TWIN-010 — Maintain Twin Traceability

Go to C.3.3 Twin Node Requirements

Statement

The DIDO-TE SHALL maintain Traceability among each Twin Identity, its associated Twin Realizations, and the Test Results produced using those Twin Realizations.

Source

- [DTE1] U.S. Patent Application US20220237111A1, virtual and physical Twin Node concepts, shared identifiers, test-result comparison, and validation
- [DTE2] Non-Traditional BAA Submission, Digital Twin concepts, Twin Nodes Selection, monitoring, scenario testing, and comparison testing
- DIDO-TE Traceability requirements

Rationale

A Twin Identity may be represented by more than one Twin Realization during different Test Executions or different portions of a Test Execution.

Meaningful comparison, reproduction, validation, and audit therefore require the DIDO-TE to retain the relationship between the logical Twin Identity and the particular Twin Realization that participated in a test.

The resulting Test Results must remain attributable to the Twin Realization that produced them and to the Twin Identity represented by that realization.

Traceability remains independent of whether the Twin Realization is virtual, physical, simulated, or otherwise realized.

Applies To

- DIDO-TE
- Twin Identity
- Twin Identifier
- Twin Realization
- Twin Realization Identifier
- Twin Realization Type
- Test Definition
- Test Execution
- Test Result

- Traceability

Verification

Verification confirms that:

1. Each Twin Realization used during Test Execution is traceable to its Twin Identity.
2. Each Twin Realization used during Test Execution is identifiable by its Twin Realization Identifier.
3. Each Test Result produced using a Twin Realization is traceable to that Twin Realization.
4. Each Test Result produced using a Twin Realization is traceable through that realization to the corresponding Twin Identity.
5. Traceability distinguishes Test Results produced by different Twin Realizations associated with the same Twin Identity.
6. Traceability is preserved when different Twin Realizations of the same Twin Identity are selected for different Test Executions.

Verification includes at least two Twin Realizations associated with the same Twin Identity, uses the realizations in separate Test Executions, and confirms that the resulting Test Results remain attributable to the correct Twin Realization and Twin Identity.

Traceability

Plugin Backlinks: Nothing was found.

ConOps Relationship

This requirement supports reproducibility, comparison, validation, evidence generation, and audit by preserving the relationship among Twin Identity, Twin Realization, Test Execution, and Test Result.

Delivery Phase

TBD

Requirement Status

Draft

Statement Reference

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