

MO-006c — Infrastructure Lifecycle State Recording

[Go to MO-006 — Infrastructure Lifecycle Management](#)

Statement

[Crucible](#) SHALL record the current [Operational Lifecycle](#) state of each [Infrastructure Environment](#).

Derived From

This requirement derives from:

- [MO-006 — Infrastructure Lifecycle Management](#)

The Original Requirement states:

The system SHALL support infrastructure lifecycle management from initial deployment through retirement.[\[C1\]](#)

MO-006c preserves the lifecycle-management intent of the Original Requirement by requiring [Crucible](#) to record the current [Operational Lifecycle](#) state of each [Infrastructure Environment](#).

The separate requirements derived from MO-006 address:

- [MO-006a — Operational Lifecycle Association](#)
- [MO-006b — Infrastructure Lifecycle Initiation](#)
- [MO-006d — Infrastructure Lifecycle Transition Execution](#)
- [MO-006e — Infrastructure Environment Retirement](#)

Rationale

The current [Operational Lifecycle](#) state identifies the position of an [Infrastructure Environment](#) within its associated [Operational Lifecycle](#) revision.

The associated [Operational Lifecycle](#) revision defines the permitted states. Those states can include:

- Initial Deployment
- Validation
- Activation
- Operational
- Maintenance
- Upgrade

- Recovery
- Restoration
- Rollback
- Compliance Reassessment
- Retirement Pending
- Retirement

An Infrastructure Environment does not necessarily use every state listed above.

Recording the current lifecycle state supports:

- Selection of permitted lifecycle transitions
- Evaluation of transition conditions
- Prevention of invalid lifecycle transitions
- Identification of incomplete or failed transitions
- Coordination of lifecycle activities
- Operational status reporting
- Recovery and rollback decisions
- Compliance and security evaluation
- Preservation of [Provenance](#)
- Maintenance of [Traceability](#)

The recorded lifecycle state can be based on:

- The associated Operational Lifecycle revision
- The preceding lifecycle state
- The most recent completed transition
- The transition result
- Observable Infrastructure Environment conditions
- Infrastructure Deployment records
- Configuration records
- Validation results
- Compliance results
- Security results
- Failure and exception records

A failed or incomplete transition does not establish successful entry into its intended target state.

This requirement records the current lifecycle state. It does not execute a lifecycle transition. MO-006d addresses lifecycle transition execution.

This requirement does not associate or initiate the Operational Lifecycle. MO-006a and MO-006b address those outcomes.

This requirement does not retire the Infrastructure Environment. MO-006e addresses Retirement.

Applies To

This requirement applies to:

- [Crucible](#)
- [Infrastructure Environments](#)
- [Operational Lifecycles](#)
- Operational Lifecycle revisions
- Operational Lifecycle states
- Lifecycle-state criteria
- Lifecycle-state records
- Lifecycle associations
- Lifecycle-initiation records
- Lifecycle transitions
- Transition conditions
- Transition results
- Infrastructure Deployment records
- Configuration records
- Validation results
- Compliance results
- Security results
- Failure records
- Exception records
- [Evidence](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. Each [Infrastructure Environment](#) is identified
2. The associated [Operational Lifecycle](#) identifier and revision are identified
3. The states defined by the associated Operational Lifecycle revision are identified
4. The criteria for each candidate lifecycle state are identified
5. [Crucible](#) records one current lifecycle state for each Infrastructure Environment
6. The recorded lifecycle state belongs to the associated Operational Lifecycle revision
7. The recorded lifecycle state agrees with the lifecycle records and observable Infrastructure Environment conditions
8. A failed or incomplete transition does not produce an unsupported target-state record
9. Conflicting or insufficient state information produces an identified result
10. The lifecycle-state record preserves [Traceability](#) among the Infrastructure Environment, Operational Lifecycle revision, preceding state, transition result, observed conditions, and recorded current state

Referenced By

The following pages reference this requirement:

- [MO-006a — Operational Lifecycle Association](#)
- [MO-006b — Infrastructure Lifecycle Initiation](#)

- [MO-006d — Infrastructure Lifecycle Transition Execution](#)
- [MO-006e — Infrastructure Environment Retirement](#)
- [Annex D: Requirements Traceability](#)

Delivery Phase

- ☐ Determine the Delivery Phase for MO-006c.

Implementation Status

- ☐ Assess whether the current Crucible implementation records the current Operational Lifecycle state of each Infrastructure Environment.

Requirement Status

- ☐ Review and accept MO-006c as a proposed derived requirement created from the evaluation and decomposition of MO-006 in the Crucible System Requirements Specification, Version 1.1 Draft.

Issues

The following unresolved issues affect this requirement:

- ☐ Define the lifecycle states contained in each Operational Lifecycle revision.
- ☐ Define the criteria used to assign each lifecycle state.
- ☐ Define the source information Crucible uses to establish the current lifecycle state.
- ☐ Define the behavior required when lifecycle records and observable Infrastructure Environment conditions conflict.
- ☐ Define the state recorded after a failed, incomplete, interrupted, or rolled-back lifecycle transition.
- ☐ Define when Crucible updates the current lifecycle-state record.

Notes for Editors

This requirement page should retain the stable requirement identifier `MO-006c`.

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

The parent MO-006 page is a non-leaf page and retains a trailing :start in its namespace.

Changes to the Statement should preserve:

- [Crucible](#) as the responsible actor
- Each [Infrastructure Environment](#) as the lifecycle subject
- The current [Operational Lifecycle](#) state as the recorded information
- The associated Operational Lifecycle revision as the source of permitted states

The lifecycle-state record should identify:

- The Infrastructure Environment identifier
- The Operational Lifecycle identifier
- The Operational Lifecycle revision
- The preceding lifecycle state
- The most recent lifecycle transition
- The transition result
- The candidate lifecycle states
- The state criteria
- The observable Infrastructure Environment conditions
- The recorded current lifecycle state
- The recording date and time
- The actor or process responsible for the record
- The associated [Provenance](#)
- The associated [Traceability](#)

Material changes should receive review and should update the verification criteria, source records, and Issues section.

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

```
{{section>dido:02-crusible:99-annexes:annex-c-requirements:01-mission-objectives:mo-006:mo-006c#Statement&noheader&nofooter&noeditbtn}}
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