NIST IR 8477-Based Set Theory Relationship Mapping (STRM)
Reference document: Secure Controls Framework (SCF) version 2026.1
STRM Guidance: https://securecontrolsframework.com/set-theory-relationship-mapping-strm/

Focal Document: NIST SP 800-161 R1 UPD1 - Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations
Focal Document URL: https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-161r1-upd1.pdf
Published STRM URL: https://content.securecontrolsframework.com/strm/scf-strm-general-nist-800-161-r1-level-2.pdf

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
AC-1	Policy and Procedures	Enterprises should specify and include in agreements (e.g., contracting language) access control policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers that have access control policies. These should include both physical and logical access to the supply chain and the information system. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] access control policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AC-1	Policy and Procedures	Enterprises should specify and include in agreements (e.g., contracting language) access control policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers that have access control policies. These should include both physical and logical access to the supply chain and the information system. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] access control policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AC-1	Policy and Procedures	Enterprises should specify and include in agreements (e.g., contracting language) access control policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers that have access control policies. These should include both physical and logical access to the supply chain and the information system. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors.	Functional	Subset Of	Identity & Access Management (IAM)	IAC-01	Mechanisms exist to facilitate the implementation of identification and access management controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] access control policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AC-2	Account Management	Choose to define a set of roles and associate a level of authorization to ensure proper implementation. Enterprises must ensure that accounts for contractor personnel do not exceed the period of performance of the contract. Privileged accounts should only be established for appropriately vetted contractor personnel. Enterprises should also have processes in place to establish and manage temporary or emergency accounts for contractor personnel that require access to a mission-critical or mission-enabling system during a continuity or emergency event. For example, during a pandemic event, existing contractor personnel who are not able to work due to illness may need to be temporarily backfilled by new contractor staff. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies	Functional	Intersects With	Termination of Employment	IAC-07.2	Mechanisms exist to revoke user access rights in a timely manner, upon termination of employment or contract.	5	a. Define and document the types of accounts allowed and specifically prohibited for use within the system; b. Assign account managers; c. Require [Assignment: organization-defined prerequisites and criteria] for group and role membership; d. Specify:
AC-2	Account Management	Choose to define a set of roles and associate a level of authorization to ensure proper implementation. Enterprises must ensure that accounts for contractor personnel do not exceed the period of performance of the contract. Privileged accounts should only be established for appropriately vetted contractor personnel. Enterprises should also have processes in place to establish and manage temporary or emergency accounts for contractor personnel that require access to a mission-critical or mission-enabling system during a continuity or emergency event. For example, during a pandemic event, existing contractor personnel who are not able to work due to illness may need to be temporarily backfilled by new contractor staff. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies	Functional	Intersects With	Account Management	IAC-15	Mechanisms exist to proactively govern account management of individual, group, system, service, application, guest and temporary accounts.	5	a. Define and document the types of accounts allowed and specifically prohibited for use within the system; b. Assign account managers; c. Require [Assignment: organization-defined prerequisites and criteria] for group and role membership; d. Specify:
AC-2	Account Management	Choose to define a set of roles and associate a level of authorization to ensure proper implementation. Enterprises must ensure that accounts for contractor personnel do not exceed the period of performance of the contract. Privileged accounts should only be established for appropriately vetted contractor personnel. Enterprises should also have processes in place to establish and manage temporary or emergency accounts for contractor personnel that require access to a mission-critical or mission-enabling system during a continuity or emergency event. For example, during a pandemic event, existing contractor personnel who are not able to work due to illness may need to be temporarily backfilled by new contractor staff. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies	Functional	Intersects With	Input Data Validation	TDA-18	Mechanisms exist to check the validity of information inputs.	5	a. Define and document the types of accounts allowed and specifically prohibited for use within the system; b. Assign account managers; c. Require [Assignment: organization-defined prerequisites and criteria] for group and role membership; d. Specify:
AC-2	Account Management	Choose to define a set of roles and associate a level of authorization to ensure proper implementation. Enterprises must ensure that accounts for contractor personnel do not exceed the period of performance of the contract. Privileged accounts should only be established for appropriately vetted contractor personnel. Enterprises should also have processes in place to establish and manage temporary or emergency accounts for contractor personnel that require access to a mission-critical or mission-enabling system during a continuity or emergency event. For example, during a pandemic event, existing contractor personnel who are not able to work due to illness may need to be temporarily backfilled by new contractor staff. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies	Functional	Intersects With	Safeguarding Data Over Open Networks	NET-12	Cryptographic mechanisms exist to implement strong cryptography and security protocols to safeguard sensitive/regulated data during transmission over open, public networks.	5	a. Define and document the types of accounts allowed and specifically prohibited for use within the system; b. Assign account managers; c. Require [Assignment: organization-defined prerequisites and criteria] for group and role membership; d. Specify:
AC-3	Access Enforcement	Ensure that the information systems and the supply chain have appropriate access enforcement mechanisms in place. This includes both physical and logical access enforcement mechanisms, which likely work in coordination for supply chain needs. Enterprises should ensure that a defined consequence framework is in place to address access control violations. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Access Enforcement	IAC-20	Mechanisms exist to enforce Logical Access Control (LAC) permissions that conform to the principle of "least privilege."	5	Enforce approved authorizations for logical access to information and system resources in accordance with applicable access control policies.
AC-3	Access Enforcement	Ensure that the information systems and the supply chain have appropriate access enforcement mechanisms in place. This includes both physical and logical access enforcement mechanisms, which likely work in coordination for supply chain needs. Enterprises should ensure that a defined consequence framework is in place to address access control violations. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Safeguarding Data Over Open Networks	NET-12	Cryptographic mechanisms exist to implement strong cryptography and security protocols to safeguard sensitive/regulated data during transmission over open, public networks.	5	Enforce approved authorizations for logical access to information and system resources in accordance with applicable access control policies.
AC-3	Access Enforcement	Ensure that the information systems and the supply chain have appropriate access enforcement mechanisms in place. This includes both physical and logical access enforcement mechanisms, which likely work in coordination for supply chain needs. Enterprises should ensure that a defined consequence framework is in place to address access control violations. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Input Data Validation	TDA-18	Mechanisms exist to check the validity of information inputs.	5	Enforce approved authorizations for logical access to information and system resources in accordance with applicable access control policies.
AC-3(8)	Access Enforcement | Revocation of Access Authorizations	Ensure revocation is critical to ensure that suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers who no longer require access or who abuse or violate their access privilege are not able to access an enterprise's system. Enterprises should include in their agreements a requirement for contractors and sub-tier contractors to immediately return access credentials (e.g., tokens, PIV or CAC cards, etc.) to the enterprise. Enterprises must also have processes in place to promptly process the revocation of access authorizations. For example, in a "badge flipping" situation, a contract is transferred from one system integrator enterprise to another with the same personnel supporting the contract. In that situation, the enterprise should disable the existing accounts, retire the old credentials, establish new accounts, and issue completely new	Functional	Equal	Revocation of Access Authorizations	IAC-20.6	Mechanisms exist to revoke logical and physical access authorizations.	10	Enforce the revocation of access authorizations resulting from changes to the security attributes of subjects and objects based on [Assignment: organization-defined rules governing the timing of revocations of access authorizations].
AC-3(9)	Access Enforcement | Controlled Release	Information about the supply chain should be controlled for release between the enterprise and third parties. Information may be exchanged between the enterprise and its suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. The controlled release of enterprise information protects against risks associated with disclosure.	Functional	Equal	Controlled Release	DCH-03.3	Automated mechanisms exist to validate cybersecurity and data protection attributes prior to releasing information to external Technology Assets, Applications and/or Services (TAAS).	10	Release information outside of the system only if: (a) The receiving [Assignment: organization-defined system or system component] provides [Assignment: organization-defined controls]; and (b) [Assignment: organization-defined controls] are used to validate the appropriateness of the information designated for release.
AC-4	Information Flow Enforcement	Supply chain information may traverse a large supply chain to a broad set of stakeholders, including the enterprise and its various federal stakeholders, suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Specifying the requirements and how information flow is enforced should ensure that only the required information is communicated to various participants in the supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Data Flow Enforcement - Access Control Lists (ACLs)	NET-04	Mechanisms exist to implement and govern Access Control Lists (ACLs) to provide data flow enforcement that explicitly restrict network traffic to only what is authorized.	10	Enforce approved authorizations for controlling the flow of information within the system and between connected systems based on [Assignment: organization-defined information flow control policies].
AC-4(6)	Information Flow Enforcement | Metadata	Enforce information flow control based on [Assignment: organization-defined metadata].	Functional	Equal	Metadata	NET-04.5	Mechanisms exist to enforce information flow controls based on metadata.	10	
AC-4(17)	Information Flow Enforcement | Domain Authentication	Within the C-SCRM context, enterprises should specify various source and destination points for information about the supply chain and information that flows through the supply chain. This is so that enterprises have visibility of information flow within the supply chain.	Functional	Equal	Cross Domain Authentication	NET-04.12	Automated mechanisms exist to uniquely identify and authenticate source and destination points for information transfer.	10	Uniquely identify and authenticate source and destination points by [Selection (one or more): organization; system; application; service; individual] for information transfer.
AC-4(19)	Information Flow Enforcement | Validation of Metadata	For C-SCRM, the validation of data and the relationship to its metadata are critical. Much of the data transmitted through the supply chain is validated with the verification of the associated metadata that is bound to it. Ensure that proper filtering and inspection is put in place for validation before allowing payloads into the supply chain	Functional	Equal	Metadata Validation	NET-04.13	Automated mechanisms exist to apply cybersecurity and/or data protection filters on metadata.	10	When transferring information between different security domains, implement [Assignment: organization-defined security or privacy policy filters] on metadata.
AC-5	Separation of Duties	The enterprise should ensure that an appropriate separation of duties is established for decisions that require the acquisition of both information system and supply chain components. The separation of duties helps to ensure that adequate protections are in place for components entering the enterprise's supply chain, such as denying developers the privilege to promote code that they wrote from development to production environments. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Input Data Validation	TDA-18	Mechanisms exist to check the validity of information inputs.	5	a. Identify and document [Assignment: organization-defined duties of individuals requiring separation]; and b. Define system access authorizations to support separation of duties.
AC-5	Separation of Duties	The enterprise should ensure that an appropriate separation of duties is established for decisions that require the acquisition of both information system and supply chain components. The separation of duties helps to ensure that adequate protections are in place for components entering the enterprise's supply chain, such as denying developers the privilege to promote code that they wrote from development to production environments. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Dual Authorization for Change	CHG-04.3	Mechanisms exist to enforce a two-person rule for implementing changes to critical Technology Assets, Applications and/or Services (TAAS).	5	a. Identify and document [Assignment: organization-defined duties of individuals requiring separation]; and b. Define system access authorizations to support separation of duties.
AC-5	Separation of Duties	The enterprise should ensure that an appropriate separation of duties is established for decisions that require the acquisition of both information system and supply chain components. The separation of duties helps to ensure that adequate protections are in place for components entering the enterprise's supply chain, such as denying developers the privilege to promote code that they wrote from development to production environments. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity	Functional	Intersects With	Safeguarding Data Over Open Networks	NET-12	Cryptographic mechanisms exist to implement strong cryptography and security protocols to safeguard sensitive/regulated data during transmission over open, public networks.	5	a. Identify and document [Assignment: organization-defined duties of individuals requiring separation]; and b. Define system access authorizations to support separation of duties.
AC-5	Separation of Duties	The enterprise should ensure that an appropriate separation of duties is established for decisions that require the acquisition of both information system and supply chain components. The separation of duties helps to ensure that adequate protections are in place for components entering the enterprise's supply chain, such as denying developers the privilege to promote code that they wrote from development to production environments. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity	Functional	Intersects With	Separation of Duties (SoD)	HRS-11	Mechanisms exist to implement and maintain Separation of Duties (SoD) to prevent potential inappropriate activity without collusion.	5	a. Identify and document [Assignment: organization-defined duties of individuals requiring separation]; and b. Define system access authorizations to support separation of duties.
AC-6(6)	Least Privilege | Privileged Access by Non-organizational Users	Enterprises should ensure that protections are in place to prevent non-enterprise users from having privileged access to enterprise supply chain and related supply chain information. When enterprise users include independent consultants, suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers, relevant access requirements may need to use least privilege mechanisms to precisely define what information and/or components are accessible, for what duration, at what frequency, using what access methods, and by whom. Understanding what components are critical and non-critical can aid in understanding the level of detail that may need to be defined regarding least privilege access for non-enterprise users.	Functional	Equal	Privileged Access by Non-Organizational Users	IAC-05.2	Mechanisms exist to prohibit privileged access by non-organizational users.	10	Prohibit privileged access to the system by non-organizational users.
AC-17	Remote Access	or the operation of information systems, enterprises should implement secure remote access mechanisms and allow remote access only to vetted personnel. Remote access to an enterprise's supply chain (including distributed software development environments) should be limited to the enterprise or contractor personnel and only if and as required to perform their tasks. Remote access requirements – such using a secure VPN, employing multi-factor authentication, or limiting access to specified business hours or from specified geographic locations – must be properly defined in agreements. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to	Functional	Intersects With	Remote Access	NET-14	Mechanisms exist to define, control and review organization-approved, secure remote access methods.	5	a. Establish and document usage restrictions, configuration/connection requirements, and implementation guidance for each type of remote access allowed; and b. Authorize each type of remote access to the system prior to allowing such connections.
AC-17(6)	Remote Access | Protection of Mechanism Information	Enterprises should ensure that detailed requirements are properly defined and that access to information regarding the information system and supply chain is protected from unauthorized use and disclosure. Since supply chain data and metadata disclosure or access can have significant implications for an enterprise's mission processes, appropriate measures must be taken to vet both the supply chain and personnel processes to ensure that adequate protections are implemented. Ensure that remote access to such information is included in requirements.	Functional	Intersects With	Remote Access	NET-14	Mechanisms exist to define, control and review organization-approved, secure remote access methods.	5	Protect information about remote access mechanisms from unauthorized use and disclosure.
AC-18	Wireless Access	An enterprise's supply chain may include wireless infrastructure that supports supply chain logistics (e.g., radio-frequency identification device [RFID] support, software call home features). Supply chain systems/components traverse the supply chain as they are moved from one location to another, whether within the enterprise's own environment or during delivery from system integrators or suppliers. Ensuring that appropriate and secure access mechanisms are in place within this supply chain enables the protection of the information systems and components, as well as logistics technologies and metadata used during shipping (e.g., within tracking sensors). The enterprise should explicitly define appropriate wireless access control mechanisms for the supply chain in policy and implement appropriate mechanisms.	Functional	Intersects With	Wireless Networking	NET-15	Mechanisms exist to control authorized wireless usage and monitor for unauthorized wireless access.	5	a. Establish configuration requirements, connection requirements, and implementation guidance for each type of wireless access; and b. Authorize each type of wireless access to the system prior to allowing such connections.
AC-18	Wireless Access	An enterprise's supply chain may include wireless infrastructure that supports supply chain logistics (e.g., radio-frequency identification device [RFID] support, software call home features). Supply chain systems/components traverse the supply chain as they are moved from one location to another, whether within the enterprise's own environment or during delivery from system integrators or suppliers. Ensuring that appropriate and secure access mechanisms are in place within this supply chain enables the protection of the information systems and components, as well as logistics technologies and metadata used during shipping (e.g., within tracking sensors). The enterprise should explicitly define appropriate wireless access control mechanisms for the supply chain in policy and implement appropriate mechanisms.	Functional	Intersects With	Wireless Access Authentication & Encryption	CRY-07	Mechanisms exist to protect the confidentiality and integrity of wireless networking technologies by implementing authentication and strong encryption.	5	a. Establish configuration requirements, connection requirements, and implementation guidance for each type of wireless access; and b. Authorize each type of wireless access to the system prior to allowing such connections.
AC-19	Access Control for Mobile Devices	The use of mobile devices (e.g., laptops, tablets, e-readers, smartphones, smartwatches) has become common in the supply chain. They are used in direct support of an enterprise's operations, as well as tracking, supply chain logistics, data as information systems, and components that traverse enterprise or systems integrator supply chains. Ensure that access control mechanisms are clearly defined and implemented where relevant when managing enterprise supply chain components. An example of such an implementation includes access control mechanisms implemented for use with remote handheld units in RFID for tracking components that traverse the supply chain. Access control mechanisms should also be implemented on any associated data and metadata tied to the devices.	Functional	Equal	Access Control For Mobile Devices	MDM-02	Mechanisms exist to enforce access control requirements for the connection of mobile devices to organizational Technology Assets, Applications and/or Services (TAAS).	10	a. Establish configuration requirements, connection requirements, and implementation guidance for organization-controlled mobile devices, to include when such devices are outside of controlled areas; and b. Authorize the connection of mobile devices to organizational systems.
AC-20	Use of External Systems	Enterprises' external information systems include those of suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Unlike in an acquirer's internal enterprise where direct and continuous monitoring is possible, in the external supplier relationship, information may be shared on an as-needed basis and should be articulated in an agreement. Access to the supply chain from such external information systems should be monitored and audited. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Equal	Use of External Technology Assets, Applications and/or Services (TAAS)	DCH-13	Mechanisms exist to govern how external parties, including Technology Assets, Applications and/or Services (TAAS), are used to securely store, process and transmit data.	10	a. [Selection (one or more): Establish [Assignment: organization-defined terms and conditions]; Identify [Assignment: organization-defined controls asserted to be implemented on external systems]], consistent with the trust relationships established with other organizations owning, operating, and/or maintaining external systems, allowing authorized individuals to:
AC-20(1)	Use of External Systems | Limits on Authorized Use	This enhancement helps limit exposure of the supply chain to the systems of suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Equal	Limits of Authorized Use	DCH-13.1	Mechanisms exist to prohibit external parties, including Technology Assets, Applications and/or Services (TAAS), from storing, processing and transmitting data unless authorized individuals first: (1) Verifying the implementation of required security, compliance and/or resilience controls; or (2) Retaining a processing agreement with the entity hosting the external TAAS.	10	Permit authorized individuals to use an external system to access the system or to process, store, or transmit organization-controlled information only after: (a) Verification of the implementation of controls on the external system as specified in the organization's security and privacy policies and security and privacy plans; or

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
AC-20(3)	Use of External Systems | Non-organizationally Owned Systems — Restricted Use	Devices that do not belong to the enterprise (e.g., bring your own device [BYOD] policies) increase the enterprise's exposure to cybersecurity risks throughout the supply chain. This includes devices used by suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Enterprises should review the use of non-enterprise devices by non-enterprise personnel and make a risk-based decision as to whether it will allow the use of such devices or furnish devices. Enterprises should furnish devices to those nonenterprise personnel who present unacceptable levels of risk.	Functional	Equal	Non-Organizationally Owned Technology Assets, Applications and/or Services (TAAS)	DCH-13.4	Mechanisms exist to restrict the use of non-organizationally owned Technology Assets, Applications and/or Services (TAAS) to process, store or transmit organizational information.	10	Restrict the use of non-organizationally owned systems or system components to process, store, or transmit organizational information using [Assignment: organization-defined restrictions].
AC-21	Information Sharing	Sharing information within the supply chain can help manage cybersecurity risks throughout the supply chain. This information may include vulnerabilities, threats, the criticality of systems and components, or delivery information. This information sharing should be carefully managed to ensure that the information is only accessible to authorized individuals within the enterprise's supply chain. Enterprises should clearly define boundaries for information sharing with respect to temporal, informational, contractual, security, access, system, and other requirements. Enterprises should monitor and review for unintentional or intentional information sharing within its supply chain activities, including information sharing with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Intersects With	Information Sharing With Third Parties	PRI-07	Mechanisms exist to disclose Personal Data (PD) to third-parties only for the purposes identified in the data privacy notice and with the implicit or explicit consent of the data subject.	5	a. Enable authorized users to determine whether access authorizations assigned to a sharing partner match the information's access and use restrictions for [Assignment: organization-defined information sharing circumstances where user discretion is required]; and b. Employ [Assignment: organization-defined automated mechanisms or manual processes] to
AC-21	Information Sharing	Sharing information within the supply chain can help manage cybersecurity risks throughout the supply chain. This information may include vulnerabilities, threats, the criticality of systems and components, or delivery information. This information sharing should be carefully managed to ensure that the information is only accessible to authorized individuals within the enterprise's supply chain. Enterprises should clearly define boundaries for information sharing with respect to temporal, informational, contractual, security, access, system, and other requirements. Enterprises should monitor and review for unintentional or intentional information sharing within its supply chain activities, including information sharing with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Intersects With	Information Sharing	DCH-14	Mechanisms exist to utilize a process to assist users in making information sharing decisions to ensure data is appropriately protected.	5	a. Enable authorized users to determine whether access authorizations assigned to a sharing partner match the information's access and use restrictions for [Assignment: organization-defined information sharing circumstances where user discretion is required]; and b. Employ [Assignment: organization-defined automated mechanisms or manual processes] to
AC-22	Publicly Accessible Content	Within the C-SCRM context, publicly accessible content may include Requests for Information, Requests for Proposal, or information about delivery of systems and components. This information should be reviewed to ensure that only appropriate content is released for public consumption, whether alone or with other information.	Functional	Equal	Publicly Accessible Content	DCH-15	Mechanisms exist to control publicly-accessible content.	10	a. Designate individuals authorized to make information publicly accessible; b. Train authorized individuals to ensure that publicly accessible information does not contain nonpublic information; c. Review the proposed content of information prior to posting onto the publicly accessible system to ensure that nonpublic information is not included;
AC-23	Data Mining Protection	Enterprises should require their prime contractors to implement this control as part of their insider threat activities and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Data Mining Protection	DCH-16	Mechanisms exist to protect data storage objects against unauthorized data mining and data harvesting techniques.	5	Employ [Assignment: organization-defined data mining prevention and detection techniques] for [Assignment: organization-defined data storage objects] to detect and protect against unauthorized data mining.
AC-23	Data Mining Protection	Enterprises should require their prime contractors to implement this control as part of their insider threat activities and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Usage Restrictions of Personal Data (PD)	PRI-05.4	Mechanisms exist to restrict collecting, receiving, processing, storing, transmitting, sharing and/or updating Personal Data (PD) to: (1) The purpose(s) originally collected, consistent with the data privacy notice(s); (2) What is authorized by the data subject, or authorized agent; and (3) What is consistent with applicable laws, regulations and contractual obligations.	5	Employ [Assignment: organization-defined data mining prevention and detection techniques] for [Assignment: organization-defined data storage objects] to detect and protect against unauthorized data mining.
AC-24	Access Control Decisions	Enterprises should assign access control decisions to support authorized access to the supply chain. Ensure that if a system integrator or external service provider is used, there is consistency in access control decision requirements and how the requirements are implemented. This may require defining such requirements in service-level agreements, in many cases as part of the upfront relationship established between the enterprise and system integrator or the enterprise and external service provider. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Management Approval For New or Changed Accounts	IAC-28.1	Mechanisms exist to ensure management approvals are required for new accounts or changes in permissions to existing accounts.	5	[Selection: Establish procedures; Implement mechanisms] to ensure [Assignment: organization-defined access control decisions] are applied to each access request prior to access enforcement.
AT-1	Policy and Procedures	responsibilities. Enterprises should integrate cybersecurity supply chain risk management training and awareness into the security training and awareness policy. C-SCRM training should target both the enterprise and its contractors. The policy should ensure that supply chain cybersecurity role-based training is required for those individuals or functions that touch or impact the supply chain, such as the information system owner, acquisition, supply chain logistics, system engineering, program management, IT, quality, and incident response. C-SCRM training procedures should address: a. Roles throughout the supply chain and system/element life cycle to limit the opportunities and means available to individuals performing these roles that could result in adverse consequences,	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] awareness and training policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AT-1	Policy and Procedures	into the security training and awareness policy. C-SCRM training should target both the enterprise and its contractors. The policy should ensure that supply chain cybersecurity role-based training is required for those individuals or functions that touch or impact the supply chain, such as the information system owner, acquisition, supply chain logistics, system engineering, program management, IT, quality, and incident response. C-SCRM training procedures should address: a. Roles throughout the supply chain and system/element life cycle to limit the opportunities and means available to individuals performing these roles that could result in adverse consequences,	Functional	Subset Of	Security, Compliance & Resilience-Minded Workforce	SAT-01	Mechanisms exist to facilitate the implementation of security workforce development and awareness controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] awareness and training policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AT-1	Policy and Procedures	into the security training and awareness policy. C-SCRM training should target both the enterprise and its contractors. The policy should ensure that supply chain cybersecurity role-based training is required for those individuals or functions that touch or impact the supply chain, such as the information system owner, acquisition, supply chain logistics, system engineering, program management, IT, quality, and incident response. C-SCRM training procedures should address: a. Roles throughout the supply chain and system/element life cycle to limit the opportunities and means available to individuals performing these roles that could result in adverse consequences, b. Requirements for interaction between an enterprise's personnel and individuals not employed by the enterprise	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] awareness and training policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AT-2(1)	Literacy Training and Awareness | Practical Exercises	Enterprises should provide practical exercises in literacy training that simulate supply chain cybersecurity events and incidents. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors.	Functional	Intersects With	Simulated Cyber Attack Scenario Training	SAT-02.1	Mechanisms exist to include simulated actual cyber-attacks through practical exercises that are aligned with current threat scenarios.	5	Provide practical exercises in literacy training that simulate events and incidents.
AT-2(2)	Literacy Training and Awareness | Insider Threat	Enterprises should provide literacy training on recognizing and reporting potential indicators of insider threat within the supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Equal	Insider Threat Awareness	THR-05	Mechanisms exist to utilize security awareness training on recognizing and reporting potential indicators of insider threat.	10	Provide literacy training on recognizing and reporting potential indicators of insider threat.
