

Node Set

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Discussion

A Node Set is an identified collection of [Nodes](#) grouped for a defined purpose.

The purpose of a Node Set can concern:

- Configuration
- Deployment
- Operation
- Communication
- Governance
- Security
- Testing
- Observation
- Comparison
- Validation
- Administration

A Node Set provides an identity for the collection independently of the identities of its member Nodes.

A Node Set can identify:

- The Node Set identity
- The purpose of the Node Set
- The member Nodes
- The role of each member Node
- The relationships among member Nodes
- The applicable configuration
- The applicable network topology
- The applicable Governance Policies
- The applicable security controls
- The applicable operational conditions
- The applicable Test Definitions
- The Node Set version
- The membership effective period
- The Provenance of the Node Set
- The Traceability of the Node Set

A Node can belong to more than one Node Set when each membership represents a distinct defined purpose.

A Node Set can include Nodes realized using different technologies or assigned to different [Deployment Targets](#).

A Node Set can form part of a [Test Environment](#). The Test Environment can use multiple Node Sets for different test roles or operational purposes.

Definition

identified collection of [Nodes](#) grouped for a defined purpose

Source

Adapted from:

- DIDO Reference Implementation Conceptual Model, Node Set
- DIDO Reference Architecture, system-of-Nodes and network concepts
- [Node](#)
- [Distributed System](#)
- [Test Environment](#)
- DIDO-TE draft Requirements Register
- DIDO-TE architecture and testing concepts

The definition identifies the collection and its purpose without prescribing the technology, topology, deployment, ownership, or operational role of the member Nodes.

Note

A Node Set is not necessarily a complete [Distributed System](#).

A Distributed System identifies coordinated system behavior across multiple networked Nodes. A Node Set identifies a collection of Nodes grouped for a defined purpose.

A Node Set can contain:

- Every Node in a Distributed System
- A subset of the Nodes in a Distributed System
- Nodes from more than one Distributed System
- Reference Nodes
- Changed Nodes
- Test-control Nodes
- Observation Nodes
- Simulated Nodes
- Emulated Nodes
- Physical Nodes
- Virtual Nodes

Membership in a Node Set does not by itself establish:

- Network connectivity
- Deployment location
- Common ownership
- Common implementation technology
- Common Node Role
- Authorization to operate the Nodes
- Participation in the same Distributed System

The governing definition, configuration, or policy establishes those characteristics.

A Node Set differs from a Test Set:

- A Node Set groups Nodes
- A Test Set groups Test Cases, other Test Sets, or related Test Objects

A change to Node Set membership can create a new Node Set version when membership affects reproducibility, comparison, validation, governance, or operation.

Example

A [DIDO-TE](#) Test Environment contains five DIDO Nodes.

Four validated Nodes form a reference Node Set. A fifth Node contains a changed implementation and belongs to a changed-node Node Set.

The Test Environment uses the two Node Sets to identify the validated reference configuration and the configuration containing the changed Node.

The Node Sets identify the grouped Nodes and their testing purposes without requiring all member Nodes to use the same realization technology or Deployment Target.

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