

# Exfor updates

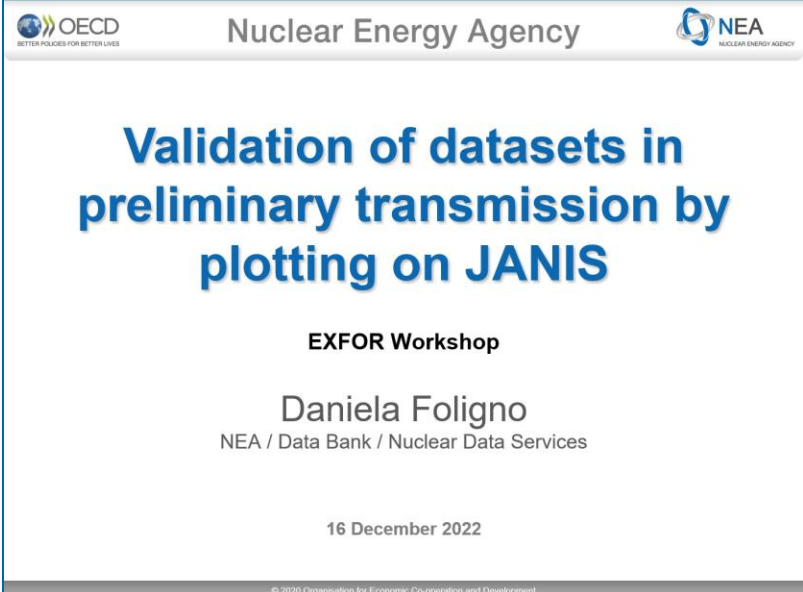
## New developments at the NEA

**Julia Sprenger**

**Nuclear Energy Agency Databank**

# Motivation

- FAIR and Open data
  - Reproducibility
  - Transparency
  - Required by many funding organizations
- Project Management & Workflows
  - Currently requires a lot of manual steps
  - Manual tracking of versions



The slide features a header with the OECD logo on the left and the Nuclear Energy Agency (NEA) logo on the right. The main title is centered in a large, bold, blue font. Below the title, the workshop name and presenter information are centered in a smaller black font. The date is centered at the bottom of the slide content area. A small copyright notice is visible at the very bottom of the slide.

OECD  
BETTER POLICIES FOR BETTER LIVES

Nuclear Energy Agency

NEA  
NUCLEAR ENERGY AGENCY

**Validation of datasets in  
preliminary transmission by  
plotting on JANIS**

EXFOR Workshop

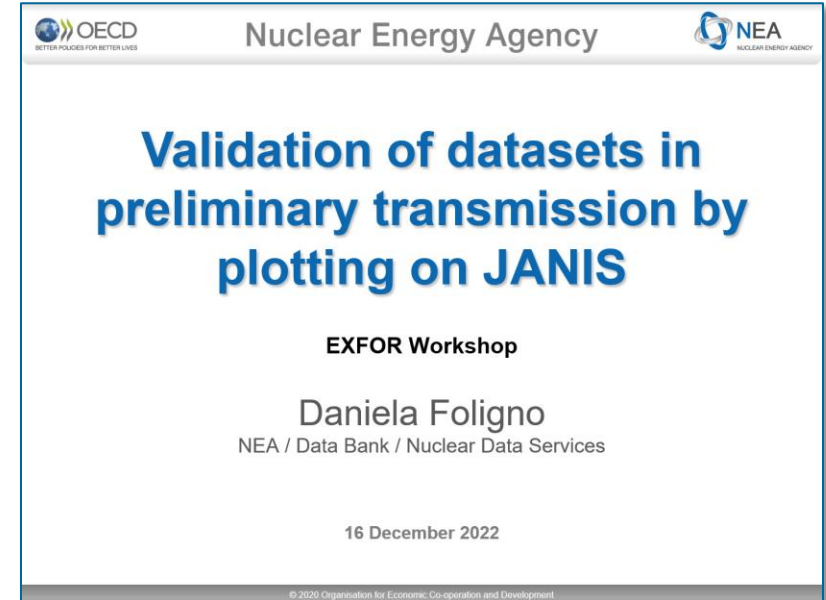
Daniela Foligno  
NEA / Data Bank / Nuclear Data Services

16 December 2022

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# Motivation

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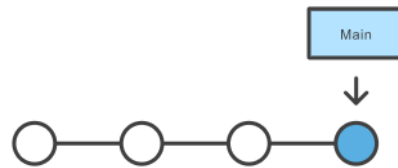
How to get Exfor ready for the next 60 years?