AT-2(3)	Literacy Training and Awareness | Social Engineering and Mining	Enterprises should provide literacy training on recognizing and reporting potential and actual instances of supply chain-related social engineering and social mining. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors.	Functional	Equal	Social Engineering & Mining	SAT-02.2	Mechanisms exist to include awareness training on recognizing and reporting potential and actual instances of social engineering and social mining.	10	Provide literacy training on recognizing and reporting potential and actual instances of social engineering and social mining.
AT-2(4)	Literacy Training and Awareness | Suspicious Communications and Anomalous System Behavior	Provide literacy training on recognizing suspicious communications or anomalous behavior in enterprise supply chain systems. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors.	Functional	Intersects With	Suspicious Communications & Anomalous System Behavior	SAT-03.2	Mechanisms exist to provide training to personnel on organization-defined indicators of malware to recognize suspicious communications and anomalous behavior.	5	Provide literacy training on recognizing suspicious communications and anomalous behavior in organizational systems using [Assignment: organization-defined indicators of malicious code].
AT-2(5)	Literacy Training and Awareness | Advanced Persistent Threat	Provide literacy training on recognizing suspicious communications on an advanced persistent threat (APT) in the enterprise's supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors.	Functional	Intersects With	Suspicious Communications & Anomalous System Behavior	SAT-03.2	Mechanisms exist to provide training to personnel on organization-defined indicators of malware to recognize suspicious communications and anomalous behavior.	5	Provide literacy training on the advanced persistent threat.
AT-2(6)	Literacy Training and Awareness | Cyber Threat Environment	Provide literacy training on cyber threats specific to the enterprise's supply chain environment. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors	Functional	Equal	Cyber Threat Environment	SAT-03.6	Mechanisms exist to provide role-based security, compliance and resilience awareness training that is current and relevant to the cyber threats that users might encounter in day-to-day business operations.	10	(a) Provide literacy training on the cyber threat environment; and (b) Reflect current cyber threat information in system operations.
AT-3	Role-based Training	effectively. Personnel who are part of the acquisition workforce require training on what C-SCRM requirements, clauses, and evaluation factors are necessary to include when conducting procurement and how to incorporate C-SCRM into each acquisition phase. Similar enhanced training requirements should be tailored for personnel responsible for conducting threat assessments. Responding to threats and identified risks requires training in counterintelligence awareness and reporting. Enterprises should ensure that developers receive training on secure development practices as well as the use of vulnerability scanning tools. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028,	Functional	Intersects With	Role-Based Security, Compliance & Resilience Training	SAT-03	Mechanisms exist to provide role-based security, compliance and resilience-related training: (1) Before authorizing access to the system or performing assigned duties; (2) When required by system changes; and (3) Annually thereafter.	5	a. Provide role-based security and privacy training to personnel with the following roles and responsibilities: [Assignment: organization-defined roles and responsibilities]: 1. Before authorizing access to the system, information, or performing assigned duties, and [Assignment: organization-defined frequency] thereafter; and
AT-3(2)	Role-based Training | Physical Security Controls	C-SCRM is impacted by a number of physical security mechanisms and procedures within the supply chain, such as manufacturing, shipping, receiving, physical access to facilities, inventory management, and warehousing. Enterprise and system integrator personnel who provide development and operational support to the enterprise should receive training on how to handle these physical security mechanisms and on the associated cybersecurity risks throughout the supply chain.	Functional	Intersects With	Role-Based Security, Compliance & Resilience Training	SAT-03	Mechanisms exist to provide role-based security, compliance and resilience-related training: (1) Before authorizing access to the system or performing assigned duties; (2) When required by system changes; and (3) Annually thereafter.	5	Provide [Assignment: organization-defined personnel or roles] with initial and [Assignment: organization-defined frequency] training in the employment and operation of physical security controls.
AT-3(6)	Role-based Training | Counterintelligence Training	Public sector enterprises should provide specialized counterintelligence awareness training that enables its resources to collect, interpret, and act upon a range of data sources that may signal a foreign adversary's presence in the supply chain. At a minimum, counterintelligence training should cover known red flags, key information sharing concepts, and reporting requirements.	Functional	Intersects With	Role-Based Security, Compliance & Resilience Training	SAT-03	Mechanisms exist to provide role-based security, compliance and resilience-related training: (1) Before authorizing access to the system or performing assigned duties; (2) When required by system changes; and (3) Annually thereafter.	5	This specific NIST 800-161 R1 control does not exist in NIST 800-53 R5.
AT-3(6)	Role-based Training | Counterintelligence Training	Public sector enterprises should provide specialized counterintelligence awareness training that enables its resources to collect, interpret, and act upon a range of data sources that may signal a foreign adversary's presence in the supply chain. At a minimum, counterintelligence training should cover known red flags, key information sharing concepts, and reporting requirements.	Functional	Intersects With	Threat Intelligence Program	THR-01	Mechanisms exist to implement a threat intelligence program that includes a cross-organization information-sharing capability that can influence the development of the system and security architectures, selection of security solutions, monitoring, threat hunting, response and recovery activities.	5	This specific NIST 800-161 R1 control does not exist in NIST 800-53 R5.
AT-3(6)	Role-based Training | Counterintelligence Training	Public sector enterprises should provide specialized counterintelligence awareness training that enables its resources to collect, interpret, and act upon a range of data sources that may signal a foreign adversary's presence in the supply chain. At a minimum, counterintelligence training should cover known red flags, key information sharing concepts, and reporting requirements.	Functional	Intersects With	Threat Intelligence Feeds	THR-03	Mechanisms exist to maintain situational awareness of vulnerabilities and evolving threats by leveraging the knowledge of attacker tactics, techniques and procedures to facilitate the implementation of preventative and compensating controls.	5	This specific NIST 800-161 R1 control does not exist in NIST 800-53 R5.
AT-4	Training Records	Enterprises should maintain documentation for C-SCRM-specific training, especially with regard to key personnel in acquisitions and counterintelligence.	Functional	Equal	Security, Compliance & Resilience Training Records	SAT-04	Mechanisms exist to document, retain and monitor individual training activities, including: (1) Initial security, compliance and resilience awareness training; (2) Recurring awareness training; and (3) Technology Assets, Applications and/or Services (TAAS)-specific training.	10	a. Document and monitor information security and privacy training activities, including security and privacy awareness training and specific role-based security and privacy training; and b. Retain individual training records for [Assignment: organization-defined time period].
AU-1	Policy and Procedures	Enterprises must designate a specific official to manage the development, documentation, and dissemination of the audit and accountability policy and procedures to include auditing of the supply chain information systems and network. The audit and accountability policy and procedures should appropriately address tracking activities and their availability for other various supply chain activities, such as configuration management. Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers activities should not be included in such a policy unless those functions are performed within the acquirer's supply chain information systems and network. Audit and accountability policy procedures should appropriately address supplier audits as a way to examine the quality of a particular supplier and the risk they present to the enterprise and the enterprise's	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] audit and accountability policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AU-1	Policy and Procedures	Enterprises must designate a specific official to manage the development, documentation, and dissemination of the audit and accountability policy and procedures to include auditing of the supply chain information systems and network. The audit and accountability policy and procedures should appropriately address tracking activities and their availability for other various supply chain activities, such as configuration management. Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers activities should not be included in such a policy unless those functions are performed within the acquirer's supply chain information systems and network. Audit and accountability policy procedures should appropriately address supplier audits as a way to examine the quality of a particular supplier and the risk they present to the enterprise and the enterprise's	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] audit and accountability policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AU-1	Policy and Procedures	Enterprises must designate a specific official to manage the development, documentation, and dissemination of the audit and accountability policy and procedures to include auditing of the supply chain information systems and network. The audit and accountability policy and procedures should appropriately address tracking activities and their availability for other various supply chain activities, such as configuration management. Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers activities should not be included in such a policy unless those functions are performed within the acquirer's supply chain information systems and network. Audit and accountability policy procedures should appropriately address supplier audits as a way to examine the quality of a particular supplier and the risk they present to the enterprise and the enterprise's	Functional	Subset Of	Continuous Monitoring	MON-01	Mechanisms exist to facilitate the implementation of enterprise-wide monitoring controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] audit and accountability policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
AU-2	Event Logging	software/hardware changes, failed attempts to access supply chain information systems, or the movement of source code. Information on such events should be captured by appropriate audit mechanisms and be traceable and verifiable. Information captured may include the type of event, date/time, length, and the frequency of occurrence. Among other things, auditing may help detect misuse of the supply chain information systems or network caused by insider threats. Logs are a key resource when identifying operational trends and long-term problems. As such, enterprises should incorporate reviewing logs at the contract renewal point for vendors to determine whether there is a systemic problem. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer	Functional	Intersects With	Security Event Monitoring	MON-01.8	Mechanisms exist to review event logs on an ongoing basis and escalate incidents in accordance with established timelines and procedures.	5	a. Identify the types of events that the system is capable of logging in support of the audit function: [Assignment: organization-defined event types that the system is capable of logging]; b. Coordinate the event logging function with other organizational entities requiring audit-related information to guide and inform the selection criteria for events to be logged;
AU-2	Event Logging	software/hardware changes, failed attempts to access supply chain information systems, or the movement of source code. Information on such events should be captured by appropriate audit mechanisms and be traceable and verifiable. Information captured may include the type of event, date/time, length, and the frequency of occurrence. Among other things, auditing may help detect misuse of the supply chain information systems or network caused by insider threats. Logs are a key resource when identifying operational trends and long-term problems. As such, enterprises should incorporate reviewing logs at the contract renewal point for vendors to determine whether there is a systemic problem. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer	Functional	Intersects With	Centralized Collection of Security Event Logs	MON-02	Mechanisms exist to utilize a Security Incident Event Manager (SIEM), or similar automated tool, to support the centralized collection of security-related event logs.	5	a. Identify the types of events that the system is capable of logging in support of the audit function: [Assignment: organization-defined event types that the system is capable of logging]; b. Coordinate the event logging function with other organizational entities requiring audit-related information to guide and inform the selection criteria for events to be logged;
AU-3	Content of Audit Records	The audit records of a supply chain event should be securely handled and maintained in a manner that conforms to record retention requirements and preserves the integrity of the findings and the confidentiality of the record information and its sources as appropriate. In certain instances, such records may be used in administrative or legal proceedings. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Content of Event Logs	MON-03	Mechanisms exist to configure Technology Assets, Applications and/or Services (TAAS) to produce event logs that contain sufficient information to, at a minimum: (1) Establish what type of event occurred; (2) When (date and time) the event occurred; (3) Where the event occurred; (4) The source of the event; (5) The outcome (success or failure) of the event; and	10	Ensure that audit records contain information that establishes the following: a. What type of event occurred; b. When the event occurred; c. Where the event occurred; d. Source of the event; e. Outcome of the event; and f. Identity of any individuals, subjects, or

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
AU-6	Audit Record Review, Analysis, and Reporting	The enterprise should ensure that both supply chain and information security auditable events are appropriately filtered and correlated for analysis and reporting. For example, if new maintenance or a patch upgrade is recognized to have an invalid digital signature, the identification of the patch arrival qualifies as a supply chain auditable event, while an invalid signature is an information security auditable event. The combination of these two events may provide information valuable to CSCRM. The enterprise should adjust the level of audit record review based on the risk changes (e.g., active threat intel, risk profile) on a specific vendor. Contracts should explicitly address how audit findings will be reported and adjudicated.	Functional	Intersects With	Centralized Collection of Security Event Logs	MON-02	Mechanisms exist to utilize a Security Incident Event Manager (SIEM), or similar automated tool, to support the centralized collection of security-related event logs.	5	a. Review and analyze system audit records [Assignment: organization-defined frequency] for indications of [Assignment: organization-defined inappropriate or unusual activity] and the potential impact of the inappropriate or unusual activity; b. Report findings to [Assignment: organization-defined personnel or roles]; and c. Adjust the level of audit record review, analysis,
AU-6	Audit Record Review, Analysis, and Reporting	The enterprise should ensure that both supply chain and information security auditable events are appropriately filtered and correlated for analysis and reporting. For example, if new maintenance or a patch upgrade is recognized to have an invalid digital signature, the identification of the patch arrival qualifies as a supply chain auditable event, while an invalid signature is an information security auditable event. The combination of these two events may provide information valuable to CSCRM. The enterprise should adjust the level of audit record review based on the risk changes (e.g., active threat intel, risk profile) on a specific vendor. Contracts should explicitly address how audit findings will be reported and adjudicated.	Functional	Intersects With	Audit Level Adjustments	MON-02.6	Mechanisms exist to adjust the level of audit review, analysis and reporting based on evolving threat information from law enforcement, industry associations or other credible sources of threat intelligence.	5	a. Review and analyze system audit records [Assignment: organization-defined frequency] for indications of [Assignment: organization-defined inappropriate or unusual activity] and the potential impact of the inappropriate or unusual activity; b. Report findings to [Assignment: organization-defined personnel or roles]; and c. Adjust the level of audit record review, analysis,
AU-10(1)	Non-repudiation | Association of Identities	This enhancement helps traceability in the supply chain and facilitates the accuracy of provenance.	Functional	Intersects With	Identity Binding	MON-09.1	Mechanisms exist to bind the identity of the information producer to the information generated.	5	(a) Bind the identity of the information producer with the information to [Assignment: organization-defined strength of binding]; and (b) Provide the means for authorized individuals to determine the identity of the producer of the information.
AU-10(2)	Non-repudiation | Validate Binding of Information Producer Identity	This enhancement validates the relationship of provenance and a component within the supply chain. Therefore, it ensures integrity of provenance.	Functional	Intersects With	Identity Binding	MON-09.1	Mechanisms exist to bind the identity of the information producer to the information generated.	5	(a) Validate the binding of the information producer identity to the information at [Assignment: organization-defined frequency]; and (b) Perform [Assignment: organization-defined actions] in the event of a validation error.
AU-10(3)	Non-repudiation | Chain of Custody	Chain of custody is fundamental to provenance and traceability in the supply chain. It also helps the verification of system and component integrity.	Functional	Intersects With	Chain of Custody & Forensics	IRO-08	Mechanisms exist to perform digital forensics and maintain the integrity of the chain of custody, in accordance with applicable laws, regulations and industry-recognized secure practices.	5	Maintain reviewer or releaser credentials within the established chain of custody for information reviewed or released.
AU-12	Audit Record Generation	Enterprises should ensure that audit record generation mechanisms are in place to capture all relevant supply chain auditable events. Examples of such events include component version updates, component approvals from acceptance testing results, logistics data-capturing inventory, or transportation information. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Monitoring Reporting	MON-06	Mechanisms exist to provide an event log report generation capability to aid in detecting and assessing anomalous activities.	5	a. Provide audit record generation capability for the event types the system is capable of auditing as defined in AU-2a on [Assignment: organization-defined system components]; b. Allow [Assignment: organization-defined personnel or roles] to select the event types that are to be logged by specific components of the system; and
AU-13	Monitoring for Information Disclosure	Within the C-SCRM context, information disclosure may occur via multiple avenues, including open source information. For example, supplier-provided errata may reveal information about an enterprise's system that increases the risk to that system. Enterprises should ensure that monitoring is in place for contractor systems to detect the unauthorized disclosure of any data and that contract language includes a requirement that the vendor will notify the enterprise, in accordance with enterprise-defined time frames and as soon as possible in the event of any potential or actual unauthorized disclosure. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Monitoring For Information Disclosure	MON-11	Mechanisms exist to monitor for evidence of unauthorized exfiltration or disclosure of non-public information.	10	a. Monitor [Assignment: organization-defined open-source information and/or information sites] [Assignment: organization-defined frequency] for evidence of unauthorized disclosure of organizational information; and b. If an information disclosure is discovered: 1. Notify [Assignment: organization-defined personnel or roles]; and
AU-14	Session Audit	Enterprises should include non-federal contract employees in session audits to identify security risks in the supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Session Audit	MON-12	Mechanisms exist to provide session audit capabilities that can: (1) Capture and log all content related to a user session; and (2) Remotely view all content related to an established user session in real time.	10	a. Provide and implement the capability for [Assignment: organization-defined users or roles] to [Selection (one or more): record; view; hear; log] the content of a user session under [Assignment: organization-defined circumstances]; and b. Develop, integrate, and use session auditing activities in consultation with legal counsel and in accordance with applicable laws, executive orders,
AU-16	Cross-organizational Audit Logging	In a C-SCRM context, this control includes the enterprise's use of system integrator or external service provider infrastructure. Enterprises should add language to contracts on coordinating audit information requirements and information exchange agreements with vendors.	Functional	Intersects With	Cross-Organizational Monitoring	MON-14	Mechanisms exist to coordinate sanitized event logs among external organizations to identify anomalous events when event logs are shared across organizational boundaries, without giving away sensitive or critical business data.	5	Employ [Assignment: organization-defined methods] for coordinating [Assignment: organization-defined audit information] among external organizations when audit information is transmitted across organizational boundaries.
AU-16(2)	Cross-organizational Audit Logging | Sharing of Audit Information	Whether managing a distributed audit environment or an audit datasharing environment between enterprises and its system integrators or external services providers, enterprises should establish a set of requirements for the process of sharing audit information. In the case of the system integrator and external service provider and the enterprise, a service-level agreement of the type of audit data required versus what can be provided must be agreed to in advance to ensure that the enterprise obtains the relevant audit information needed to ensure that appropriate protections are in place to meet its mission operation protection needs. Ensure that coverage of both the information systems and supply chain network are addressed for the collection and sharing of audit information. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-level contractors.	Functional	Equal	Sharing of Event Logs	MON-14.1	Mechanisms exist to share event logs with third-party organizations based on specific cross-organizational sharing agreements.	10	Provide cross-organizational audit information to [Assignment: organization-defined organizations] based on [Assignment: organization-defined cross-organizational sharing agreements].
CA-1	Policy and Procedures	Integrate the development and implementation of assessment and authorization policies and procedures for supply chain cybersecurity into the control assessment and authorization policy and related C-SCRM Strategy/Implementation Plan(s), policies, and system-level plans. To address cybersecurity risks throughout the supply chain, enterprises should develop a C-SCRM policy (or, if required, integrate into existing policies) to direct C-SCRM activities for control assessment and authorization. The C-SCRM policy should define C-SCRM roles and responsibilities within the enterprise for conducting control assessment and authorization, any dependencies among those roles, and the interaction among the roles. Enterprise-wide security and privacy risks should be assessed on an ongoing basis and include supply chain risk assessment results.	Functional	Subset Of	Information Assurance (IA) Operations	IAO-01	Mechanisms exist to facilitate the implementation of security, compliance and resilience assessment and authorization controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] assessment, authorization, and monitoring policy that: (a) Addresses purpose, scope, roles, responsibilities,
CA-1	Policy and Procedures	Integrate the development and implementation of assessment and authorization policies and procedures for supply chain cybersecurity into the control assessment and authorization policy and related C-SCRM Strategy/Implementation Plan(s), policies, and system-level plans. To address cybersecurity risks throughout the supply chain, enterprises should develop a C-SCRM policy (or, if required, integrate into existing policies) to direct C-SCRM activities for control assessment and authorization. The C-SCRM policy should define C-SCRM roles and responsibilities within the enterprise for conducting control assessment and authorization, any dependencies among those roles, and the interaction among the roles. Enterprise-wide security and privacy risks should be assessed on an ongoing basis and include supply chain risk assessment results.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] assessment, authorization, and monitoring policy that: (a) Addresses purpose, scope, roles, responsibilities,
CA-1	Policy and Procedures	Integrate the development and implementation of assessment and authorization policies and procedures for supply chain cybersecurity into the control assessment and authorization policy and related C-SCRM Strategy/Implementation Plan(s), policies, and system-level plans. To address cybersecurity risks throughout the supply chain, enterprises should develop a C-SCRM policy (or, if required, integrate into existing policies) to direct C-SCRM activities for control assessment and authorization. The C-SCRM policy should define C-SCRM roles and responsibilities within the enterprise for conducting control assessment and authorization, any dependencies among those roles, and the interaction among the roles. Enterprise-wide security and privacy risks should be assessed on an ongoing basis and include supply chain risk assessment results.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] assessment, authorization, and monitoring policy that: (a) Addresses purpose, scope, roles, responsibilities,
CA-2	Control Assessments	Ensure that the control assessment plan incorporates relevant C-SCRM controls and control enhancements. The control assessment should cover the assessment of both information systems and the supply chain and ensure that an enterprise-relevant baseline set of controls and control enhancements are identified and used for the assessment. Control assessments can include information from supplier audits, reviews, and supply chain-related information. Enterprises should develop a strategy for collecting information, including a strategy for engaging with providers on supply chain risk assessments. Such collaboration helps enterprises leverage information from providers, reduce redundancy, identify potential courses of action for risk responses, and reduce the burden on providers. CSCRM personnel should review the control assessment.	Functional	Intersects With	Functional Review Of Security, Compliance & Resilience Controls	CPL-03.2	Mechanisms exist to regularly review Technology Assets, Applications and/or Services (TAAS) for adherence to the organization's security, compliance and/or resilience policies and standards.	5	a. Select the appropriate assessor or assessment team for the type of assessment to be conducted; b. Develop a control assessment plan that describes the scope of the assessment including: 1. Controls and control enhancements under assessment; 2. Assessment procedures to be used to determine control effectiveness; and
CA-2	Control Assessments	Ensure that the control assessment plan incorporates relevant C-SCRM controls and control enhancements. The control assessment should cover the assessment of both information systems and the supply chain and ensure that an enterprise-relevant baseline set of controls and control enhancements are identified and used for the assessment. Control assessments can include information from supplier audits, reviews, and supply chain-related information. Enterprises should develop a strategy for collecting information, including a strategy for engaging with providers on supply chain risk assessments. Such collaboration helps enterprises leverage information from providers, reduce redundancy, identify potential courses of action for risk responses, and reduce the burden on providers. CSCRM personnel should review the control assessment.	Functional	Intersects With	Technical Verification	IAO-06	Mechanisms exist to perform Information Assurance Program (IAP) activities to evaluate the design, implementation and effectiveness of technical security, compliance and resilience controls.	5	a. Select the appropriate assessor or assessment team for the type of assessment to be conducted; b. Develop a control assessment plan that describes the scope of the assessment including: 1. Controls and control enhancements under assessment; 2. Assessment procedures to be used to determine control effectiveness; and
CA-2	Control Assessments	Ensure that the control assessment plan incorporates relevant C-SCRM controls and control enhancements. The control assessment should cover the assessment of both information systems and the supply chain and ensure that an enterprise-relevant baseline set of controls and control enhancements are identified and used for the assessment. Control assessments can include information from supplier audits, reviews, and supply chain-related information. Enterprises should develop a strategy for collecting information, including a strategy for engaging with providers on supply chain risk assessments. Such collaboration helps enterprises leverage information from providers, reduce redundancy, identify potential courses of action for risk responses, and reduce the burden on providers. CSCRM personnel should review the control assessment.	Functional	Intersects With	Security, Compliance & Resilience In Project Management	PRM-04	Mechanisms exist to assess security, compliance and resilience controls in system project development to determine the extent to which the controls are implemented correctly, operating as intended and producing the desired outcome with respect to meeting the requirements.	5	a. Select the appropriate assessor or assessment team for the type of assessment to be conducted; b. Develop a control assessment plan that describes the scope of the assessment including: 1. Controls and control enhancements under assessment; 2. Assessment procedures to be used to determine control effectiveness; and
CA-2	Control Assessments	Ensure that the control assessment plan incorporates relevant C-SCRM controls and control enhancements. The control assessment should cover the assessment of both information systems and the supply chain and ensure that an enterprise-relevant baseline set of controls and control enhancements are identified and used for the assessment. Control assessments can include information from supplier audits, reviews, and supply chain-related information. Enterprises should develop a strategy for collecting information, including a strategy for engaging with providers on supply chain risk assessments. Such collaboration helps enterprises leverage information from providers, reduce redundancy, identify potential courses of action for risk responses, and reduce the burden on providers. CSCRM personnel should review the control assessment.	Functional	Intersects With	Assessments	IAO-02	Mechanisms exist to formally assess the security, compliance and resilience controls in Technology Assets, Applications and/or Services (TAAS) through Information Assurance Program (IAP) activities to determine the extent to which the controls are implemented correctly, operating as intended and producing the desired outcome with respect to meeting expected requirements.	5	a. Select the appropriate assessor or assessment team for the type of assessment to be conducted; b. Develop a control assessment plan that describes the scope of the assessment including: 1. Controls and control enhancements under assessment; 2. Assessment procedures to be used to determine control effectiveness; and
CA-2	Control Assessments	Ensure that the control assessment plan incorporates relevant C-SCRM controls and control enhancements. The control assessment should cover the assessment of both information systems and the supply chain and ensure that an enterprise-relevant baseline set of controls and control enhancements are identified and used for the assessment. Control assessments can include information from supplier audits, reviews, and supply chain-related information. Enterprises should develop a strategy for collecting information, including a strategy for engaging with providers on supply chain risk assessments. Such collaboration helps enterprises leverage information from providers, reduce redundancy, identify potential courses of action for risk responses, and reduce the burden on providers. CSCRM personnel should review the control assessment.	Functional	Intersects With	Security, Compliance & Resilience Assessments	CPL-03	Mechanisms exist to regularly review processes and documented procedures to ensure conformity with the organization's security, compliance and/or resilience policies, standards and other applicable requirements.	5	a. Select the appropriate assessor or assessment team for the type of assessment to be conducted; b. Develop a control assessment plan that describes the scope of the assessment including: 1. Controls and control enhancements under assessment; 2. Assessment procedures to be used to determine control effectiveness; and
CA-5	Plan of Action and Milestones	For a system-level plan of actions and milestones (POA&Ms), enterprises need to ensure that a separate POA&M exists for C-SCRM and includes both information systems and the supply chain. The C-SCRM POA&M should include tasks to be accomplished with a recommendation for completion before or after system authorization, the resources required to accomplish the tasks, milestones established to meet the tasks, and the scheduled completion dates for the milestones and tasks. The enterprise should include relevant weaknesses, the impact of weaknesses on information systems or the supply chain, any remediation to address weaknesses, and any continuous monitoring activities in its C-SCRM POA&M. The C-SCRM POA&M should be included as part of the authorization package.	Functional	Intersects With	Capabilities Deficiency Tracking	IAO-05	Mechanisms exist to govern identified deficiencies (e.g., Plan of Action and Milestones (POA&M) or similar methodology) that formally documents, at a minimum: (1) Deficiency tracking number; (2) Applicable security, compliance and/or resilience control; (3) Description of the deficiency(ies); (4) Risk associated with the deficiency(ies); (5) Source deficiency identification/detection;	5	a. Develop a plan of action and milestones for the system to document the planned remediation actions of the organization to correct weaknesses or deficiencies noted during the assessment of the controls and to reduce or eliminate known vulnerabilities in the system; and b. Update existing plan of action and milestones [Assignment: organization-defined frequency] based
CA-6	Authorization	Authorizing officials should include C-SCRM in authorization decisions. To accomplish this, supply chain risks and compensating controls documented in C-SCRM Plans or system security plans and the C-SCRM POA&M should be included in the authorization package as part of the decision-making process. Risks should be determined and associated compensating controls selected based on the output of criticality, threat, and vulnerability analyses. Authorizing officials may use the guidance in Section 2 of this document as well as NISTIR 8179 to guide the assessment process.	Functional	Equal	Security Authorization	IAO-07	Mechanisms exist to ensure Technology Assets, Applications and/or Services (TAAS) are officially authorized prior to "go live" in a production environment.	10	a. Assign a senior official as the authorizing official for the system; b. Assign a senior official as the authorizing official for common controls available for inheritance by organizational systems; c. Ensure that the authorizing official for the system, before commencing operations: 1. Accepts the use of common controls inherited by
CM-1	Policy and Procedures	to the enterprise's ability to establish the provenance of components, including tracking and tracing them through the SDLC and the supply chain. A properly defined and implemented configuration management capability provides greater assurance throughout the SDLC and the supply chain that components are authentic and have not been inappropriately modified. When defining a configuration management policy and procedures, enterprises should address the full SDLC, including procedures for introducing and removing components to and from the enterprise's information system boundary. A configuration management policy should incorporate configuration items, data retention for configuration items and corresponding metadata, and tracking of the configuration item and its metadata. The enterprise should coordinate with suppliers, developers, system integrators, external system	Functional	Subset Of	Configuration Management Program	CFG-01	Mechanisms exist to facilitate the implementation of configuration management controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] configuration management policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
CM-1	Policy and Procedures	to the enterprise's ability to establish the provenance of components, including tracking and tracing them through the SDLC and the supply chain. A properly defined and implemented configuration management capability provides greater assurance throughout the SDLC and the supply chain that components are authentic and have not been inappropriately modified. When defining a configuration management policy and procedures, enterprises should address the full SDLC, including procedures for introducing and removing components to and from the enterprise's information system boundary. A configuration management policy should incorporate configuration items, data retention for configuration items and corresponding metadata, and tracking of the configuration item and its metadata. The enterprise should coordinate with suppliers, developers, system integrators, external system	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] configuration management policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
CM-1	Policy and Procedures	to the enterprise's ability to establish the provenance of components, including tracking and tracing them through the SDLC and the supply chain. A properly defined and implemented configuration management capability provides greater assurance throughout the SDLC and the supply chain that components are authentic and have not been inappropriately modified. When defining a configuration management policy and procedures, enterprises should address the full SDLC, including procedures for introducing and removing components to and from the enterprise's information system boundary. A configuration management policy should incorporate configuration items, data retention for configuration items and corresponding metadata, and tracking of the configuration item and its metadata. The enterprise should coordinate with suppliers, developers, system integrators, external system	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] configuration management policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
CM-2	Baseline Configuration	of the baseline is to provide a starting point for tracking changes to components, code, and/or settings throughout the SDLC. Regular reviews and updates of baseline configurations (i.e., re-baselining) are critical for traceability and provenance. The baseline configuration must take into consideration the enterprise's operational environment and any relevant supplier, developer, system integrator, external system service provider, and other ICT/OT-related service provider involvement with the organization's information systems and networks. If the system integrator, for example, uses the existing organization's infrastructure, appropriate measures should be taken to establish a baseline that reflects an appropriate set of agreed-upon criteria for access and operation. Enterprises should require their prime contractors to implement this control and flow down this requirement to	Functional	Intersects With	Reviews & Updates	CFG-02.1	Mechanisms exist to review and update baseline configurations: (1) At least annually; (2) When required due to so; or (3) As part of system component installations and upgrades.	5	a. Develop, document, and maintain under configuration control, a current baseline configuration of the system; and b. Review and update the baseline configuration of the system: 1. [Assignment: organization-defined frequency]; 2. When required due to [Assignment: organization-defined circumstances]; and
CM-2	Baseline Configuration	of the baseline is to provide a starting point for tracking changes to components, code, and/or settings throughout the SDLC. Regular reviews and updates of baseline configurations (i.e., re-baselining) are critical for traceability and provenance. The baseline configuration must take into consideration the enterprise's operational environment and any relevant supplier, developer, system integrator, external system service provider, and other ICT/OT-related service provider involvement with the organization's information systems and networks. If the system integrator, for example, uses the existing organization's infrastructure, appropriate measures should be taken to establish a baseline that reflects an appropriate set of agreed-upon criteria for access and operation. Enterprises should require their prime contractors to implement this control and flow down this requirement to	Functional	Intersects With	Secure Baseline Configurations	CFG-02	Mechanisms exist to develop, document and maintain secure baseline configurations for Technology Assets, Applications and/or Services (TAAS) that are consistent with industry-accepted system hardening standards.	5	a. Develop, document, and maintain under configuration control, a current baseline configuration of the system; and b. Review and update the baseline configuration of the system: 1. [Assignment: organization-defined frequency]; 2. When required due to [Assignment: organization-defined circumstances]; and
CM-2(6)	Baseline Configuration | Development and Test Environments	The enterprise should maintain or require the maintenance of a baseline configuration of applicable suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers' development, test (and staging, if applicable) environments, and any configuration of interfaces.	Functional	Equal	Development & Test Environment Configurations	CFG-02.4	Mechanisms exist to manage baseline configurations for development and test environments separately from operational baseline configurations to minimize the risk of unintentional changes.	10	Maintain a baseline configuration for system development and test environments that is managed separately from the operational baseline configuration.
