

TWIN-005a — Establish the Initial Twin State

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Statement

The [DIDO-TE](#) SHALL establish the initial [Twin State](#) of each [Twin Realization](#) before that Twin Realization participates in [Test Execution](#).

Source

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

Rationale

A controlled initial [Twin State](#) establishes the starting condition from which changes in the represented characteristics of a [Twin Realization](#) are observed and interpreted.

Without an established initial Twin State, subsequent synchronization, simulation, comparison, [Validation](#), or Test Execution results may lack a reproducible starting condition.

The initial Twin State derives from the characteristics represented by the [Twin Relationship](#), the associated [Twin Data Mappings](#), and the governing [Configuration](#).

Establishing the initial Twin State does not require a Twin Realization to reproduce every characteristic of the corresponding Node or referent. It establishes the condition of the characteristics represented within the Twin Relationship.

Applies To

- [DIDO-TE](#)
- [Twin State](#)
- [Twin Identity](#)
- [Twin Relationship](#)
- [Twin Realization](#)
- [Twin Data Mapping](#)
- [Configuration](#)
- [Test Definition](#)

- [Test Execution](#)

Verification

Verification confirms that:

1. Each Twin Realization participating in Test Execution has an established initial Twin State.
2. The initial Twin State is established before the Twin Realization participates in Test Execution.
3. The initial Twin State includes the represented characteristics required by the governing Twin Relationship.
4. The initial Twin State conforms to the governing Configuration and Twin Data Mappings.
5. Characteristics outside the scope of the Twin Relationship are not required to establish the initial Twin State.
6. The established initial Twin State is determinable before Test Execution begins.
7. The established initial Twin State is traceable to the Twin Realization and the governing Test Definition or Configuration.

Verification includes a Test Execution using a Twin Realization and confirms that its initial Twin State is established and recorded before execution begins.

Traceability

Plugin Backlinks: Nothing was found.

ConOps Relationship

This requirement establishes the controlled starting condition of a Twin Realization before Test Execution.

The initial Twin State provides the reference condition for subsequent determination of the current Twin State, synchronization, simulation, comparison, Validation, monitoring, and evidence generation.

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-005-acquire-twin-state:twin-005a-establish-the-initial-twin-state#Statement&noheader&nofooter&noeditbtn}}
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