

TECHNICAL GUIDE

API Integration Guide

Planning a secure Byrdz-i connection to GIS, ERP, and reporting systems

What this resource provides

A vendor-neutral implementation guide for identity, project data, asynchronous analysis, exports, observability, and safe operational handoffs.

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Integration goals and boundaries

An integration should make an existing decision workflow faster without creating a second source of truth for ownership, permissions, or official records. Start by documenting which system owns projects, people, polygons, observations, approvals, and reports.

Use the smallest interface that meets the need. A read-only export may be safer than a bidirectional sync; an asynchronous job may be more reliable than a long-running request.

- Define system of record for each object and field.
- Document identifiers, lifecycle states, retention, and deletion behavior.
- List users, roles, and data classifications before choosing scopes.
- Agree on failure, retry, and reconciliation behavior.

Recommended request lifecycle

A typical analysis flow is: authenticate, create or select a project, submit an area and analysis parameters, receive a job or result identifier, poll or subscribe for status, fetch the result, and store a reference in the consuming system. Status should distinguish queued, running, completed, failed, and cancelled.

Treat retries as normal. Use idempotency keys for create or submit requests, exponential backoff for transient failures, and a dead-letter or manual-review path when repeated attempts fail.

- Validate polygons, dates, and enum values at the boundary.
- Return a correlation ID that support teams can use to trace a request.
- Never assume a timeout means the server did not accept the request.
- Make partial results explicit and preserve the source timestamp.

GIS and ERP data mapping

GIS systems often own authoritative geometry while ERP or program systems own contracts, budgets, suppliers, or case identifiers. Map these identifiers explicitly rather than relying on names. Keep geometry version and coordinate reference information with the project record.

For reports, store the Byrdz-i report identifier, creation time, methodology version, and a stable download or retrieval reference. Do not copy sensitive data into logs or URLs.

- Use stable external IDs and a documented crosswalk.
- Normalize coordinates and validate polygon closure and area limits.

- Version geometry changes and preserve who approved the change.
- Limit exports to fields required by the receiving system.

Security and operations

Use least-privilege credentials, rotate them through the organization's secret manager, and avoid embedding credentials in browser code or source control. Log access and administrative changes without logging tokens, full personal data, or sensitive geometry unless explicitly required.

Build a small health and reconciliation view: request counts, latency, failures by category, last successful sync, and records needing review.

- Use HTTPS and verify the expected host in every environment.
- Set connection and response timeouts appropriate to the job type.
- Apply rate limits and backoff to protect both systems.
- Test authorization, duplicate submission, invalid input, and revoked-access paths.

Go-live checklist

Run a staged test with representative but non-sensitive data. Compare records in both systems, exercise failure recovery, document support ownership, and obtain sign-off from data, security, and business stakeholders before enabling production writes.

- Contract and schema reviewed by both system owners.
- Monitoring and alert routing tested.
- Rollback or disable procedure documented.
- Data retention and access review completed.

Integration principle

Make every automated handoff traceable: who or what initiated it, which input version was used, what result was produced, and how a reviewer can correct or replay it.

Important note

Endpoint names, authentication schemes, limits, and response contracts should be confirmed against the current Byrdz-i API documentation and your organization's security policy before implementation.