CM-3	Configuration Change Control	Enterprises should determine, implement, monitor, and audit configuration settings and change controls within the information systems and networks and throughout the SDLC. This control supports traceability for C-SCRM. The below NIST SP 800-53, Rev. 5 control enhancements – CM-3 (1), (2), (4), and (8) – are mechanisms that can be used for C-SCRM to collect and manage change control data. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Subset Of	Change Management Program	CHG-01	Mechanisms exist to facilitate the implementation of a change management program.	10	a. Determine and document the types of changes to the system that are configuration-controlled; b. Review proposed configuration-controlled changes to the system and approve or disapprove such changes with explicit consideration for security and privacy impact analyses; c. Document configuration change decisions associated with the system;
CM-3	Configuration Change Control	Enterprises should determine, implement, monitor, and audit configuration settings and change controls within the information systems and networks and throughout the SDLC. This control supports traceability for C-SCRM. The below NIST SP 800-53, Rev. 5 control enhancements – CM-3 (1), (2), (4), and (8) – are mechanisms that can be used for C-SCRM to collect and manage change control data. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Configuration Change Control	CHG-02	Mechanisms exist to govern the technical configuration change control processes.	5	a. Determine and document the types of changes to the system that are configuration-controlled; b. Review proposed configuration-controlled changes to the system and approve or disapprove such changes with explicit consideration for security and privacy impact analyses; c. Document configuration change decisions associated with the system;

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
CM-3(1)	Configuration Change Control | Automated Documentation, Notification, and Prohibition of Changes	Enterprises should define a set of system changes that are critical to the protection of the information system and the underlying or interoperating systems and networks. These changes may be defined based on a criticality analysis (including components, processes, and functions) and where vulnerabilities exist that are not yet remediated (e.g., due to resource constraints). The change control process should also monitor for changes that may affect an existing security control to ensure that this control continues to function as required.	Functional	Equal	Prohibition Of Changes	CHG-02.1	Mechanisms exist to prohibit unauthorized changes, unless organization-approved change requests are received.	10	Use [Assignment: organization-defined automated mechanisms] to: (a) Document proposed changes to the system; (b) Notify [Assignment: organization-defined approval authorities] of proposed changes to the system and request change approval; (c) Highlight proposed changes to the system that have not been approved or disapproved within
CM-3(2)	Configuration Change Control | Testing, Validation, and Documentation of Changes	Test, validate, and document changes to the system before finalizing implementation of the changes.	Functional	Intersects With	Control Functionality Verification	CHG-06	Mechanisms exist to verify the functionality of security, compliance and resilience controls following implemented changes to ensure applicable controls operate as designed.	5	Test, validate, and document changes to the system before finalizing the implementation of the changes.
CM-3(2)	Configuration Change Control | Testing, Validation, and Documentation of Changes	Test, validate, and document changes to the system before finalizing implementation of the changes.	Functional	Intersects With	Test, Validate & Document Changes	CHG-02.2	Mechanisms exist to appropriately test and document proposed changes in a non-production environment before changes are implemented in a production environment.	5	Test, validate, and document changes to the system before finalizing the implementation of the changes.
CM-3(4)	Configuration Change Control | Security and Privacy Representatives	Require enterprise security and privacy representatives to be members of the configuration change control function.	Functional	Equal	Security, Compliance & Resilience Representative for Asset Lifecycle Changes	CHG-02.3	Mechanisms exist to include a cybersecurity and/or data protection representative in the configuration change control review process.	10	Require [Assignment: organization-defined security and privacy representatives] to be members of the [Assignment: organization-defined configuration change control element].
CM-3(8)	Configuration Change Control | Prevent or Restrict Configuration Changes	Prevent or restrict changes to the configuration of the system under enterprise-defined circumstances.	Functional	Equal	Configuration Enforcement	CFG-06	Automated mechanisms exist to monitor, enforce and report on configurations for endpoint devices.	10	Prevent or restrict changes to the configuration of the system under the following circumstances: [Assignment: organization-defined circumstances].
CM-5	Access Restrictions for Change	Enterprises should ensure that requirements regarding physical and logical access restrictions for changes to the information systems and networks are defined and included in the enterprise's implementation of access restrictions. Examples include access restriction for changes to centrally managed processes for software component updates and the deployment of updates or patches.	Functional	Intersects With	Governing Access Restriction for Change	END-03.2	Mechanisms exist to define, document, approve and enforce access restrictions associated with changes to Technology Assets, Applications and/or Services (TAAS).	5	Define, document, approve, and enforce physical and logical access restrictions associated with changes to the system.
CM-5	Access Restrictions for Change	Enterprises should ensure that requirements regarding physical and logical access restrictions for changes to the information systems and networks are defined and included in the enterprise's implementation of access restrictions. Examples include access restriction for changes to centrally managed processes for software component updates and the deployment of updates or patches.	Functional	Intersects With	Access Restriction For Change	CHG-04	Mechanisms exist to enforce configuration restrictions in an effort to restrict the ability of users to conduct unauthorized changes.	5	Define, document, approve, and enforce physical and logical access restrictions associated with changes to the system.
CM-6	Configuration Settings	Enterprises should oversee the function of modifying configuration settings for their information systems and networks and throughout the SDLC. Methods of oversight include periodic verification, reporting, and review. Resulting information may be shared with various parties that have access to, are connected to, or engage in the creation of the enterprise's information systems and networks on a need-to-know basis. Changes should be tested and approved before they are implemented. Configuration settings should be monitored and audited to alert designated enterprise personnel when a change has occurred. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the	Functional	Intersects With	Secure Baseline Configurations	CFG-02	Mechanisms exist to develop, document and maintain secure baseline configurations for Technology Assets, Applications and/or Services (TAAS) that are consistent with industry-accepted system hardening standards.	5	a. Establish and document configuration settings for components employed within the system that reflect the most restrictive mode consistent with operational requirements using [Assignment: organization-defined common secure configurations]; b. Implement the configuration settings; c. Identify, document, and approve any deviations
CM-6	Configuration Settings	Enterprises should oversee the function of modifying configuration settings for their information systems and networks and throughout the SDLC. Methods of oversight include periodic verification, reporting, and review. Resulting information may be shared with various parties that have access to, are connected to, or engage in the creation of the enterprise's information systems and networks on a need-to-know basis. Changes should be tested and approved before they are implemented. Configuration settings should be monitored and audited to alert designated enterprise personnel when a change has occurred. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Approved Configuration Deviations	CFG-02.7	Mechanisms exist to document, assess risk and approve or deny deviations to standardized configurations.	5	a. Establish and document configuration settings for components employed within the system that reflect the most restrictive mode consistent with operational requirements using [Assignment: organization-defined common secure configurations]; b. Implement the configuration settings; c. Identify, document, and approve any deviations
CM-7(1)	Least Functionality | Periodic Review	Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Equal	Periodic Review	CFG-03.1	Mechanisms exist to periodically review system configurations to identify and disable unnecessary and/or non-secure functions, ports, protocols and services.	10	(a) Review the system [Assignment: organization-defined frequency] to identify unnecessary and/or nonsecure functions, ports, protocols, software, and services; and (b) Disable or remove [Assignment: organization-defined functions, ports, protocols, software, and services within the system deemed to be unnecessary and/or nonsecure].
CM-7(4)	Least Functionality | Unauthorized Software — Deny-by-exception	Enterprises should define requirements and deploy appropriate processes to specify and detect software that is not allowed. This can be aided by defining a requirement to, at a minimum, not use disreputable or unauthorized software. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors	Functional	Equal	Explicitly Allow / Deny Applications	CFG-03.3	Mechanisms exist to explicitly allow (allowlist / whitelist) and/or block (denylist / blacklist) applications that are authorized to execute on systems.	10	(a) Identify [Assignment: organization-defined software programs not authorized to execute on the system]; (b) Employ an allow-all, deny-by-exception policy to prohibit the execution of unauthorized software programs on the system; and (c) Review and update the list of unauthorized software programs [Assignment: organization-
CM-7(6)	Least Functionality | Confined Environments with Limited Privileges	The enterprise should ensure that code authentication mechanisms such as digital signatures are implemented when executing code to assure the integrity of software, firmware, and information on the information systems and networks.	Functional	Intersects With	Configure Technology Assets, Applications and/or Services (TAAS) for High-Risk Areas	CFG-02.5	Mechanisms exist to configure Technology Assets, Applications and/or Services (TAAS) utilized in high-risk areas with more restrictive baseline configurations.	5	Require that the following user-installed software execute in a confined physical or virtual machine environment with limited privileges: [Assignment: organization-defined user-installed software].
CM-7(8)	Least Functionality | Binary or Machine Executable Code	When exceptions are made to use software products without accompanying source code and with limited or no warranty because of compelling mission or operational requirements, approval by the authorizing official should be contingent upon the enterprise explicitly incorporating cybersecurity supply chain risk assessments as part of a broader assessment of such software products, as well as the implementation of compensating controls to address any identified and assessed risks.	Functional	Equal	Binary or Machine-Executable Code	END-06.7	Mechanisms exist to prohibit the use of binary or machine-executable code from sources with limited or no warranty and without access to source code.	10	(a) Prohibit the use of binary or machine-executable code from sources with limited or no warranty or without the provision of source code; and (b) Allow exceptions only for compelling mission or operational requirements and with the approval of the authorizing official.
CM-7(9)	Least Functionality | Prohibiting The Use of Unauthorized Hardware	Enterprises should define requirements and deploy appropriate processes to specify and detect hardware that is not allowed. This can be aided by defining a requirement to, at a minimum, not use disreputable or unauthorized hardware. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors	Functional	Intersects With	Configure Technology Assets, Applications and/or Services (TAAS) for High-Risk Areas	CFG-02.5	Mechanisms exist to configure Technology Assets, Applications and/or Services (TAAS) utilized in high-risk areas with more restrictive baseline configurations.	5	(a) Identify [Assignment: organization-defined hardware components authorized for system use]; (b) Prohibit the use or connection of unauthorized hardware components; (c) Review and update the list of authorized hardware components [Assignment: organization-defined frequency].
CM-8	System Component Inventory	information includes, for example, hardware inventory specifications, software license information, software version numbers, component owners, and for networked components or devices – machine names and network addresses. Inventory specifications may include the manufacturer, device type, model, serial number, and physical location. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors. Enterprises should specify the requirements and how information flow is enforced to ensure that only the required information – and no more – is communicated to the various participants in the supply chain. If information is subsetted downstream, there should be information about who created the subset information. Enterprises should consider producing SBOMs for applicable and appropriate classes of software,	Functional	Intersects With	Asset Inventories	AST-02	Mechanisms exist to perform inventories of Technology Assets, Applications, Services and/or Data (TAASD) that: (1) Accurately reflects the current TAASD in use; (2) Identifies authorized software products, including business justification details; (3) Is at the level of granularity deemed necessary for tracking and reporting; (4) Includes organization-defined information deemed necessary to achieve effective property accountability; and	5	a. Develop and document an inventory of system components that: 1. Accurately reflects the system; 2. Includes all components within the system; 3. Does not include duplicate accounting of components or components assigned to any other system; 4. Is at the level of granularity deemed necessary
CM-8	System Component Inventory	numbers, component owners, and for networked components or devices – machine names and network addresses. Inventory specifications may include the manufacturer, device type, model, serial number, and physical location. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors. Enterprises should specify the requirements and how information flow is enforced to ensure that only the required information – and no more – is communicated to the various participants in the supply chain. If information is subsetted downstream, there should be information about who created the subset information. Enterprises should consider producing SBOMs for applicable and appropriate classes of software, including purchased software, open source software, and in-house software. Departments and agencies should	Functional	Intersects With	Component Duplication Avoidance	AST-02.3	Mechanisms exist to establish and maintain an authoritative source and repository to provide a trusted source and accountability for approved and implemented system components that prevents assets from being duplicated in other asset inventories.	5	a. Develop and document an inventory of system components that: 1. Accurately reflects the system; 2. Includes all components within the system; 3. Does not include duplicate accounting of components or components assigned to any other system; 4. Is at the level of granularity deemed necessary
CM-8(8)	System Component Inventory | Automated Location Tracking	When employing automated mechanisms for tracking information system components by physical location, the enterprise should incorporate information system, network, and component tracking needs to ensure accurate inventory	Functional	Equal	Automated Location Tracking	AST-02.10	Mechanisms exist to track the geographic location of system components.	10	Support the tracking of system components by geographic location using [Assignment: organization-defined automated mechanisms].
CM-9	Configuration Management Plan	Enterprises should ensure that C-SCRM is incorporated into configuration management planning activities. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Subset Of	Configuration Management Program	CFG-01	Mechanisms exist to facilitate the implementation of configuration management controls.	10	Develop, document, and implement a configuration management plan for the system that: a. Addresses roles, responsibilities, and configuration management processes and procedures; b. Establishes a process for identifying configuration items throughout the system development life cycle and for managing the configuration of the
CM-9	Configuration Management Plan	Enterprises should ensure that C-SCRM is incorporated into configuration management planning activities. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Stakeholder Notification of Changes	CHG-05	Mechanisms exist to ensure stakeholders are made aware of and understand the impact of proposed changes.	5	Develop, document, and implement a configuration management plan for the system that: a. Addresses roles, responsibilities, and configuration management processes and procedures; b. Establishes a process for identifying configuration items throughout the system development life cycle and for managing the configuration of the
CM-9(1)	Configuration Management Plan | Assignment of Responsibility	Enterprises should ensure that all relevant roles are defined to address configuration management activities for information systems and networks. Enterprises should ensure that requirements and capabilities for configuration management are appropriately addressed or included in the following supply chain activities: requirements definition, development, testing, market research and analysis, procurement solicitations and contracts, component installation or removal, system integration, operations, and maintenance.	Functional	Equal	Assignment of Responsibility	CFG-01.1	Mechanisms exist to implement a segregation of duties for configuration management that prevents developers from performing production configuration management duties.	10	Assign responsibility for developing the configuration management process to organizational personnel that are not directly involved in system development.
CM-10	Software Usage Restrictions	Enterprises should ensure that licenses for software used within their information systems and networks are documented, tracked, and maintained. Tracking mechanisms should provide for the ability to trace users and the use of licenses to access control information and processes. As an example, when an employee is terminated, a "named user" license should be revoked, and the license documentation should be updated to reflect this change. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Software Usage Restrictions	CFG-04	Mechanisms exist to enforce software usage restrictions to comply with applicable contract agreements and copyright laws.	10	a. Use software and associated documentation in accordance with contract agreements and copyright laws; b. Track the use of software and associated documentation protected by quantity licenses to control copying and distribution; and c. Control and document the use of peer-to-peer file sharing technology to ensure that this capability is
CM-10(1)	Software Usage Restrictions | Open-source Software	frameworks, reusable libraries' availability for testing and use, and any other information that may impact levels of exposure to cybersecurity risks throughout the supply chain. Numerous open source solutions are currently in use by enterprises, including in integrated development environments (IDEs) and web servers. The enterprise should: a. Track the use of OSS and associated documentation, b. Ensure that the use of OSS adheres to the licensing terms and that these terms are acceptable to the enterprise, c. Document and monitor the distribution of software as it relates to the licensing agreement to control copying and distribution, and d. Evaluate and periodically audit the OSS's supply chain as provided by the open source developer (e.g.,	Functional	Equal	Open Source Software	CFG-04.1	Mechanisms exist to establish parameters for the secure use of open source software.	10	Establish the following restrictions on the use of open-source software: [Assignment: organization-defined restrictions].
CM-11	User-installed Software	This control extends to the enterprise information system and network users who are not employed by the enterprise. These users may be suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Intersects With	Prohibit Installation Without Privileged Status	END-03	Automated mechanisms exist to prohibit software installations without explicitly assigned privileged status.	5	a. Establish [Assignment: organization-defined policies] governing the installation of software by users; b. Enforce software installation policies through the following methods: [Assignment: organization-defined methods]; and c. Monitor policy compliance [Assignment: organization-defined frequency].
CM-11	User-installed Software	This control extends to the enterprise information system and network users who are not employed by the enterprise. These users may be suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Intersects With	User-Installed Software	CFG-05	Mechanisms exist to restrict the ability of non-privileged users to install unauthorized software.	5	a. Establish [Assignment: organization-defined policies] governing the installation of software by users; b. Enforce software installation policies through the following methods: [Assignment: organization-defined methods]; and c. Monitor policy compliance [Assignment: organization-defined frequency].
CM-12	Information Location	Information that resides in different physical locations may be subject to different cybersecurity risks throughout the supply chain, depending on the specific location of the information. Components that originate or operate from different physical locations may also be subject to different supply chain risks, depending on the specific location of origination or operations. Enterprises should manage these risks through limiting access control and specifying allowable or disallowable geographic locations for backup/recovery, patching/upgrades, and information transfer/sharing. NIST SP 800-53, Rev. 5 control enhancement CM-12 (1) is a mechanism that can be used to enable automated location of components.	Functional	Equal	Information Location	DCH-24	Mechanisms exist to identify and document the location of information and the specific system components on which the information resides.	10	a. Identify and document the location of [Assignment: organization-defined information] and the specific system components on which the information is processed and stored; b. Identify and document the users who have access to the system and system components where the information is processed and stored; and c. Document changes to the location (i.e., system or
CM-12(1)	Information Location | Automated Tools to Support Information Location	Use automated tools to identify enterprise-defined information on enterprise-defined system components to ensure that controls are in place to protect enterprise information and individual privacy.	Functional	Equal	Automated Tools to Support Information Location	DCH-24.1	Automated mechanisms exist to identify by data classification type to ensure adequate security, compliance and resilience controls are in place to protect organizational information and individual data protection.	10	Use automated tools to identify [Assignment: organization-defined information by information type] on [Assignment: organization-defined system components] to ensure controls are in place to protect organizational information and individual privacy.
CM-13	Data Action Mapping	sensitive or classified information is necessary. Data action mapping should also be conducted to map Internet of Things (IoT) devices, embedded or stand-alone IoT systems, or IoT system of system data actions. Understanding what classified or IoT information is being processed, its sensitivity and/or effect on a physical thing or physical environment, how the sensitive or IoT information is being processed (e.g., if the data action is visible to an individual or is processed in another part of the system), and by whom provides a number of contextual factors that are important for assessing the degree of risk. Data maps can be illustrated in different ways, and the level of detail may vary based on the mission and business needs of the enterprise. The data map may be an overlay of any system design artifact that the enterprise is using. The development of this map may necessitate coordination between program and security personnel regarding the covered data actions and the components that are	Functional	Equal	Data Action Mapping	AST-02.8	Mechanisms exist to create and maintain a map of Technology Assets, Applications and/or Services (TAAS) where sensitive/regulated data is stored, transmitted or processed.	10	Develop and document a map of system data actions.
