

ENV-005 — Emulate Distributed Systems

[Go to C.3.1 Test Environment Requirements](#)

ENV-005 is a non-leaf requirement group governing the emulation of distributed-system conditions in accordance with the applicable [Test Definition](#).

Conformance is assessed against the individual leaf requirements listed below. ENV-005 does not establish a separate conformance obligation.

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- [ENV-005a — Emulate Distributed Topology](#)
- [ENV-005b — Emulate Participating Nodes](#)
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- [ENV-005l — Record Distributed-System Emulation](#)
- [ENV-005m — Validate Emulation Fidelity](#)

Source

- [\[DTE5\] 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 distributed system comprises independently executing components whose behaviour depends on communication, coordination, timing, topology, resource availability, failure conditions, and changes in system membership.

Testing a distributed system requires the [Test Environment](#) to reproduce the conditions under which participating [Nodes](#) interact.

A Test Execution limited to nominal communication and infrastructure conditions provides insufficient support for assessing behaviour under delay, message loss, network partition, resource contention, Node failure, recovery, or topology change.

Distributed-system emulation establishes controlled representations of participating Nodes, communication paths, infrastructure resources, external services, failure conditions, and recovery behaviour.

The applicable Test Definition identifies the required emulation scope, Configuration, operating conditions, permitted variation, and acceptance criteria.

The child requirements in this group define the individually verifiable obligations governing distributed topology, participating Nodes, communication behaviour, time, resources, failures, recovery, observation, Evidence, Traceability, and emulation fidelity.

Applies To

- [Test Environment](#)
- [Test Definition](#)
- [Test Execution](#)
- [Test Object](#)
- [Node](#)
- [Test Resource](#)
- [Configuration](#)
- [Constraint](#)
- [Evidence](#)

Traceability

- [ENV-005a — Emulate Distributed Topology](#)
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ConOps Relationship

Add links to the ConOps activities and architecture sections governing distributed-system topology, Node interaction, communication, timing, resource conditions, fault injection, recovery, observation, Evidence, Traceability, and emulation fidelity.

Delivery Phase

Assign the applicable delivery phase.

Requirement Status

Draft

Notes for Editors

The subordinate leaf requirements define the normative obligations and corresponding verification criteria for ENV-005.

The former ENV-005 Statement and Verification sections were removed because ENV-005 serves as a non-leaf requirement group and does not establish an independently verifiable conformance obligation.

After you create and finalize all subordinate requirement pages, you may remove explicit child links because the `indexmenu` automatically discovers the leaf pages.

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