

NOD-004d — Transition the Node State

[Go to NOD-004 — Control the Node Lifecycle](#)

Statement

The [DIDO-TE](#) SHALL control each transition of a [Node](#) from one lifecycle state to another.

Derived From

- [NOD-004 — Control the Node Lifecycle](#)
- [NOD-004a — Establish the Initial Node State](#)
- [NOD-004b — Start the Node](#)
- [NOD-004c — Confirm Node Readiness](#)
- [\[DTE5\] DIDO-TE Requirements Register](#), source requirement identifier and obligation to be assigned
- [\[DTE6\] Structured Information Processing Reference Architecture \(SIP-RA\)](#)
- [\[DTE7\] Federated Data Interpretation Systems Reference Architecture \(FDIS-RA\)](#)

Rationale

A lifecycle transition moves a Node from a known source state to an intended destination state. The applicable [Node Definition](#) or [Node Implementation](#) identifies the supported states, permitted transitions, transition preconditions, authorized procedures, and expected outcomes.

Lifecycle transitions include activation, suspension, resumption, entry into or departure from a maintenance state, and other changes required during preparation or [Test Execution](#).

A controlled transition preserves the integrity of the [Node Configuration](#), [Node Bindings](#), data, resources, and interactions affected by the state change. It also coordinates the transition with dependent Nodes and [Test Resources](#).

An undefined, unauthorized, incomplete, conflicting, or out-of-sequence transition may leave the Node or Test Environment in an unknown condition and may invalidate the applicable Test Execution or [Test Results](#).

Applies To

- [DIDO-TE](#)
- [Node](#)
- [Node Definition](#)
- [Node Implementation](#)
- [Node Configuration](#)

- [Node Binding](#)
- [Dependency](#)
- [Test Definition](#)
- [Test Environment](#)
- [Test Resource](#)
- [Test Execution](#)
- [Test Result](#)
- [Evidence](#)
- [Traceability](#)

Verification

Verification confirms that:

- The DIDO-TE uniquely identifies the Node subject to the lifecycle transition.
- The DIDO-TE identifies the actual source state and intended destination state.
- The Node Definition or Node Implementation identifies the requested transition as a permitted transition.
- The DIDO-TE uses an identified and authorized transition procedure.
- The transition identifies its initiating authority, preconditions, parameters, dependencies, time constraints, and expected outcome.
- The DIDO-TE verifies each mandatory precondition before initiating the transition.
- The DIDO-TE prevents a transition from an unknown, incorrect, unauthorized, or unsuitable source state.
- The DIDO-TE prevents an undefined, unauthorized, conflicting, duplicate, or out-of-sequence transition.
- The DIDO-TE coordinates the transition with affected Nodes, Dependencies, Node Bindings, and Test Resources.
- The DIDO-TE preserves or re-establishes the required Node Configuration and Node Bindings during the transition.
- The DIDO-TE observes the Node throughout the transition.
- The DIDO-TE detects an unsuccessful, incomplete, interrupted, stalled, or timed-out transition.
- The DIDO-TE confirms the actual Node state after the transition.
- The DIDO-TE detects a difference between the intended and actual destination states.
- The DIDO-TE determines the effect of a lifecycle transition occurring during Test Execution.
- The DIDO-TE identifies Test Inputs, observations, Test Results, and other Nodes affected by the transition.
- An unsuccessful transition leaves the Node in a known state or identifies the resulting state and required recovery action.
- The DIDO-TE prevents a Node in an invalid, unknown, unauthorized, or unsuitable resulting state from continuing to participate in Test Execution.
- The DIDO-TE records the Node identity, initiating authority, transition procedure, source state, intended destination state, parameters, operations, timing, actual resulting state, findings, exceptions, and recovery actions.
- Repeated authorized transitions from equivalent source states under equivalent conditions produce equivalent destination states within specified tolerances.
- The DIDO-TE maintains Traceability among the Node Definition, Node Implementation, Node Configuration, Node Bindings, transition procedure, source state, transition activity, resulting state, affected Test Execution, Test Results, findings, exceptions, and resulting Evidence.

- An incorrect, incomplete, unsuccessful, unauthorized, ambiguous, or untraceable lifecycle transition constitutes nonconformance with this requirement.

Verification includes:

- Inspection of the Node identity and source state
- Inspection of permitted lifecycle states and transitions
- Inspection of the authorized transition procedure and responsible authority
- Inspection of transition preconditions, parameters, Dependencies, Node Bindings, and Test Resources
- Observation of an authorized lifecycle transition
- Confirmation of the actual resulting Node state
- A negative assessment involving an undefined transition
- A negative assessment involving an unauthorized or unsuitable source state
- A negative assessment involving an interrupted or timed-out transition
- Confirmation that an unsuitable resulting state prevents continued participation in Test Execution
- Inspection of affected Test Executions, Test Results, findings, exceptions, recovery actions, Evidence, and Traceability

Referenced By

- [NOD-004e — Stop the Node](#)
- [NOD-004f — Restart or Recover the Node](#)
- [NOD-004g — Handle a Node Lifecycle Exception](#)
- [NOD-004h — Record Node Lifecycle Activity](#)

Related Architecture Sections

- Add links to the architecture sections governing Node lifecycle states, lifecycle transitions, Node Configuration, Node Bindings, Test Environment coordination, Test Execution, recovery, Evidence, and Traceability.

Delivery Phase

☐ Assign the applicable delivery phase.

Requirement Status

Draft

Statement Reference

Use the following syntax to reference this requirement's Statement section from another DokuWiki page:

```
{{section>dido:03-dido-te:99-annexes:annex-c-requirements:03-node-requirements:nod-004-control-the-node-lifecycle:nod-004d-transition-the-node-state#Statement&noheader&nofooter&noeditbtn}}
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