# Modern technologies to the rescue!



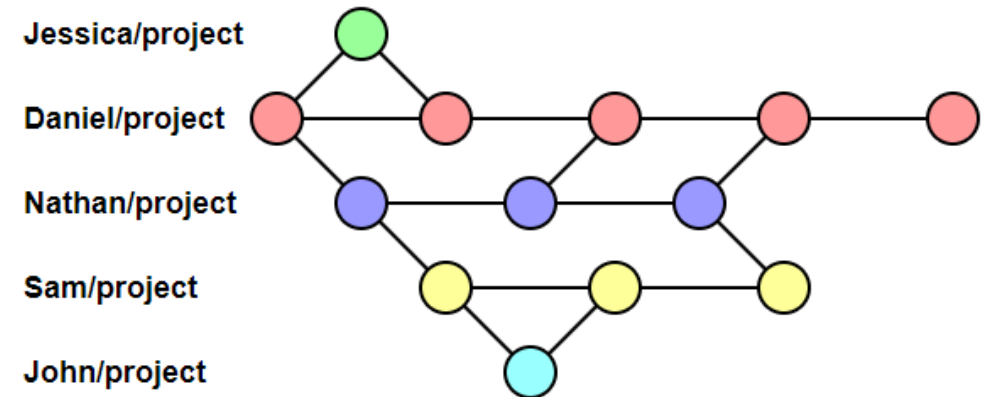
## Version Control System (VCS)

- Leading VCS since 2014
- Originated from Software Development Community
- Central to Reproducibility efforts in research
- Concept
  - **Distributed** system
  - Linking of versions via `commits`



Commit information

- Who
- When
- Which changes
- Why
- Unique identifier



Git Logo: CC BY 3.0 Jason Long | Git commit sketch: <https://www.atlassian.com/git/tutorials/rewriting-history> | Git Tree: Daniel Imms, <https://www.growingwiththeweb.com>

# Modern technologies to the rescue!



## Collaboration Platforms

- > 100 million / > 30 million users
- > 420 million repositories (>28 million public)
- GitLab is open source, available at [gitlab.com](https://gitlab.com) or self-hosted
- Numerous collaboration / coordination features on top of git
  - Issue tracker
  - Discussion platform for changes (MRs)
  - Review mechanics
  - Automation of pipelines
  - Visualization of
    - Changes
    - Contributions
    - Project statistics
    - ...
  - User management
  - Wiki
  - Integration with other platforms
  - Email notifications

The screenshot displays a GitLab merge request (MR) interface. At the top, it shows the MR number 2319 and the author SPRENGER Julia, NEA/SCI/DB. The MR is in a 'Ready to merge' state. Below this, there are options to 'Delete source branch', 'Squash commits', and 'Edit commit message'. A 'Merge' button is visible. The 'Activity' section shows a list of actions, including a mention in the MR and a thread started by the author. The thread contains a diff for the file 'prelim\_files/prelim.2319'. The diff shows changes in flight path directions. Below the diff, there is a discussion thread where the author asks for feedback on spelling corrections. The interface includes various navigation and action buttons like 'Approve', 'Merge', and 'Resolve thread'.

