Set Theory Relationship Mapping (STRM)

version 2024.1

Reference Document

Focal Document

Set Theory Relationship Mapping (STRM) is well-suited for mapping between sets of elements that exist in two distinct concepts that are mostly the same as each other (e.g., cybersecurity & data privacy requirements). Based on NIST IR 8477, STRM supports five (5) five relationship types to describe the logical similarity between two distinct concepts: (1) Subset Of, (2) Intersects With, (3) Equal, (4) Superset Of, and (5) No Relationship. STRM also allows the strength of the mapping to be captured.

STRM relies on a justification for the relationship claim. There are three (3) options for the rationale, which is a high-level context within which the two concepts are related:

1. **Syntactic**: How similar is the wording that expresses the two concepts? This is a word-for-word analysis of the relationship, not an interpretation of the language.
2. **Semantic**: How similar are the meanings of the two concepts? This involves some interpretation of each concept's language.
3. **Functional**: How similar are the results of executing the two concepts? This involves understanding what will happen if the two concepts are implemented, performed, or otherwise executed.

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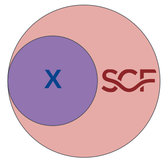
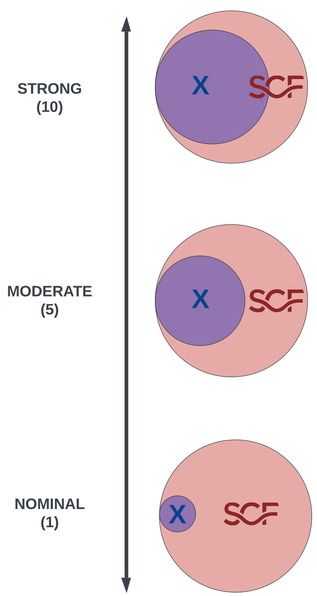
Relationship Type #1: SUBSET OF

Focal Document Element is a subset of SCF control. In other words, SCF control contains everything that Focal Document Element does and more.

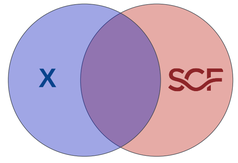


SUBSET OF
Relative Relationship Strength (control versus control)

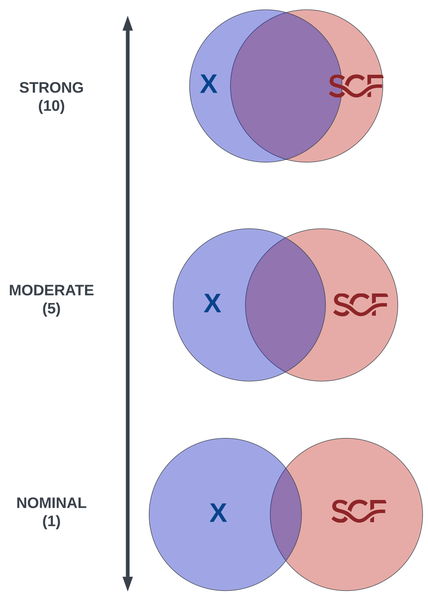


Relationship Type #2: INTERSECTS WITH

SCF control has some overlap with Focal Document Element, but each includes content that the other does not.

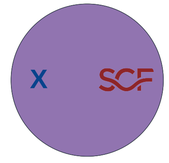


INTERSECTS WITH
Relative Relationship Strength (control versus control)

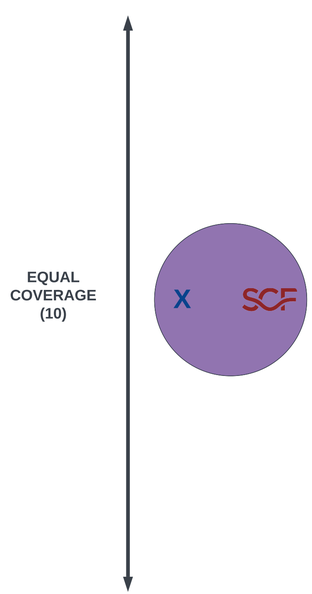


Relationship Type #3: EQUAL

SCF control and Focal Document Element are the same, although not necessarily identical.

