NIST IR 8477-Based Set Theory Relationship Mapping (STRM)

Reference Document : Secure Controls Framework (SCF) version 2025.4
STRM Guidance: https://securecontrolsframework.com/set-theory-relationship-mapping-strm/

Focal Document: **The Fair Information Practice Principles (FIPPs)**
Focal Document URL: https://www.fpc.gov/resources/fipps/
Published STRM URL: https://securecontrolsframework.com/content/strm/scf-strm-us-fed-fipps.pdf

FDE #	FDE Name	Focal Document Element (FDE) Description	STRM Rationale	STRM Relationship	SCF Control	SCF #	Secure Controls Framework (SCF) Control Description	Strength of Relationship	Notes
1	Access and Amendment	Agencies should provide individuals with appropriate access to PII and appropriate opportunity to correct or amend PII.	Functional	Intersects With	Data Subject Empowerment	PRI-06	Mechanisms exist to provide authenticated data subjects the ability to: (1) Access their Personal Data (PD) that is being processed, stored and shared, except where the burden, risk or expense of providing access would be disproportionate to the benefit offered to the data subject through granting access; (2) Obtain answers on the specifics of how their PD is collected, received, processed, stored, transmitted, shared, updated and/or disposed; (3) Obtain the source(s) of their PD; (4) Obtain the categories of their PD being collected, received, processed, stored and shared; (5) Request correction to their PD due to inaccuracies; (6) Request erasure of their PD; and (7) Restrict the further collecting, receiving, processing, storing, transmitting, updated and/or sharing of their PD.	8	
1	Access and Amendment	Agencies should provide individuals with appropriate access to PII and appropriate opportunity to correct or amend PII.	Functional	Intersects With	Correcting Inaccurate Personal Data (PD)	PRI-06.1	Mechanisms exist to maintain a process for: (1) Data subjects to have inaccurate Personal Data (PD) maintained by the organization corrected or amended; and (2) Disseminating corrections or amendments of PD to other authorized users of the PD.	5	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Operationalizing Cybersecurity & Data Protection Practices	GOV-15	Mechanisms exist to compel data and/or process owners to operationalize cybersecurity and data protection practices for each Technology Asset, Application and/or Service (TAAS) under their control.	5	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Select Controls	GOV-15.1	Mechanisms exist to compel data and/or process owners to select required cybersecurity and data protection controls for each Technology Asset, Application and/or Service (TAAS) under their control.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Implement Controls	GOV-15.2	Mechanisms exist to compel data and/or process owners to implement required cybersecurity and data protection controls for each Technology Asset, Application and/or Service (TAAS) under their control.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Assess Controls	GOV-15.3	Mechanisms exist to compel data and/or process owners to assess if required cybersecurity and data protection controls for each Technology Asset, Application and/or Service (TAAS) under their control are implemented correctly and are operating as intended.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Authorize Technology Assets, Applications and/or Services (TAAS)	GOV-15.4	Mechanisms exist to compel data and/or process owners to obtain authorization for the production use of each Technology Asset, Application and/or Service (TAAS) under their control.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Monitor Controls	GOV-15.5	Mechanisms exist to compel data and/or process owners to monitor Technology Assets, Applications and/or Services (TAAS) under their control on an ongoing basis for applicable threats and risks, as well as to ensure cybersecurity and data protection controls are operating as intended.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Human Resources Security Management	HRS-01	Mechanisms exist to facilitate the implementation of personnel security controls.	5	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Onboarding, Transferring & Offboarding Personnel	HRS-01.1	Mechanisms exist to proactively govern the following personnel management actions: (1) Onboarding new personnel (e.g., new hires); (2) Transferring personnel into new roles within the organization; and (3) Offboarding personnel (e.g., termination of employment).	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Position Categorization	HRS-02	Mechanisms exist to manage personnel security risk by assigning a risk designation to all positions and establishing screening criteria for individuals filling those positions.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Defined Roles & Responsibilities	HRS-03	Mechanisms exist to define cybersecurity roles & responsibilities for all personnel.	8	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Roles With Special Protection Measures	HRS-04.1	Mechanisms exist to ensure that individuals accessing a system that stores, transmits or processes information requiring special protection satisfy organization-defined personnel screening criteria.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Formal Indoctrination	HRS-04.2	Mechanisms exist to formally educate authorized users on proper data handling practices for all the relevant types of data to which they have access.	3	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	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	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Chief Privacy Officer (CPO)	PRI-01.1	Mechanisms exist to appoints a Chief Privacy Officer (CPO) or similar role, with the authority, mission, accountability and resources to coordinate, develop and implement, applicable data privacy requirements and manage data privacy risks through the organization-wide data privacy program.	