# Additional considerations

Using modern standard practices

- Makes onboarding from related communities easier
- Teaches core transferrable skills required in any scientific community
- Makes project workflow more transparent
- Reduces the Bus Factor by sharing & documenting knowledge

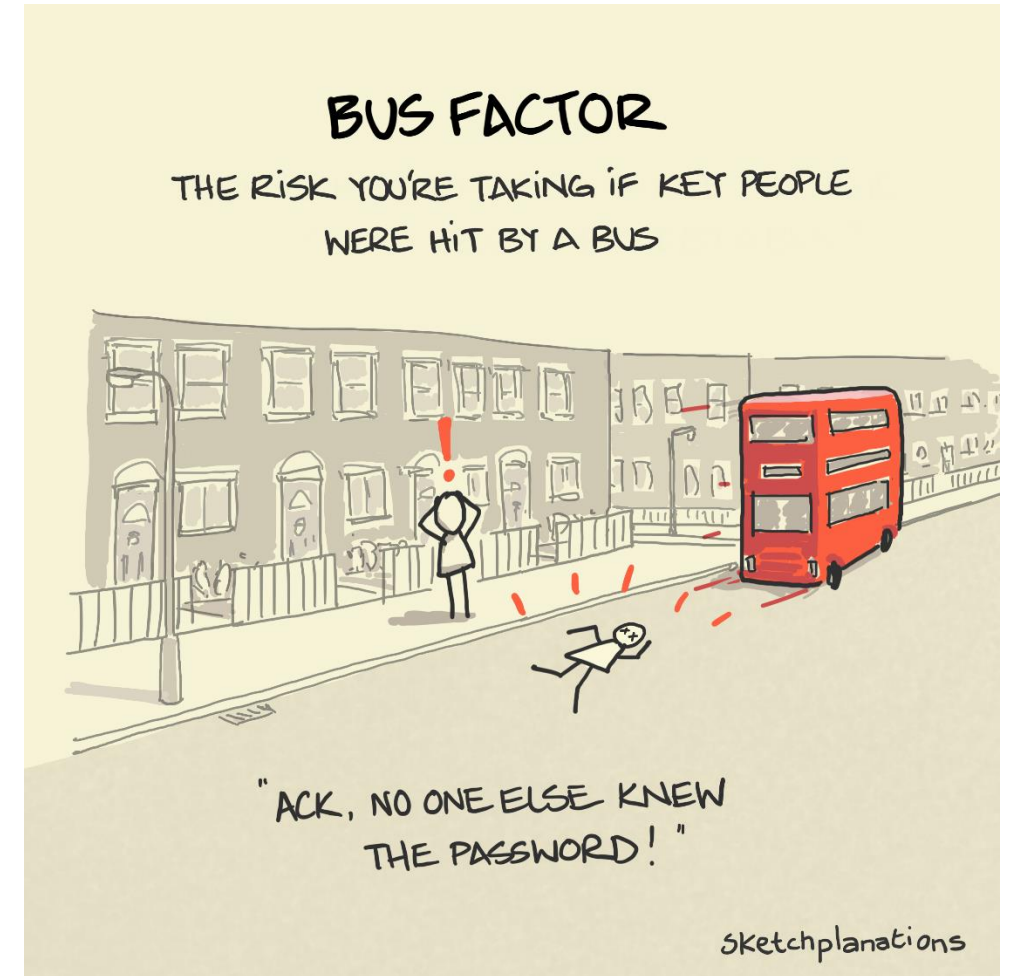
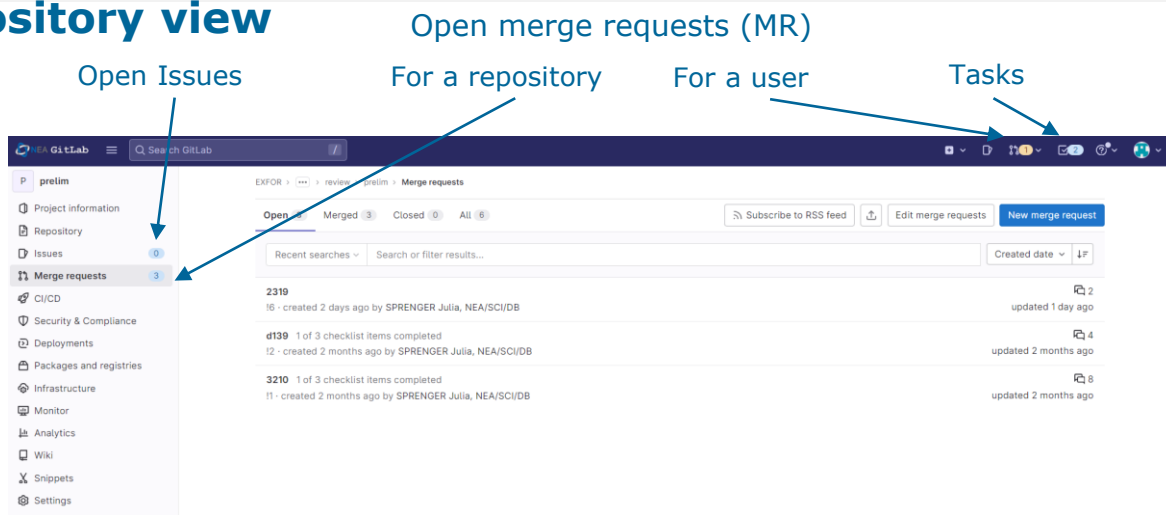