CP-1	Policy and Procedures	Enterprises should integrate C-SCRM into the contingency planning policy and related SCRM Strategy/Implementation Plan, policies, and SCRM Plan. The policy should cover information systems and the supply chain network and, at a minimum, address scenarios such as: a. Unplanned component failure and subsequent replacement; b. Planned replacement related to feature improvements, maintenance, upgrades, and modernization; and c. Product and/or service disruption.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] contingency planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
CP-1	Policy and Procedures	Enterprises should integrate C-SCRM into the contingency planning policy and related SCRM Strategy/Implementation Plan, policies, and SCRM Plan. The policy should cover information systems and the supply chain network and, at a minimum, address scenarios such as: a. Unplanned component failure and subsequent replacement; b. Planned replacement related to feature improvements, maintenance, upgrades, and modernization; and c. Product and/or service disruption.	Functional	Subset Of	Business Continuity Management System (BCMS)	BCD-01	Mechanisms exist to facilitate the implementation of contingency planning controls to help ensure resilient Technology Assets, Applications and/or Services (TAAS) (e.g., Continuity of Operations Plan (COOP) or Business Continuity & Disaster Recovery (BC/DR) playbooks).	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] contingency planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
CP-1	Policy and Procedures	Enterprises should integrate C-SCRM into the contingency planning policy and related SCRM Strategy/Implementation Plan, policies, and SCRM Plan. The policy should cover information systems and the supply chain network and, at a minimum, address scenarios such as: a. Unplanned component failure and subsequent replacement; b. Planned replacement related to feature improvements, maintenance, upgrades, and modernization; and c. Product and/or service disruption.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] contingency planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
CP-2	Contingency Plan	Enterprises should define and implement a contingency plan for the supply chain information systems and network to ensure that preparations are in place to mitigate the loss or degradation of data or operations. Contingencies should be put in place for the supply chain, network, information systems (especially critical components), and processes to ensure protection against compromise and provide appropriate failover and timely recovery to an acceptable state of operations.	Functional	Subset Of	Business Continuity Management System (BCMS)	BCD-01	Mechanisms exist to facilitate the implementation of contingency planning controls to help ensure resilient Technology Assets, Applications and/or Services (TAAS) (e.g., Continuity of Operations Plan (COOP) or Business Continuity & Disaster Recovery (BC/DR) playbooks).	10	a. Develop a contingency plan for the system that: 1. Identifies essential mission and business functions and associated contingency requirements; 2. Provides recovery objectives, restoration priorities, and metrics; 3. Addresses contingency roles, responsibilities, assigned individuals with contact information; 4. Addresses maintaining essential mission and
CP-2	Contingency Plan	Enterprises should define and implement a contingency plan for the supply chain information systems and network to ensure that preparations are in place to mitigate the loss or degradation of data or operations. Contingencies should be put in place for the supply chain, network, information systems (especially critical components), and processes to ensure protection against compromise and provide appropriate failover and timely recovery to an acceptable state of operations.	Functional	Intersects With	Ongoing Contingency Planning	BCD-06	Mechanisms exist to update contingency plans due to changes affecting: (1) People (e.g., personnel changes); (2) Processes (e.g., new, altered or decommissioned business practices, including third-party services) (3) Technologies (e.g., new, altered or decommissioned technologies); (4) Data (e.g., changes to data flows and/or data repositories); (5) Facilities (e.g., new, altered or decommissioned physical infrastructure); and/or	5	a. Develop a contingency plan for the system that: 1. Identifies essential mission and business functions and associated contingency requirements; 2. Provides recovery objectives, restoration priorities, and metrics; 3. Addresses contingency roles, responsibilities, assigned individuals with contact information; 4. Addresses maintaining essential mission and
CP-2(1)	Contingency Plan | Coordinate with Related Plans	Coordinate contingency plan development for supply chain risks with enterprise elements responsible for related plans.	Functional	Equal	Coordinate with Related Plans	BCD-01.1	Mechanisms exist to coordinate contingency plan development with internal and external elements responsible for related plans.	10	Coordinate contingency plan development with organizational elements responsible for related plans.
CP-2(2)	Contingency Plan | Capacity Planning	This enhancement helps the availability of the supply chain network or information system components	Functional	Equal	Capacity Planning	CAP-03	Mechanisms exist to conduct capacity planning so that necessary capacity for information processing, telecommunications and environmental support will exist during contingency operations.	10	Conduct capacity planning so that necessary capacity for information processing, telecommunications, and environmental support exists during contingency operations.
CP-3	Contingency Training	Enterprises should ensure that critical suppliers are included in contingency training. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Contingency Training	BCD-03	Mechanisms exist to adequately train contingency personnel and applicable stakeholders in their contingency roles and responsibilities.	10	a. Provide contingency training to system users consistent with assigned roles and responsibilities: 1. Within [Assignment: organization-defined time period] of assuming a contingency role or responsibility; 2. When required by system changes; and 3. [Assignment: organization-defined frequency] thereafter; and
CP-3(1)	Contingency Training | Simulated Events	Enterprises should ensure that suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers who have roles and responsibilities in providing critical services are included in contingency training exercises.	Functional	Equal	Simulated Events	BCD-03.1	Mechanisms exist to incorporate simulated events into contingency training to facilitate effective response by personnel in crisis situations.	10	Incorporate simulated events into contingency training to facilitate effective response by personnel in crisis situations.
CP-4	Contingency Plan Testing	Enterprises should ensure that critical suppliers are included in contingency testing. The enterprise – in coordination with the service provider(s) – should test continuity/resiliency capabilities, such as failover from a primary production site to a back-up site. This testing may occur separately from a training exercise or be performed during the exercise. Enterprises should reference their C-SCRM threat assessment output to develop scenarios to test how well the enterprise is able to withstand and/or recover from a C-SCRM threat event.	Functional	Intersects With	Contingency Plan Root Cause Analysis (RCA) & Lessons Learned	BCD-05	Mechanisms exist to conduct a Root Cause Analysis (RCA) and "lessons learned" activity every time the contingency plan is activated.	5	a. Test the contingency plan for the system [Assignment: organization-defined frequency] using the following tests to determine the effectiveness of the plan and the readiness to execute the plan: [Assignment: organization-defined tests]. b. Review the contingency plan test results; and c. Initiate corrective actions, if needed.
CP-4	Contingency Plan Testing	Enterprises should ensure that critical suppliers are included in contingency testing. The enterprise – in coordination with the service provider(s) – should test continuity/resiliency capabilities, such as failover from a primary production site to a back-up site. This testing may occur separately from a training exercise or be performed during the exercise. Enterprises should reference their C-SCRM threat assessment output to develop scenarios to test how well the enterprise is able to withstand and/or recover from a C-SCRM threat event.	Functional	Intersects With	Contingency Plan Testing & Exercises	BCD-04	Mechanisms exist to conduct tests and/or exercises to evaluate the contingency plan's effectiveness and the organization's readiness to execute the plan.	5	a. Test the contingency plan for the system [Assignment: organization-defined frequency] using the following tests to determine the effectiveness of the plan and the readiness to execute the plan: [Assignment: organization-defined tests]. b. Review the contingency plan test results; and c. Initiate corrective actions, if needed.
CP-6	Alternate Storage Site	When managed by suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers, alternative storage sites are considered within an enterprise's supply chain network. Enterprises should apply appropriate cybersecurity supply chain controls to those storage sites.	Functional	Equal	Alternate Storage Site	BCD-08	Mechanisms exist to establish an alternate storage site that includes both the assets and necessary agreements to permit the storage and recovery of system backup information.	10	a. Establish an alternate storage site, including necessary agreements to permit the storage and retrieval of system backup information; and b. Ensure that the alternate storage site provides controls equivalent to that of the primary site.
CP-6(1)	Alternate Storage Site | Separation from Primary Site	This enhancement helps the resiliency of the supply chain network, information systems, and information system components.	Functional	Equal	Separation from Primary Storage Site	BCD-08.1	Mechanisms exist to separate the alternate storage site from the primary storage site to reduce susceptibility to similar threats.	10	Identify an alternate storage site that is sufficiently separated from the primary storage site to reduce susceptibility to the same threats.
CP-7	Alternate Processing Site	When managed by suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers, alternative storage sites are considered within an enterprise's supply chain. Enterprises should apply appropriate supply chain cybersecurity controls to those processing sites.	Functional	Equal	Alternate Processing Site	BCD-09	Mechanisms exist to establish an alternate processing site that provides security measures equivalent to that of the primary site.	10	a. Establish an alternate processing site, including necessary agreements to permit the transfer and resumption of [Assignment: organization-defined system operations] for essential mission and business functions within [Assignment: organization-defined time period consistent with recovery time and recovery point objectives] when the primary processing capabilities are unavailable;
CP-8	Telecommunications Services	Enterprises should incorporate alternative telecommunication service providers for their supply chain to support critical information systems.	Functional	Intersects With	Telecommunications Services Availability	BCD-10	Mechanisms exist to reduce the likelihood of a single point of failure with primary telecommunications services.	5	Establish alternate telecommunications services, including necessary agreements to permit the resumption of [Assignment: organization-defined system operations] for essential mission and business functions within [Assignment: organization-defined time period] when the primary telecommunications capabilities are unavailable at either the primary or alternate processing or
CP-8(3)	Telecommunications Services | Separation of Primary and Alternate Providers	The separation of primary and alternative providers supports cybersecurity resilience of the supply chain.	Functional	Equal	Separation of Primary / Alternate Providers	BCD-10.2	Mechanisms exist to obtain alternate telecommunications services from providers that are separated from primary service providers to reduce susceptibility to the same threats.	10	Obtain alternate telecommunications services from providers that are separated from primary service providers to reduce susceptibility to the same threats.
CP-8(4)	Telecommunications Services | Provider Contingency Plan	For C-SCRM, suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers, contingency plans should provide separation in infrastructure, service, process, and personnel, where appropriate.	Functional	Equal	Provider Contingency Plan	BCD-10.3	Mechanisms exist to contractually-require external service providers to have contingency plans that meet organizational contingency requirements.	10	(a) Require primary and alternate telecommunications service providers to have contingency plans; (b) Review provider contingency plans to ensure that the plans meet organizational contingency requirements; and (c) Obtain evidence of contingency testing and training by providers [Assignment: organization-
CP-11	Alternate Communications Protocols	Enterprises should ensure that critical suppliers are included in contingency plans, training, and testing as part of incorporating alternative communications protocol capabilities to establish supply chain resilience.	Functional	Intersects With	Telecommunications Services Availability	BCD-10	Mechanisms exist to reduce the likelihood of a single point of failure with primary telecommunications services.	5	Provide the capability to employ [Assignment: organization-defined alternative communications protocols] in support of maintaining continuity of operations.
IA-1	Policy and Procedures	The enterprise should – at enterprise-defined intervals – review, enhance, and update their identity and access management policies and procedures to ensure that critical roles and processes within the supply chain network are defined and that the enterprise's critical systems, components, and processes are identified for traceability. This should include the identity of critical components that may not have been considered under identification and authentication in the past. Note that providing identification for all items within the supply chain would be cost-prohibitive, and discretion should be used. The enterprise should update related C-SCRM Strategy/Implementation Plan(s), Policies, and C-SCRM Plans.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] identification and authentication policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IA-1	Policy and Procedures	The enterprise should – at enterprise-defined intervals – review, enhance, and update their identity and access management policies and procedures to ensure that critical roles and processes within the supply chain network are defined and that the enterprise's critical systems, components, and processes are identified for traceability. This should include the identity of critical components that may not have been considered under identification and authentication in the past. Note that providing identification for all items within the supply chain would be cost-prohibitive, and discretion should be used. The enterprise should update related C-SCRM Strategy/Implementation Plan(s), Policies, and C-SCRM Plans.	Functional	Subset Of	Identity & Access Management (IAM)	IAC-01	Mechanisms exist to facilitate the implementation of identification and access management controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] identification and authentication policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IA-1	Policy and Procedures	The enterprise should – at enterprise-defined intervals – review, enhance, and update their identity and access management policies and procedures to ensure that critical roles and processes within the supply chain network are defined and that the enterprise's critical systems, components, and processes are identified for traceability. This should include the identity of critical components that may not have been considered under identification and authentication in the past. Note that providing identification for all items within the supply chain would be cost-prohibitive, and discretion should be used. The enterprise should update related C-SCRM Strategy/Implementation Plan(s), Policies, and C-SCRM Plans.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] identification and authentication policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IA-2	Identification and Authentication (organizational Users)	Enterprises should ensure that identification and requirements are defined and applied for enterprise users accessing an ICT/OT system or supply chain network. An enterprise user may include employees, individuals deemed to have the equivalent status of employees (e.g., contractors, guest researchers, etc.), and system integrators fulfilling contractor roles. Criteria such as "duration in role" can aid in defining which identification and authentication mechanisms are used. The enterprise may choose to define a set of roles and associate a level of authorization to ensure proper implementation. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Identification & Authentication for Organizational Users	IAC-02	Mechanisms exist to uniquely identify and centrally Authenticate, Authorize and Audit (AAA) organizational users and processes acting on behalf of organizational users.	10	Uniquely identify and authenticate organizational users and associate that unique identification with processes acting on behalf of those users.
IA-3	Device Identification and Authentication	Enterprises should implement capabilities to distinctly and positively identify devices and software within their supply chain and, once identified, verify that the identity is authentic. Devices that require unique device-to-device identification and authentication should be defined by type, device, or a combination of type and device. Software that requires authentication should be identified through a software identification tag (SWID) that enables verification of the software package and authentication of the enterprise releasing the software package.	Functional	Intersects With	Identification & Authentication for Devices	IAC-04	Mechanisms exist to uniquely identify and centrally Authenticate, Authorize and Audit (AAA) devices before establishing a connection using bidirectional authentication that is cryptographically- based and replay resistant.	5	Uniquely identify and authenticate [Assignment: organization-defined devices and/or types of devices] before establishing a [Selection (one or more): local; remote; network] connection.
IA-4	Identifier Management	system's life within the enterprise. For software development, identifiers should be assigned for those components that have achieved configuration item recognition. For devices and operational systems, identifiers should be assigned when the items enter the enterprise's supply chain, such as when they are transferred to the enterprise's ownership or control through shipping and receiving or via download. Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers typically use their own identifiers for tracking purposes within their own supply chain. Enterprises should correlate those identifiers with the enterprise-assigned identifiers for traceability and accountability. Enterprises	Functional	Intersects With	Authenticate, Authorize and Audit (AAA)	IAC-01.2	Mechanisms exist to strictly govern the use of Authenticate, Authorize and Audit (AAA) solutions, both on-premises and those hosted by an External Service Provider (ESP).	5	Manage system identifiers by: a. Receiving authorization from [Assignment: organization-defined personnel or roles] to assign an individual, group, role, service, or device identifier; b. Selecting an identifier that identifies an individual, group, role, service, or device; c. Assigning the identifier to the intended individual,
IA-4	Identifier Management	system's life within the enterprise. For software development, identifiers should be assigned for those components that have achieved configuration item recognition. For devices and operational systems, identifiers should be assigned when the items enter the enterprise's supply chain, such as when they are transferred to the enterprise's ownership or control through shipping and receiving or via download. Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers typically use their own identifiers for tracking purposes within their own supply chain. Enterprises should correlate those identifiers with the enterprise-assigned identifiers for traceability and accountability. Enterprises	Functional	Intersects With	Identifier Management (User Names)	IAC-09	Mechanisms exist to govern naming standards for usernames and Technology Assets, Applications and/or Services (TAAS).	5	Manage system identifiers by: a. Receiving authorization from [Assignment: organization-defined personnel or roles] to assign an individual, group, role, service, or device identifier; b. Selecting an identifier that identifies an individual, group, role, service, or device; c. Assigning the identifier to the intended individual,
IA-4(6)	Identifier Management | Cross-organization Management	This enhancement helps the traceability and provenance of elements within the supply chain through the coordination of identifier management among the enterprise and its suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. This includes information systems and components as well as individuals engaged in supply chain activities.	Functional	Equal	Cross-Organization Management	IAC-09.4	Mechanisms exist to coordinate username identifiers with external organizations for cross-organization management of identifiers.	10	Coordinate with the following external organizations for cross-organization management of identifiers: [Assignment: organization-defined external organizations].
IA-5	Authenticator Management	This control facilitates traceability and non-repudiation throughout the supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity	Functional	Intersects With	Authenticator Management	IAC-10	Mechanisms exist to: (1) Securely manage authenticators for users and devices; and (2) Ensure the strength of authentication is appropriate to the classification of the data being accessed.	5	Manage system authenticators by: a. Verifying, as part of the initial authenticator distribution, the identity of the individual, group, role, service, or device receiving the authenticator; b. Establishing initial authenticator content for any authenticators issued by the organization; c. Ensuring that authenticators have sufficient strength of mechanism for their intended use;
IA-5	Authenticator Management	This control facilitates traceability and non-repudiation throughout the supply chain. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity	Functional	Intersects With	Default Authenticators	IAC-10.8	Mechanisms exist to ensure default authenticators are changed as part of account creation or system installation.	5	Manage system authenticators by: a. Verifying, as part of the initial authenticator distribution, the identity of the individual, group, role, service, or device receiving the authenticator; b. Establishing initial authenticator content for any authenticators issued by the organization; c. Ensuring that authenticators have sufficient strength of mechanism for their intended use;
IA-8	Identification and Authentication (non-organizational Users)	Suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers have the potential to engage the enterprise's supply chain for service delivery (e.g., development/integration services, product support, etc.). Enterprises should manage the establishment, auditing, use, and revocation of identification credentials and the authentication of non-enterprise users within the supply chain. Enterprises should also ensure promptness in performing identification and authentication activities, especially in the case of revocation management, to help mitigate exposure to cybersecurity risks throughout the supply chain such as those that arise due to insider threats.	Functional	Equal	Identification & Authentication for Non-Organizational Users	IAC-03	Mechanisms exist to uniquely identify and centrally Authenticate, Authorize and Audit (AAA) third-party users and processes that provide services to the organization.	10	Uniquely identify and authenticate non-organizational users or processes acting on behalf of non-organizational users.

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
IA-9	Service Identification and Authentication	Enterprises should ensure that identification and authentication are defined and managed for access to services (e.g., web applications using digital certificates, services or applications that query a database as opposed to labor services) throughout the supply chain. Enterprises should ensure that they know what services are being procured and from whom. Services procured should be listed on a validated list of services for the enterprise or have compensating controls in place. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Identification & Authentication for Third-Party Technology Assets, Applications and/or Services (TAAS)	IAC-05	Mechanisms exist to identify and authenticate third-party Technology Assets, Applications and/or Services (TAAS).	10	Uniquely identify and authenticate [Assignment: organization-defined system services and applications] before establishing communications with devices, users, or other services or applications.
IR-1	Policy and Procedures	relevant information concerning the source or covered article, including 1) the supply chain risk information identified through the course of the agency's activities in furtherance of mitigating, identifying, or managing its supply chain risk and 2) the supply chain risk information regarding covered procurement actions by the agency under the Federal Acquisition Supply Chain Security Act of 2018 (FASCSA) 41 U.S.C. § 4713; and any orders issued by the agency under 41 U.S.C. § 4713. Bidirectional communication with supply chain partners should be defined in agreements with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers to	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] incident response policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IR-1	Policy and Procedures	relevant information concerning the source or covered article, including 1) the supply chain risk information identified through the course of the agency's activities in furtherance of mitigating, identifying, or managing its supply chain risk and 2) the supply chain risk information regarding covered procurement actions by the agency under the Federal Acquisition Supply Chain Security Act of 2018 (FASCSA) 41 U.S.C. § 4713; and any orders issued by the agency under 41 U.S.C. § 4713. Bidirectional communication with supply chain partners should be defined in agreements with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers to	Functional	Subset Of	Incident Response Operations	IRO-01	Mechanisms exist to implement and govern processes and documentation to facilitate an organization-wide response capability for cybersecurity and data protection-related incidents.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] incident response policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IR-1	Policy and Procedures	relevant information concerning the source or covered article, including 1) the supply chain risk information identified through the course of the agency's activities in furtherance of mitigating, identifying, or managing its supply chain risk and 2) the supply chain risk information regarding covered procurement actions by the agency under the Federal Acquisition Supply Chain Security Act of 2018 (FASCSA) 41 U.S.C. § 4713; and any orders issued by the agency under 41 U.S.C. § 4713. Bidirectional communication with supply chain partners should be defined in agreements with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers to	Functional	Intersects With	IRP Update	IRO-04.2	Mechanisms exist to regularly review and modify incident response practices to incorporate lessons learned, business process changes and industry developments, as necessary.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] incident response policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IR-1	Policy and Procedures	relevant information concerning the source or covered article, including 1) the supply chain risk information identified through the course of the agency's activities in furtherance of mitigating, identifying, or managing its supply chain risk and 2) the supply chain risk information regarding covered procurement actions by the agency under the Federal Acquisition Supply Chain Security Act of 2018 (FASCSA) 41 U.S.C. § 4713; and any orders issued by the agency under 41 U.S.C. § 4713. Bidirectional communication with supply chain partners should be defined in agreements with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers to	Functional	Intersects With	Root Cause Analysis (RCA) & Lessons Learned	IRO-13	Mechanisms exist to incorporate lessons learned from analyzing and resolving cybersecurity and data protection incidents to reduce the likelihood or impact of future incidents.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] incident response policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IR-1	Policy and Procedures	relevant information concerning the source or covered article, including 1) the supply chain risk information identified through the course of the agency's activities in furtherance of mitigating, identifying, or managing its supply chain risk and 2) the supply chain risk information regarding covered procurement actions by the agency under the Federal Acquisition Supply Chain Security Act of 2018 (FASCSA) 41 U.S.C. § 4713; and any orders issued by the agency under 41 U.S.C. § 4713. Bidirectional communication with supply chain partners should be defined in agreements with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers to	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] incident response policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
IR-2	Incident Response Training	Enterprises should ensure that critical suppliers are included in incident response training. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Incident Response Training	IRO-05	Mechanisms exist to train personnel in their incident response roles and responsibilities.	5	a. Provide incident response training to system users consistent with assigned roles and responsibilities: 1. Within [Assignment: organization-defined time period] of assuming an incident response role or responsibility or acquiring system access; 2. When required by system changes; and 3. [Assignment: organization-defined frequency]
IR-3	Incident Response Testing	Enterprises should ensure that critical suppliers are included in and/or provided with incident response testing.	Functional	Intersects With	Incident Response Testing	IRO-06	Mechanisms exist to formally test incident response capabilities through realistic exercises to determine the operational effectiveness of those capabilities.	5	Test the effectiveness of the incident response capability for the system [Assignment: organization-defined frequency] using the following tests: [Assignment: organization-defined tests].
IR-4(6)	Incident Handling | Insider Threats	This enhancement helps limit exposure of the C-SCRM information systems, networks, and processes to insider threats. Enterprises should ensure that insider threat incident handling capabilities account for the potential of insider threats associated with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers' personnel with access to ICT/OT systems within the authorization boundary.	Functional	Intersects With	Insider Threat Response Capability	IRO-02.2	Mechanisms exist to implement and govern an insider threat program.	5	Implement an incident handling capability for incidents involving insider threats.
IR-4(7)	Incident Handling | Insider Threats — Intra-organization Coordination	This enhancement helps limit the exposure of C-SCRM information systems, networks, and processes to insider threats. Enterprises should ensure that insider threat coordination includes suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Intersects With	Insider Threat Response Capability	IRO-02.2	Mechanisms exist to implement and govern an insider threat program.	5	Coordinate an incident handling capability for insider threats that includes the following organizational entities [Assignment: organization-defined entities].
IR-4(10)	Incident Handling | Supply Chain Coordination	providers, other ICT/OT-related service providers, and any relevant interagency bodies to facilitate communications, incident response, root cause, and corrective actions. Enterprises should securely share information through a coordinated set of personnel in key roles to allow for a more comprehensive incident handling approach. Selecting suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers with mature capabilities for supporting supply chain cybersecurity incident handling is important for reducing exposure to cybersecurity risks throughout the supply chain. If transparency for incident handling is limited due to the nature of the relationship, define a set of acceptable criteria in the agreement (e.g., contract). A	Functional	Intersects With	Third-Party Incident Response & Recovery Capabilities	TPM-11	Mechanisms exist to ensure response/recovery planning and testing are conducted with critical suppliers/providers.	5	Coordinate incident handling activities involving supply chain events with other organizations involved in the supply chain.
IR-4(10)	Incident Handling | Supply Chain Coordination	providers, other ICT/OT-related service providers, and any relevant interagency bodies to facilitate communications, incident response, root cause, and corrective actions. Enterprises should securely share information through a coordinated set of personnel in key roles to allow for a more comprehensive incident handling approach. Selecting suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers with mature capabilities for supporting supply chain cybersecurity incident handling is important for reducing exposure to cybersecurity risks throughout the supply chain. If transparency for incident handling is limited due to the nature of the relationship, define a set of acceptable criteria in the agreement (e.g., contract). A	Functional	Intersects With	Supply Chain Coordination	IRO-10.4	Mechanisms exist to provide cybersecurity and data protection incident information to the provider of the Technology Assets, Applications and/or Services (TAAS) and other organizations involved in the supply chain for TAAS related to the incident.	5	Coordinate incident handling activities involving supply chain events with other organizations involved in the supply chain.
IR-5	Incident Monitoring	Enterprises should ensure that agreements with suppliers include requirements to track and document incidents, response decisions, and activities.	Functional	Equal	Situational Awareness For Incidents	IRO-09	Mechanisms exist to document, monitor and report the status of cybersecurity and data protection incidents to internal stakeholders all the way through the resolution of the incident.	10	Track and document incidents.
