

# FR-AG-001 — Disconnected Deployment Operations

[Go to Crucible Air-Gapped Operations Requirements](#)

## Statement

[Crucible](#) SHALL execute an identified [Deployment Operation](#) within a [Disconnected Environment](#) without direct electronic communication with specified external systems, services, repositories, [Providers](#), or networks.

## Source Statement

The [system](#) shall support [disconnected deployment operations](#).

## Source

Crucible System Requirements Specification, Version 1.1 Draft, Functional Requirements, FR-AG-001.

## Assessment

The source statement identifies the intended operating condition 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
- **Disconnected deployment operations** does not use the defined [Deployment Operation](#) concept
- **Disconnected deployment operations** does not use the defined [Disconnected Environment](#) concept
- The source statement does not identify the communication restrictions that govern execution
- The source statement does not identify the external subjects with which communication is prohibited
- The source statement does not prescribe a deployment tool, transfer mechanism, repository implementation, network technology, [Provider](#), or target platform

The normalized Statement:

- Replaces **The system** with [Crucible](#)

- Replaces **support** with the direct behavior **execute**
- Uses the defined [Deployment Operation](#) concept
- Uses the defined [Disconnected Environment](#) concept
- Requires identification of the Deployment Operation
- Identifies the external communication restrictions that govern execution
- Preserves implementation independence
- Retains one primary required behavior

The normalized Statement does not require every [Dependency](#) to originate within the Disconnected Environment.

Separate requirements govern:

- [Dependency Capture](#)
- Controlled transfer
- Artifact export
- Artifact import
- [Transfer Authorization](#)
- [Transfer Bundle Integrity](#)
- Baseline synchronization

## Rationale

A [Disconnected Environment](#) operates without direct electronic communication with specified external systems, services, repositories, [Providers](#), or networks.

The Disconnected Environment therefore relies on locally available:

- Software
- [Dependencies](#)
- Repositories
- Services
- Configuration information
- Credentials
- Operational data
- [Artifacts](#)
- Validation resources

Controlled transfer processes supply new or updated material when the Disconnected Environment cannot communicate directly with the original source.

Before [Crucible](#) executes a [Deployment Operation](#), the Disconnected Environment must contain or have authorized local access to the Artifacts, configurations, Dependencies, credentials, metadata, and other resources required by that Deployment Operation.

A Deployment Operation may create, configure, update, replace, or remove:

- [Infrastructure Resources](#)
- [Virtual Machines](#)
- [Kubernetes Clusters](#)

- [Containerized Workloads](#)
- [Platform Services](#)
- Configuration
- Relationships among deployed subjects

A Deployment Operation may use:

- A [Crucible Description](#)
- An [Infrastructure Configuration](#)
- An [Infrastructure Baseline](#)
- A [Machine Image](#)
- A [Container Image](#)
- [Platform Independent Information](#)
- [Platform Specific Information](#)

Related deployment activities may include:

- [Deployment Validation](#)
- [Deployment Rollback](#)

A Disconnected Environment may retain internal network connectivity among its components. The communication restriction applies to the specified external systems, services, repositories, Providers, or networks identified by the applicable operational boundary.

A Disconnected Environment differs from an [Air-Gapped Environment](#):

- A Disconnected Environment operates without direct electronic communication with specified external subjects
- An Air-Gapped Environment is separated from external subjects by an intentionally maintained [Air Gap](#)

An Air-Gapped Environment is a specialized Disconnected Environment.

## Applies To

This requirement applies to:

- [Crucible](#)
- [Deployment Operations](#)
- [Disconnected Environments](#)
- Deployment subjects
- [Artifacts](#)
- [Dependencies](#)
- Local repositories
- Local configuration sources
- Local credentials
- Local validation resources
- [Infrastructure Resources](#)
- [Virtual Machines](#)
- [Kubernetes Clusters](#)

- [Containerized Workloads](#)
- [Platform Services](#)
- [CI/CD Pipelines](#)

## Verification

1. Verification SHALL confirm that the tested environment satisfies the definition of a [Disconnected Environment](#)
2. Verification SHALL identify the [Deployment Operation](#) selected for testing
3. Verification SHALL identify the external systems, services, repositories, [Providers](#), or networks with which direct electronic communication is prohibited
4. Verification SHALL confirm that [Crucible](#) executes the identified Deployment Operation within the Disconnected Environment
5. Verification SHALL confirm that Crucible does not establish direct electronic communication with the specified external systems, services, repositories, Providers, or networks during the Deployment Operation
6. Verification SHALL confirm that the Deployment Operation produces the expected deployment result

Verification may include:

- Disconnected deployment testing
- Network boundary inspection
- External communication monitoring
- Local repository inspection
- [Dependency](#) availability inspection
- Deployment output inspection
- Deployment log inspection
- [Deployment Validation](#)

The verification record SHALL identify:

1. The [Disconnected Environment](#)
2. The tested [Deployment Operation](#)
3. The deployment subjects
4. The locally available [Artifacts](#)
5. The locally available [Dependencies](#)
6. The specified external systems, services, repositories, [Providers](#), or networks
7. The observed electronic communication
8. The deployment result
9. The generated [Evidence](#)

## Outgoing Traceability

This requirement realizes:

- [MO-004](#)
- [MO-006](#)

This requirement relates to:

- [C.3.3 Deployment Orchestration](#)
- [FR-AG-002 — Artifact Export Packages](#)
- [FR-AG-003 — Artifact Import Packages](#)
- [FR-AG-004 — Baseline Synchronization](#)
- [FR-AG-005 — Deployment Traceability Across Disconnected Environments](#)
- [C.3.10 Dependency Capture and Offline Transfer](#)
- [8. Dependencies and Air Gap Operations](#)

## Referenced By

The wiki Backlinks function provides the current list of pages that reference FR-AG-001.

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 a connected-to-disconnected supply chain in which [Dependencies](#) and [Artifacts](#) are captured in a [Connected Environment](#), transferred across an authorized [Transfer Boundary](#), and consumed within a [Disconnected Environment](#).

FR-AG-001 establishes the required behavior for executing a [Deployment Operation](#) after the required Artifacts and Dependencies enter the Disconnected Environment.

## Delivery Phase

Phase 1

## Implementation Status

Not Assessed

Implementation status requires verification that [Crucible](#) executes an identified [Deployment Operation](#) within a [Disconnected Environment](#) without direct electronic communication with specified external systems, services, repositories, [Providers](#), or networks.

# Requirement Status

Draft

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

## Notes for Editors

This requirement page should retain the stable requirement identifier FR-AG-001.

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

The Source Statement should preserve the original visible wording from the controlling System Requirements Specification while linking applicable words and phrases to the controlling Terms and Definitions entries.

The Statement should remain limited to execution of an identified Deployment Operation within a Disconnected Environment without direct electronic communication with specified external systems, services, repositories, Providers, or networks.

Requirements for Artifact export, Artifact import, Dependency Capture, synchronization, Transfer Authorization, and Transfer Bundle Integrity 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:03-05-air-gap-operations:fr-ag-001#Statement&noheader&nofooter&noeditbtn}}
```

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