Image: [Sketchplanations](#)

# A glimpse of the GitLab Webinterface

## Repository view



## (MR) Change view

Overview of proposed changed lines

prelim_files/prelim.2319					
1	-	TRANS	2319	20240226	20000000 0
1	+	TRANS	2319	20240429	20000000 0
2	2	ENTRY	C	22877	20231026 22877000 1
3	3	SUBENT	C	22877001	20231026 22877001 1
4	4	BIB		14 57	22877001 2
@@ -142691,9 +142691,9 @@ INC-SOURCE (PHOTO) 23658001 19					
142691	142691			- Two water filled Be-containers around U target	23658001 22
142692	142692			2x(14.6 cm x 21 cm x 3.9 cm) at the room temperature	23658001 23
142693	142693			as moderators placed above and below U target.	23658001 24
142694	-	- Density of moderator material	= 1 g/cm3		23658001 25
142695	-	- Temperature of moderator	: Room temperature		23658001 26
142696	-	- Moderator-room decoupler	: None		23658001 27
142694	+	- Density of moderator material	= 1 g/cm3		23658001 25
142695	+	- Temperature of moderator	: Room temperatu		23658001 26
142696	+	- Moderator-room decoupler	: None		23658001 27
142697	142697	METHOD	(TRN) Transmission in good transmission geometry		23658001 28
142698	142698	(TOF)			23658001 29
142699	142699			- Flight path (moderator centre-detector front face)	23658001 30
@@ -142703,8 +142703,8 @@ METHOD (TRN) Transmission in good transmission geometry 23658001					
142703	142703			- Diameter of neutron beam at sample position = 45 mm	23658001 34
142704	142704			- Overlap suppression filter : 10B overlap filter	23658001 35
142705	142705			- Other neutron beam filters : Co, Pb	23658001 36
142706	-	DETECTOR	(GLASD) Li-glass scintillator (152.4 mm diameter,		23658001 37
142707	-			6.35 mm thick) in the beam	23658001 38
142706	+	DETECTOR	(GLASD) Li-glass scintillator (152.4 mm diam, 6.35 mm		23658001 37
142707	+			thick) in the beam	23658001 38
142708	142708	ANALYSIS	Transmission Texp was derived by		23658001 39
142709	142709			Texp=N*([Cin-K*Bin]/[Cout-K*Bout]),	23658001 40
142710	142710			where	23658001 41

## Line change history (git blame)

	80	ENTRY	60091	20230410	600910000001
	81	SUBENT	60091001	20230410	6009100100001
	82	BIB	11	35	6009100100002
	83	TITLE	Fission-fragment yields and prompt-neutron multiplicity for coulomb-induced fission of 234,235U and 237,238Mp		6009100100003
	84				6009100100004
	85				6009100100005
Bibliography checks	86	AUTHOR	(J.-F.Martin, J.Taieb, G.Boutoux, A.Chatillon,		6009100100006
BOSSANT Manuel, NEA/ORM/IT committed 2 months ago					
auto update prelim files	87		T.Gorbinet, E.Pellereau, L.Audouin, A.Heinz, H.Alvarez-Pol, Y.Ayyad, G.Belier, J.Benlliure, M.Caamano, E.Casarejos, D.Cortina-Gil, A.Ebran, F.Farget, B.Fernandez-Dominguez, L.Grente, H.T.Johansson, B.Jurado, A.Kelic-Heil, N.Kunz, B.Laurent, C.Nociforo, C.ParadeLa, S.Pietri, A.Prochazka, J.L.Rodriguez-Sanchez, D.Rossi, H.Simon, L.Tassan-Got, J.Vargas, B.Voss, H.Weick)		6009100100007
gitlab_ci committed 2 months ago	88				6009100100008
	89				6009100100009
	90				6009100100010
	91				6009100100011
	92				6009100100012
	93				6009100100013
	94	INSTITUTE	(2FR BRC, 2SWDCH, 2SPNSAU, 2SPNVIG, 2FR CAE, 2FR 6RA, 26ER6SI)		6009100100014
	95				6009100100015
	96				6009100100016
	97		(2FR FR ) Laboratoire Matiere en Conditions Extremes,		6009100100017

