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An early overview and opinionated assessment of EXFOR

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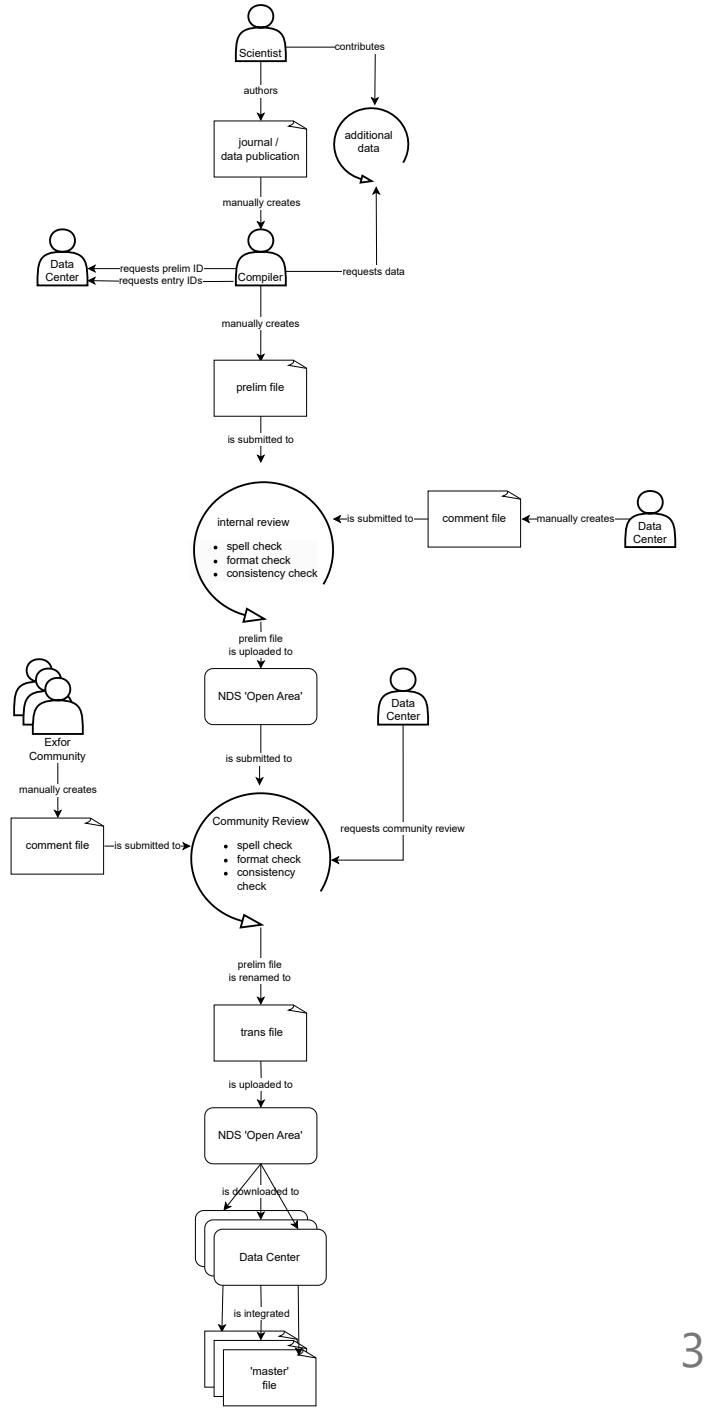
Exfor Overview

- Generation
- Distribution
- Community

Exfor Generation

- mostly manual compilation
- non-public, multi-level and review process
- maintenance of independent master files at data centers
- manual version control
- slow, time consuming process (>=6 month)



