

FR-IMG-002 — Build Container Images

[Go to Crucible Image Management Requirements](#)

Statement

Crucible SHALL build a container image.

Source Statement

The system shall build container images.

Source

Crucible System Requirements Specification, Version 1.1 Draft, Functional Requirements, FR-IMG-002.

Assessment

The source statement expresses a direct functional behavior but requires terminology and normative-language normalization.

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
- The source statement does not identify a particular container-image format, target platform, build tool, or build method
- The source statement does not require image signing, image verification, image promotion, compliance assessment, publication, or deployment

The normalized Statement:

- Replaces **The system** with **Crucible**
- Uses the direct and testable verb **build**
- Identifies a container image as the required result
- Preserves the implementation independence of the source requirement
- Retains one primary required behavior

The normalized Statement does not add requirements for container-image content, format, signing, verification, promotion, compliance, publication, distribution, or deployment. Separate requirements define those obligations.

Rationale

A [Container Image](#) packages the files, software, configuration, and metadata required to instantiate a containerized workload.

Building container images through [Crucible](#) allows the Image Management workflow to produce image [Artifacts](#) for later verification, signing, promotion, transfer, publication, and deployment.

[Container Image](#) building contributes to:

- Repeatable image creation
- Controlled image content
- Consistent workload instantiation
- Automated build workflows
- [Reproducibility](#)
- [Provenance](#)
- [Traceability](#)

The build operation may consume:

- A [Crucible Description](#)
- One or more [Image Layers](#)
- A selected [Baseline](#)
- Application files
- Software packages
- Runtime content
- Configuration values
- Build instructions
- Other [Controlled Inputs](#)

The applicable architecture and lower-level requirements determine which inputs apply to a particular container-image build.

Applies To

This requirement applies to:

- [Crucible](#)
- Container images
- Container-image builds
- Container-image build inputs
- Container-image build outputs
- [Image Layers](#)
- [Baselines](#)
- [Crucible Descriptions](#)
- Build tools
- Build workflows
- Container runtimes
- Container registries

- [CI/CD Pipelines](#)

Verification

1. Verification SHALL confirm that [Crucible](#) executes a container-image build
2. Verification SHALL confirm that the build produces a container image

Verification may include:

- Container-image build testing
- Build-output inspection
- Container-image Artifact inspection
- Build-log inspection
- Container-runtime instantiation testing
- Automated [CI/CD Pipeline](#) testing

The verification record SHALL identify:

1. The tested container-image build
2. The resulting container image
3. The build result
4. The observed output
5. The generated [Evidence](#)

Outgoing Traceability

This requirement realizes:

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

This requirement relates to:

- [FR-IMG-003 — Immutable Infrastructure Workflows](#)
- [FR-IMG-004 — Image Signing](#)
- [FR-IMG-005 — Image Verification](#)
- [FR-IMG-006 — Image Promotion Workflows](#)
- [FR-DEP-004 — Deploy Containerized Workloads](#)
- [6. Machine Images and Image Layers](#)
- [10. Reproducibility, Provenance, and Traceability](#)

Referenced By

The wiki Backlinks function provides the current list of pages that reference FR-IMG-002.

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 Phase 1 workflow in which a [CI/CD Pipeline](#) invokes [Crucible](#) to build controlled image Artifacts used by platform and application workflows.

FR-IMG-002 establishes the required container-image build behavior within that workflow.

Requirements governing image composition, hardening, signing, verification, promotion, compliance, publication, and deployment define separate behavior associated with the resulting container image.

Delivery Phase

Phase 1

Implementation Status

Not Assessed

Implementation status requires verification that [Crucible](#) builds a container image.

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-IMG-002.

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 building a container image.

Requirements for image composition, hardening, signing, verification, promotion, compliance assessment, publication, distribution, and deployment 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:03-02-image-management:fr-img-002#Statement&noheader&nofooter&noeditbtn}}
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