

MO-001a — Infrastructure Environment Creation

[Go to MO-001 — Repeatable, Compliant, and Secure Infrastructure Environments](#)

Statement

[Crucible](#) SHALL create an [Infrastructure Environment](#) from the selected [Controlled Inputs](#).

Derived From

This requirement derives from:

MO-001b — Deployment Duration

[Go to MO-001 — Repeatable, Compliant, and Secure Infrastructure Environments](#)

Statement

[Crucible](#) SHALL create an [Infrastructure Environment](#) within the applicable [Deployment Duration Acceptance Criteria](#).

Derived From

This requirement derives from:

- [MO-001 — Repeatable, Compliant, and Secure Infrastructure Environments](#)

The Original Requirement states:

Crucible SHALL enable rapid creation of repeatable, compliant, and secure infrastructure environments.[\[C1\]](#)

MO-001b preserves the portion of the Original Requirement that characterizes Infrastructure Environment creation as **rapid**.

The separate requirements derived from MO-001 address:

- [MO-001a — Infrastructure Environment Creation](#)
- [MO-001c — Reproducibility](#)
- [MO-001d — Security Baseline Conformance](#)
- [MO-001e — Compliance Baseline Conformance](#)

Assessment

The Original Requirement uses **rapid** without identifying:

- A defined start condition
- A defined completion condition
- A measurable duration
- An applicable threshold
- An operational context
- A comparison baseline
- Acceptance Criteria

The term **rapid** therefore does not support objective verification.

MO-001b:

- Replaces **rapid** with the measurable concept [Deployment Duration](#)
- Identifies [Crucible](#) as the responsible actor
- Identifies creation of the [Infrastructure Environment](#) as the measured activity
- Requires evaluation against applicable [Acceptance Criteria](#)
- Separates deployment-duration performance from environment creation, reproducibility, security, and compliance outcomes

Rationale

Organizations require predictable Infrastructure Environment creation timelines to support development, testing, evaluation, deployment, recovery, and operational planning.

A qualitative term such as **rapid** does not establish an objective performance obligation. Deployment Duration provides a measurable quantity based on defined start and completion conditions.

The applicable Acceptance Criteria establish the duration threshold for the relevant operational context. Different Acceptance Criteria can apply to:

- Different Infrastructure Environment types
- Different deployment sizes
- Different computing resources
- Different network conditions
- Connected Environments
- Disconnected Environments
- Air-Gapped Environments
- Initial deployments
- Repeated deployments

- Recovery or replacement activities

Separating the duration requirement from MO-001a permits Crucible to satisfy the environment-creation requirement while independently passing or failing the applicable Deployment Duration Acceptance Criteria.

This requirement does not define the content of the Infrastructure Environment, the equivalence criteria used for Reproducibility, or the Security Baseline and Compliance Baseline applied to the Infrastructure Environment. The other requirements derived from MO-001 establish those outcomes.

Applies To

This requirement applies to:

- [Crucible](#)
- [Infrastructure Environments](#)
- [Deployment Duration](#)
- [Acceptance Criteria](#)
- [Controlled Inputs](#)
- [Infrastructure Deployment](#)
- [Provisioning](#)
- [Connected Environments](#)
- [Disconnected Environments](#)
- [Air-Gapped Environments](#)
- [CI/CD Pipelines](#)
- [Evidence](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. The applicable Deployment Duration Acceptance Criteria identify a defined start condition
2. The applicable Deployment Duration Acceptance Criteria identify a defined completion condition
3. The applicable Deployment Duration Acceptance Criteria identify a maximum permitted duration or another objective duration threshold
4. The measured Deployment Duration begins when the defined start condition occurs
5. The measured Deployment Duration ends when the defined completion condition occurs
6. The measured Deployment Duration satisfies the applicable Acceptance Criteria

Verification includes:

- Acceptance Criteria inspection
- Deployment event inspection
- Start-time capture
- Completion-time capture
- Elapsed-time calculation

- Infrastructure Environment state inspection
- Repeated duration measurements
- Connected Environment tests
- Disconnected Environment tests
- [Air-Gapped Environment](#) tests
- End-to-end [CI/CD Pipeline](#) tests

The verification record identifies:

1. The applicable Deployment Duration Acceptance Criteria
2. The operational context
3. The selected [Controlled Inputs](#)
4. The applicable Infrastructure Environment type
5. The defined start condition
6. The defined completion condition
7. The recorded start time
8. The recorded completion time
9. The calculated Deployment Duration
10. The applicable duration threshold
11. The observed result
12. The generated [Evidence](#)

Requirements Realized By

This requirement is realized by:

- [OR-002 — Deployment Environments](#)
- [OR-003 — Classified and Unclassified Environments](#)
- [OR-004 — Concurrent Environment Management](#)
- [FR-IMG-001 through FR-IMG-006](#)
- [FR-DEP-001 through FR-DEP-007](#)
- [FR-AG-001 through FR-AG-005](#)
- [FR-DSO-001 through FR-DSO-006](#)
- [KVP-001 — Reduce Environment Deployment Timelines](#)

Related Architecture Sections

- [6. Machine Images and Image Layers](#)
- [7. Infrastructure and Deployment](#)
- [8. Dependencies and Air Gap Operations](#)

Referenced By

The following pages reference this requirement:

- [MO-001a — Infrastructure Environment Creation](#)

- [MO-001c — Reproducibility](#)
- [MO-001d — Security Baseline Conformance](#)
- [MO-001e — Compliance Baseline Conformance](#)
- [Annex D: Requirements Traceability](#)

Delivery Phase

Phase 1 and subsequent phases

Implementation Status

Not Assessed

Implementation status requires measurement of the current Crucible implementation against the applicable Deployment Duration Acceptance Criteria.

