NOD-009c — Control Node Resource Use

Go to NOD-009 — Control Node Resources

Statement

The DIDO-TE SHALL control each Node resource-use condition specified by the governing Test Definition.

Derived From

- NOD-009 — Control Node Resources
- NOD-009a — Establish Node Resource Controls
- NOD-009b — Allocate Node Resources
- [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

Control of Node resource use enforces the conditions governing how a Node accesses, consumes, invokes, modifies, occupies, shares, and retains an allocated resource.

The governing Test Definition specifies the authorized quantities, capacities, rates, durations, priorities, access restrictions, sharing conditions, operating limits, and prohibited uses governing each resource. The governing Test Procedure specifies the actions used to restrict, suspend, restore, or terminate resource use.

Resource-use control acts on information produced under NOD-008d — Observe Node Resource Use. Observation determines how the Node uses the resource. Control prevents or changes resource use that does not satisfy a governing condition.

A resource-control action may alter Node behavior, timing, availability, lifecycle state, or Test Execution conditions. The DIDO-TE therefore verifies both the intended effect and the actual effect of each resource-control action.

Resource-use control prevents unauthorized use, exhaustion, contention, leakage, interference, uncontrolled retention, and resource use that invalidates Test Results or affects unrelated Nodes.

Applies To

- DIDO-TE

- Node
- Node Definition
- Node Implementation
- Node Configuration
- Node Binding
- Dependency
- Test Definition
- Test Procedure
- Test Environment
- Test Execution
- Test Execution Exception
- Test Resource
- Test Result
- Authorizing Authority
- Evidence
- Traceability

Verification

Verification confirms that:

1. The governing Test Definition specifies each resource-use condition subject to control.
2. Each resource-use condition identifies the governed Node and resource.
3. Each resource-use condition specifies the authorized quantity, capacity, rate, duration, priority, access restriction, sharing condition, operating limit, or prohibited use.
4. The governing Test Procedure specifies the actions used to restrict, suspend, restore, or terminate resource use.
5. The DIDO-TE controls the Node’s access to each governed resource.
6. The DIDO-TE controls the quantity, capacity, rate, duration, and priority of resource use specified by the governing Test Definition.
7. The DIDO-TE enforces the access restrictions, sharing conditions, operating limits, and prohibited uses specified by the governing Test Definition.
8. The DIDO-TE prevents the Node from using a resource not allocated to that Node.
9. The DIDO-TE prevents the Node from exceeding a specified resource-use limit.
10. The DIDO-TE prevents unauthorized sharing, transfer, retention, or modification of a resource.
11. The DIDO-TE restricts, suspends, restores, or terminates resource use through the actions specified by the governing Test Procedure.
12. The DIDO-TE verifies the identity of the Node and resource before applying a resource-control action.
13. The DIDO-TE identifies the intended effect of each resource-control action.
14. The DIDO-TE observes the actual effect of each resource-control action.
15. The DIDO-TE detects a difference between the intended effect and actual effect of a resource-control action.
16. The DIDO-TE detects an incomplete, ineffective, delayed, bypassed, incorrectly scoped, misdirected, or unauthorized resource-control action.
17. The DIDO-TE prevents a resource-control action from unnecessarily affecting an unrelated Node, resource, or Test Execution.
18. The DIDO-TE determines the effect of each resource-control action on the Node state, Node activity, Test Environment, Test Executions, Test Results, and Evidence.

19. An unsuccessful resource-control action leaves the Node and resource in known states or identifies their actual states and required corrective action.
20. The DIDO-TE maintains Traceability among the Node identity, resource identity, governing Test Definition, governing Test Procedure, resource allocation, observed resource use, resource-control action, intended effect, actual effect, Test Executions, Test Results, and resulting Evidence.
21. Missing, delayed, incomplete, ineffective, bypassed, incorrectly scoped, misdirected, unauthorized, or untraceable control of Node resource use constitutes nonconformance with this requirement.

Referenced By

The following pages reference this requirement:

- NOD-009d — Handle a Node Resource-Control Exception
- NOD-009e — Release Node Resources
- NOD-009f — Record Node Resource Control

Delivery Phase

☐ Assign the delivery phase.

Implementation Status

☐ Assign the implementation status.

Requirement Status

☐ The proposed derived requirement requires review and acceptance.

Issues

☐ Assign the source requirement identifier and obligation from the DIDO-TE Requirements Register.

Notes for Editors

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