

# FR-DEP-006 — Deployment Rollback

[Go to Crucible Deployment Orchestration Requirements](#)

## Statement

**Crucible** SHALL reverse a deployment by restoring the affected deployment subject to its identified predeployment state.

## Source Statement

The system shall support deployment rollback.

## Source

Crucible System Requirements Specification, Version 1.1 Draft, Functional Requirements, FR-DEP-006.

## Assessment

The source statement expresses the approved intent but does not provide a fully testable formulation.

The following Specification, Discipline, and Authoring findings apply:

- **The system** does not use the defined system name
- **shall** does not follow the established uppercase normative convention
- **Support** is a weak verb that does not identify the required behavior
- **Deployment rollback** names an operation but does not identify its required result
- The source statement does not identify the deployment subject affected by rollback
- The source statement does not identify the state to which the deployment subject returns
- The source statement does not require automatic rollback, rollback after every failure, or rollback of external state
- The source statement does not prescribe a rollback mechanism, checkpoint format, transaction model, provider, or implementation method

The normalized Statement:

- Replaces **The system** with **Crucible**
- Replaces **support** with the direct behavior **reverse**
- Identifies the affected deployment subject
- Identifies the predeployment state as the required rollback result
- Retains one primary required behavior
- Preserves implementation independence

The normalized Statement does not require an automatic rollback. Separate requirements or workflow

rules determine when an actor or process initiates rollback.

**Deployment Rollback** should receive a glossary definition because this requirement depends on a precise distinction among rollback, recovery, redeployment, and replacement.

## Rationale

A deployment may fail or produce an unacceptable result after changing an [Infrastructure Environment](#), [Infrastructure Resource](#), [Virtual Machine](#), [Kubernetes Cluster](#), [Containerized Workload](#), or Platform Service.

Deployment Rollback reverses the deployment effects required to restore the affected subject to an identified predeployment state.

The predeployment state may be identified through:

- A prior [Baseline](#)
- A prior [Revision](#)
- A prior [Infrastructure Configuration](#)
- A prior [Image](#)
- A recorded resource state
- A deployment checkpoint
- Another identified valid state

Deployment Rollback differs from recovery:

- Deployment Rollback reverses the effects of a deployment
- Recovery restores operation after a failure and may use rollback, repair, replacement, or another mechanism

Deployment Rollback differs from redeployment:

- Deployment Rollback restores an identified prior state
- Redeployment applies a deployment again and may produce the same or a different resulting state

Deployment Rollback contributes to:

- Controlled response to unsuccessful deployment
- Restoration of a known state
- Reduced duration of deployment disruption
- Consistent environment state
- [Provenance](#)
- [Auditability](#)
- [Traceability](#)

## Applies To

This requirement applies to:

- [Crucible](#)
- Deployments
- Deployment subjects
- Predeployment states
- Deployment results
- Rollback operations
- [Infrastructure Environments](#)
- [Infrastructure Resources](#)
- [Virtual Machines](#)
- [Kubernetes Clusters](#)
- [Containerized Workloads](#)
- Platform Services
- [Baselines](#)
- [Revisions](#)
- [CI/CD Pipelines](#)

## Verification

1. Verification SHALL confirm that the tested deployment has an identified predeployment state
2. Verification SHALL confirm that [Crucible](#) executes a rollback operation for the affected deployment subject
3. Verification SHALL confirm that the rollback operation reverses the tested deployment
4. Verification SHALL confirm that the affected deployment subject matches the identified predeployment state after successful rollback

Verification may include:

- Infrastructure Resource rollback testing
- Virtual Machine rollback testing
- Kubernetes Cluster rollback testing
- Containerized Workload rollback testing
- Platform Service rollback testing
- Predeployment-state comparison
- Postrollback-state comparison
- Deployment-log inspection
- Rollback-log inspection
- Automated [CI/CD Pipeline](#) testing

The verification record SHALL identify:

1. The affected deployment subject
2. The deployment operation
3. The identified predeployment state
4. The deployment result
5. The rollback operation
6. The rollback result
7. The observed postrollback state
8. The generated [Evidence](#)

# Outgoing Traceability

This requirement realizes:

- [MO-001](#)
- [MO-005](#)
- [MO-006](#)

This requirement relates to:

- [FR-DEP-001 — Deploy Infrastructure Resources](#)
- [FR-DEP-002 — Deploy Virtual Machines](#)
- [FR-DEP-003 — Deploy Kubernetes Clusters](#)
- [FR-DEP-004 — Deploy Containerized Workloads](#)
- [FR-DEP-005 — Deploy Platform Services](#)
- [FR-DEP-007 — Deployment Validation](#)
- [7. Infrastructure and Deployment](#)
- [10. Reproducibility, Provenance, and Traceability](#)

## Referenced By

The wiki Backlinks function provides the current list of pages that reference FR-DEP-006.

Incoming [Traceability](#) should be derived dynamically from backlinks rather than maintained as a duplicate manual list.

Backlinks identify incoming references but do not define the semantics of each relationship. Referencing pages should identify whether the relationship represents realization, refinement, verification, dependency, or another defined traceability relationship.

## ConOps Relationship

The Crucible Concept of Operations describes automated deployment through a Phase 1 [CI/CD Pipeline](#).

FR-DEP-006 establishes the behavior required to reverse a deployment and restore the affected subject to its identified predeployment state.

Requirements governing deployment initiation, deployment validation, recovery, backup, restoration, and immutable replacement define separate behavior.

## Delivery Phase

Phase 1

# Implementation Status

Not Assessed

Implementation status requires verification that [Crucible](#) reverses a deployment by restoring the affected deployment subject to its identified predeployment state.

## Requirement Status

Draft

The source System Requirements Specification identifies Version 1.1 as a draft.

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## Notes for Editors

This requirements page should retain the stable requirement identifier 'FR-DEP-006'.

Changes to the Statement SHALL preserve the approved intent of the source requirement.

The Source Statement should preserve the original wording from the controlling System Requirements Specification.

The Statement should remain limited to the reversal of a deployment and the restoration of the affected subject to its identified pre-deployment state.

Requirements for automatic rollback initiation, recovery, backup, restoration, replacement, validation, and retention of rollback records should remain in their applicable requirement pages.

Verification criteria should test only the behavior stated in the normalized Statement and should not introduce additional normative obligations.

Incoming Traceability should use the wiki Backlinks function rather than a manually maintained list.

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

```
{{section>dido:02-crusible:99-annexes:annex-c-requirements:03-functional-requirements:03-03-deployment-orchestration:fr-dep-006#Statement&noheader&nofooter&noeditbtn}}
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