

MO-006d — Infrastructure Lifecycle Transition Execution

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

Statement

Crucible SHALL execute each **Operational Lifecycle** transition allocated to Crucible when its transition conditions are satisfied.

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-006d preserves the lifecycle-management intent of the Original Requirement by requiring Crucible to execute the Operational Lifecycle transitions allocated to it.

The separate requirements derived from MO-006 address:

- [MO-006a — Operational Lifecycle Association](#)
- [MO-006b — Infrastructure Lifecycle Initiation](#)
- [MO-006c — Infrastructure Lifecycle State Recording](#)
- [MO-006e — Infrastructure Environment Retirement](#)

Rationale

An Operational Lifecycle transition changes an **Infrastructure Environment** from one lifecycle state to another.

An Operational Lifecycle revision defines:

- The available lifecycle states
- The permitted transitions
- The source state for each transition
- The target state for each transition
- The transition conditions

- The transition completion criteria
- The transition failure criteria
- The actor or system responsible for each transition

Transition allocation prevents this requirement from implying that Crucible executes every transition in every Operational Lifecycle.

Transition conditions can include:

- Current lifecycle state
- Approval status
- Infrastructure Environment status
- Infrastructure Baseline status
- Validation results
- Security assessment results
- Compliance assessment results
- Availability of required resources
- Completion of preceding activities
- Absence of unresolved blocking failures
- Authorization by the responsible authority

Executing only allocated transitions after satisfaction of their transition conditions supports:

- Controlled movement between lifecycle states
- Prevention of invalid transitions
- Consistent enforcement of transition conditions
- Identification of transition completion
- Identification of transition failure
- Recovery from failed transitions
- Preservation of [Provenance](#)
- Maintenance of [Traceability](#)

Satisfaction of the transition conditions permits execution of the transition. Satisfaction of the transition conditions does not establish successful completion.

A failed or incomplete transition does not establish entry into the intended target state. MO-006c addresses recording of the current lifecycle state after transition execution.

This requirement does not associate the Operational Lifecycle revision with the Infrastructure Environment. MO-006a addresses that association.

This requirement does not initiate the Infrastructure Environment lifecycle. MO-006b addresses lifecycle initiation.

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
- Operational Lifecycle transitions
- Transition allocations
- Transition conditions
- Transition completion criteria
- Transition failure criteria
- Transition requests
- Transition results
- Transition records
- Infrastructure Baselines
- Validation results
- Security assessment results
- Compliance assessment results
- Approval records
- Failure records
- Exception records
- [Evidence](#)
- [Provenance](#)
- [Traceability](#)

Verification

Verification confirms that:

1. The [Infrastructure Environment](#) is identified
2. The associated [Operational Lifecycle](#) identifier and revision are identified
3. The current lifecycle state is identified
4. The requested lifecycle transition is identified
5. The requested transition belongs to the associated Operational Lifecycle revision
6. The requested transition is allocated to [Crucible](#)
7. The transition conditions are identified
8. Each transition condition is satisfied before execution begins
9. Crucible executes the requested transition
10. The transition produces an identified result
11. The transition result supports recording of the resulting lifecycle state
12. A transition not allocated to Crucible is not executed by Crucible
13. A transition with unsatisfied conditions is not executed
14. The verification record preserves [Traceability](#) among the Infrastructure Environment, Operational Lifecycle revision, source state, requested transition, transition allocation, condition evaluations, transition result, and resulting lifecycle state

Referenced By

The following pages reference this requirement:

- [MO-006a — Operational Lifecycle Association](#)
- [MO-006b — Infrastructure Lifecycle Initiation](#)
- [MO-006c — Infrastructure Lifecycle State Recording](#)
- [MO-006e — Infrastructure Environment Retirement](#)
- [Annex D: Requirements Traceability](#)

Delivery Phase

Implemented and Verified.

Implementation Status

☐ Assess whether the current Crucible implementation executes each Operational Lifecycle transition allocated to Crucible when its transition conditions are satisfied.

Requirement Status

☐ Review and accept MO-006d 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 Operational Lifecycle transitions allocated to Crucible.
 - ☐ Define the source state, target state, and transition conditions for each transition allocated to Crucible.
 - ☐ Define the completion and failure criteria for each transition allocated to Crucible.
 - ☐ Define the behavior required when one or more transition conditions are not satisfied.
 - ☐ Define the behavior required when transition execution fails, is interrupted, or remains incomplete.
 - ☐ Define the recovery or rollback behavior associated with each transition allocated to Crucible.
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Notes for Editors

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

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
- An [Operational Lifecycle](#) transition as the executed behavior
- Allocation of the transition to Crucible
- Satisfaction of the transition conditions before execution
- An identified transition result

The transition definition should identify:

- The Operational Lifecycle identifier
- The Operational Lifecycle revision
- The transition identifier
- The source lifecycle state
- The intended target lifecycle state
- The actor or system allocated responsibility for the transition
- The transition conditions
- The transition completion criteria
- The transition failure criteria
- The recovery or rollback behavior
- 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-006d#Statement&noheader&nofooter&noeditbtn}}
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