IR-8	Incident Response Plan	Enterprises should coordinate, develop, and implement an incident response plan that includes information-sharing responsibilities with critical suppliers and, in a federal context, interagency partners and the FASC. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Equal	Incident Response Plan (IRP)	IRO-04	Mechanisms exist to maintain and make available a current and viable Incident Response Plan (IRP) to all stakeholders.	10	a. Develop an incident response plan that: 1. Provides the organization with a roadmap for implementing its incident response capability; 2. Describes the structure and organization of the incident response capability; 3. Provides a high-level approach for how the incident response capability fits into the overall organization;
MA-1	Policy and Procedures	upgrades, patches, the frequency of maintenance, replacement parts, and other aspects of system maintenance. Maintenance policies should be defined for both the system and the network. The maintenance policy should reflect controls based on a risk assessment (including criticality analysis), such as remote access, the roles and attributes of maintenance personnel who have access, the frequency of updates, duration of the contract, the logistical path and method used for updates or maintenance, and monitoring and audit mechanisms. The maintenance policy should state which tools are explicitly allowed or not allowed. For example, in the case of software maintenance, the contract should state the source code, test cases, and other item accessibility needed to maintain a system or components.	Functional	Subset Of	Maintenance Operations	MNT-01	Mechanisms exist to develop, disseminate, review & update procedures to facilitate the implementation of maintenance controls across the enterprise.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] maintenance policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MA-1	Policy and Procedures	upgrades, patches, the frequency of maintenance, replacement parts, and other aspects of system maintenance. Maintenance policies should be defined for both the system and the network. The maintenance policy should reflect controls based on a risk assessment (including criticality analysis), such as remote access, the roles and attributes of maintenance personnel who have access, the frequency of updates, duration of the contract, the logistical path and method used for updates or maintenance, and monitoring and audit mechanisms. The maintenance policy should state which tools are explicitly allowed or not allowed. For example, in the case of software maintenance, the contract should state the source code, test cases, and other item accessibility needed to maintain a system or components.	Functional	Intersects With	Remote Maintenance Notifications	MNT-05.2	Mechanisms exist to require maintenance personnel to notify affected stakeholders when remote, non-local maintenance is planned (e.g., date/time).	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] maintenance policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MA-1	Policy and Procedures	upgrades, patches, the frequency of maintenance, replacement parts, and other aspects of system maintenance. Maintenance policies should be defined for both the system and the network. The maintenance policy should reflect controls based on a risk assessment (including criticality analysis), such as remote access, the roles and attributes of maintenance personnel who have access, the frequency of updates, duration of the contract, the logistical path and method used for updates or maintenance, and monitoring and audit mechanisms. The maintenance policy should state which tools are explicitly allowed or not allowed. For example, in the case of software maintenance, the contract should state the source code, test cases, and other item accessibility needed to maintain a system or components.	Functional	Intersects With	Auditing Remote Maintenance	MNT-05.1	Mechanisms exist to audit remote, non-local maintenance and diagnostic sessions, as well as review the maintenance action performed during remote maintenance sessions.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] maintenance policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MA-1	Policy and Procedures	upgrades, patches, the frequency of maintenance, replacement parts, and other aspects of system maintenance. Maintenance policies should be defined for both the system and the network. The maintenance policy should reflect controls based on a risk assessment (including criticality analysis), such as remote access, the roles and attributes of maintenance personnel who have access, the frequency of updates, duration of the contract, the logistical path and method used for updates or maintenance, and monitoring and audit mechanisms. The maintenance policy should state which tools are explicitly allowed or not allowed. For example, in the case of software maintenance, the contract should state the source code, test cases, and other item accessibility needed to maintain a system or components.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] maintenance policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MA-1	Policy and Procedures	upgrades, patches, the frequency of maintenance, replacement parts, and other aspects of system maintenance. Maintenance policies should be defined for both the system and the network. The maintenance policy should reflect controls based on a risk assessment (including criticality analysis), such as remote access, the roles and attributes of maintenance personnel who have access, the frequency of updates, duration of the contract, the logistical path and method used for updates or maintenance, and monitoring and audit mechanisms. The maintenance policy should state which tools are explicitly allowed or not allowed. For example, in the case of software maintenance, the contract should state the source code, test cases, and other item accessibility needed to maintain a system or components.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] maintenance policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MA-3	Maintenance Tools	Maintenance tools are considered part of the supply chain. They also have a supply chain of their own. C-SCRM should be integrated when the enterprise acquires or upgrades a maintenance tool (e.g., an update to the development environment or testing tool), including during the selection, ordering, storage, and integration of the maintenance tool. The enterprise should perform continuous review and approval of maintenance tools, including those maintenance tools in use by external service providers. The enterprise should also integrate C-SCRM when evaluating replacement parts for maintenance tools. This control may be performed at both Level 2 and Level 3, depending on how an agency handles the acquisition, operations, and oversight of maintenance tools.	Functional	Intersects With	Maintenance Tools	MNT-04	Mechanisms exist to control and monitor the use of system maintenance tools.	5	a. Approve, control, and monitor the use of system maintenance tools; and b. Review previously approved system maintenance tools [Assignment: organization-defined frequency].
MA-4	Nonlocal Maintenance	Nonlocal maintenance may be provided by contractor personnel. Appropriate protections should be in place to manage associated risks. Controls applied to internal maintenance personnel are applied to any suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers performing a similar maintenance role and enforced through contractual agreements with their external service providers.	Functional	Intersects With	Remote Maintenance	MNT-05	Mechanisms exist to authorize, monitor and control remote, non-local maintenance and diagnostic activities.	5	a. Approve and monitor nonlocal maintenance and diagnostic activities; b. Allow the use of nonlocal maintenance and diagnostic tools only as consistent with organizational policy and documented in the security plan for the system; c. Employ strong authentication in the establishment of nonlocal maintenance and
MA-4	Nonlocal Maintenance	Nonlocal maintenance may be provided by contractor personnel. Appropriate protections should be in place to manage associated risks. Controls applied to internal maintenance personnel are applied to any suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers performing a similar maintenance role and enforced through contractual agreements with their external service providers.	Functional	Intersects With	Remote Maintenance Notifications	MNT-05.2	Mechanisms exist to require maintenance personnel to notify affected stakeholders when remote, non-local maintenance is planned (e.g., date/time).	5	a. Approve and monitor nonlocal maintenance and diagnostic activities; b. Allow the use of nonlocal maintenance and diagnostic tools only as consistent with organizational policy and documented in the security plan for the system; c. Employ strong authentication in the establishment of nonlocal maintenance and
MA-4	Nonlocal Maintenance	Nonlocal maintenance may be provided by contractor personnel. Appropriate protections should be in place to manage associated risks. Controls applied to internal maintenance personnel are applied to any suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers performing a similar maintenance role and enforced through contractual agreements with their external service providers.	Functional	Intersects With	Auditing Remote Maintenance	MNT-05.1	Mechanisms exist to audit remote, non-local maintenance and diagnostic sessions, as well as review the maintenance action performed during remote maintenance sessions.	5	a. Approve and monitor nonlocal maintenance and diagnostic activities; b. Allow the use of nonlocal maintenance and diagnostic tools only as consistent with organizational policy and documented in the security plan for the system; c. Employ strong authentication in the establishment of nonlocal maintenance and
MA-4(3)	Nonlocal Maintenance | Comparable Security and Sanitization	providers perform any nonlocal maintenance or diagnostic services on systems or system components, the enterprise should ensure that: • Appropriate measures are taken to verify that the nonlocal environment meets appropriate security levels for maintenance and diagnostics per agreements between the enterprise and vendor; • Appropriate levels of sanitizing are completed to remove any enterprise-specific data residing in components; and • Appropriate diagnostics are completed to ensure that components are sanitized, preventing malicious insertion prior to returning to the enterprise system or supply chain network. The enterprise should require its prime	Functional	Equal	Remote Maintenance Comparable Security & Sanitization	MNT-05.6	Mechanisms exist to require Technology Assets, Applications and/or Services (TAAS) performing remote, non-local maintenance and/or diagnostic services implement a security capability comparable to the capability implemented on the system being serviced.	10	(a) Require that nonlocal maintenance and diagnostic services be performed from a system that implements a security capability comparable to the capability implemented on the system being serviced; or (b) Remove the component to be serviced from the system prior to nonlocal maintenance or diagnostic services; sanitize the component (for organizational
MA-5	Maintenance Personnel	Maintenance personnel may be employed by suppliers, developers, system integrators, external system service providers, or other ICT/OT-related service providers. As such, appropriate protections should be in place to manage associated risks. The same controls applied to internal maintenance personnel should be applied to any contractor personnel who performs a similar maintenance role and enforced through contractual agreements with their external service providers.	Functional	Equal	Authorized Maintenance Personnel	MNT-06	Mechanisms exist to maintain a current list of authorized maintenance organizations or personnel.	10	a. Establish a process for maintenance personnel authorization and maintain a list of authorized maintenance organizations or personnel; b. Verify that non-escorted personnel performing maintenance on the system possess the required access authorizations; and c. Designate organizational personnel with required access authorizations and technical competence to
MA-5(4)	Maintenance Personnel | Foreign Nationals	The vetting of foreign nationals with access to critical non-national security systems/services must take C-SCRM into account and be extended to all relevant contractor personnel. Enterprises should specify in agreements any restrictions or vetting requirements that pertain to foreign nationals and flow the requirements down to relevant subcontractors.	Functional	Intersects With	Maintenance Personnel Without Appropriate Access	MNT-06.1	Mechanisms exist to ensure the risks associated with maintenance personnel who do not have appropriate access authorizations, clearances or formal access approvals are appropriately mitigated.	5	Ensure that: (a) Foreign nationals with appropriate security clearances are used to conduct maintenance and diagnostic activities on classified systems only when the systems are jointly owned and operated by the United States and foreign allied governments, or owned and operated solely by foreign allied governments; and
MP-1	Policy and Procedures	Various documents and information on a variety of physical and electronic media are disseminated throughout the supply chain. This information may contain a variety of sensitive information and intellectual property from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers and should be appropriately protected. Media protection policies and procedures should also address supply chain concerns, including media in the enterprise's supply chain and throughout the SDLC.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] media protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MP-1	Policy and Procedures	Various documents and information on a variety of physical and electronic media are disseminated throughout the supply chain. This information may contain a variety of sensitive information and intellectual property from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers and should be appropriately protected. Media protection policies and procedures should also address supply chain concerns, including media in the enterprise's supply chain and throughout the SDLC.	Functional	Subset Of	Data Protection	DCH-01	Mechanisms exist to facilitate the implementation of data protection controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] media protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
MP-1	Policy and Procedures	Various documents and information on a variety of physical and electronic media are disseminated throughout the supply chain. This information may contain a variety of sensitive information and intellectual property from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers and should be appropriately protected. Media protection policies and procedures should also address supply chain concerns, including media in the enterprise's supply chain and throughout the SDLC.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] media protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
MP-4	Media Storage	Media storage controls should include C-SCRM activities. Enterprises should specify and include in agreements (e.g., contracting language) media storage requirements (e.g., encryption) for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. The enterprise should require its prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Equal	Media Storage	DCH-06	Mechanisms exist to: (1) Physically control and securely store digital and non-digital media within controlled areas using organization-defined security measures; and (2) Protect system media until the media are destroyed or sanitized using approved equipment, techniques and procedures.	10	a. Physically control and securely store [Assignment: organization-defined types of digital and/or non-digital media] within [Assignment: organization-defined controlled areas]; and b. Protect system media types defined in MP-4a until the media are destroyed or sanitized using approved equipment, techniques, and procedures.
MP-5	Media Transport	The enterprise should incorporate C-SCRM activities when media is transported by enterprise or non-enterprise personnel. Some of the techniques to protect media during transport and storage include cryptographic techniques and approved custodian services.	Functional	Equal	Media Transportation	DCH-07	Mechanisms exist to protect and control digital and non-digital media during transport outside of controlled areas using appropriate security measures.	10	a. Protect and control [Assignment: organization-defined types of system media] during transport outside of controlled areas using [Assignment: organization-defined controls]; b. Maintain accountability for system media during transport outside of controlled areas; c. Document activities associated with the transport of system media; and
MP-6	Media Sanitization	Enterprises should specify and include in agreements (e.g., contracting language) media sanitization policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Media is used throughout the SDLC. Media traversing or residing in the supply chain may originate anywhere, including from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. It can be new, refurbished, or reused. Media sanitization is critical to ensuring that information is removed before the media is used, reused, or discarded. For media that contains privacy or other sensitive information (e.g., CUI), the enterprise should require its prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Physical Media Disposal	DCH-08	Mechanisms exist to securely dispose of media when it is no longer required, using formal procedures.	5	a. Sanitize [Assignment: organization-defined system media] prior to disposal, release out of organizational control, or release for reuse using [Assignment: organization-defined sanitization techniques and procedures]; and b. Employ sanitization mechanisms with the strength and integrity commensurate with the security category or classification of the
MP-6	Media Sanitization	Enterprises should specify and include in agreements (e.g., contracting language) media sanitization policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Media is used throughout the SDLC. Media traversing or residing in the supply chain may originate anywhere, including from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. It can be new, refurbished, or reused. Media sanitization is critical to ensuring that information is removed before the media is used, reused, or discarded. For media that contains privacy or other sensitive information (e.g., CUI), the enterprise should require its prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	System Media Sanitization	DCH-09	Mechanisms exist to sanitize system media with the strength and integrity commensurate with the classification or sensitivity of the information prior to disposal, release out of organizational control or release for reuse.	5	a. Sanitize [Assignment: organization-defined system media] prior to disposal, release out of organizational control, or release for reuse using [Assignment: organization-defined sanitization techniques and procedures]; and b. Employ sanitization mechanisms with the strength and integrity commensurate with the security category or classification of the
MP-6	Media Sanitization	Enterprises should specify and include in agreements (e.g., contracting language) media sanitization policies for their suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. Media is used throughout the SDLC. Media traversing or residing in the supply chain may originate anywhere, including from suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. It can be new, refurbished, or reused. Media sanitization is critical to ensuring that information is removed before the media is used, reused, or discarded. For media that contains privacy or other sensitive information (e.g., CUI), the enterprise should require its prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors.	Functional	Intersects With	Sanitization of Personal Data (PD)	DCH-09.3	Mechanisms exist to facilitate the sanitization of Personal Data (PD).	5	a. Sanitize [Assignment: organization-defined system media] prior to disposal, release out of organizational control, or release for reuse using [Assignment: organization-defined sanitization techniques and procedures]; and b. Employ sanitization mechanisms with the strength and integrity commensurate with the security category or classification of the
PE-1	Policy and Procedures	The enterprise should integrate C-SCRM practices and requirements into their own physical and environmental protection policy and procedures. The degree of protection should be commensurate with the degree of integration. The physical and environmental protection policy should ensure that the physical interfaces of the supply chain have adequate protection and audit for such protection.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] physical and environmental protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PE-1	Policy and Procedures	The enterprise should integrate C-SCRM practices and requirements into their own physical and environmental protection policy and procedures. The degree of protection should be commensurate with the degree of integration. The physical and environmental protection policy should ensure that the physical interfaces of the supply chain have adequate protection and audit for such protection.	Functional	Subset Of	Physical & Environmental Protections	PES-01	Mechanisms exist to facilitate the operation of physical and environmental protection controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] physical and environmental protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PE-1	Policy and Procedures	The enterprise should integrate C-SCRM practices and requirements into their own physical and environmental protection policy and procedures. The degree of protection should be commensurate with the degree of integration. The physical and environmental protection policy should ensure that the physical interfaces of the supply chain have adequate protection and audit for such protection.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] physical and environmental protection policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PE-2	Physical Access Authorizations	Enterprises should ensure that only authorized individuals with a need for physical access have access to information, systems, or data centers (e.g., sensitive or classified). Such authorizations should specify what the individual is permitted or not permitted to do with regard to their physical access (e.g., view, alter/configure, insert something, connect something, remove, etc.). Agreements should address physical access authorization requirements, and the enterprise should require its prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Authorization for non-federal employees should follow an approved protocol, which includes documentation of the authorization and specifies any prerequisites or constraints that pertain to such authorization (e.g., individual must be escorted by a federal employee, individual must be badged, individual is permitted physical access during normal business hours, etc.).	Functional	Equal	Physical Access Authorizations	PES-02	Physical access control mechanisms exist to maintain a current list of personnel with authorized access to organizational facilities (except for those areas within the facility officially designated as publicly accessible).	10	a. Develop, approve, and maintain a list of individuals with authorized access to the facility where the system resides; b. Issue authorization credentials for facility access; c. Review the access list detailing authorized facility access by individuals [Assignment: organization-defined frequency]; and d. Remove individuals from the facility access list
PE-2(1)	Physical Access Authorizations | Access by Position or Role	Role-based authorizations for physical access should include federal (e.g., agency/department employees) and non-federal employees (e.g., suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers). When role-based authorization is used, the type and level of access allowed for that role or position must be pre-established and documented.	Functional	Equal	Role-Based Physical Access	PES-02.1	Physical access control mechanisms exist to authorize physical access to facilities based on the position or role of the individual.	10	Authorize physical access to the facility where the system resides based on position or role.
PE-3	Physical Access Control	Physical access control should include individuals and enterprises engaged in the enterprise's supply chain. A vetting process based on enterprise-defined requirements and policy should be in place prior to granting access to the supply chain infrastructure and any relevant elements. Access establishment, maintenance, and revocation processes should meet enterprise access control policy rigor. The speed of revocation for suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers who need access to physical facilities and data centers – either enterprise-owned or external service provider-owned – should be managed in accordance with the activities performed in their contracts. Prompt revocation is critical when either individual or enterprise need no longer exists.	Functional	Intersects With	Physical Access Control	PES-03	Physical access control mechanisms exist to enforce physical access authorizations for all physical access points (including designated entry/exit points) to facilities (excluding those areas within the facility officially designated as publicly accessible).	5	a. Enforce physical access authorizations at [Assignment: organization-defined entry and exit points to the facility where the system resides] by: 1. Verifying individual access authorizations before granting access to the facility; and 2. Controlling ingress and egress to the facility using [Selection (one or more): [Assignment: organization-defined physical access control systems or devices];
PE-3(1)	Physical Access Control | System Access	Physical access controls should be extended to contractor personnel. Any contractor resources that provid services support with physical access to the supply chain infrastructure and any relevant elements should adhere to access controls. Policies and procedures should be consistent with those applied to employee personnel with similar levels of physical access.	Functional	Equal	Access To Critical Systems	PES-03.4	Physical access control mechanisms exist to enforce physical access to critical systems or sensitive/regulated data, in addition to the physical access controls for the facility.	10	Enforce physical access authorizations to the system in addition to the physical access controls for the facility at [Assignment: organization-defined physical spaces containing one or more components of the system].
PE-3(2)	Physical Access Control | Facility and Systems	When determining the extent, frequency, and/or randomness of security checks of facilities, enterprises should account for exfiltration risks that result from covert listening devices. Such devices may include wiretaps, roving bugs, cell site simulators, and other eavesdropping technologies that can transfer sensitive information out of the enterprise.	Functional	Intersects With	Physical Access Control	PES-03	Physical access control mechanisms exist to enforce physical access authorizations for all physical access points (including designated entry/exit points) to facilities (excluding those areas within the facility officially designated as publicly accessible).	5	Perform security checks [Assignment: organization-defined frequency] at the physical perimeter of the facility or system for exfiltration of information or removal of system components.
PE-3(5)	Physical Access Control | Logical Tampering Protection	Tamper protection is critical for reducing cybersecurity risk in products. The enterprise should implement validated tamper protection techniques within the supply chain. For critical products, the enterprise should require and assess whether and to what extent a supplier has implemented tamper protection mechanisms. The assessment may also include whether and how such mechanisms are required and applied by the supplier's upstream supply chain entities.	Functional	Equal	Mobile Device Tampering	MDM-04	Mechanisms exist to protect mobile devices from tampering through inspecting devices returning from locations that the organization deems to be of significant risk, prior to the device being connected to the organization's network.	10	Employ [Assignment: organization-defined anti-tamper technologies] to [Selection (one or more): detect; prevent] physical tampering or alteration of [Assignment: organization-defined hardware components] within the system.
PE-6	Monitoring Physical Access	Individuals who physically access the enterprise or external service provider's facilities, data centers, information, or physical asset(s) – including via the supply chain – may be employed by the enterprise's employees, on-site or remotely located contractors, visitors, other third parties (e.g., maintenance personnel under contract with the contractor enterprise), or an individual affiliated with an enterprise in the upstream supply chain. The enterprise should monitor these individuals' activities to reduce cybersecurity risks throughout the supply chain or require monitoring in agreements.	Functional	Equal	Monitoring Physical Access	PES-05	Physical access control mechanisms exist to monitor for, detect and respond to physical security incidents.	10	a. Monitor physical access to the facility where the system resides to detect and respond to physical security incidents; b. Review physical access logs [Assignment: organization-defined frequency] and upon occurrence of [Assignment: organization-defined events or potential indications of events]; and c. Coordinate results of reviews and investigations
PE-18	Location of System Components	Physical and environmental hazards or disruptions have an impact on the availability of products that are or will be acquired and physically transported to the enterprise's locations. For example, enterprises should incorporate the manufacturing, warehousing, or the distribution location of information system components that are critical for agency operations when planning for alternative suppliers for these components.	Functional	Intersects With	Equipment Siting & Protection	PES-12	Physical security mechanisms exist to locate system components within the facility to minimize potential damage from physical and environmental hazards and to minimize the opportunity for unauthorized access.	5	Position system components within the facility to minimize potential damage from [Assignment: organization-defined physical and environmental hazards] and to minimize the opportunity for unauthorized access.
PE-20	Asset Monitoring and Tracking	The enterprise should, whenever possible and practical, use asset location technologies to track systems and components transported between entities across the supply chain, between protected areas, or in storage awaiting implementation, testing, maintenance, or disposal. Methods include RFID, digital signatures, or blockchains. These technologies help protect against: a. Diverting the system or component for counterfeit replacement; b. The loss of confidentiality, integrity, or availability of the system or component function and data (including data contained within the component and data about the component); and c. Interrupting supply chain and logistics processes for critical components. In addition to providing protection	Functional	Equal	Asset Monitoring and Tracking	PES-14	Physical security mechanisms exist to employ asset location technologies that track and monitor the location and movement of organization-defined assets within organization-defined controlled areas.	10	Employ [Assignment: organization-defined asset location technologies] to track and monitor the location and movement of [Assignment: organization-defined assets] within [Assignment: organization-defined controlled areas].
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-	Functional	Intersects With	Third-Party Processing, Storage and Service Locations	TPM-04.4	Mechanisms exist to restrict the location of information processing/storage based on business requirements.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-	Functional	Intersects With	Alternate Processing Site	BCD-09	Mechanisms exist to establish an alternate processing site that provides security measures equivalent to that of the primary site.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-	Functional	Intersects With	Alternate Storage Site	BCD-08	Mechanisms exist to establish an alternate storage site that includes both the assets and necessary agreements to permit the storage and recovery of system backup information.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-	Functional	Intersects With	Distributed Processing & Storage	SEA-15	Mechanisms exist to distribute processing and storage across multiple physical locations.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-	Functional	Intersects With	Equipment Siting & Protection	PES-12	Physical security mechanisms exist to locate system components within the facility to minimize potential damage from physical and environmental hazards and to minimize the opportunity for unauthorized access.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PE-23	Facility Location	Enterprises should incorporate the facility location (e.g., data centers) when assessing risks associated with suppliers. Factors may include geographic location (e.g., Continental United States [CONUS], Outside the Continental United States [OCONUS]), physical protections in place at one or more of the relevant facilities, local management and control of such facilities, environmental hazard potential (e.g., located in a high-risk seismic zone), and alternative facility locations. Enterprises should also assess whether the location of a manufacturing or distribution center could be influenced by geopolitical, economic, or other factors. For critical vendors or products, enterprises should specifically address any requirements or restrictions concerning the facility locations of the vendors (or their upstream supply chain providers) in contracts and flow down this requirement to relevant sub-level contractors.	Functional	Intersects With	Physical & Environmental Protections	PES-01	Mechanisms exist to facilitate the operation of physical and environmental protection controls.	5	a. Plan the location or site of the facility where the system resides considering physical and environmental hazards; and b. For existing facilities, consider the physical and environmental hazards in the organizational risk management strategy.
