
A.10.10.2 Monitoring system use	AU-1, AU-6, AU-7, PE-6, PE-8, SC-7, SI-4
A.10.10.3 Protection of log information	AU-9
A.10.10.4 Administrator and operator logs	AU-2, AU-12
A.10.10.5 Fault logging	AU-2, AU-6, AU-12, SI-2
A.10.10.6 Clock synchronization	AU-8
A.11 Access Control	
A.11.1 Business requirement for access control	
A.11.1.1 Access control policy	AC-1, AC-5, AC-6, AC-17, AC-18, AC-19, CM-5, MP-1, SI-9
A.11.2 User access management	
A.11.2.1 User registration	AC-1, AC-2, AC-21, IA-5, PE-1, PE-2
A.11.2.2 Privilege management	AC-1, AC-2, AC-6, AC-21, PE-1, PE-2, SI-9
A.11.2.3 User password management	IA-5

ISO/IEC 27001 (Annex A) CONTROLS	NIST SP 800-53 CONTROLS
A.11.2.4 Review of user access rights	AC-2, PE-2
A 11.3 User responsibilities	
A.11.3.1 Password use	IA-2, IA-5
A.11.3.2 Unattended user equipment	AC-11, IA-2, PE-3, PE-5, PE-18, SC-10
A.11.3.3 Clear desk and clear screen policy	AC-11
A.11.4 Network access control	
A.11.4.1 Policy on use of network services	AC-1, AC-5, AC-6, AC-17, AC-18, AC-20
A.11.4.2 User authentication for external connections	AC-17, AC-18, AC-20, CA-3, IA-2, IA-8
A.11.4.3 Equipment identification in networks	AC-19, IA-3
A.11.4.4 Remote diagnostic and configuration port protection	AC-3, AC-6, AC-17, AC-18, PE-3, MA-3, MA-4
A.11.4.5 Segregation in networks	AC-4, SA-8, SC-7
A.11.4.6 Network connection control	AC-3, AC-6, AC-17, AC-18, SC-7
A.11.4.7 Network routing control	AC-4, AC-17, AC-18
A 11.5 Operating system access control	
A.11.5.1 Secure log-on procedures	AC-7, AC-8, AC-9, AC-10, IA-2, IA-6, IA-8, SC-10
A.11.5.2 User identification and authentication	IA-2, IA-4, IA-5, IA-8
A.11.5.3 Password management system	IA-2, IA-5
A.11.5.4 Use of system utilities	AC-3, AC-6
A.11.5.5 Session time-out	AC-11, SC-10
A.11.5.6 Limitation of connection time	None
A.11.6 Application and information access control	
A.11.6.1 Information access restriction	AC-3, AC-6, AC-14, CM-5
A.11.6.2 Sensitive system isolation	None; SP 800-39
A.11.7 Mobile computing and teleworking	
A.11.7.1 Mobile computing and communications	AC-1, AC-17, AC-18, AC-19, PL-4, PS-6
A.11.7.2 Teleworking	AC-1, AC-4, AC-17, AC-18, PE-17, PL-4, PS-6
A.12 Information systems acquisition, development and maintenance	
A.12.1 Security requirements of information systems	
A.12.1.1 Security requirements analysis and specification	SA-1, SA-3, SA-4
A.12.2 Correct processing in applications	
A.12.2.1 Input data validation	SI-10
A.12.2.2 Control of internal processing	SI-7, SI-9, SI-10
A.12.2.3 Message integrity	AU-10, SC-8, SI-7
A.12.2.4 Output data validation	None
A.12.3 Cryptographic controls	
A.12.3.1 Policy on the use of cryptographic controls	Multiple controls address cryptography (e.g., IA-7, SC-8, SC-9, SC-12, SC-13)
A.12.3.2 Key management	SC-12, SC-17
A.12.4 Security of system files	
A.12.4.1 Control of operational software	CM-1, CM-2, CM-3, CM-4, CM-5, CM-9, PL-4, SA-6, SA-7
A.12.4.2 Protection of system test data	Multiple controls; protection of test data not addressed separately in SP 800-53 (e.g., AC-3, AC-4)
A.12.4.3 Access control to program source code	AC-3, AC-6, CM-5, CM-9, MA-5, SA-10
A.12.5 Security in development and support processes	
A.12.5.1 Change control procedures	CM-1, CM-3, CM-9, SA-10
A.12.5.2 Technical review of applications after operating system changes	CM-3, CM-4, CM-9, SI-2
A.12.5.3 Restrictions on changes to software packages	CM-3, CM-4, CM-5, CM-9
A.12.5.4 Information leakage	AC-4, PE-19
A.12.5.5 Outsourced software development	SA-1, SA-4, SA-6, SA-7, SA-8, SA-9, SA-11, SA-12, SA-13
A.12.6 Technical Vulnerability Management	
A.12.6.1 Control of technical vulnerabilities	RA-3, RA-5, SI-2, SI-5
A.13 Information security incident management	
A.13.1 Reporting information security events and weaknesses	
A.13.1.1 Reporting information security events	AU-6, IR-1, IR-6, SI-4, SI-5

ISO/IEC 27001 (Annex A) CONTROLS	NIST SP 800-53 CONTROLS
A.13.1.2 Reporting security weaknesses	PL-4, SI-2, SI-4, SI-5
A.13.2 Management of information security incidents and improvements	
A.13.2.1 Responsibilities and procedures	IR-1
A.13.2.2 Learning from information security incidents	IR-4
A.13.2.3 Collection of evidence	AU-9, IR-4
A.14 Business continuity management	
A.14.1 Information security aspects of business continuity management	
A.14.1.1 Including information security in the business continuity management process	CP-1, CP-2, CP-4
A.14.1.2 Business continuity and risk assessment	CP-2, PM-9, RA Family
A.14.1.3 Developing and implementing continuity plans including information security	CP Family
A.14.1.4 Business continuity planning framework	CP-2, CP-4
A.14.1.5 Testing, maintaining and reassessing business continuity plans	CP-2, CP-4
A.15 Compliance	
A.15.1 Compliance with legal requirements	
A.15.1.1 Identification of applicable legislation	XX-1 controls, IA-7
A.15.1.2 Intellectual property rights (IPR)	SA-6
A.15.1.3 Protection of organizational records	AU-9, AU-11, CP-9, MP-1, MP-4, SA-5, SI-12
A.15.1.4 Data protection and privacy of personal information	PL-5; SI-12
A.15.1.5 Prevention of misuse of information processing facilities	AC-8, AU-6, PL-4, PS-6, PS-8, SA-7
A.15.1.6 Regulation of cryptographic controls	IA-7, SC-13
A.15.2 Compliance with security policies and standards, and technical compliance	
A.15.2.1 Compliance with security policies and standards	XX-1 controls, AC-2, CA-2, CA-7, IA-7, PE-8, SI-12
A.15.2.2 Technical compliance checking	CA-2, CA-7, RA-5
A.15.3 Information systems audit considerations	
A.15.3.1 Information systems audit controls	AU-1, AU-2, PL-6
A.15.3.2 Protection of information systems audit tools	AU-9