

MO-004a — Connected Environment Operation

[Go to MO-004 — Connected and Disconnected Operations](#)

Statement

Crucible SHALL execute each selected [Operational Lifecycle](#) activity in a [Connected Environment](#).

Derived From

This requirement derives from:

- [MO-004 — Connected and Disconnected Operations](#)

The Original Requirement states:

The system SHALL support both connected and disconnected operational environments.[\[C1\]](#)

MO-004a preserves the portion of the Original Requirement that requires **Crucible** to operate within a [Connected Environment](#).

The separate requirements derived from MO-004 address:

- [MO-004b — Disconnected Environment Operation](#)
- [MO-004c — Unauthorized Resource Prohibition](#)
- [MO-004d — External Resource Independence](#)

Assessment

The Original Requirement uses **support** without identifying the behavior **Crucible** performs.

The phrase **connected operational environments** does not identify:

- The Operational Lifecycle activities performed
- The method used to select those activities
- The inputs required by each activity
- The outputs produced by each activity
- The resources available to each activity
- The completion conditions applicable to each activity
- The Evidence required to demonstrate successful execution

MO-004a:

- Replaces **support** with the direct action **execute**
- Identifies Crucible as the responsible actor
- Identifies the selected Operational Lifecycle activity as the required behavior
- Identifies a Connected Environment as the applicable operational context
- Separates Connected Environment operation from Disconnected Environment operation
- Separates execution behavior from resource authorization and external-resource constraints

Rationale

A [Connected Environment](#) provides access to authorized network services, repositories, registries, data sources, and other resources required by selected Operational Lifecycle activities.

Operational Lifecycle activities can include:

- Artifact acquisition
- Dependency resolution
- Baseline composition
- Machine Image construction
- Infrastructure Deployment
- Provisioning
- Configuration
- Compliance Assessment
- Security assessment
- Deployment Validation
- Evidence generation
- Artifact promotion
- Operational maintenance

The selected activities define the scope of the required execution. Selection prevents the requirement from implying that every Operational Lifecycle activity applies to every Connected Environment or every deployment scenario.

Execution in a Connected Environment supports:

- Retrieval of authorized dependencies
- Access to approved repositories and registries
- Integration with authorized external services
- Use of CI/CD Pipelines
- Collection of Evidence
- Preservation of Provenance
- Maintenance of Traceability
- Coordination across distributed resources

This requirement does not establish the requirements for execution in a Disconnected Environment. MO-004b establishes those requirements.

This requirement does not permit access to unauthorized resources. MO-004c establishes the applicable prohibition.

Applies To

This requirement applies to:

- [Crucible](#)
- [Connected Environments](#)
- [Operational Lifecycle](#)
- Operational Lifecycle activities
- [Controlled Inputs](#)
- [Authorized Resources](#)
- [Artifacts](#)
- Artifact repositories
- Package repositories
- Image registries
- Authorized network services
- [CI/CD Pipelines](#)
- [Infrastructure Deployments](#)
- [Provisioning](#)
- [Compliance Assessments](#)
- [Deployment Validation](#)
- [Evidence](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. The Connected Environment is identified
2. The selected Operational Lifecycle activity is identified
3. The inputs required by the selected activity are identified
4. The authorized resources used by the selected activity are identified
5. Crucible executes the selected activity within the Connected Environment
6. The selected activity reaches its defined completion condition
7. The selected activity produces its required outputs
8. The execution record preserves the required Evidence, Provenance, and Traceability

Verification includes:

- Connected Environment inspection
- Operational Lifecycle activity inspection
- Controlled Input inspection
- Authorized Resource inspection
- Repository-access tests
- Registry-access tests
- Authorized network-service tests
- CI/CD Pipeline tests
- Operational Lifecycle execution tests
- Completion-condition inspection

- Output inspection
- Evidence inspection
- Provenance inspection
- Traceability inspection

The verification record identifies:

1. The Connected Environment
2. The selected Operational Lifecycle activity
3. The applicable activity identifier and revision
4. The selected Controlled Inputs
5. The Authorized Resources used during execution
6. The applicable starting condition
7. The applicable completion condition
8. The execution result
9. The outputs produced
10. Each identified failure or exception
11. The observed result
12. The generated [Evidence](#)

Requirements Realized By

This requirement is realized by:

- [OR-001 — Operational Roles](#)
- [OR-002 — Deployment Environments](#)
- [OR-004 — Concurrent Environment Management](#)
- [OR-005 — Distributed Environment Management](#)
- [FR-CFG-001 through FR-CFG-005](#)
- [FR-IMG-001 through FR-IMG-006](#)
- [FR-DEP-001 through FR-DEP-007](#)
- [FR-COMP-001 through FR-COMP-010](#)
- [FR-DSO-001 through FR-DSO-006](#)
- [FR-BAS-001 through FR-BAS-004](#)
- [FR-DEPC-001 through FR-DEPC-005](#)

Related Architecture Sections

- [5. Descriptions, Composition, and Baselines](#)
- [6. Machine Images and Image Layers](#)
- [7. Infrastructure and Deployment](#)
- [8. Dependencies and Air Gap Operations](#)
- [9. Compliance and Security](#)
- [10. Reproducibility, Provenance, and Traceability](#)

Referenced By

The following pages reference this requirement:

- [3.1 Connectivity Conditions](#)
- [MO-004b — Disconnected Environment Operations](#)
- [MO-004c — Authorized Resource Use](#)
- [MO-004d — Disconnected Resource Availability](#)
- [Annex D: Requirements Traceability](#)

Delivery Phase

Phase 1 and subsequent phases

Implementation Status

Not Assessed

Implementation status requires verification that the current [Crucible](#) implementation executes the selected Operational Lifecycle activity in a Connected Environment.

Requirement Status

Draft

This requirement derives from MO-004 in the Crucible System Requirements Specification, Version 1.1 Draft.

Notes for Editors

This requirement page should retain the stable requirement identifier MO-004a.

This page is a leaf requirement page and omits a trailing :start from its namespace.

Changes to the Statement SHALL preserve the Connected Environment operation intent derived from MO-004.

The selected Operational Lifecycle activity should identify:

- The activity identifier
- The activity revision
- The applicable Connected Environment

- The required Controlled Inputs
- The Authorized Resources available to the activity
- The starting condition
- The completion condition
- The required outputs
- The applicable failure criteria
- The required Evidence

Material changes should receive review and should update the related verification criteria, requirements realization, related architecture sections, and source records.

To reference this requirement Statement from another wiki page, insert:

```
{{section>dido:02-crusible:99-annexes:annex-c-requirements:01-mission-objectives:mo-004:mo-004a#Statement&noheader&nofooter&noeditbtn}}
```

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