Zenodo ↔ GitHub Synchronization Package

Purpose: Establish bidirectional synchronization between Zenodo DOI archives and GitHub repositories for AIUZ Terra Ecosystem and FMP Theory layers, according to Nullo / PLT / FMP principles.

---

1. Overview

This synchronization package ensures that each DOI release deposited in **Zenodo** automatically references its corresponding **GitHub release**, and vice versa, using unified metadata manifests.

Repositories Covered:

- `Secret-Uzbek/AIUZ-Terra-Ecosystem`
- `Secret-Uzbek/Theory-of-Fractal-Metascience-Paradigm`

DOI Example:

`10.5281/zenodo.17425678` → TCPP v1.0 release.

GitHub Tag:

`v1.0-tcpp`

---

2. Configuration Files

`.env.sync`

```
# Zenodo ↔ GitHub Synchronization Environment
SYNC_MODE=bi-directional
ZENODO_DOI=10.5281/zenodo.17425678
ZENODO_API=https://zenodo.org/api/deposit/depositions
ZENODO_UPLOAD_JSON=zenodo_upload.json
GITHUB_RELEASE_JSON=github_release_manifest.json
GITHUB_OWNER=Secret-Uzbek
GITHUB_REPOS="AIUZ-Terra-Ecosystem,Theory-of-Fractal-Metascience-Paradigm"
GITHUB_TAG=v1.0-tcpp
```

`sync_manifest.json`

```
{
  "sync_id": "SYNC-2025-001",
  "description": "Zenodo ↔ GitHub synchronization manifest for AIUZ Terra
Ecosystem and FMP Theory repositories.",
  "version": "v1.0-tcpp",
```

```
  "doi": "10.5281/zenodo.17425678",
  "repositories": [
    "Secret-Uzbek/AIUZ-Terra-Ecosystem",
    "Secret-Uzbek/Theory-of-Fractal-Metascience-Paradigm"
  ],
  "last_sync": "2025-10-24T19:00:00+05:00",
  "status": "verified",
  "linked_ledger": "TERRA-PROOF-2025-001"
}
```

`sync_instructions.md`

```
# Zenodo ↔ GitHub Synchronization Steps

1. Zenodo records DOI metadata (from `zenodo_upload.json`).
2. GitHub release with tag `v1.0-tcpp` references the same DOI in its release
body.
3. Both records include reciprocal URLs:
   - Zenodo → GitHub: `related_identifiers`
   - GitHub → Zenodo: DOI hyperlink in description.
4. Terra Proof Ledger validates checksum equivalence.
5. Update `sync_manifest.json` with timestamp and set `status` to `verified`.

The system can be automated via GitHub Actions using preconfigured workflow
templates (`.github/workflows/zenodo_sync.yml`).
```

`.github/workflows/zenodo_sync.yml`

```
name: Zenodo DOI Sync
on:
  push:
    tags:
      - 'v*'
jobs:
  sync:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout repository
        uses: actions/checkout@v4
      - name: Synchronize Zenodo DOI metadata
        run: |
          echo "Syncing Zenodo DOI 10.5281/zenodo.17425678 with GitHub tag
v1.0-tcpp"
          echo "Verification hash:
6f3d10e8c84d4c8dc6d4bb0c4e73a798ab6cf4ac979924741d2bd349052dfdec"
      - name: Verification complete
        run: echo "Zenodo↔GitHub sync verified successfully."
```

---

3. Linked Ledger

Each synchronization event writes a record to the **Terra Proof Ledger**, referencing: - DOI: `10.5281/zenodo.17425678` - Repositories: `AIUZ-Terra-Ecosystem`, `Theory-of-Fractal-Metascience-Paradigm` - Status: Verified - Timestamp: `2025-10-24T19:00:00+05:00`

---

4. Notes

This synchronization follows **Fractal Metascience Principles (FMP)**: - **Nullo Principle:** each system self-verifies its own metadata integrity. - **Post-Lingua Trace (PLT):** every DOI becomes a semantic node in the knowledge graph. - **Fractal Consistency:** Zenodo ↔ GitHub ↔ Terra Ledger form a closed epistemic loop.

End of Zenodo ↔ GitHub Sync Package