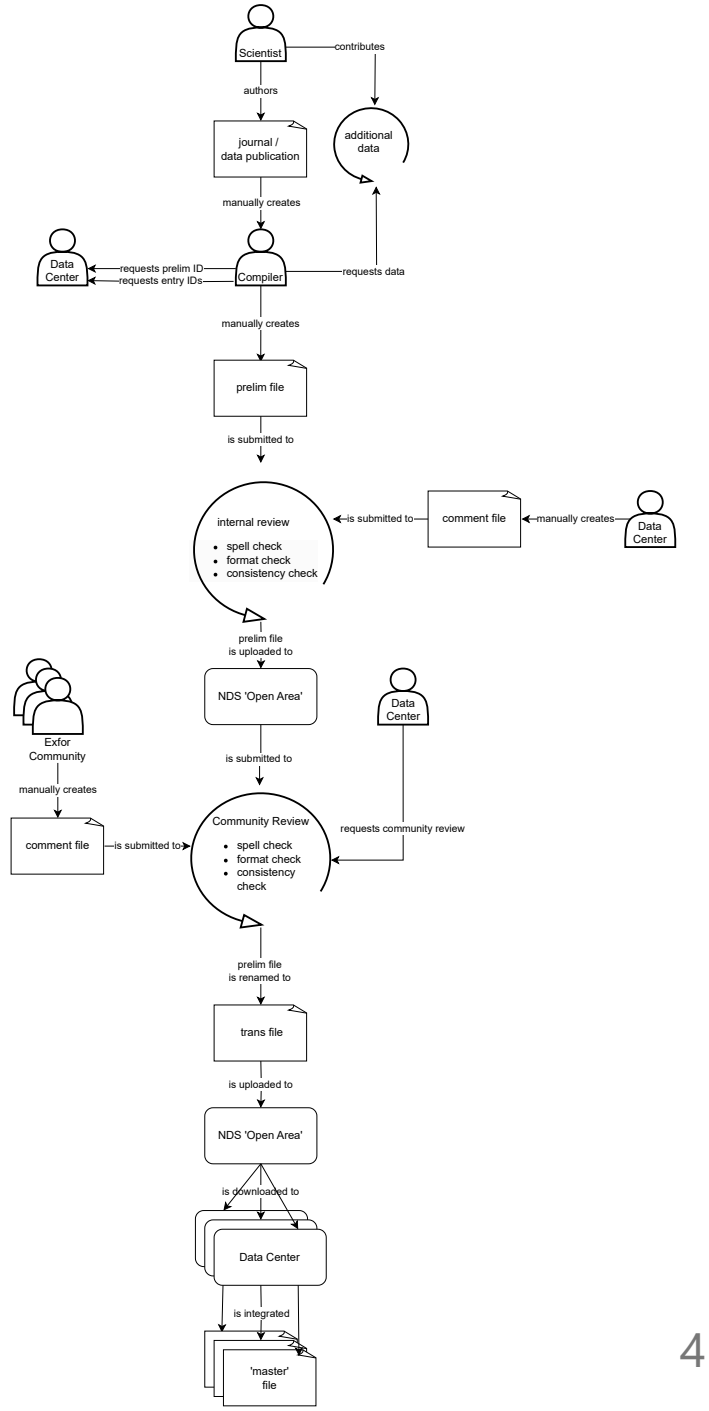
Process Improvements

… on Data Center level

☑ Use git to version control communication files
☑ Use git to track entry ID assignments
☐ Use gitlab review process instead of emails
☐ Use gitlab pipeline to run automatic checks

… on NDS Open Area level

☑ Use git to version control master files (https://github.com/IAEA-NDS/exfor_master)
☐ Use gitlab pipeline to include trans file in master



Exfor Distribution

- official (IAEA)
  - web interface search
  - `zip` download
  - diverse other derived formats (C4,DB) as download
- inofficial
  - `json` (partial)
  - `csv` (partial)
  - X4I
  - DataExplorer (web)

Main issue: version synchronization

Proposal: build automatization

Exfor Community & Communication (I)

- communication almost exclusively via email
  - only indirect referencing of data via internal entry / line IDs
  - typically more than ~10 emails exchanged per compilation
    → *proposal*: gitlab comments / reviews for simple data references & automatic id handling
- public manually updated lists of email addresses
  - no simple subscription, digest features
    → *proposal*: set up professional email list

Exfor Community & Communication (II)

- master file (format) changes are not reviewed
  - communication via 'Memos'
    → *proposal*: official exfor validation tool
    → *proposal*: gitlab merge request + review
    → *proposal*: rename `master` to `main`
- high entry barrier for newcomers
  - complex exfor format
  - contribution requires expert knowledge
  - no central point linking to all resources
    → *proposal*: community level effort to centrally collect & update (wiki?)
    → *proposal*: web-based data entry form to contribute data (cf. ENSDF?)

Overview: Exfor Tools and Resources

Interfaces

- IAEA Webinterface
- DataExplorer (web)
- X4I (Python)

Format Checking

- **TransChecker** (Janis)
- *ZCheX*
- *ZOrder*

Data Checking

- *SCM* validation of exfor database (2010 -2015)

Compilation

- *Hendl*
- *Exfor-Editor*

Summary: missing key tools

- Exfor validator
  → JSON schema validation, content validation
    - translator exfor master -> JSON?
- central, version controlled, continuous distribution
    - git (gitlab) based setup
    - git-lfs / git-annex required?
- User friendly compilation interface (integrating with version control system above)
    - compare to new ENSDF editor [cf. CSWEG 2023]
    - compilation output format: 80-column ascii or json?

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Thank you for listening.

Let's start the discussion now.