

NET-006 — Connect Real-World Nodes Through a Virtual Network

[Go to C.3.4 Virtual Network and Communication Requirements](#)

Statement

The [DIDO-TE](#) SHALL connect each [Real-World Node](#) specified by the governing [Test Definition](#) through the assigned [Virtual Network](#).

Source

- [\[DTE1\] U.S. Patent Application US20220237111A1](#), cooperation between Virtual Networks and physical Nodes, geographically remote Nodes, and interaction with real-world devices, Nodes, and systems
- [\[DTE2\] Non-Traditional BAA Submission](#), Digital Twin, Virtual Network, and distributed interoperability testing concepts
- [\[DTE3\] Broad Agency Announcement White Paper](#), distributed interoperability testing involving virtual and real-world systems

Rationale

A distributed [Test Environment](#) may include both virtual participants and [Real-World Nodes](#).

A Real-World Node is the actual Node, system, device, service, or environment represented or exercised during testing. Its participation in a test should not require the Virtual Network to be replaced by a separate communication model.

Connecting a Real-World Node through a [Virtual Network](#) allows virtual and real-world participants to operate within the same controlled communication environment.

The governing [Test Definition](#) specifies the Real-World Nodes that participate in the test. The network assignment determines the Virtual Network through which each participating Real-World Node communicates.

Connection of a Real-World Node does not imply unrestricted communication with every other entity connected to the Virtual Network. Permitted communication relationships remain governed by the defined [Network Topology](#) and other communication controls.

This requirement does not prescribe the physical or logical mechanism used to connect a Real-World Node to the Virtual Network.

Applies To

- [DIDO-TE](#)
- [Real-World Node](#)
- [Virtual Network](#)
- [Network Topology](#)
- [Node](#)
- [Test Environment](#)
- [Test Definition](#)
- [Configuration](#)

Verification

Verification confirms that:

1. Each Real-World Node specified by the governing Test Definition can be connected through its assigned Virtual Network.
2. The connected Real-World Node is identifiable within the Test Environment.
3. Connection of the Real-World Node does not create communication relationships absent from the defined Network Topology.
4. A Real-World Node can participate in communication with virtual participants through the Virtual Network when such communication is defined by the Network Topology.
5. Connection of a Real-World Node is traceable to the governing Test Definition.
6. Connection does not require a particular networking product, gateway technology, middleware implementation, cloud provider, or physical network.

Verification includes a Test Definition specifying at least one Real-World Node and confirms that the Node is connected through its assigned Virtual Network and participates only in communication relationships defined by the Network Topology.

Traceability

Plugin Backlinks: Nothing was found.

ConOps Relationship

This requirement supports integration of Real-World Nodes into a distributed Test Environment while preserving the Virtual Network as the controlled communication environment.

NET-001 establishes the Virtual Network, NET-002 defines its Network Topology, NET-003 connects participating Nodes generally, and NET-006 specifically confirms participation by Real-World Nodes.

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:03-04-virtual-network-and-communication-requirements:net-006-connect-real-world-nodes-through-a-virtual-network#Statement&noheader&nofooter&noeditbtn}}
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