PL-1	Policy and Procedures	The security planning policy and procedures should integrate C-SCRM. This includes creating, disseminating, and updating the security policy, operational policy, and procedures for C-SCRM to shape acquisition or development requirements and the follow-on implementation, operations, and maintenance of systems, system interfaces, and network connections. The C-SCRM policy and procedures provide inputs into and take guidance from the C-SCRM Strategy and Implementation Plan at Level 1 and the System Security Plan and C-SCRM plan at Level 3. In Level 3, ensure that the full SDLC is covered from the C-SCRM perspective.	Functional	Subset Of	Security, Compliance & Resilience Protection Portfolio Management	PRM-01	Mechanisms exist to facilitate the implementation of resource planning controls that provide a portfolio management approach to achieve security, compliance and resilience objectives.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PL-1	Policy and Procedures	The security planning policy and procedures should integrate C-SCRM. This includes creating, disseminating, and updating the security policy, operational policy, and procedures for C-SCRM to shape acquisition or development requirements and the follow-on implementation, operations, and maintenance of systems, system interfaces, and network connections. The C-SCRM policy and procedures provide inputs into and take guidance from the C-SCRM Strategy and Implementation Plan at Level 1 and the System Security Plan and C-SCRM plan at Level 3. In Level 3, ensure that the full SDLC is covered from the C-SCRM perspective.	Functional	Subset Of	Statutory, Regulatory & Contractual Compliance	CPL-01	Mechanisms exist to facilitate the identification and implementation of relevant statutory, regulatory and contractual controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PL-1	Policy and Procedures	The security planning policy and procedures should integrate C-SCRM. This includes creating, disseminating, and updating the security policy, operational policy, and procedures for C-SCRM to shape acquisition or development requirements and the follow-on implementation, operations, and maintenance of systems, system interfaces, and network connections. The C-SCRM policy and procedures provide inputs into and take guidance from the C-SCRM Strategy and Implementation Plan at Level 1 and the System Security Plan and C-SCRM plan at Level 3. In Level 3, ensure that the full SDLC is covered from the C-SCRM perspective.	Functional	Subset Of	Technology Development & Acquisition	TDA-01	Mechanisms exist to facilitate the implementation of tailored development and acquisition strategies, contract tools and procurement methods to meet unique business needs.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PL-1	Policy and Procedures	The security planning policy and procedures should integrate C-SCRM. This includes creating, disseminating, and updating the security policy, operational policy, and procedures for C-SCRM to shape acquisition or development requirements and the follow-on implementation, operations, and maintenance of systems, system interfaces, and network connections. The C-SCRM policy and procedures provide inputs into and take guidance from the C-SCRM Strategy and Implementation Plan at Level 1 and the System Security Plan and C-SCRM plan at Level 3. In Level 3, ensure that the full SDLC is covered from the C-SCRM perspective.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
PL-1	Policy and Procedures	The security planning policy and procedures should integrate C-SCRM. This includes creating, disseminating, and updating the security policy, operational policy, and procedures for C-SCRM to shape acquisition or development requirements and the follow-on implementation, operations, and maintenance of systems, system interfaces, and network connections. The C-SCRM policy and procedures provide inputs into and take guidance from the C-SCRM Strategy and Implementation Plan at Level 1 and the System Security Plan and C-SCRM plan at Level 3. In Level 3, ensure that the full SDLC is covered from the C-SCRM perspective.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate cybersecurity and data protection policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] planning policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PL-4	Rules of Behavior	The rules of behavior apply to contractor personnel and internal agency personnel. Contractor enterprises are responsible for ensuring that their employees follow applicable rules of behavior. Individual contractors should not be granted access to agency systems or data until they have acknowledged and demonstrated compliance with this control. Failure to meet this control can result in the removal of access for such individuals.	Functional	Intersects With	Terms of Employment	HRS-05	Mechanisms exist to require all employees and contractors to apply cybersecurity and data protection principles in their daily work to enable secure, compliant and resilient capabilities.	5	a. Establish and provide to individuals requiring access to the system, the rules that describe their responsibilities and expected behavior for information and system usage, security, and privacy; b. Receive a documented acknowledgment from such individuals, indicating that they have read, understand, and agree to abide by the rules of
PL-4	Rules of Behavior	The rules of behavior apply to contractor personnel and internal agency personnel. Contractor enterprises are responsible for ensuring that their employees follow applicable rules of behavior. Individual contractors should not be granted access to agency systems or data until they have acknowledged and demonstrated compliance with this control. Failure to meet this control can result in the removal of access for such individuals.	Functional	Intersects With	Rules of Behavior	HRS-05.1	Mechanisms exist to define acceptable and unacceptable rules of behavior for the use of technologies, including consequences for unacceptable behavior.	5	a. Establish and provide to individuals requiring access to the system, the rules that describe their responsibilities and expected behavior for information and system usage, security, and privacy; b. Receive a documented acknowledgment from such individuals, indicating that they have read, understand, and agree to abide by the rules of
PL-4	Rules of Behavior	The rules of behavior apply to contractor personnel and internal agency personnel. Contractor enterprises are responsible for ensuring that their employees follow applicable rules of behavior. Individual contractors should not be granted access to agency systems or data until they have acknowledged and demonstrated compliance with this control. Failure to meet this control can result in the removal of access for such individuals.	Functional	Intersects With	Technology Use Restrictions	HRS-05.3	Mechanisms exist to establish usage restrictions and implementation guidance for organizational technologies based on the potential to cause damage to Technology Assets, Applications and/or Services (TAAS), if used maliciously.	5	a. Establish and provide to individuals requiring access to the system, the rules that describe their responsibilities and expected behavior for information and system usage, security, and privacy; b. Receive a documented acknowledgment from such individuals, indicating that they have read, understand, and agree to abide by the rules of
PL-8	Security and Privacy Architectures	Security and privacy architecture defines and directs the implementation of security and privacy-protection methods, mechanisms, and capabilities to the underlying systems and networks, as well as the information system that is being created. Security architecture is fundamental to CSCRM because it helps to ensure that security is built-in throughout the SDLC. Enterprises should consider implementing zero-trust architectures and should ensure that the security architecture is well understood by system developers/engineers and system security engineers. This control applies to both federal agency and non-federal agency employees.	Functional	Intersects With	Alignment With Enterprise Architecture	SEA-02	Mechanisms exist to develop an enterprise architecture, aligned with industry-recognized leading practices, with consideration for security, compliance and resilience principles that addresses risk to organizational operations, assets, individuals and other organizations.	5	a. Develop security and privacy architectures for the system that: 1. Describe the requirements and approach to be taken for protecting the confidentiality, integrity, and availability of organizational information; 2. Describe the requirements and approach to be taken for processing personally identifiable information to minimize privacy risk to individuals;
PL-8(2)	Security and Privacy Architectures | Supplier Diversity	The enterprise should plan for the potential replacement of suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers in case one is no longer able to meet the enterprise's requirements (e.g., company goes out of business or does not meet contractual obligations). Where applicable, contracts should be worded so that different parts can be replaced with a similar model with similar prices from a different manufacturer if certain events occur (e.g., obsolescence, poor performance, production issues, etc.). Incorporate supplier diversity for off-the-shelf (commercial or government) components during acquisition security	Functional	Intersects With	Supplier Diversity	TDA-03.1	Mechanisms exist to obtain security, compliance and resilience technologies from different suppliers to minimize supply chain risk.	5	Require that [Assignment: organization-defined controls] allocated to [Assignment: organization-defined locations and architectural layers] are obtained from different suppliers.
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Centralized Management of Security, Compliance & Resilience Controls	SEA-01.1	Mechanisms exist to centrally-manage the organization-wide management and implementation of security, compliance and resilience controls and related processes.	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Centralized Management of Flaw Remediation Processes	VPM-05.1	Mechanisms exist to centrally-manage the flaw remediation process.	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Assigned Security, Compliance & Resilience Responsibilities	GOV-04	Mechanisms exist to assign one or more qualified individuals with the mission and resources to centrally-manage, coordinate, develop, implement and maintain an enterprise-wide Security, Compliance & Resilience Program (SCRP).	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Centralized Management of Antimalware Technologies	END-04.3	Mechanisms exist to centrally-manage antimalware technologies.	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Central Management	END-08.1	Mechanisms exist to centrally-manage anti-phishing and spam protection technologies.	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-9	Central Management	C-SCRM controls are managed centrally at Level 1 through the CSCRM Strategy and Implementation Plan and at Level 1 and Level 2 through the C-SCRM Policy. The C-SCRM PMO described in Section 2 centrally manages C-SCRM controls at Level 1 and Level. At Level 3, C-SCRM controls are managed on an information system basis though the SSP and/or CSCRM Plan.	Functional	Intersects With	Centralized Management of Event Log Content	MON-03.6	Mechanisms exist to centrally manage and update the criteria to be captured in event logs generated by organization-defined system components.	5	Centrally manage [Assignment: organization-defined controls and related processes].
PL-10	Baseline Selection	Enterprises should include C-SCRM controls in their control baselines. Enterprises should identify and select C-SCRM controls based on the C-SCRM requirements identified within each of the levels. A C-SCRM PMO may assist in identifying C-SCRM control baselines that meet common C-SCRM requirements for different groups, communities of interest, or the enterprise as a whole	Functional	Equal	Secure Baseline Configurations	CFG-02	Mechanisms exist to develop, document and maintain secure baseline configurations for Technology Assets, Applications and/or Services (TAAS) that are consistent with industry-accepted system hardening standards.	10	Select a control baseline for the system.
PM-2	Information Security Program Leadership Role	The senior information security officer (e.g., CISO) and senior agency official responsible for acquisition (e.g., Chief Acquisition Officer [CAO] or Senior Procurement Executive [SPE]) have key responsibilities for C-SCRM and the overall cross-enterprise coordination and collaboration with other applicable senior personnel within the enterprise, such as the CIO, the head of facilities/physical security, and the risk executive (function). This coordination should occur regardless of the specific department and agency enterprise structure and specific titles of relevant senior personnel. The coordination could be executed by the C-SCRM PMO or another similar function. Section 2 provides more guidance on C-SCRM roles and responsibilities.	Functional	Intersects With	Assigned Security, Compliance & Resilience Responsibilities	GOV-04	Mechanisms exist to assign one or more qualified individuals with the mission and resources to centrally-manage, coordinate, develop, implement and maintain an enterprise-wide Security, Compliance & Resilience Program (SCRP).	5	Appoint a senior agency information security officer with the mission and resources to coordinate, develop, implement, and maintain an organization-wide information security program.
PM-3	Information Security and Privacy Resources	implement agency C-SCRM requirements. Section 3 of this document provides guidance on dedicated funding for C-SCRM programs. The enterprise should also integrate C-SCRM requirements into major IT investments to ensure that funding is appropriately allocated through the capital planning and investment request process. For example, should an RFID infrastructure be required to enhance C-SCRM to secure and improve the inventory or logistics management efficiency of the enterprise's supply chain, appropriate IT investments would likely be required to ensure successful planning and implementation. Other examples include any investment into the development or test environment for critical components. In such cases, funding and resources are needed to acquire and maintain appropriate information systems, networks, and components to meet specific C-SCRM requirements that support	Functional	Equal	Security, Compliance & Resilience Resource Management	PRM-02	Mechanisms exist to address all capital planning and investment requests, including the resources needed to implement the Security, Compliance & Resilience Program (SCRP) and document all exceptions to this requirement.	10	a. Include the resources needed to implement the information security and privacy programs in capital planning and investment requests and document all exceptions to this requirement; b. Prepare documentation required for addressing information security and privacy programs in capital planning and investment requests in accordance with applicable laws, executive orders, directives
PM-4	Plan of Action and Milestones Process	C-SCRM items should be included in the POA&M at all levels. Organizations should develop POA&Ms based on C-SCRM assessment reports. POA&M should be used by organizations to describe planned actions to correct the deficiencies in C-SCRM controls identified during assessment and the continuous monitoring of progress against those actions.	Functional	Intersects With	Vulnerability Remediation Process	VPM-02	Mechanisms exist to ensure that vulnerabilities are properly identified, tracked and remediated.	5	a. Implement a process to ensure that plans of action and milestones for the information security, privacy, and supply chain risk management programs and associated organizational systems: 1. Are developed and maintained; 2. Document the remedial information security, privacy, and supply chain risk management actions to adequately respond to risk to organizational
PM-4	Plan of Action and Milestones Process	C-SCRM items should be included in the POA&M at all levels. Organizations should develop POA&Ms based on C-SCRM assessment reports. POA&M should be used by organizations to describe planned actions to correct the deficiencies in C-SCRM controls identified during assessment and the continuous monitoring of progress against those actions.	Functional	Intersects With	Capabilities Deficiency Tracking	IAO-05	Mechanisms exist to govern identified deficiencies (e.g., Plan of Action and Milestones (POA&M) or similar methodology) that formally documents, at a minimum: (1) Deficiency tracking number; (2) Applicable security, compliance and/or resilience control; (3) Description of the deficiency(ies); (4) Risk associated with the deficiency(ies); (5) Source deficiency identification/detection;	5	a. Implement a process to ensure that plans of action and milestones for the information security, privacy, and supply chain risk management programs and associated organizational systems: 1. Are developed and maintained; 2. Document the remedial information security, privacy, and supply chain risk management actions to adequately respond to risk to organizational
PM-5	System Inventory	Having a current system inventory is foundational for C-SCRM. Not having a system inventory may lead to the enterprise's inability to identify system and supplier criticality, which would result in an inability to conduct C-SCRM activities. To ensure that all applicable suppliers are identified and categorized for criticality, enterprises should include relevant supplier information in the system inventory and maintain its currency and accuracy. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Asset Governance	AST-01	Mechanisms exist to facilitate an IT Asset Management (ITAM) program to implement and manage asset management controls.	5	Develop and update [Assignment: organization-defined frequency] an inventory of organizational systems.
PM-5	System Inventory	Having a current system inventory is foundational for C-SCRM. Not having a system inventory may lead to the enterprise's inability to identify system and supplier criticality, which would result in an inability to conduct C-SCRM activities. To ensure that all applicable suppliers are identified and categorized for criticality, enterprises should include relevant supplier information in the system inventory and maintain its currency and accuracy. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Asset Inventories	AST-02	Mechanisms exist to perform inventories of Technology Assets, Applications, Services and/or Data (TAASD) that: (1) Accurately reflects the current TAASD in use; (2) Identifies authorized software products, including business justification details; (3) Is at the level of granularity deemed necessary for tracking and reporting; (4) Includes organization-defined information deemed necessary to achieve effective property accountability; and	5	Develop and update [Assignment: organization-defined frequency] an inventory of organizational systems.
PM-6	Measures of Performance	Enterprises should use measures of performance to track the implementation, efficiency, effectiveness, and impact of C-SCRM activities. The C-SCRM PMO is responsible for creating C-SCRM measures of performance in collaboration with other applicable stakeholders to include identifying the appropriate audience and decision makers and providing guidance on data collection, analysis, and reporting.	Functional	Intersects With	Assigned Security, Compliance & Resilience Responsibilities	GOV-04	Mechanisms exist to assign one or more qualified individuals with the mission and resources to centrally-manage, coordinate, develop, implement and maintain an enterprise-wide Security, Compliance & Resilience Program (SCRP).	5	Develop, monitor, and report on the results of information security and privacy measures of performance.
PM-6	Measures of Performance	Enterprises should use measures of performance to track the implementation, efficiency, effectiveness, and impact of C-SCRM activities. The C-SCRM PMO is responsible for creating C-SCRM measures of performance in collaboration with other applicable stakeholders to include identifying the appropriate audience and decision makers and providing guidance on data collection, analysis, and reporting.	Functional	Intersects With	Measures of Performance	GOV-05	Mechanisms exist to develop, report and monitor Security, Compliance & Resilience Program (SCRP) measures of performance.	5	Develop, monitor, and report on the results of information security and privacy measures of performance.
PM-7	Enterprise Architecture	C-SCRM should be integrated when designing and maintaining enterprise architecture.	Functional	Intersects With	Alignment With Enterprise Architecture	SEA-02	Mechanisms exist to develop an enterprise architecture, aligned with industry-recognized leading practices, with consideration for security, compliance and resilience principles that addresses risk to organizational operations, assets, individuals and other organizations.	5	Develop and maintain an enterprise architecture with consideration for information security, privacy, and the resulting risk to organizational operations and assets, individuals, other organizations, and the Nation.
PM-10	Authorization Process	C-SCRM should be integrated when designing and implementing authorization processes.	Functional	Equal	Information Assurance (IA) Operations	IAO-01	Mechanisms exist to facilitate the implementation of security, compliance and resilience assessment and authorization controls.	10	a. Manage the security and privacy state of organizational systems and the environments in which those systems operate through authorization processes; b. Designate individuals to fulfill specific roles and responsibilities within the organizational risk management process; and c. Integrate the authorization processes into an
PM-11	Mission and Business Process Definition	The enterprise's mission and business processes should address cybersecurity risks throughout the supply chain. When addressing mission and business process definitions, the enterprise should ensure that C-SCRM activities are incorporated into the support processes for achieving mission success. For example, a system supporting a critical mission function that has been designed and implemented for easy removal and replacement should a component fail may require the use of somewhat unreliable hardware components. A C-SCRM activity may need to be defined to ensure that the supplier makes component spare parts readily available if a replacement is needed.	Functional	Equal	Business Process Definition	PRM-06	Mechanisms exist to define business processes with consideration for security, compliance and resilience that determines: (1) The resulting risk to organizational operations, assets, individuals and other organizations; and (2) Information protection needs arising from the defined business processes and revises the processes as necessary, until an achievable set of protection needs is obtained.	10	a. Define organizational mission and business processes with consideration for information security and privacy and the resulting risk to organizational operations, organizational assets, individuals, other organizations, and the Nation; and b. Determine information protection and personally identifiable information processing needs arising from the defined mission and business processes;
PM-12	Insider Threat Program	An insider threat program should include C-SCRM and be tailored for both federal and non-federal agency individuals who have access to agency systems and networks. This control applies to contractors and subcontractors and should be implemented throughout the SDLC.	Functional	Equal	Insider Threat Program	THR-04	Mechanisms exist to implement an insider threat program that includes a cross-discipline insider threat incident handling team.	10	Implement an insider threat program that includes a cross-discipline insider threat incident handling team.
PM-13	Security and Privacy Workforce	Security and privacy workforce development and improvement should ensure that relevant C-SCRM topics are integrated into the content and initiatives produced by the program. Section 2 provides information on C-SCRM roles and responsibilities. NIST SP 800-161 can be used as a source of topics and activities to include in the security and privacy workforce program.	Functional	Intersects With	Defined Roles & Responsibilities	HRS-03	Mechanisms exist to define cybersecurity roles & responsibilities for all personnel.	5	Establish a security and privacy workforce development and improvement program.
PM-13	Security and Privacy Workforce	Security and privacy workforce development and improvement should ensure that relevant C-SCRM topics are integrated into the content and initiatives produced by the program. Section 2 provides information on C-SCRM roles and responsibilities. NIST SP 800-161 can be used as a source of topics and activities to include in the security and privacy workforce program.	Functional	Intersects With	Security, Compliance & Resilience-Minded Workforce	SAT-01	Mechanisms exist to facilitate the implementation of security workforce development and awareness controls.	5	Establish a security and privacy workforce development and improvement program.
PM-14	Testing, Training, and Monitoring	The enterprise should implement a process to ensure that organizational plans for conducting supply chain risk testing, training, and monitoring activities associated with organizational systems are maintained. The C-SCRM PMO can provide guidance and support on how to integrate C-SCRM into testing, training, and monitoring plans.	Functional	Intersects With	Personal Data (PD) Control Testing, Training & Monitoring	PRI-08	Mechanisms exist to conduct testing, training and monitoring activities for Personal Data (PD) controls.	5	a. Implement a process for ensuring that organizational plans for conducting security and privacy testing, training, and monitoring activities associated with organizational systems: 1. Are developed and maintained; and 2. Continue to be executed; and b. Review testing, training, and monitoring plans for consistency with the organizational risk

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
PM-14	Testing, Training, and Monitoring	The enterprise should implement a process to ensure that organizational plans for conducting supply chain risk testing, training, and monitoring activities associated with organizational systems are maintained. The C-SCRM PMO can provide guidance and support on how to integrate C-SCRM into testing, training, and monitoring plans.	Functional	Intersects With	Security, Compliance & Resilience Controls Oversight	CPL-02	Mechanisms exist to provide a security, compliance and resilience controls oversight function that reports to the organization's executive leadership.	5	a. Implement a process for ensuring that organizational plans for conducting security and privacy testing, training, and monitoring activities associated with organizational systems: 1. Are developed and maintained; and 2. Continue to be executed; and b. Review testing, training, and monitoring plans for consistency with the organizational risk
PM-15	Security and Privacy Groups and Associations	Contact with security and privacy groups and associations should include C-SCRM practitioners and those with C-SCRM responsibilities. Acquisition, legal, critical infrastructure, and supply chain groups and associations should be incorporated. The C-SCRM PMO can help identify agency personnel who could benefit from participation, specific groups to participate in, and relevant topics.	Functional	Intersects With	Threat Intelligence Program	THR-01	Mechanisms exist to implement a threat intelligence program that includes a cross-organization information-sharing capability that can influence the development of the system and security architectures, selection of security solutions, monitoring, threat hunting, response and recovery activities.	5	Establish and institutionalize contact with selected groups and associations within the security and privacy communities: a. To facilitate ongoing security and privacy education and training for organizational personnel; b. To maintain currency with recommended security and privacy practices, techniques, and technologies; and
PM-15	Security and Privacy Groups and Associations	Contact with security and privacy groups and associations should include C-SCRM practitioners and those with C-SCRM responsibilities. Acquisition, legal, critical infrastructure, and supply chain groups and associations should be incorporated. The C-SCRM PMO can help identify agency personnel who could benefit from participation, specific groups to participate in, and relevant topics.	Functional	Intersects With	Contacts With Groups & Associations	GOV-07	Mechanisms exist to establish contact with selected groups and associations within the security, compliance and resilience communities to: (1) Facilitate ongoing cybersecurity and data protection education and training for organizational personnel; (2) Maintain currency with recommended cybersecurity and data protection practices, techniques and technologies; and (3) Share current cybersecurity and/or data protection-related information including threats, vulnerabilities and incidents.	5	Establish and institutionalize contact with selected groups and associations within the security and privacy communities: a. To facilitate ongoing security and privacy education and training for organizational personnel; b. To maintain currency with recommended security and privacy practices, techniques, and technologies; and
PM-16	Threat Awareness Program	A threat awareness program should include threats that emanate from the supply chain. When addressing supply chain threat awareness, knowledge should be shared between stakeholders within the boundaries of the enterprise's information sharing policy. The C-SCRM PMO can help identify C-SCRM stakeholders to include in threat information sharing, as well as potential sources of information for supply chain threats.	Functional	Intersects With	Threat Intelligence Program	THR-01	Mechanisms exist to implement a threat intelligence program that includes a cross-organization information-sharing capability that can influence the development of the system and security architectures, selection of security solutions, monitoring, threat hunting, response and recovery activities.	5	Implement a threat awareness program that includes a cross-organization information-sharing capability for threat intelligence.