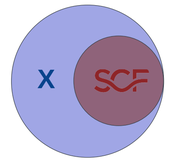


EQUAL
Relative Relationship Strength (control versus control)

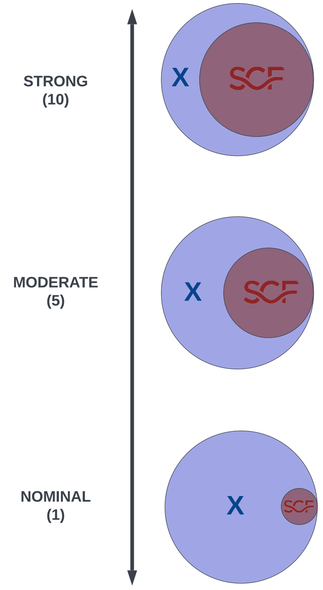


Relationship Type #4: SUPERSET OF

Focal Document Element is a superset of SCF control. In other words, Focal Document Element contains everything that SCF control does and more.

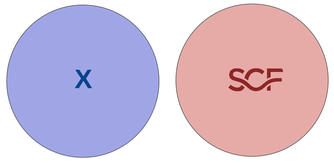


SUPERSET OF
Relative Relationship Strength (control versus control)

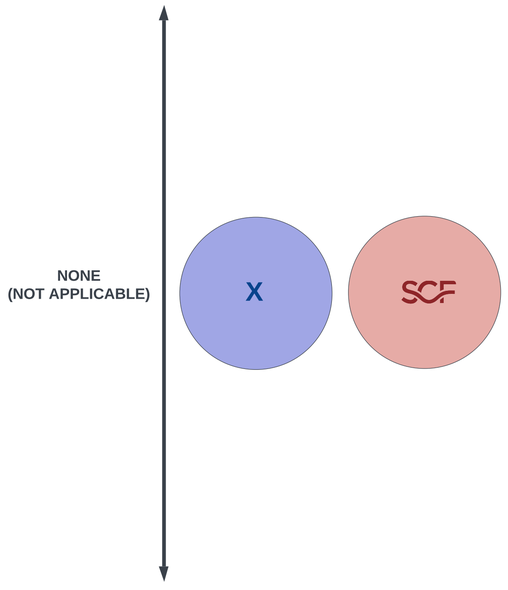


Relationship Type #5: NO RELATIONSHIP

SCF control and Focal Document Element are unrelated; their content does not overlap.



NO RELATIONSHIP
Relative Relationship Strength (control versus control)



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Set Theory Relationship Mapping (STRM) Examples

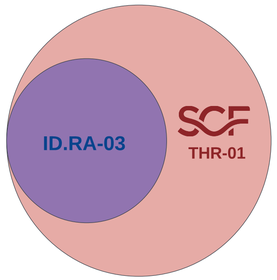
version 2024.1

Reference Document

Law, Regulation or Framework **Focal Document**

Relationship Type: SUBSET OF

Focal Document Element is a subset of SCF control. In other words, SCF control contains everything that Focal Document Element does and more.



NIST CSF 2.0

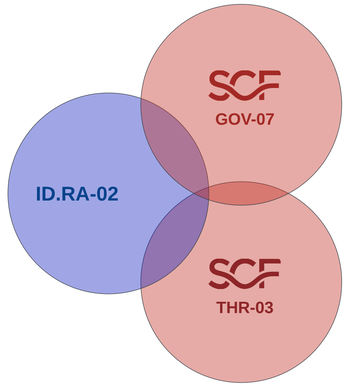
ID.RA-03	Internal and external threats to the organization are identified and recorded.

VS

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.

Relationship Type: INTERSECTS WITH

SCF control has some overlap with Focal Document Element, but each includes content that the other does not.



NIST CSF 2.0

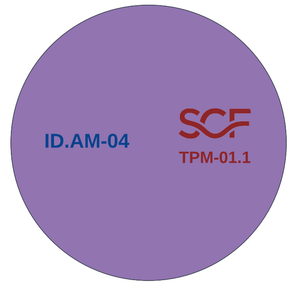
ID.RA-02	Cyber threat intelligence is received from information sharing forums and sources.

VS

Contacts With Groups & Associations	GOV-07	Mechanisms exist to establish contact with selected groups and associations within the cybersecurity & data privacy communities to: • Facilitate ongoing cybersecurity & data privacy education and training for organizational personnel; • Maintain currency with recommended cybersecurity & data privacy practices, techniques and technologies; and • Share current cybersecurity and/or data privacy-related information including threats, vulnerabilities and incidents.
Threat Intelligence Feeds	THR-03	Mechanisms exist to maintain situational awareness of evolving threats by leveraging the knowledge of attacker tactics, techniques and procedures to facilitate the implementation of preventative and compensating controls.

Relationship Type: EQUAL

SCF control and Focal Document Element are the same, although not necessarily identical.



NIST CSF 2.0

ID.AM-04	Inventories of services provided by suppliers are maintained.

VS

Third-Party Inventories	TPM-01.1	Mechanisms exist to maintain a current, accurate and complete list of External Service Providers (ESPs) that can potentially impact the

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