5	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Reasonable Data Privacy Practices	PRI-01.11	Mechanisms exist to limit the collection, receiving, processing, storage, transmission, sharing, updating and/or disposal of Personal Data (PD) according to reasonable consumer expectations for what is necessary and proportionate.	8	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Role-Based Cybersecurity & Data Protection Training	SAT-03	Mechanisms exist to provide role-based cybersecurity and data protection-related training: (1) Before authorizing access to the system or performing assigned duties; (2) When required by system changes; and (3) Annually thereafter.	8	
2	Accountability	Agencies should be accountable for complying with these principles and applicable privacy requirements, and should appropriately monitor, audit, and document compliance. Agencies should also clearly define the roles and responsibilities with respect to PII for all employees and contractors, and should provide appropriate training to all employees and contractors who have access to PII.	Functional	Intersects With	Sensitive / Regulated Data Storage, Handling & Processing	SAT-03.3	Mechanisms exist to ensure that every user accessing a system processing, storing or transmitting sensitive/regulated data is formally trained in data handling requirements.	8	

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3	Authority	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII if they have authority to do so, and should identify this authority in the appropriate notice.	Functional	Intersects With	Purpose Specification	PRI-02.1	Mechanisms exist to ensure data privacy notices identify the purpose(s) for which Personal Data (PD) is collected, received, processed, stored, transmitted and/or shared.	8	
3	Authority	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII if they have authority to do so, and should identify this authority in the appropriate notice.	Functional	Intersects With	Authority To Collect, Process, Store & Share Personal Data (PD)	PRI-04.1	Mechanisms exist to determine and document the legal authority that permits the organization to collect, receive, process, store, transmit, share, update and/or dispose Personal Data (PD), either generally or in support of a specific business process.	8	
4	Minimization	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII that is directly relevant and necessary to accomplish a legally authorized purpose, and should only maintain PII for as long as is necessary to accomplish the purpose.	Functional	Intersects With	Reasonable Data Privacy Practices	PRI-01.11	Mechanisms exist to limit the collection, receiving, processing, storage, transmission, sharing, updating and/or disposal of Personal Data (PD) according to reasonable consumer expectations for what is necessary and proportionate.	5	
4	Minimization	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII that is directly relevant and necessary to accomplish a legally authorized purpose, and should only maintain PII for as long as is necessary to accomplish the purpose.	Functional	Intersects With	Restrict Collection To Identified Purpose	PRI-04	Mechanisms exist to minimize the collection of Personal Data (PD) to only what is adequate, relevant and limited to the purposes identified in the data privacy notice, including protections against collecting PD from minors without appropriate parental or legal guardian consent.	8	
4	Minimization	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII that is directly relevant and necessary to accomplish a legally authorized purpose, and should only maintain PII for as long as is necessary to accomplish the purpose.	Functional	Intersects With	Personal Data (PD) Retention & Disposal	PRI-05	Mechanisms exist to: (1) Retain Personal Data (PD), including metadata, for an organization-defined time period to fulfill the purpose(s) identified in the notice or as required by law; (2) Dispose of, destroys, erases, and/or anonymizes the PD, regardless of the method of storage; and (3) Use organization-defined techniques or methods to ensure secure deletion or destruction of PD (including originals, copies and archived records).	8	
4	Minimization	Agencies should only create, collect, use, process, store, maintain, disseminate, or disclose PII that is directly relevant and necessary to accomplish a legally authorized purpose, and should only maintain PII for as long as is necessary to accomplish the purpose.	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.	8	
5	Quality and Integrity	Agencies should create, collect, use, process, store, maintain, disseminate, or disclose PII with such accuracy, relevance, timeliness, and completeness as is reasonably necessary to ensure fairness to the individual.	Functional	Subset Of	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.	10	
6	Individual Participation	Agencies should involve the individual in the process of using PII and, to the extent practicable, seek individual consent for the creation, collection, use, processing, storage, maintenance, dissemination, or disclosure of PII. Agencies should also establish procedures to receive and address individuals' privacy-related complaints and inquiries.	Functional	Intersects With	Data Subject Empowerment	PRI-06	Mechanisms exist to provide authenticated data subjects the ability to: (1) Access their Personal Data (PD) that is being processed, stored and shared, except where the burden, risk or expense of providing access would be disproportionate to the benefit offered to the data subject through granting access; (2) Obtain answers on the specifics of how their PD is collected, received, processed, stored, transmitted, shared, updated and/or disposed; (3) Obtain the source(s) of their PD; (4) Obtain the categories of their PD being collected, received, processed, stored and shared; (5) Request correction to their PD due to inaccuracies; (6) Request erasure of their PD; and (7) Restrict the further collecting, receiving, processing, storing, transmitting, updated and/or sharing of their PD.	8	