PM-17	Protecting Controlled Unclassified Information on External Systems	The policy and procedures for controlled unclassified information (CUI) on external systems should include incorporating relevant supply chain information. Conversely, it should include protecting agency information that resides in external systems because such external systems are part of the agency supply chain.	Functional	Equal	Protecting Sensitive / Regulated Data on External Technology Assets, Applications and/or Services (TAAS)	DCH-13.3	Mechanisms exist to ensure that the requirements for the protection of sensitive/regulated data processed, stored or transmitted on external Technology Assets, Applications and/or Services (TAAS), are implemented in accordance with applicable statutory, regulatory and contractual obligations.	10	a. Establish policy and procedures to ensure that requirements for the protection of controlled unclassified information that is processed, stored or transmitted on external systems, are implemented in accordance with applicable laws, executive orders, directives, policies, regulations, and standards; and b. Review and update the policy and procedures
PM-18	Privacy Program Plan	The privacy program plan should include C-SCRM. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant subtier contractors.	Functional	Equal	Data Privacy Program	PRI-01	Mechanisms exist to facilitate the implementation and operation of data protection controls throughout the data lifecycle to ensure all forms of Personal Data (PD) are processed lawfully, fairly and transparently.	10	a. Develop and disseminate an organization-wide privacy program plan that provides an overview of the agency's privacy program, and: 1. Includes a description of the structure of the privacy program and the resources dedicated to the privacy program; 2. Provides an overview of the requirements for the privacy program and a description of the privacy
PM-20	Dissemination of Privacy Program Information	The dissemination of privacy program information should be protected from cybersecurity risks throughout the supply chain.	Functional	Equal	Dissemination of Data Privacy Program Information	PRI-01.3	Mechanisms exist to: (1) Ensure that the public has access to information about organizational data privacy activities and can communicate with its Chief Privacy Officer (CPO) or similar role; (2) Ensure that organizational data privacy practices are publicly available through organizational websites or document repositories; (3) Utilize publicly facing email addresses and/or phone lines to enable the public to provide feedback and/or direct questions to data privacy office(s)	10	Maintain a central resource webpage on the organization's principal public website that serves as a central source of information about the organization's privacy program and that: a. Ensures that the public has access to information about organizational privacy activities and can communicate with its senior agency official for privacy;
PM-21	Accounting of Disclosures	An accounting of disclosures should be protected from cybersecurity risks throughout the supply chain.	Functional	Equal	Accounting of Disclosures	PRI-14.1	Mechanisms exist to provide data subjects with an accounting of disclosures of their Personal Data (PD) controlled by: (1) The organization; and/or (2) Relevant third-parties that their PD was shared with.	10	a. Develop and maintain an accurate accounting of disclosures of personally identifiable information, including: 1. Date, nature, and purpose of each disclosure; and 2. Name and address, or other contact information of the individual or organization to which the disclosure was made; b. Retain the accounting of disclosures for the
PM-22	Personally Identifiable Information Quality Management	Personally identifiable information (PII) quality management should take into account and manage cybersecurity risks related to PII throughout the supply chain.	Functional	Intersects With	Data Quality Management	PRI-10	Mechanisms exist to manage the quality, utility, objectivity, integrity and impact determination and de-identification of sensitive/regulated data across the information lifecycle.	5	Develop and document organization-wide policies and procedures for: a. Reviewing for the accuracy, relevance, timeliness, and completeness of personally identifiable information across the information life cycle; b. Correcting or deleting inaccurate or outdated personally identifiable information;
PM-22	Personally Identifiable Information Quality Management	Personally identifiable information (PII) quality management should take into account and manage cybersecurity risks related to PII throughout the supply chain.	Functional	Intersects With	Data Quality Operations	DCH-22	Mechanisms exist to check for Redundant, Obsolete/Outdated, Toxic or Trivial (ROTT) data to ensure the accuracy, relevance, timeliness, impact, completeness and de-identification of information throughout the information lifecycle.	5	Develop and document organization-wide policies and procedures for: a. Reviewing for the accuracy, relevance, timeliness, and completeness of personally identifiable information across the information life cycle; b. Correcting or deleting inaccurate or outdated personally identifiable information;
PM-25	Minimization of Personally Identifiable Information Used in Testing, Training, and Research	Supply chain-related cybersecurity risks to personally identifiable information should be addressed by the minimization policies and procedures described in this control.	Functional	Intersects With	Usage Restrictions of Personal Data (PD)	PRI-05.4	Mechanisms exist to restrict collecting, receiving, processing, storing, transmitting, sharing and/or updating Personal Data (PD) to: (1) The purpose(s) originally collected, consistent with the data privacy notice(s); (2) What is authorized by the data subject, or authorized agent; and (3) What is consistent with applicable laws, regulations and contractual obligations.	5	a. Develop, document, and implement policies and procedures that address the use of personally identifiable information for internal testing, training, and research; b. Limit or minimize the amount of personally identifiable information used for internal testing, training, and research purposes; c. Authorize the use of personally identifiable
PM-25	Minimization of Personally Identifiable Information Used in Testing, Training, and Research	Supply chain-related cybersecurity risks to personally identifiable information should be addressed by the minimization policies and procedures described in this control.	Functional	Intersects With	Collection Minimization	END-13.3	Mechanisms exist to utilize sensors that are configured to minimize the collection of information about individuals.	5	a. Develop, document, and implement policies and procedures that address the use of personally identifiable information for internal testing, training, and research; b. Limit or minimize the amount of personally identifiable information used for internal testing, training, and research purposes; c. Authorize the use of personally identifiable
PM-25	Minimization of Personally Identifiable Information Used in Testing, Training, and Research	Supply chain-related cybersecurity risks to personally identifiable information should be addressed by the minimization policies and procedures described in this control.	Functional	Intersects With	Minimize Visitor Personal Data (PD)	PES-06.5	Mechanisms exist to minimize the collection of Personal Data (PD) contained in visitor access records.	5	a. Develop, document, and implement policies and procedures that address the use of personally identifiable information for internal testing, training, and research; b. Limit or minimize the amount of personally identifiable information used for internal testing, training, and research purposes; c. Authorize the use of personally identifiable
PM-25	Minimization of Personally Identifiable Information Used in Testing, Training, and Research	Supply chain-related cybersecurity risks to personally identifiable information should be addressed by the minimization policies and procedures described in this control.	Functional	Intersects With	Internal Use of Personal Data (PD) For Testing, Training and Research	PRI-05.1	Mechanisms exist to address the use of Personal Data (PD) for internal testing, training and research that: (1) Takes measures to limit or minimize the amount of PD used for internal testing, training and research purposes; and (2) Authorizes the use of PD when such information is required for internal testing, training and research.	5	a. Develop, document, and implement policies and procedures that address the use of personally identifiable information for internal testing, training, and research; b. Limit or minimize the amount of personally identifiable information used for internal testing, training, and research purposes; c. Authorize the use of personally identifiable
PM-25	Minimization of Personally Identifiable Information Used in Testing, Training, and Research	Supply chain-related cybersecurity risks to personally identifiable information should be addressed by the minimization policies and procedures described in this control.	Functional	Intersects With	Limit Sensitive / Regulated Data In Testing, Training & Research	DCH-18.2	Mechanisms exist to minimize the use of sensitive/regulated data for research, testing, or training, in accordance with authorized, legitimate business practices.	5	a. Develop, document, and implement policies and procedures that address the use of personally identifiable information for internal testing, training, and research; b. Limit or minimize the amount of personally identifiable information used for internal testing, training, and research purposes; c. Authorize the use of personally identifiable
PM-26	Complaint Management	Complaint management process and mechanisms should be protected from cybersecurity risks throughout the supply chain. Enterprises should also integrate C-SCRM security and privacy controls when fielding complaints from vendors or the general public (e.g., departments and agencies fielding inquiries related to exclusions and removals).	Functional	Intersects With	User Feedback Management	PRI-06.4	Mechanisms exist to maintain a process to efficiently and effectively respond to requests, complaints, concerns or questions from authenticated data subjects about Personal Data (PD) the organization collects, receives, processes, stores, transmits, shares, updates and/or disposes.	5	Implement a process for receiving and responding to complaints, concerns, or questions from individuals about the organizational security and privacy practices that includes: a. Mechanisms that are easy to use and readily accessible by the public; b. All information necessary for successfully filing complaints;
PM-26	Complaint Management	Complaint management process and mechanisms should be protected from cybersecurity risks throughout the supply chain. Enterprises should also integrate C-SCRM security and privacy controls when fielding complaints from vendors or the general public (e.g., departments and agencies fielding inquiries related to exclusions and removals).	Functional	Intersects With	Appeal Adverse Decision	PRI-06.3	Mechanisms exist to maintain a process for data subjects to appeal an adverse decision.	5	Implement a process for receiving and responding to complaints, concerns, or questions from individuals about the organizational security and privacy practices that includes: a. Mechanisms that are easy to use and readily accessible by the public; b. All information necessary for successfully filing complaints;
PM-27	Privacy Reporting	Privacy reporting process and mechanisms should be protected from cybersecurity risks throughout the supply chain.	Functional	Equal	Documenting Data Processing Activities	PRI-14	Mechanisms exist to document Personal Data (PD) processing activities that covers collection, receiving, processing, storage, transmission, sharing, updating and/or disposal actions with sufficient detail to demonstrate conformity with applicable statutory, regulatory and contractual requirements.	10	a. Develop [Assignment: organization-defined privacy reports] and disseminate to: 1. [Assignment: organization-defined oversight bodies] to demonstrate accountability with statutory, regulatory, and policy privacy mandates; and 2. [Assignment: organization-defined officials] and other personnel with responsibility for monitoring
PM-30	Supply Chain Risk Management Strategy	The Supply Chain Risk Management Strategy (also known as C-SCRM Strategy) should be complemented with a C-SCRM Implementation Plan that lays out detailed initiatives and activities for the enterprise with timelines and responsible parties. This implementation plan can be a POA&M or be included in a POA&M. Based on the C-SCRM Strategy and Implementation Plan at Level 1, the enterprise should select and document common C- SCRM controls that should address the enterprise, program, and system-specific needs. These controls should be iteratively integrated into the C-SCRM Policy at Level 1 and Level 2, as well as the C-SCRM plan (or SSP if required) at Level 3. See Section 2 and Appendix C for further guidance on risk management.	Functional	Equal	Supply Chain Risk Management (SCRM) Plan	RSK-09	Mechanisms exist to develop a plan for Supply Chain Risk Management (SCRM) associated with the development, acquisition, maintenance and disposal of Technology Assets, Applications and/or Services (TAAS), including documenting selected mitigating actions and monitoring performance against those plans.	10	a. Develop an organization-wide strategy for managing supply chain risks associated with the development, acquisition, maintenance, and disposal of systems, system components, and system services; 1. Implement the supply chain risk management strategy consistently across the organization; and (a) Review and update the supply chain risk
PM-31	Continuous Monitoring Strategy	The continuous monitoring strategy and program should integrate CSCRM controls at Levels 1, 2, and 3 in accordance with the Supply Chain Risk Management Strategy.	Functional	Subset Of	Continuous Monitoring	MON-01	Mechanisms exist to facilitate the implementation of enterprise-wide monitoring controls.	10	Develop an organization-wide continuous monitoring strategy and implement continuous monitoring programs that include: a. Establishing the following organization-wide metrics to be monitored: [Assignment: organization-defined metrics]; b. Establishing [Assignment: organization-defined frequencies] for monitoring and [Assignment:
PM-32	Purposing	Extending systems assigned to support specific mission or business functions beyond their initial purpose subjects those systems to unintentional risks, including cybersecurity risks throughout the supply chain. The application of this control should include the explicit incorporation of cybersecurity supply chain exposures.	Functional	Equal	Purpose Validation	GOV-11	Mechanisms exist to monitor mission/business-critical Technology Assets, Applications and/or Services (TAAS) to ensure those resources are being used consistent with their intended purpose.	10	Analyze [Assignment: organization-defined systems or systems components] supporting mission essential services or functions to ensure that the information resources are being used consistent with their intended purpose.
PS-1	Policy and Procedures	Infrastructure activities. Level 1: Applicable roles include risk executive, CIO, CISO, contracting, logistics, delivery/receiving, acquisition security, and other functions that provide supporting supply chain activities. Level 2: Applicable roles include program executive and individuals (e.g., non-federal employees, including contractors) within the acquirer enterprise who are responsible for program success (e.g., Program Manager and other individuals). Level 3: Applicable roles include system engineers or system security engineers throughout the operational system life cycle from requirements definition, development, test, deployment, maintenance, updates, replacements.	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personnel security policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PS-1	Policy and Procedures	Infrastructure activities. Level 1: Applicable roles include risk executive, CIO, CISO, contracting, logistics, delivery/receiving, acquisition security, and other functions that provide supporting supply chain activities. Level 2: Applicable roles include program executive and individuals (e.g., non-federal employees, including contractors) within the acquirer enterprise who are responsible for program success (e.g., Program Manager and other individuals). Level 3: Applicable roles include system engineers or system security engineers throughout the operational system life cycle from requirements definition, development, test, deployment, maintenance, updates, replacements.	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personnel security policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PS-1	Policy and Procedures	Infrastructure activities. Level 1: Applicable roles include risk executive, CIO, CISO, contracting, logistics, delivery/receiving, acquisition security, and other functions that provide supporting supply chain activities. Level 2: Applicable roles include program executive and individuals (e.g., non-federal employees, including contractors) within the acquirer enterprise who are responsible for program success (e.g., Program Manager and other individuals). Level 3: Applicable roles include system engineers or system security engineers throughout the operational system life cycle from requirements definition, development, test, deployment, maintenance, updates, replacements.	Functional	Subset Of	Human Resources Security Management	HRS-01	Mechanisms exist to facilitate the implementation of personnel security controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personnel security policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
PS-3	Personnel Screening	To mitigate insider threat risk, personnel screening policies and procedures should be extended to any contractor personnel with authorized access to information systems, system components, or information system services. Continuous monitoring activities should be commensurate with the contractor's level of access to sensitive, classified, or regulated information and should be consistent with broader enterprise policies. Screening requirements should be incorporated into agreements and flow down to sub-tier contractors	Functional	Equal	Personnel Screening	HRS-04	Mechanisms exist to manage personnel security risk by screening individuals prior to authorizing access.	10	a. Screen individuals prior to authorizing access to the system; and b. Rescreen individuals in accordance with [Assignment: organization-defined conditions requiring rescreening and, where rescreening is so indicated, the frequency of rescreening].
PS-6	Access Agreements	[redacted] specify additional restrictions, such as allowing access during specific timeframes, from specific locations, or only by personnel who have satisfied additional vetting requirements. The enterprise should deploy audit mechanisms to review, monitor, update, and track access by these parties in accordance with the access agreement. As personnel vary over time, the enterprise should implement a timely and rigorous personnel security update process for the access agreements. When information systems and network products and services are provided by an entity within the enterprise, there may be an existing access agreement in place. When such an agreement does not exist, it should be established.	Functional	Intersects With	Confidentiality Agreements	HRS-06.1	Mechanisms exist to require Non-Disclosure Agreements (NDAs) or similar confidentiality agreements that reflect the needs to protect data and operational details, or both employees and third-parties.	5	a. Develop and document access agreements for organizational systems; b. Review and update the access agreements [Assignment: organization-defined frequency]; and c. Verify that individuals requiring access to organizational information and systems: 1. Sign appropriate access agreements prior to being granted access; and
PS-6	Access Agreements	[redacted] specify additional restrictions, such as allowing access during specific timeframes, from specific locations, or only by personnel who have satisfied additional vetting requirements. The enterprise should deploy audit mechanisms to review, monitor, update, and track access by these parties in accordance with the access agreement. As personnel vary over time, the enterprise should implement a timely and rigorous personnel security update process for the access agreements. When information systems and network products and services are provided by an entity within the enterprise, there may be an existing access agreement in place. When such an agreement does not exist, it should be established.	Functional	Intersects With	Access Agreements	HRS-06	Mechanisms exist to require internal and third-party users to sign appropriate access agreements prior to being granted access.	5	a. Develop and document access agreements for organizational systems; b. Review and update the access agreements [Assignment: organization-defined frequency]; and c. Verify that individuals requiring access to organizational information and systems: 1. Sign appropriate access agreements prior to being granted access; and
PS-7	External Personnel Security	Third-party personnel who have access to the enterprise's information systems and networks must meet the same personnel security requirements as enterprise personnel. Examples of such third-party personnel can include the system integrator, developer, supplier, external service provider used for delivery, contractors or service providers who are using the ICT/OT systems, or supplier maintenance personnel brought in to address component technical issues not solvable by the enterprise or system integrator.	Functional	Equal	Third-Party Personnel	HRS-10	Mechanisms exist to govern third-party personnel by reviewing and monitoring third-party security, compliance and/or resilience roles and responsibilities.	10	a. Establish personnel security requirements, including security roles and responsibilities for external providers; b. Require external providers to comply with personnel security policies and procedures established by the organization; c. Document personnel security requirements; d. Require external providers to notify [Assignment:

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
PT-1	Policy and Procedures	The procedures can be established for the security and privacy program in general and individual information systems. These policy and procedures should address the purpose, scope, roles, responsibilities, management commitment, coordination among enterprise entities, and privacy compliance to support systems/components within information systems or the supply chain. Policies and procedures need to be in place to ensure that contracts state what PII data will be shared, which contractor personnel may have access to the PII, controls protecting PII, how long it can be kept, and what happens to it at the end of a contract. a. When working with a new supplier, ensure that the agreement includes the most recent set of applicable security	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personally identifiable information processing and transparency policy that: (a) Addresses purpose, scope, roles, responsibilities,
PT-1	Policy and Procedures	The procedures can be established for the security and privacy program in general and individual information systems. These policy and procedures should address the purpose, scope, roles, responsibilities, management commitment, coordination among enterprise entities, and privacy compliance to support systems/components within information systems or the supply chain. Policies and procedures need to be in place to ensure that contracts state what PII data will be shared, which contractor personnel may have access to the PII, controls protecting PII, how long it can be kept, and what happens to it at the end of a contract. a. When working with a new supplier, ensure that the agreement includes the most recent set of applicable security	Functional	Subset Of	Data Privacy Program	PRI-01	Mechanisms exist to facilitate the implementation and operation of data protection controls throughout the data lifecycle to ensure all forms of Personal Data (PD) are processed lawfully, fairly and transparently.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personally identifiable information processing and transparency policy that: (a) Addresses purpose, scope, roles, responsibilities,
PT-1	Policy and Procedures	The procedures can be established for the security and privacy program in general and individual information systems. These policy and procedures should address the purpose, scope, roles, responsibilities, management commitment, coordination among enterprise entities, and privacy compliance to support systems/components within information systems or the supply chain. Policies and procedures need to be in place to ensure that contracts state what PII data will be shared, which contractor personnel may have access to the PII, controls protecting PII, how long it can be kept, and what happens to it at the end of a contract. a. When working with a new supplier, ensure that the agreement includes the most recent set of applicable security	Functional	Subset Of	Secure Engineering Principles	SEA-01	Mechanisms exist to facilitate the implementation of industry-recognized security, compliance and resilience practices in the specification, design, development, implementation and modification of Technology Assets, Applications and/or Services (TAAS).	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] personally identifiable information processing and transparency policy that: (a) Addresses purpose, scope, roles, responsibilities,
RA-1	Policy and Procedures	risk assessment should include both the supply chain infrastructure (e.g., development and testing environments and delivery systems) and the information system/components traversing the supply chain. System-level risk assessments significantly intersect with the SDLC and should complement the enterprise's broader RMF activities, which take part during the SDLC. A criticality analysis will ensure that mission-critical functions and components are given higher priority due to their impact on the mission, if compromised. The policy should include supply chainrelevant cybersecurity roles that are applicable to performing and coordinating risk assessments across the enterprise (see Section 2 for the listing and description of roles). Applicable roles within suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers should be	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] risk assessment policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
RA-1	Policy and Procedures	risk assessment should include both the supply chain infrastructure (e.g., development and testing environments and delivery systems) and the information system/components traversing the supply chain. System-level risk assessments significantly intersect with the SDLC and should complement the enterprise's broader RMF activities, which take part during the SDLC. A criticality analysis will ensure that mission-critical functions and components are given higher priority due to their impact on the mission, if compromised. The policy should include supply chainrelevant cybersecurity roles that are applicable to performing and coordinating risk assessments across the enterprise (see Section 2 for the listing and description of roles). Applicable roles within suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers should be	Functional	Subset Of	Risk Management Program	RSK-01	Mechanisms exist to facilitate the implementation of strategic, operational and tactical risk management controls.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] risk assessment policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
RA-1	Policy and Procedures	risk assessment should include both the supply chain infrastructure (e.g., development and testing environments and delivery systems) and the information system/components traversing the supply chain. System-level risk assessments significantly intersect with the SDLC and should complement the enterprise's broader RMF activities, which take part during the SDLC. A criticality analysis will ensure that mission-critical functions and components are given higher priority due to their impact on the mission, if compromised. The policy should include supply chainrelevant cybersecurity roles that are applicable to performing and coordinating risk assessments across the enterprise (see Section 2 for the listing and description of roles). Applicable roles within suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers should be	Functional	Intersects With	Publishing Security, Compliance & Resilience Documentation	GOV-02	Mechanisms exist to establish, maintain and disseminate policies, standards and procedures necessary for secure, compliant and resilient capabilities.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] risk assessment policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
RA-2	Security Categorization	Security categorization is critical to C-SCRM at Levels 1, 2, and 3. In addition to [FIPS 199] categorization, security categorization for C-SCRM should be based on the criticality analysis that is performed as part of the SDLC. See Section 2 and [NISTIR 8179] for a detailed description of criticality analysis.	Functional	Equal	Risk-Based Security Categorization	RSK-02	Mechanisms exist to categorize Technology Assets, Applications, Services and/or Data (TAASD) in accordance with applicable laws, regulations and contractual obligations that: (1) Document the security categorization results (including supporting rationale) in the security plan for systems; and (2) Ensure the security categorization decision is reviewed and approved by the asset owner.	10	a. Categorize the system and information it processes, stores, and transmits; b. Document the security categorization results, including supporting rationale, in the security plan for the system; and c. Verify that the authorizing official or authorizing official designated representative reviews and approves the security categorization decision.
RA-3	Risk Assessment	Risk assessments should include an analysis of criticality, threats, vulnerabilities, likelihood, and impact, as described in detail in Appendix C. The data to be reviewed and collected includes C-SCRM-specific roles, processes, and the results of system/component and services acquisitions, implementation, and integration. Risk assessments should be performed at Levels 1, 2, and 3. Risk assessments at higher levels should consist primarily of a synthesis of various risk assessments performed at lower levels and used for understanding the overall impact with the level (e.g., at the enterprise or mission/function levels). C-SCRM risk assessments should complement and inform risk assessments, which are performed as ongoing activities throughout the SDLC, and processes should be appropriately aligned with or integrated into ERM processes and governance.	Functional	Intersects With	Functional Review Of Security, Compliance & Resilience Controls	CPL-03.2	Mechanisms exist to regularly review Technology Assets, Applications and/or Services (TAAS) for adherence to the organization's security, compliance and/or resilience policies and standards.	5	a. Conduct a risk assessment, including: 1. Identifying threats to and vulnerabilities in the system; 2. Determining the likelihood and magnitude of harm from unauthorized access, use, disclosure, disruption, modification, or destruction of the system, the information it processes, stores, or transmits, and any related information; and
RA-3	Risk Assessment	Risk assessments should include an analysis of criticality, threats, vulnerabilities, likelihood, and impact, as described in detail in Appendix C. The data to be reviewed and collected includes C-SCRM-specific roles, processes, and the results of system/component and services acquisitions, implementation, and integration. Risk assessments should be performed at Levels 1, 2, and 3. Risk assessments at higher levels should consist primarily of a synthesis of various risk assessments performed at lower levels and used for understanding the overall impact with the level (e.g., at the enterprise or mission/function levels). C-SCRM risk assessments should complement and inform risk assessments, which are performed as ongoing activities throughout the SDLC, and processes should be appropriately aligned with or integrated into ERM processes and governance.	Functional	Intersects With	Risk Assessment	RSK-04	Mechanisms exist to conduct recurring assessments of risk that includes the likelihood and magnitude of harm, from unauthorized access, use, disclosure, disruption, modification or destruction of the organization's Technology Assets, Applications, Services and/or Data (TAASD).	5	a. Conduct a risk assessment, including: 1. Identifying threats to and vulnerabilities in the system; 2. Determining the likelihood and magnitude of harm from unauthorized access, use, disclosure, disruption, modification, or destruction of the system, the information it processes, stores, or transmits, and any related information; and
RA-3(1)	Risk Assessment | Supply Chain Risk Assessment	a. Assess supply chain risks associated with [Assignment: organization-defined systems, system components, and system services]; andb. Update the supply chain risk assessment [Assignment: organization-defined frequency], when there are significant changes to the relevant supply chain, or when changes to the system, environments of operation, or other conditions may necessitate a change in the supply chain.	Functional	Equal	Supply Chain Risk Assessment	RSK-09.1	Mechanisms exist to periodically assess supply chain risks associated with Technology Assets, Applications and/or Services (TAAS).	10	
RA-5	Vulnerability Monitoring and Scanning	Vulnerability monitoring activities should take place at all three levels of the enterprise. Scoping vulnerability monitoring activities requires enterprises to consider suppliers as well as their sub-suppliers. Enterprises, where applicable and appropriate, may consider providing customers with a Vulnerability Disclosure Report (VDR) to demonstrate proper and complete vulnerability assessments for components listed in SBOMs. The VDR should include the analysis and findings describing the impact (or lack of impact) that the reported vulnerability has on a component or product. The VDR should also contain information on plans to address the CVE. Enterprises should consider publishing the VDR within a secure portal available to customers and signing the VDR with a trusted, verifiable, private key that includes a timestamp indicating the date and time of the VDR signature and associated	Functional	Intersects With	Vulnerability Scanning	VPM-06	Mechanisms exist to detect vulnerabilities and configuration errors by routine vulnerability scanning of systems and applications.	5	a. Monitor and scan for vulnerabilities in the system and hosted applications [Assignment: organization-defined frequency and/or randomly in accordance with organization-defined process] and when new vulnerabilities potentially affecting the system are identified and reported; b. Employ vulnerability monitoring tools and techniques that facilitate interoperability among
RA-5	Vulnerability Monitoring and Scanning	Vulnerability monitoring activities should take place at all three levels of the enterprise. Scoping vulnerability monitoring activities requires enterprises to consider suppliers as well as their sub-suppliers. Enterprises, where applicable and appropriate, may consider providing customers with a Vulnerability Disclosure Report (VDR) to demonstrate proper and complete vulnerability assessments for components listed in SBOMs. The VDR should include the analysis and findings describing the impact (or lack of impact) that the reported vulnerability has on a component or product. The VDR should also contain information on plans to address the CVE. Enterprises should consider publishing the VDR within a secure portal available to customers and signing the VDR with a trusted, verifiable, private key that includes a timestamp indicating the date and time of the VDR signature and associated	Functional	Intersects With	Update Tool Capability	VPM-06.1	Mechanisms exist to update vulnerability scanning tools.	5	a. Monitor and scan for vulnerabilities in the system and hosted applications [Assignment: organization-defined frequency and/or randomly in accordance with organization-defined process] and when new vulnerabilities potentially affecting the system are identified and reported; b. Employ vulnerability monitoring tools and techniques that facilitate interoperability among
RA-5(3)	Vulnerability Monitoring and Scanning | Breadth and Depth of Coverage	Enterprises that monitor the supply chain for vulnerabilities should express the breadth of monitoring based on the criticality and/or risk profile of the supplier or product/component and the depth of monitoring based on the level of the supply chain at which the monitoring takes place (e.g., sub-supplier). Where possible, a component inventory (e.g., hardware, software) may aid enterprises in capturing the breadth and depth of the products/components within their supply chain that may need to be monitored and scanned for vulnerabilities	Functional	Equal	Breadth / Depth of Coverage	VPM-06.2	Mechanisms exist to identify the breadth and depth of coverage for vulnerability scanning that define the system components scanned and types of vulnerabilities that are checked for.	10	Define the breadth and depth of vulnerability scanning coverage.
RA-5(6)	Vulnerability Monitoring and Scanning | Automated Trend Analyses	Enterprises should track trends in vulnerabilities to components within the supply chain over time. This information may help enterprises develop procurement strategies that reduce risk exposure density within the supply chain.	Functional	Equal	Trend Analysis	VPM-06.4	Automated mechanisms exist to compare the results of vulnerability scans over time to determine trends in system vulnerabilities.	10	Compare the results of multiple vulnerability scans using [Assignment: organization-defined automated mechanisms].
RA-7	Risk Response	Enterprises should integrate capabilities to respond to cybersecurity risks throughout the supply chain into the enterprise's overall response posture, ensuring that these responses are aligned to and fall within the boundaries of the enterprise's tolerance for risk. Risk response should include consideration of risk response identification, evaluation of alternatives, and risk response decision activities	Functional	Equal	Risk Response	RSK-06.1	Mechanisms exist to ensure proper risk response actions were performed to remediate findings from security, compliance and/or resilience-related: (1) Assessments; (2) Audits; and/or (3) Incidents.	10	Respond to findings from security and privacy assessments, monitoring, and audits in accordance with organizational risk tolerance.
RA-9	Criticality Analysis	chain risk management activities. First, enterprises should complete a criticality analysis as part of the Frame step of the C-SCRM Risk Management Process. Then, findings generated in the Assess step activities (e.g., criticality analysis, threat analysis, vulnerability analysis, and mitigation strategies) update and tailor the criticality analysis. A symbiotic relationship exists between the criticality analysis and other Assess step activities in that they inform and enhance one another. For a highquality criticality analysis, enterprises should employ it iteratively throughout the SLDC and concurrently across the three levels. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should also refer to Appendix F to supplement this guidance in accordance with Executive Order 14028, Improving the	Functional	Intersects With	Third-Party Criticality Assessments	TPM-02	Mechanisms exist to identify, prioritize and assess suppliers and partners of critical Technology Assets, Applications and/or Services (TAAS) using a supply chain risk assessment process relative to their importance in supporting the delivery of high-value services.	5	Identify critical system components and functions by performing a criticality analysis for [Assignment: organization-defined systems, system components, or system services] at [Assignment: organization-defined decision points in the system development life cycle].
RA-9	Criticality Analysis	chain risk management activities. First, enterprises should complete a criticality analysis as part of the Frame step of the C-SCRM Risk Management Process. Then, findings generated in the Assess step activities (e.g., criticality analysis, threat analysis, vulnerability analysis, and mitigation strategies) update and tailor the criticality analysis. A symbiotic relationship exists between the criticality analysis and other Assess step activities in that they inform and enhance one another. For a highquality criticality analysis, enterprises should employ it iteratively throughout the SLDC and concurrently across the three levels. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should also refer to Appendix F to supplement this guidance in accordance with Executive Order 14028, Improving the	Functional	Intersects With	Criticality Analysis During Development	TDA-06.1	Mechanisms exist to require the developer of the Technology Asset, Application and/or Service (TAAS) to perform a criticality analysis at organization-defined decision points in the Secure Development Life Cycle (SDLC).	5	Identify critical system components and functions by performing a criticality analysis for [Assignment: organization-defined systems, system components, or system services] at [Assignment: organization-defined decision points in the system development life cycle].