# Version Controlled Exfor Files

- Automatically updated repositories via GitLab Actions
- [In development] use GitLab Actions for automatic review and quality control
- Can serve as versioned input for other tools and workflows
- Trigger pipeline to
  - Generate latest Exfor file once trans file is available
  - Registers a DOI for each Exfor file generated (currently on Sandbox Zenodo)

## Repository references

### NEA compilations

- <https://git.oecd-nea.org/exfor/compilation/prelim>

### NRDC *Open Area* files

- <https://git.oecd-nea.org/exfor/nrdc>

### NEA reviews of prelim files

- <https://git.oecd-nea.org/exfor/nrdc/review/prelim>

### Latest Exfor Files

- <https://git.oecd-nea.org/exfor/exfor-main>  
(exploded file version, compare also to [EXFOR-Archive](#))



# Digital Object Identifiers @ Zenodo

⚠ This is the Zenodo Sandbox instance, used for testing purposes ⚠  
DOIs created in this instance are not real and will not resolve. You can find the production instance of Zenodo at zenodo.org

📁 NRDC

Published May 3, 2024 | Version 2024.5.0

Dataset Open

## EXFOR

Network of Nuclear Reaction Data Centres (NRDC)

Hosting institution: Network of Nuclear Reaction Data Centres (NRDC)

The experimental nuclear reaction database, known as EXFOR stores nuclear reaction data and its' bibliographic information, as well as experimental information about the data. The status (e.g., the source of the data), and history (e.g., date of last update) of the data set is also included.

The data presently included in the EXFOR databases include:

- a "complete" compilation of experimental neutron-induced reaction data,
- a selected compilation of charged-particle-induced reaction data,
- a selected compilation of photon-induced reaction data.

## Files

Name	Size	Download all
<a href="#">exfor.tar.gz</a> md5:fa0cad4bb104f928cf5b524de8260054	333.5 MB	Download

## Additional details

Related works Is described by  
Journal article: [10.1016/j.nds.2014.07.065](https://doi.org/10.1016/j.nds.2014.07.065) (DOI)

Software Repository URL  
<https://git.oecd-nea.org/exfor/exfor-main>  
Development Status  
Active

References • <https://www.nds.iaea.org/nrdc/about/about-exfor.html>

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Version	Date
Version 2024.5.0 10.5072/zenodo.51913	May 3, 2024
Version 2024.4.0 10.5072/zenodo.51912	May 3, 2024
Version 2024.3.1 10.5072/zenodo.51905	May 3, 2024
Version 2024.3.0 10.5072/zenodo.51898	May 3, 2024
Version 2024.2.0 10.5072/zenodo.51827	May 3, 2024

[View all 7 versions](#)

Cite all versions? You can cite all versions by using the DOI [10.5072/zenodo.51699](https://doi.org/10.5072/zenodo.51699). This DOI represents all versions, and will always resolve to the latest one. [Read more.](#)

External resources Indexed in  
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This version	0 Bytes

