

NOD-005e — Control Node Execution

[Go to NOD-005 — Execute a Node](#)

Statement

The [DIDO-TE](#) SHALL control the execution of each [Node](#) in accordance with the applicable [Test Definition](#).

Derived From

- [NOD-005 — Execute a Node](#)
- [NOD-005a — Authorize Node Execution](#)
- [NOD-005b — Initiate Node Execution](#)
- [NOD-005c — Provide Node Inputs](#)
- [NOD-005d — Observe Node Execution](#)
- [\[DTE5\] 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

Execution control maintains Node activity within the scope, sequence, timing, parameters, resource constraints, and operating conditions established for Test Execution.

Execution control includes coordinating Node activity, applying control instructions, maintaining required Node states and Node Bindings, regulating access to Test Resources, and responding to observed conditions.

The DIDO-TE distinguishes execution control from Node lifecycle control. Execution control governs the Node activity performed during Test Execution. Lifecycle control governs the Node state and transitions that permit, suspend, resume, or terminate that activity.

A control action that changes the execution of a Node requires an identified basis, target, initiating authority, procedure, expected effect, and resulting status. Uncontrolled or conflicting actions may invalidate Test Results or place the Node and Test Environment in an unknown state.

Applies To

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

- [Node Implementation](#)
- [Node Configuration](#)
- [Node Binding](#)
- [Test Definition](#)
- [Test Input](#)
- [Test Resource](#)
- [Test Environment](#)
- [Test Execution](#)
- [Test Execution Exception](#)
- [Test Result](#)
- [Evidence](#)
- [Traceability](#)

Verification

Verification confirms that:

- The DIDO-TE uniquely identifies each Node subject to execution control.
- The DIDO-TE identifies the applicable Test Definition and Test Execution.
- The DIDO-TE controls Node execution within the permitted activity, sequence, timing, parameters, constraints, and validity period.
- The DIDO-TE uses identified and approved execution-control procedures.
- Each control action identifies its initiating authority, target Node, basis, procedure, parameters, time, and expected effect.
- The DIDO-TE verifies each applicable precondition before applying a control action.
- The DIDO-TE coordinates Node activity with affected Nodes, Node Bindings, Dependencies, and Test Resources.
- The DIDO-TE applies control actions in the sequence and at the time or event specified by the Test Definition.
- The DIDO-TE prevents a missing, unauthorized, duplicate, conflicting, stale, ambiguous, or out-of-sequence control action.
- The DIDO-TE verifies that each control action reaches the intended Node.
- The DIDO-TE observes and records the actual effect of each material control action.
- The DIDO-TE detects a difference between the intended and actual effect of a control action.
- The DIDO-TE detects Node activity outside the applicable execution parameters or operating constraints.
- The DIDO-TE detects an unexpected change to the Node Configuration, Node Binding, lifecycle state, resource use, or operating condition.
- The DIDO-TE suspends, resumes, limits, isolates, or terminates Node activity only through an identified and approved procedure.
- The DIDO-TE maintains the required Node lifecycle state and readiness conditions throughout execution.
- The DIDO-TE prevents a Node that becomes invalid, unready, unavailable, degraded, unresponsive, or incorrectly configured from continuing execution.
- The DIDO-TE identifies and handles each condition that constitutes a Test Execution Exception.
- The DIDO-TE determines the effect of each material control action or deviation on affected Test Inputs, observations, Test Resources, Test Results, and Evidence.
- The DIDO-TE records each control action, initiating authority, target Node, basis, procedure, parameters, timing, intended effect, actual effect, findings, exceptions, and resulting status.

- Repeated application of an equivalent control action under equivalent conditions produces an equivalent effect within specified tolerances.
- The DIDO-TE maintains Traceability among the Test Definition, Test Execution, Node, Node Configuration, Node Bindings, Test Inputs, Test Resources, control actions, observations, exceptions, Test Results, and resulting Evidence.
- An unauthorized, uncontrolled, incorrectly sequenced, ineffective, ambiguous, or untraceable execution-control action constitutes nonconformance with this requirement.

Verification includes:

- Inspection of execution-control criteria and procedures
- Inspection of control-action authorities, targets, parameters, timing, and expected effects
- Observation of coordinated Node execution
- Observation of an execution-control action and its actual effect
- Confirmation that unauthorized, duplicate, conflicting, and out-of-sequence control actions are prevented
- A negative assessment involving a control action sent to the wrong Node
- A negative assessment involving a difference between the intended and actual effect
- A negative assessment involving a Node that becomes unready or degraded
- Confirmation that an unsuitable Node cannot continue execution
- Inspection of control records, observations, exceptions, Test Results, Evidence, and Traceability

Referenced By

- [NOD-005f — Handle a Node Execution Exception](#)
- [NOD-005g — Complete Node Execution](#)
- [NOD-005h — Record Node Execution](#)

Related Architecture Sections

- Add links to the architecture sections governing Node execution control, Node lifecycle control, Test Execution coordination, Test Execution Exceptions, 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-005-execute-a-node:nod-005e-control-node-execution#Statement&noheader&nofooter&noeditbtn}}
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Last update: 2026/08/17 14:20