6	Individual Participation	Agencies should involve the individual in the process of using PII and, to the extent practicable, seek individual consent for the creation, collection, use, processing, storage, maintenance, dissemination, or disclosure of PII. Agencies should also establish procedures to receive and address individuals' privacy-related complaints and inquiries.	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.	8	
7	Purpose Specification and Use Limitation	Agencies should provide notice of the specific purpose for which PII is collected and should only use, process, store, maintain, disseminate, or disclose PII for a purpose that is explained in the notice and is compatible with the purpose for which the PII was collected, or that is otherwise legally authorized.	Functional	Intersects With	Data Privacy Notice	PRI-02	Mechanisms exist to: (1) Make data privacy notice(s) available to individuals upon first interacting with an organization and subsequently as necessary; (2) Ensure that data privacy notices are clear and easy-to-understand, expressing relevant information about how Personal Data (PD) is collected, received, processed, stored, transmitted, shared, updated and/or disposed; (3) Contain all necessary notice-related criteria required by applicable statutory, regulatory and contractual obligations. (4) Define the scope of PD processing activities, including the geographic locations and third-party recipients that process the PD within the scope of the data privacy notice; (5) Periodically, review and update the content of the privacy notice, as necessary; and (6) Retain prior versions of the privacy notice, in accordance with data retention requirements.	8	
7	Purpose Specification and Use Limitation	Agencies should provide notice of the specific purpose for which PII is collected and should only use, process, store, maintain, disseminate, or disclose PII for a purpose that is explained in the notice and is compatible with the purpose for which the PII was collected, or that is otherwise legally authorized.	Functional	Intersects With	Purpose Specification	PRI-02.1	Mechanisms exist to ensure data privacy notices identify the purpose(s) for which Personal Data (PD) is collected, received, processed, stored, transmitted and/or shared.	8	
7	Purpose Specification and Use Limitation	Agencies should provide notice of the specific purpose for which PII is collected and should only use, process, store, maintain, disseminate, or disclose PII for a purpose that is explained in the notice and is compatible with the purpose for which the PII was collected, or that is otherwise legally authorized.	Functional	Intersects With	Purpose Compatibility	PRI-02.8	Mechanisms exist to periodically assess disclosed purposes for which Personal Data (PD) is collected, received, processed, stored, transmitted and/or shared to ensure compatibility with reasonable consumer expectations.	3	
8	Security	Agencies should establish administrative, technical, and physical safeguards to protect PII commensurate with the risk and magnitude of the harm that would result from its unauthorized access, use, modification, loss, destruction, dissemination, or disclosure.	Functional	Subset Of	Security of Personal Data (PD)	PRI-01.6	Mechanisms exist to ensure Personal Data (PD) is protected by logical and physical security safeguards that are sufficient and appropriately scoped to protect the confidentiality and integrity of the PD.	10	
8	Transparency	Agencies should be transparent about information policies and practices with respect to PII, and should provide clear and accessible notice regarding creation, collection, use, processing, storage, maintenance, dissemination, and disclosure of PII.	Functional	Subset Of	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) regarding data privacy practices; and (4) Inform data subjects when changes are made to the privacy notice and the nature of such changes.	10	
8	Transparency	Agencies should be transparent about information policies and practices with respect to PII, and should provide clear and accessible notice regarding creation, collection, use, processing, storage, maintenance, dissemination, and disclosure of PII.	Functional	Intersects With	Data Privacy Notice	PRI-02	Mechanisms exist to: (1) Make data privacy notice(s) available to individuals upon first interacting with an organization and subsequently as necessary; (2) Ensure that data privacy notices are clear and easy-to-understand, expressing relevant information about how Personal Data (PD) is collected, received, processed, stored, transmitted, shared, updated and/or disposed; (3) Contain all necessary notice-related criteria required by applicable statutory, regulatory and contractual obligations. (4) Define the scope of PD processing activities, including the geographic locations and third-party recipients that process the PD within the scope of the data privacy notice; (5) Periodically, review and update the content of the privacy notice, as necessary; and (6) Retain prior versions of the privacy notice, in accordance with data retention requirements.	8	