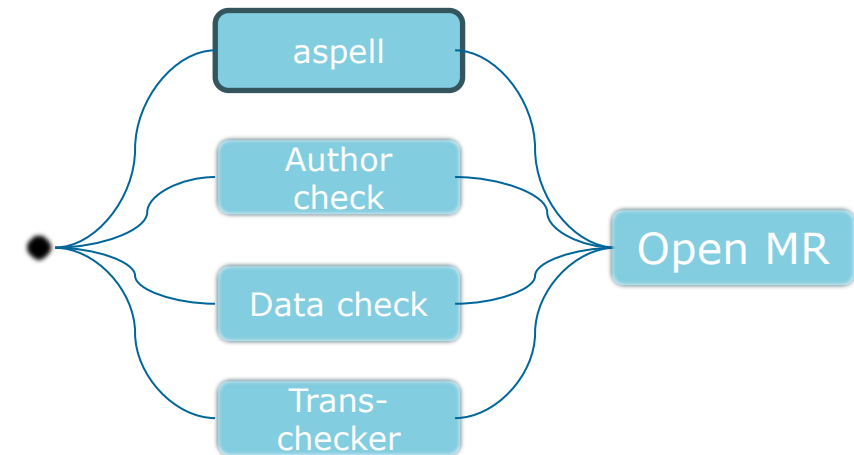
# NEA reviews of prelim files



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## Review includes

- Spell checking
  - Automatic spell correction proposal coming soon!
- Author checking
  - In planning
- Data consistency check
  - In planning
- Run Janis trans-checker
  - Automatically include report [coming soon!]



# Exfor tools language extension for aspell



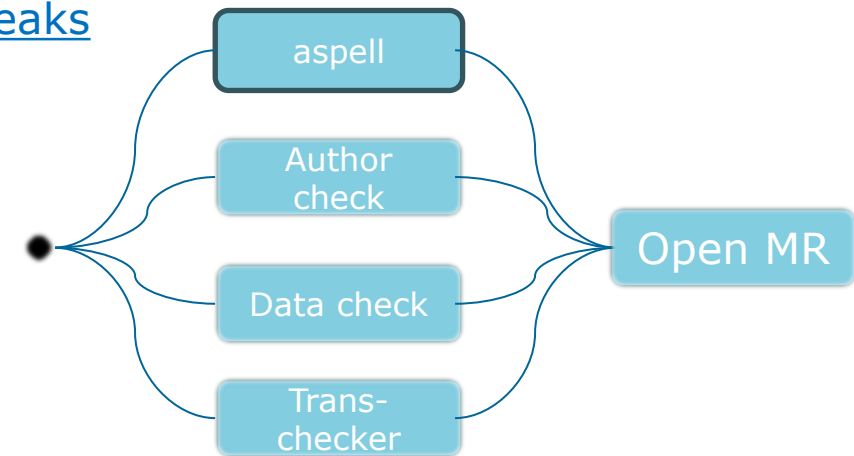
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## Aspell\_speaks

- Exfor language extension for aspell
- Adds Exfor vocabulary as English language variant
- Additionally uses topic specific custom dictionaries
- Python utility function to correct spelling based on best-guess
- Development repo: [https://git.oecd-nea.org/sprenger\\_j/aspell\\_speaks](https://git.oecd-nea.org/sprenger_j/aspell_speaks)

## X4\_utils

- Version controlled code of x4\_utils
- Wrapped as installable python package
- Repo: <https://git.oecd-nea.org/exfor/tools/x4util>



# What's next?

## For the NEA

- Continue automation of manual tasks
  - Finalize aspell workflow to automatically spell correct prelim files
  - Integrate with Janis trans-checker to automatically add feedback in GitLab MR
  - Proposal: Connect automatic email notification of new files in `Open Area` to Exfor technical mailing list
- Collect requirements for a non-expert entry editor

## General Ideas

- Use journal feeds / notifications to populate list of articles to compile
- Register *our* NRDC as research organization at [ror.org](https://ror.org) to get a unique identifier
- Create a NRDC community on [Zenodo.org](https://zenodo.org)



## For everyone

- Check out our repos
  - Create your own fork / clone
  - Set up your own workflows
  - Feel free to open issues / merge requests
    - Let us know what doesn't work
    - Let us know what would be useful for you!
  - Let me know if your [git.oecd-nea.org](https://git.oecd-nea.org) account is not activated yet
- Join the NRDC Zenodo Community at [zenodo.org](https://zenodo.org)
- Help uniquely identifying you by getting an ORCID ([orcid.org](https://orcid.org))





**Thank you for  
your attention**