

TWIN-009b — Specify Twin Interaction Direction

[Go to TWIN-009 — Control Twin Interaction](#)

Statement

The [DIDO-TE](#) SHALL specify the permitted direction of each interaction identified for a [Twin Relationship](#).

Source

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

Rationale

An interaction permitted within a [Twin Relationship](#) may be permitted in one direction, the reverse direction, or both directions.

For example, a [Twin Realization](#) may receive state information from a [Node](#) without permission to modify that Node.

Specified interaction direction prevents bidirectional interaction from being inferred from connectivity, observation capability, DDS publication and subscription relationships, or access to an interface.

Interaction direction remains distinct from interaction permission and authorization. TWIN-009a identifies permitted interactions. TWIN-009b specifies their direction. TWIN-009c establishes authorization requirements for Resource state changes.

Applies To

- [DIDO-TE](#)
- [Twin Relationship](#)
- [Twin Realization](#)
- [Node](#)
- [Resource](#)
- [Configuration](#)

- [Communication Parameter](#)
- [Quality of Service](#)
- [DDS](#)

Verification

Verification confirms that:

1. Each permitted interaction has a specified direction.
2. The specified direction identifies the originating and receiving entities.
3. A unidirectional interaction does not imply permission for the reverse interaction.
4. A bidirectional interaction is distinguishable from a unidirectional interaction.
5. Communication connectivity, DDS publication and subscription relationships, interface availability, or Quality of Service compatibility do not override the specified interaction direction.
6. The specified interaction direction is traceable to the governing Configuration.

Verification includes at least one unidirectional interaction and confirms that the reverse interaction is not treated as permitted.

Traceability

- [TWIN-009 — Control Twin Interaction](#)

ConOps Relationship

This requirement establishes the permitted direction of interactions identified under TWIN-009a before evaluation of authorization or execution.

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-009-control-twin-
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