SEAGLASS FOUNDRY

Forged For Speed. Refined by Craft.

DEFENSE & INTELLIGENCE

ForgeData™

The Data Layer That Ships Where the Mission Runs

ForgeData™ is the data-intelligence layer of the Forge suite: it decides which geospatial dataset serves a request and how to read it, across a dozen incompatible sources, and returns a structured, machine-readable error rather than a plausible-but-wrong dataset when nothing qualifies. Its entire state is a single local file with no embedded secrets, so a curated catalog ships to a field laptop or an air-gapped site and queries on arrival. Pure-JVM, local-disk, and bundled with the suite.

Single

portable, secret-free catalog

one GeoPackage file; API keys stay in the environment, never the catalog

Refuses, never fabricates

Every tool failure returns a structured, machine-readable error with a specific reason — an AOI out of coverage, a malformed bbox, an unsupported format — rather than a confident-looking wrong answer. The data layer fails closed, the same discipline the rest of the suite is built on.

Air-gap

deployable

no required external service; backends run as local subprocesses over stdio

Honest geometry, one seam

DEMs flatten open water to a literal 0 m that reads as solid ground and corrupts slope, viewshed, and line-of-sight. ForgeData recodes over-water cells to NoData at one shared read seam, geometry-driven and source-agnostic, so every consumer inherits honest terrain.

Pure

JVM, local-disk

one fat JAR, Java 17+; no daemon, no native install step

Auditable provenance

Every dataset carries its source, ingest path, and content hash; derived products pin their parent, operation, and parameters. The reproducibility and audit trail mission work requires is recorded in the catalog, not reconstructed after the fact.

CONTINUED ON REVERSE →

BUILT FOR THE WAY MISSIONS HANDLE DATA

Routing across the real, heterogeneous estate

Mission data is never in one place: terrain from a NGA or SRTM mirror, imagery from a STAC catalog, hydrography from an internal PostGIS, features from an ArcGIS service, bathymetry from NOAA, point clouds from local LAZ. ForgeData makes all of it addressable by intent and returns the best-fit correct dataset — ranked by coverage and resolution, with access cost as the deciding tiebreaker.

The line-of-sight surface, served correctly

Viewshed, slope, and the terrain workflows defense and IC depend on read elevation through a single seam that masks open water before sampling — so a viewshed over a coastline is computed against honest terrain, not a sea-level plateau the DEM stored as ground. The fix is source-agnostic across SRTM, Copernicus, 3DEP, Terrarium, and remote services.

Deploys disconnected, ships as a data pack

The catalog and its data-source recipes live in one GeoPackage with no secrets inside, so a curated bundle is a single artifact a program drops onto an edge device or air-gapped host and queries immediately — readable in QGIS or DB Browser for independent inspection.

PROOF POINTS

0

secrets stored in the catalog file

the catalog holds only the env-var name, never the key — safe to copy or ship

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source types behind one interface

public and private, local and remote — one ranked answer to the caller

1

external dependency: none beyond your data

backends run as local subprocesses over stdio, not the network

Fail-closed on coverage. When no dataset in the catalog covers a requested area, ForgeData does not silently return the nearest tile or an empty success. It returns a structured reason — and, for coverage gaps, names the registered source whose sync could acquire the area. The operator learns what is missing instead of acting on a wrong product.

Reproducible by construction. Numerical reads are dispatched through one set of implementations whether an analyst or an agent makes the call; derived products record parent, operation, parameters, and content hash. The same request against the same catalog yields the same answer, on a connected host or an air-gapped one.

Request the Technical Brief and an evaluation build

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The Technical Brief covers the architecture, the cost model, and deployment guidance. An evaluation build is available to qualified programs on request.