



Process for Determining Applicability and Traceability of Safety and Mission Assurance Requirements

NASA HQ / OSMA / SARD

John W. Lyver, IV

202/358-1155 – JLyver@NASA.GOV

June 26, 2008

Step 1: Determine Applicability

- Senior organization identifies the list of documents which they “own”, “control”, “implement”, “enforce”, ...
- Determine which documents from the list of documents DO NOT APPLY to the lower level.
- For each remaining document, build a matrix of the requirements (aka: shall statements) and determine for each lower level organization whether the requirement is:
 - Directly applicable as written or with modification,
 - Not applicable
 - Indirectly applicable (somebody else will impose this requirement)
- Work done by Senior organization with help from lower orgs and is maintained by Senior org.

Example: Project #1 Applicability

Doc	Para #	Text	Req #	Project #1	Project #2	Project #3
X	1	ABCD ...	2-1	Appl	Appl	Appl
	2	EFGH ...	2-2	Not Appl	Not Appl	Not Appl
	3	IJKL ...	2-3	Appl with Mod: IJL... without K	Appl with Mod: IJ... without K & L	Not Appl
	4	MNOP ...	2-4	Appl	Appl	Appl
	5	QRST ...	2-5	Not Appl	Appl	Not Appl

Step 2: Identify Traceability

- Lower Level Org identifies the requirement(s) at THEIR level that implements each applicable requirement(s).
(Note: can be many-to-one, one-to-one, or one-to-many relationship)
- Add traces to applicability matrix.

Note: This identification is done by Lower Level Org but MUST have participation from Senior Org for interpretation of senior requirements.

Example: Project #1 Traceability

Sr Doc	Sr Doc Para #	Sr Doc Text	Sr Doc Req #	Project #1 Doc	Project #1 Para	Project #1 Text
X	1	ABCD ...	2-1	Proj 1: Doc Y	1.1	ABCDIJL...
	3	IJKL ...	2-3	Proj 1: Doc Y	1.1	ABCDIJL...
	4	MNOP ...	2-4	Proj 1 Doc: Z	3.3	MNOP

Step 3: Determine Meet/Exceed

- Senior Org reviews provided traces to check for meet/exceed of each of the applicable requirements.
- Results can be:
 - Lower requirement is acceptable and meets/exceeds senior requirement
 - Lower requirement does NOT meet/exceed senior requirement
 - Senior org backs off on applicability of requirement or reassigns responsibility
 - Risk is assessed for the differences
 - Lower level submits a waiver request for relief
- Senior organization checks to see if any changes ‘violate’ direction senior to them then processes waiver requests and updates applicability matrix with results.
- Senior organization issues report of the results of the Applicability/Traceability effort to list:
 - Exceptions granted
 - Indirectly applicable requirements
 - Directly applicable requirements
 - Traces to directly applicable requirements
- Senior organization maintains report under their configuration management system with copies available to lower level org.

NOTE: This process must be updated periodically as the documents within the Senior and Lower Organizations changes.