

MO-004b — Disconnected Environment Operation

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

Statement

Crucible SHALL execute each selected **Operational Lifecycle** activity in a **Disconnected 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-004b preserves the portion of the Original Requirement that requires **Crucible** to operate within a **Disconnected Environment**.

The separate requirements derived from MO-004 address:

- [MO-004a — Connected 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 **disconnected 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 within the Disconnected Environment
- The completion conditions applicable to each activity
- The treatment of unavailable external resources
- The Evidence required to demonstrate successful execution

MO-004b:

- 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 Disconnected Environment as the applicable operational context
- Separates Disconnected Environment operation from Connected Environment operation
- Separates execution behavior from resource authorization and external-resource independence

Rationale

A [Disconnected Environment](#) does not provide continuous access to resources outside the environment boundary.

Operational Lifecycle activities can include:

- Artifact acquisition from resources already present within the environment
- Dependency resolution from local repositories
- Baseline composition
- Machine Image construction
- Infrastructure Deployment
- Provisioning
- Configuration
- Compliance Assessment
- Security assessment
- Deployment Validation
- Evidence generation
- Artifact promotion within the environment
- 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 Disconnected Environment or deployment scenario.

Execution in a Disconnected Environment depends on the prior availability of the Controlled Inputs, dependencies, repositories, tools, and other Authorized Resources required by the selected activity.

Resources imported through an approved transfer process become available for use only after the applicable authorization, integrity, provenance, and admission checks succeed.

Disconnected Environment operation supports:

- Controlled operation without continuous external connectivity
- Use of locally available repositories and registries
- Use of transferred Artifacts and dependencies
- Reproducible execution
- Evidence generation
- Preservation of Provenance
- Maintenance of Traceability
- Operation within security and information-boundary constraints

This requirement does not establish the requirements for operation in a Connected Environment.

MO-004a establishes those requirements.

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

This requirement does not establish independence from unavailable external resources. MO-004d establishes that requirement.

Applies To

This requirement applies to:

- [Crucible](#)
- [Disconnected Environments](#)
- [Operational Lifecycle](#)
- Operational Lifecycle activities
- [Controlled Inputs](#)
- [Authorized Resources](#)
- [Artifacts](#)
- Local Artifact repositories
- Local package repositories
- Local image registries
- Transfer Bundles
- Imported dependencies
- [CI/CD Pipelines](#)
- [Infrastructure Deployments](#)
- [Provisioning](#)
- [Compliance Assessments](#)
- [Deployment Validation](#)
- [Evidence](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. The Disconnected 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 available within the Disconnected Environment are identified
5. Crucible executes the selected activity within the Disconnected Environment
6. The selected activity reaches its defined completion condition
7. The selected activity produces its required outputs
8. The execution does not depend on continuous external connectivity
9. The execution record preserves the required Evidence, Provenance, and Traceability

Verification includes:

- Disconnected Environment inspection
- Operational Lifecycle activity inspection
- Controlled Input inspection
- Authorized Resource inspection
- Local repository-access tests
- Local registry-access tests
- Transfer Bundle inspection
- Imported dependency inspection
- Network-disconnection tests
- CI/CD Pipeline tests within the Disconnected Environment
- Operational Lifecycle execution tests
- Completion-condition inspection
- Output inspection
- Evidence inspection
- Provenance inspection
- Traceability inspection

The verification record identifies:

1. The Disconnected 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 imported Artifacts and dependencies used during execution
7. The applicable starting condition
8. The applicable completion condition
9. The execution result
10. The outputs produced
11. Each identified failure or exception
12. The observed result
13. The generated [Evidence](#)

Requirements Realized By

This requirement is realized by:

- [OR-001 — Operational Roles](#)
- [OR-002 — Deployment Environments](#)
- [OR-003 — Classified and Unclassified Environments](#)
- [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-AG-001 through FR-AG-005](#)
- [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-004a — Connected 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 Disconnected 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-004b.

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

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

The selected Operational Lifecycle activity should identify:

- The activity identifier
- The activity revision
- The applicable Disconnected Environment
- The required Controlled Inputs
- The Authorized Resources available within the environment
- The imported Artifacts and dependencies required by 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-004b#Statement&noheader&nofooter&noeditbtn}}
```

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