Requirement Status

Draft

This requirement derives from MO-001 in the Crucible System Requirements Specification, Version 1.1 Draft.

Notes for Editors

This requirement page should retain the stable requirement identifier MO-001b.

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

Changes to the Statement SHALL preserve the deployment-duration intent derived from MO-001.

The applicable Acceptance Criteria should define:

- The measured activity
- The start condition
- The completion condition
- The duration threshold
- The operational context
- Any permitted exclusions
- The required measurement precision

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-001:mo-001b#Statement&noheader&nofooter&noeditbtn}}
```

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- [MO-001 — Repeatable, Compliant, and Secure Infrastructure Environments](#)

The Original Requirement states:

Crucible SHALL enable rapid creation of repeatable, compliant, and secure infrastructure environments.[\[C1\]](#)

MO-001a preserves the portion of the Original Requirement that requires [Crucible](#) to create an [Infrastructure Environment](#).

The separate requirements derived from MO-001 address:

- [MO-001b — Deployment Duration](#)
- [MO-001c — Reproducibility](#)
- [MO-001d — Security Baseline Conformance](#)
- [MO-001e — Compliance Baseline Conformance](#)

Assessment

The Original Requirement uses **enable**, which describes facilitation rather than the behavior [Crucible](#) performs.

The Original Requirement also combines Infrastructure Environment creation, deployment duration, reproducibility, security, and compliance within one normative statement. Each outcome can be implemented, verified, and traced independently.

MO-001a:

- Replaces **enable** with the direct action **create**
- Identifies [Crucible](#) as the responsible actor
- Identifies the [Infrastructure Environment](#) as the required result
- Identifies the selected [Controlled Inputs](#) as the source used to create the Infrastructure Environment
- Separates Infrastructure Environment creation from the independently verifiable duration, reproducibility, security, and compliance outcomes

Rationale

Infrastructure Environment creation provides the foundational outcome upon which the remaining requirements derived from MO-001 depend.

The selected [Controlled Inputs](#) identify the approved and controlled material used during Infrastructure Environment creation. Controlled Inputs include applicable descriptions, baselines, configurations, Image Layers, Machine Images, packages, and other required [Artifacts](#).

Creating an Infrastructure Environment from selected Controlled Inputs supports:

- Deterministic input selection
- [Provenance](#)
- [Traceability](#)
- Configuration control
- Subsequent reproduction and comparison
- Independent evaluation of security and compliance outcomes

This requirement does not establish a required creation duration, equivalence criterion, Security Baseline, or Compliance Baseline. The other requirements derived from MO-001 establish those outcomes.

Applies To

This requirement applies to:

- [Crucible](#)
- [Infrastructure Environments](#)
- [Controlled Inputs](#)
- [Declarative Descriptions](#)
- [Crucible Descriptions](#)
- [Baselines](#)
- [Baseline Composition](#)
- [Image Layers](#)
- [Infrastructure Baselines](#)
- [Machine Images](#)
- [Infrastructure Configurations](#)
- [Infrastructure Deployment](#)
- [Provisioning](#)
- [Artifacts](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. [Crucible](#) creates an [Infrastructure Environment](#)
2. Crucible uses the selected [Controlled Inputs](#) to create the Infrastructure Environment

Verification includes:

- Controlled Input inspection
- [Crucible Description](#) inspection
- [Baseline Composition](#) inspection
- Workspace inspection
- [Machine Image](#) build tests
- [Infrastructure Deployment](#) tests
- [Provisioning](#) tests
- Infrastructure state inspection
- End-to-end [CI/CD Pipeline](#) tests

The verification record identifies:

1. The selected [Controlled Inputs](#)
2. The applicable input identifiers and revisions
3. The applicable [Crucible Description](#)
4. The applicable [Baseline Composition](#)
5. The created [Infrastructure Environment](#)
6. The applicable [Provenance](#)
7. The observed result
8. The generated [Evidence](#)

Requirements Realized By

This requirement is realized by:

- [OR-002 — Deployment Environments](#)
- [OR-003 — Classified and Unclassified 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-DSO-001 through FR-DSO-006](#)
- [FR-BAS-001 through FR-BAS-004](#)

Related Architecture Sections

- [5. Descriptions, Composition, and Baselines](#)
- [6. Machine Images and Image Layers](#)
- [7. Infrastructure and Deployment](#)

Referenced By

The following pages reference this requirement:

- [MO-001a — Infrastructure Environment Creation](#)
- [MO-001c — Reproducibility](#)
- [MO-001d — Security Baseline Conformance](#)
- [MO-001e — Compliance Baseline Conformance](#)
- [Annex D: Requirements Traceability](#)

Delivery Phase

Phase 1 and subsequent phases

Implementation Status

Not Assessed

Implementation status requires verification that the current [Crucible](#) implementation creates an Infrastructure Environment from the selected Controlled Inputs.

Requirement Status

Draft

This requirement derives from MO-001 in the Crucible System Requirements Specification, Version 1.1 Draft.

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