RA-9	Criticality Analysis	chain risk management activities. First, enterprises should complete a criticality analysis as part of the Frame step of the C-SCRM Risk Management Process. Then, findings generated in the Assess step activities (e.g., criticality analysis, threat analysis, vulnerability analysis, and mitigation strategies) update and tailor the criticality analysis. A symbiotic relationship exists between the criticality analysis and other Assess step activities in that they inform and enhance one another. For a highquality criticality analysis, enterprises should employ it iteratively throughout the SLDC and concurrently across the three levels. Enterprises should require their prime contractors to implement this control and flow down this requirement to relevant sub-tier contractors. Departments and agencies should also refer to Appendix F to supplement this guidance in accordance with Executive Order 14028, Improving the	Functional	Intersects With	Security, Compliance & Resilience Requirements Definition	PRM-05	Mechanisms exist to identify critical system components and functions by performing a criticality analysis for critical Technology Assets, Applications and/or Services (TAAS) at pre-defined decision points in the Secure Development Life Cycle (SDLC).	5	Identify critical system components and functions by performing a criticality analysis for [Assignment: organization-defined systems, system components, or system services] at [Assignment: organization-defined decision points in the system development life cycle].
RA-10	Threat Hunting	threats to their supply chain. This requires a collaborative effort between C-SCRM and other cyber defense-oriented functions within the enterprise. Threat hunting capabilities may also be provided via a shared services enterprise, especially when an enterprise lacks the resources to perform threat hunting activities themselves. Typical activities include information sharing with peer enterprises and actively consuming threat intelligence sources (e.g., like those available from Information Assurance and Analysis Centers [ISAC[and Information Assurance and Analysis Organizations [ISAO]). These activities can help identify and flag indicators of increased cybersecurity risks throughout the supply chain that may be of concern, such as cyber incidents, mergers and acquisitions, and Foreign Ownership, Control, or Influence (FOCI). Supply chain threat intelligence should seek out threats to the enterprise's	Functional	Equal	Threat Hunting	THR-07	Mechanisms exist to perform cyber threat hunting that uses Indicators of Compromise (IoC) to detect, track and disrupt threats that evade existing security controls.	10	a. Establish and maintain a cyber threat hunting capability to: 1. Search for indicators of compromise in organizational systems; and 2. Detect, track, and disrupt threats that evade existing controls; and b. Employ the threat hunting capability [Assignment: organization-defined frequency].
SA-1	Policy and Procedures	considered for any and all procurements of products or services in which there may be an unacceptable risk of a supplied product or service contractor compromising the integrity, availability, or confidentiality of an enterprise's information. This initial assessment should occur during the acquisition planning phase and will be minimally informed by an identification and understanding of the criticality of the enterprise's mission functions, its high value assets, and the sensitivity of the information that may be accessible by the supplied product or service provider. In addition, enterprises should develop policies and procedures that address supply chain risks that may arise during contract performance, such as a change of ownership or control of the business or when actionable information is learned that indicates that a supplier or a product is a target of a supply chain threat. Supply chains	Functional	Subset Of	Technology Development & Acquisition	TDA-01	Mechanisms exist to facilitate the implementation of tailored development and acquisition strategies, contract tools and procurement methods to meet unique business needs.	10	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] system and services acquisition policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
SA-1	Policy and Procedures	considered for any and all procurements of products or services in which there may be an unacceptable risk of a supplied product or service contractor compromising the integrity, availability, or confidentiality of an enterprise's information. This initial assessment should occur during the acquisition planning phase and will be minimally informed by an identification and understanding of the criticality of the enterprise's mission functions, its high value assets, and the sensitivity of the information that may be accessible by the supplied product or service provider. In addition, enterprises should develop policies and procedures that address supply chain risks that may arise during contract performance, such as a change of ownership or control of the business or when actionable information is learned that indicates that a supplier or a product is a target of a supply chain threat. Supply chains	Functional	Intersects With	Periodic Review & Update of Security, Compliance & Resilience Program	GOV-03	Mechanisms exist to review the Security, Compliance & Resilience Program (SCRP), including policies, standards and procedures, at planned intervals or if significant changes occur to ensure their continuing suitability, adequacy and effectiveness.	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] system and services acquisition policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
SA-1	Policy and Procedures	considered for any and all procurements of products or services in which there may be an unacceptable risk of a supplied product or service contractor compromising the integrity, availability, or confidentiality of an enterprise's information. This initial assessment should occur during the acquisition planning phase and will be minimally informed by an identification and understanding of the criticality of the enterprise's mission functions, its high value assets, and the sensitivity of the information that may be accessible by the supplied product or service provider. In addition, enterprises should develop policies and procedures that address supply chain risks that may arise during contract performance, such as a change of ownership or control of the business or when actionable information is learned that indicates that a supplier or a product is a target of a supply chain threat. Supply chains	Functional	Intersects With	Secure Software Development Practices (SSDP)	TDA-06	Mechanisms exist to develop applications based on Secure Software Development Practices (SSDP).	5	a. Develop, document, and disseminate to [Assignment: organization-defined personnel or roles]: 1. [Selection (one or more): Organization-level; Mission/business process-level; System-level] system and services acquisition policy that: (a) Addresses purpose, scope, roles, responsibilities, management commitment, coordination among
SA-2	Allocation of Resources	The enterprise should incorporate C-SCRM requirements when determining and establishing the allocation of resources.	Functional	Equal	Allocation of Resources	PRM-03	Mechanisms exist to identify and allocate resources for management, operational, technical and data protection requirements within business process planning for projects / initiatives.	10	a. Determine the high-level information security and privacy requirements for the system or system service in mission and business process planning; b. Determine, document, and allocate the resources required to protect the system or system service as part of the organizational capital planning and investment control process; and c. Establish a discrete line item for information
SA-3	System Development Life Cycle	There is a strong relationship between the SDLC and C-SCRM activities. The enterprise should ensure that C-SCRM activities are integrated into the SDLC for both the enterprise and for applicable suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. In addition to traditional SDLC activities, such as requirements and design, the SDLC includes activities such as inventory management, acquisition and procurement, and the logical delivery of systems and components. See Section 2 and Appendix C for further guidance on SDLC. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Technology Lifecycle Management	SEA-07.1	Mechanisms exist to manage the usable lifecycles of Technology Assets, Applications and/or Services (TAAS).	5	a. Acquire, develop, and manage the system using [Assignment: organization-defined system development life cycle] that incorporates information security and privacy considerations; b. Define and document information security and privacy roles and responsibilities throughout the system development life cycle; c. Identify individuals having information security
SA-3	System Development Life Cycle	There is a strong relationship between the SDLC and C-SCRM activities. The enterprise should ensure that C-SCRM activities are integrated into the SDLC for both the enterprise and for applicable suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers. In addition to traditional SDLC activities, such as requirements and design, the SDLC includes activities such as inventory management, acquisition and procurement, and the logical delivery of systems and components. See Section 2 and Appendix C for further guidance on SDLC. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Intersects With	Secure Development Life Cycle (SDLC) Management	PRM-07	Mechanisms exist to ensure changes to Technology Assets, Applications and/or Services (TAAS) within the Secure Development Life Cycle (SDLC) are controlled through formal change control procedures.	5	a. Acquire, develop, and manage the system using [Assignment: organization-defined system development life cycle] that incorporates information security and privacy considerations; b. Define and document information security and privacy roles and responsibilities throughout the system development life cycle; c. Identify individuals having information security
SA-4	Acquisition Process	development methods, techniques, or practices that may be relevant. Identify and specify C-SCRM evaluation criteria, to include the weighting of such criteria. 2. Enterprises should: a. Establish a plan for the acquisition of spare parts to ensure adequate supply, and execute the plan if or when applicable; b. Establish a plan for the acquisition of alternative sources of supply as may be necessary during continuity events or if/when a disruption to the supply chain occurs; c. Work with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related	Functional	Intersects With	Minimum Viable Product (MVP) Security Requirements	TDA-02	Mechanisms exist to design, develop and produce Technology Assets, Applications and/or Services (TAAS) in such a way that risk-based technical and functional specifications ensure Minimum Viable Product (MVP) criteria establish an appropriate level of security and resiliency based on applicable risks and threats.	5	Include the following requirements, descriptions, and criteria, explicitly or by reference, using [Selection (one or more): standardized contract language; [Assignment: organization-defined contract language]] in the acquisition contract for the system, system component, or system service: a. Security and privacy functional requirements; b. Strength of mechanism requirements;
SA-4	Acquisition Process	development methods, techniques, or practices that may be relevant. Identify and specify C-SCRM evaluation criteria, to include the weighting of such criteria. 2. Enterprises should: a. Establish a plan for the acquisition of spare parts to ensure adequate supply, and execute the plan if or when applicable; b. Establish a plan for the acquisition of alternative sources of supply as may be necessary during continuity events or if/when a disruption to the supply chain occurs; c. Work with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related	Functional	Intersects With	Third-Party Management	TPM-01	Mechanisms exist to facilitate the implementation of third-party management controls.	5	Include the following requirements, descriptions, and criteria, explicitly or by reference, using [Selection (one or more): standardized contract language; [Assignment: organization-defined contract language]] in the acquisition contract for the system, system component, or system service: a. Security and privacy functional requirements; b. Strength of mechanism requirements;
SA-4	Acquisition Process	development methods, techniques, or practices that may be relevant. Identify and specify C-SCRM evaluation criteria, to include the weighting of such criteria. 2. Enterprises should: a. Establish a plan for the acquisition of spare parts to ensure adequate supply, and execute the plan if or when applicable; b. Establish a plan for the acquisition of alternative sources of supply as may be necessary during continuity events or if/when a disruption to the supply chain occurs; c. Work with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related	Functional	Intersects With	Technology Development & Acquisition	TDA-01	Mechanisms exist to facilitate the implementation of tailored development and acquisition strategies, contract tools and procurement methods to meet unique business needs.	5	Include the following requirements, descriptions, and criteria, explicitly or by reference, using [Selection (one or more): standardized contract language; [Assignment: organization-defined contract language]] in the acquisition contract for the system, system component, or system service: a. Security and privacy functional requirements; b. Strength of mechanism requirements;

FDE #	FDE Name	Focal Document Element (FDE) Description NIST SP 800-161 R1 Supplemental C-SCRM Guidance	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
SA-4	Acquisition Process	development methods, techniques, or practices that may be relevant. Identify and specify C-SCRM evaluation criteria, to include the weighting of such criteria. 2. Enterprises should: a. Establish a plan for the acquisition of spare parts to ensure adequate supply, and execute the plan if or when applicable; b. Establish a plan for the acquisition of alternative sources of supply as may be necessary during continuity events or if/when a disruption to the supply chain occurs; c. Work with suppliers, developers, system integrators, external system service providers, and other ICT/OT-related	Functional	Intersects With	Managing Changes To Third-Party Services	TPM-10	Mechanisms exist to control changes to services by suppliers, taking into account the criticality of business Technology Assets, Applications, Services and/or Data (TAASD) that are in scope by the third-party.	5	Include the following requirements, descriptions, and criteria, explicitly or by reference, using [Selection (one or more): standardized contract language; [Assignment: organization-defined contract language]] in the acquisition contract for the system, system component, or system service: a. Security and privacy functional requirements; b. Strength of mechanism requirements;
SA-4(7)	Acquisition Process | NIAP-approved Protection Profiles	This control enhancement requires that the enterprise build, procure, and/or use U.S. Government protection profile-certified information assurance (IA) components when possible. NIAP certification can be achieved for OTS (COTS and GOTS)	Functional	Intersects With	Information Assurance Enabled Products	TDA-02.2	Mechanisms exist to limit the use of commercially-provided Information Assurance (IA) and IA-enabled IT products to those products that have been successfully evaluated against a National Information Assurance partnership (NIAP)-approved Protection Profile or the cryptographic module is FIPS-validated or NSA-approved.	5	(a) Limit the use of commercially provided information assurance and information assurance-enabled information technology products to those products that have been successfully evaluated against a National Information Assurance partnership (NIAP)-approved Protection Profile for a specific technology type, if such a profile exists; and (b) Require, if no NIAP-approved Protection Profile
SA-4(8)	Acquisition Process | Continuous Monitoring Plan for Controls	This control enhancement is relevant to C-SCRM and plans for continuous monitoring of control effectiveness and should therefore be extended to suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers.	Functional	Equal	Continuous Monitoring Plan	TDA-09.1	Mechanisms exist to require the developers of Technology Assets, Applications and/or Services (TAAS) to produce a plan for the continuous monitoring of security, compliance and/or resilience control effectiveness.	10	Require the developer of the system, system component, or system service to produce a plan for continuous monitoring of control effectiveness that is consistent with the continuous monitoring program of the organization.
SA-8	Security and Privacy Engineering Principles	determined by risk assessments (see Section 2 and Appendix C). c. Document and gain management acceptance and approval for risk that is not fully mitigated. d. Limit the number, size, and privilege levels of critical elements. Using criticality analysis will aid in determining which elements or functions are critical. See criticality analysis in Appendix C and NISTIR 8179, Criticality Analysis Process Model: Prioritizing Systems and Components. e. Use security mechanisms that help to reduce opportunities to exploit supply chain cybersecurity vulnerabilities, such as encryption, access control, identity management, and malware or tampering discovery. f. Design information system components and elements to be difficult to disable (e.g., tamperproofing techniques),	Functional	Intersects With	Secure Baseline Configurations	CFG-02	Mechanisms exist to develop, document and maintain secure baseline configurations for Technology Assets, Applications and/or Services (TAAS) that are consistent with industry-accepted system hardening standards.	5	Apply the following systems security and privacy engineering principles in the specification, design, development, implementation, and modification of the system and system components: [Assignment: organization-defined systems security and privacy engineering principles].
SA-8	Security and Privacy Engineering Principles	determined by risk assessments (see Section 2 and Appendix C). c. Document and gain management acceptance and approval for risk that is not fully mitigated. d. Limit the number, size, and privilege levels of critical elements. Using criticality analysis will aid in determining which elements or functions are critical. See criticality analysis in Appendix C and NISTIR 8179, Criticality Analysis Process Model: Prioritizing Systems and Components. e. Use security mechanisms that help to reduce opportunities to exploit supply chain cybersecurity vulnerabilities, such as encryption, access control, identity management, and malware or tampering discovery. f. Design information system components and elements to be difficult to disable (e.g., tamperproofing techniques),	Functional	Intersects With	Secure Engineering Principles	SEA-01	Mechanisms exist to facilitate the implementation of industry-recognized security, compliance and resilience practices in the specification, design, development, implementation and modification of Technology Assets, Applications and/or Services (TAAS).	5	Apply the following systems security and privacy engineering principles in the specification, design, development, implementation, and modification of the system and system components: [Assignment: organization-defined systems security and privacy engineering principles].
SA-9(1)	External System Services | Risk Assessments and Organizational Approvals	See Appendices C and D. Departments and agencies should refer to Appendix E and Appendix F to implement guidance in accordance with Executive Order 14028 on Improving the Nation's Cybersecurity	Functional	Equal	Third-Party Risk Assessments & Approvals	TPM-04.1	Mechanisms exist to conduct a risk assessment prior to the acquisition or outsourcing of technology-related Technology Assets, Applications and/or Services (TAAS).	10	(a) Conduct an organizational assessment of risk prior to the acquisition or outsourcing of information security services; and (b) Verify that the acquisition or outsourcing of dedicated information security services is approved by [Assignment: organization-defined personnel or roles].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	c. Cyber supply chain threats, vulnerabilities, and associated risks are identified and documented. d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Supply Chain Risk Management (SCRM) Plan	RSK-09	Mechanisms exist to develop a plan for Supply Chain Risk Management (SCRM) associated with the development, acquisition, maintenance and disposal of Technology Assets, Applications and/or Services (TAAS), including documenting selected mitigating actions and monitoring performance against those plans.	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Third-Party Criticality Assessments	TPM-02	Mechanisms exist to identify, prioritize and assess suppliers and partners of critical Technology Assets, Applications and/or Services (TAAS) using a supply chain risk assessment process relative to their importance in supporting the delivery of high-value services.	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Supply Chain Risk Management (SCRM)	TPM-03	Mechanisms exist to: (1) Evaluate security risks and threats associated with Technology Assets, Applications and/or Services (TAAS) supply chains; and (2) Take appropriate remediation actions to minimize the organization's exposure to those risks and threats, as necessary.	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Third-Party Contract Requirements	TPM-05	Mechanisms exist to require contractual requirements for applicable security, compliance and resilience requirements with third-parties, reflecting the organization's needs to protect its Technology Assets, Applications, Services and/or Data (TAASD).	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Responsible, Accountable, Supportive, Consulted & Informed (RASCI) Matrix	TPM-05.4	Mechanisms exist to document and maintain a Responsible, Accountable, Supportive, Consulted & Informed (RASCI) matrix, or similar documentation, to delineate assignment for security, compliance and resilience controls between internal stakeholders and External Service Providers (ESPs).	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-9(3)	External System Services | Establish and Maintain Trust Relationship with Providers	d. Enterprise data and information integrity, confidentiality, and availability requirements are defined and shared with the system suppliers, developers, system integrators, external system service providers, and other ICT/OT-related service providers as appropriate. e. The consequences of non-compliance with C-SCRM requirements and information system security requirements are defined and documented. f. There is a clear delineation of accountabilities, roles, and responsibilities between contractors when multiple disparate providers are engaged in supporting a system or mission and business function.	Functional	Intersects With	Break Clauses	TPM-05.7	Mechanisms exist to include "break clauses" within contracts for failure to meet contract criteria for security, compliance and/or resilience controls.	5	Establish, document, and maintain trust relationships with external service providers based on the following requirements, properties, factors, or conditions: [Assignment: organization-defined security and privacy requirements, properties, factors, or conditions defining acceptable trust relationships].
SA-10	Developer Configuration Management	Developer configuration management is critical for reducing cybersecurity risks throughout the supply chain. By conducting configuration management activities, developers reduce the occurrence and likelihood of flaws while increasing accountability and ownership for the changes. Developer configuration management should be performed both by developers internal to federal agencies and integrators or external service providers. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028, Improving the Nation's Cybersecurity.	Functional	Equal	Developer Configuration Management	TDA-14	Mechanisms exist to require system developers and integrators to perform configuration management during system design, development, implementation and operation.	10	Require the developer of the system, system component, or system service to: a. Perform configuration management during system, component, or service [Selection (one or more): design; development; implementation; operation; disposal]; b. Document, manage, and control the integrity of changes to [Assignment: organization-defined
SA-11	Developer Testing and Evaluation	components, the acquirer should conduct research (e.g., via publicly available resources) or request proof to determine whether the supplier (OEM) has performed such testing as part of their quality or security processes. When the acquirer has control over the application and development processes, they should require this testing as part of the SDLC. In addition to the specific types of testing activities described in the enhancements, examples of C-SCRM-relevant testing include testing for counterfeits, verifying the origins of components, examining configuration settings prior to integration, and testing interfaces. These types of tests may require significant resources and should be prioritized based on criticality, threat, and vulnerability analyses (described in Section 2 and Appendix C), as well as the effectiveness of testing techniques. Enterprises may also require third-party testing	Functional	Equal	Security, Compliance & Resilience Testing Throughout Development	TDA-09	Mechanisms exist to require system developers/integrators consult with security, compliance and/or resilience personnel to: (1) Create and implement a Security Testing and Evaluation (ST&E) plan, or similar capability; (2) Implement a verifiable flaw remediation process to correct weaknesses and deficiencies identified during the control testing and evaluation process; and (3) Document the results.	10	Require the developer of the system, system component, or system service, at all post-design stages of the system development life cycle, to: a. Develop and implement a plan for ongoing security and privacy control assessments; b. Perform [Selection (one or more): unit; integration; system; regression] testing/evaluation [Assignment: organization-defined frequency] at
SA-15	Development Process, Standards, and Tools	enterprise should apply national and international standards and best practices when implementing this control. Using existing standards promotes consistency of implementation, reliable and defendable processes, and interoperability. The enterprise's development, maintenance, test, and deployment environments should all be covered by this control. The tools included in this control can be manual or automated. The use of automated tools aids thoroughness, efficiency, and the scale of analysis that helps address cybersecurity risks that arise in relation to the development process throughout the supply chain. Additionally, the output of such activities and tools provides useful inputs for C-SCRM processes, as described in Section 2 and Appendix C. This control has applicability to the internal enterprise's processes, information systems, and networks as well as applicable system	Functional	Equal	Secure Software Development Practices (SSDP)	TDA-06	Mechanisms exist to develop applications based on Secure Software Development Practices (SSDP).	10	a. Require the developer of the system, system component, or system service to follow a documented development process that: 1. Explicitly addresses security and privacy requirements; 2. Identifies the standards and tools used in the development process; 3. Documents the specific tool options and tool
SA-15(3)	Development Process, Standards, and Tools | Criticality Analysis	This enhancement identifies critical components within the information system, which will help determine the specific C-SCRM activities to be implemented for critical components. See C-SCRM Criticality Analysis described in Appendix C for additional context.	Functional	Equal	Criticality Analysis During Development	TDA-06.1	Mechanisms exist to require the developer of the Technology Asset, Application and/or Service (TAAS) to perform a criticality analysis at organization-defined decision points in the Secure Development Life Cycle (SDLC).	10	Require the developer of the system, system component, or system service to perform a criticality analysis: (a) At the following decision points in the system development life cycle: [Assignment: organization-defined decision points in the system development life cycle]; and (b) At the following level of rigor: [Assignment:
SA-15(4)	Development Process, Standards, and Tools | Threat Modeling and Vulnerability Analysis	This enhancement provides threat modeling and vulnerability analysis for the relevant federal agency and contractor products, applications, information systems, and networks. Performing this analysis will help integrate C-SCRM into code refinement and modification activities. See the C-SCRM threat and vulnerability analyses described in Appendix C for additional context.	Functional	Equal	Threat Modeling	TDA-06.2	Mechanisms exist to perform threat modelling and other secure design techniques, to ensure that threats to software and solutions are identified and accounted for.	10	This control that exists within NIST SP 800-161 R1 was withdrawn from NIST 800-53 R5 and no longer exists.
SA-16	Developer-provided Training	Developer-provided training for external and internal developers is critical to C-SCRM. It addresses training the individuals responsible for federal systems and networks to include applicable development environments. Developer-provided training in this control also applies to the individuals who select system and network components. Developer-provided training should include CSCRM material to ensure that 1) developers are aware of potential threats and vulnerabilities when developing, testing, and maintaining hardware and software, and 2) the individuals responsible for selecting system and network components incorporate C-SCRM when choosing such components. Developer training should also cover training for secure coding and the use of tools to find vulnerabilities in software. Refer to Appendix F for additional guidance on security for critical software.	Functional	Equal	Developer-Provided Training	TDA-16	Mechanisms exist to require the developers of Technology Assets, Applications and/or Services (TAAS) to provide training on the correct use and operation of the Technology Asset, Application and/or Service (TAAS).	10	Require the developer of the system, system component, or system service to provide the following training on the correct use and operation of the implemented security and privacy functions, controls, and/or mechanisms: [Assignment: organization-defined training].
SA-17	Developer Security and Privacy Architecture and Design	This control facilitates the use of C-SCRM information to influence system architecture, design, and component selection decisions, including security functions. Examples include identifying components that compose system architecture and design or selecting specific components to ensure availability through multiple supplier or component selections. Departments and agencies should refer to Appendix F to implement this guidance in accordance with Executive Order 14028 on Improving the Nation's Cybersecurity	Functional	Equal	Developer Architecture & Design	TDA-05	Mechanisms exist to require the developers of Technology Assets, Applications and/or Services (TAAS) to produce a design specification and security architecture that: (1) Is consistent with and supportive of the organization's security architecture which is established within and is an integrated part of the organization's enterprise architecture; (2) Accurately and completely describes the required security functionality and the allocation of security, compliance and resilience controls among physical	10	Require the developer of the system, system component, or system service to produce a design specification and security and privacy architecture that: a. Is consistent with the organization's security and privacy architecture that is an integral part the organization's enterprise architecture; b. Accurately and completely describes the required
SA-20	Customized Development of Critical Components	The enterprise may decide, based on their assessments of cybersecurity risks throughout the supply chain, that they require customized development of certain critical components. This control provides additional guidance on this activity. Enterprises should work with suppliers and partners to ensure that critical components are identified. Organizations should ensure that they have a continued ability to maintain custom-developed critical software components. For example, having the source code, build scripts, and tests for a software component could enable an organization to have someone else maintain it if necessary.	Functional	Equal	Customized Development of Critical Components	TDA-12	Mechanisms exist to custom-develop critical system components, when Commercial Off The Shelf (COTS) solutions are unavailable.	10	Reimplement or custom develop the following critical system components: [Assignment: organization-defined critical system components].
SA-21	Developer Screening	The enterprise should implement screening processes for their internal developers. For system integrators who may be providing key developers that address critical components, the enterprise should ensure that appropriate processes for developer screening have been used. The screening of developers should be included as a contractual requirement and be a flow-down requirement to relevant sub-level subcontractors who provide development services or who have access to the development environment.	Functional	Equal	Developer Screening	TDA-13	Mechanisms exist to ensure that the developers of Technology Assets, Applications and/or Services (TAAS) have the requisite skillset and appropriate access authorizations.	10	Require that the developer of [Assignment: organization-defined system, system component, or system service]: a. Has appropriate access authorizations as determined by assigned [Assignment: organization-defined official government duties]; and b. Satisfies the following additional personnel screening criteria: [Assignment: organization-