

TWIN-006a — Synchronize State Between Twin Realizations

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Statement

The [DIDO-TE](#) SHALL synchronize the state of participating [Twin Realizations](#) for the characteristics represented by their [Twin Relationship](#).

Source

- [\[DTE1\] U.S. Patent Application US20220237111A1](#), virtual and physical Twin Node concepts, modification of Twin Nodes, baseline test results, comparison of results, and validation
- [\[DTE2\] Non-Traditional BAA Submission](#), Digital Twin concepts, real-time monitoring, scenario testing, integration, and Twin Nodes Selection
- [\[DTE9\] Distributed Immutable Data Object Reference Architecture \(DIDO-RA\)](#), Digital Twin and distributed data concepts

Rationale

A [Twin Relationship](#) may require participating [Twin Realizations](#) to maintain aligned state for selected represented characteristics.

Synchronization operates on the state of the participating Twin Realizations and the semantic correspondence established by the associated [Twin Data Mappings](#).

The purpose of synchronization is not to make Twin Realizations identical. It aligns only the represented characteristics governed by the Twin Relationship.

The specific timing, tolerance, ordering, trigger, and other conditions governing synchronization are defined by the configured [Synchronization Parameters](#).

Applies To

- [DIDO-TE](#)
- [Twin Relationship](#)
- [Twin Realization](#)
- [Twin Data Mapping](#)
- [Synchronization Parameter](#)
- [Configuration](#)
- [Test Execution](#)

Verification

Verification confirms that:

1. State synchronization occurs between participating Twin Realizations.
2. Synchronization applies to characteristics represented by the governing Twin Relationship.
3. Corresponding state values are interpreted according to the governing Twin Data Mappings.
4. Synchronization does not require Twin Realizations to have identical internal implementations or complete state.
5. Characteristics outside the scope of the Twin Relationship are not required to be synchronized.
6. The synchronized state remains associated with the Twin Realizations whose state is being synchronized.

Verification includes at least two Twin Realizations associated with the same Twin Identity and confirms synchronization of at least one represented characteristic between them.

Traceability

Plugin Backlinks: Nothing was found.

ConOps Relationship

This requirement performs synchronization of represented state among participating Twin Realizations after their Twin Relationship, Twin Data Mappings, and Synchronization Parameters have been established.

The synchronized state supports subsequent Test Execution, simulation, comparison, Validation, monitoring, and evidence-producing activities.

Delivery Phase

TBD

Requirement Status

Draft

Statement Reference

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{{section>dido:03-dido-te:99-annexes:annex-c-requirements:03-functional-requirements:03-03-twin-node-requirements:twin-006-synchronize-twin-state:twin-006a-synchronize-state-between-twin-
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