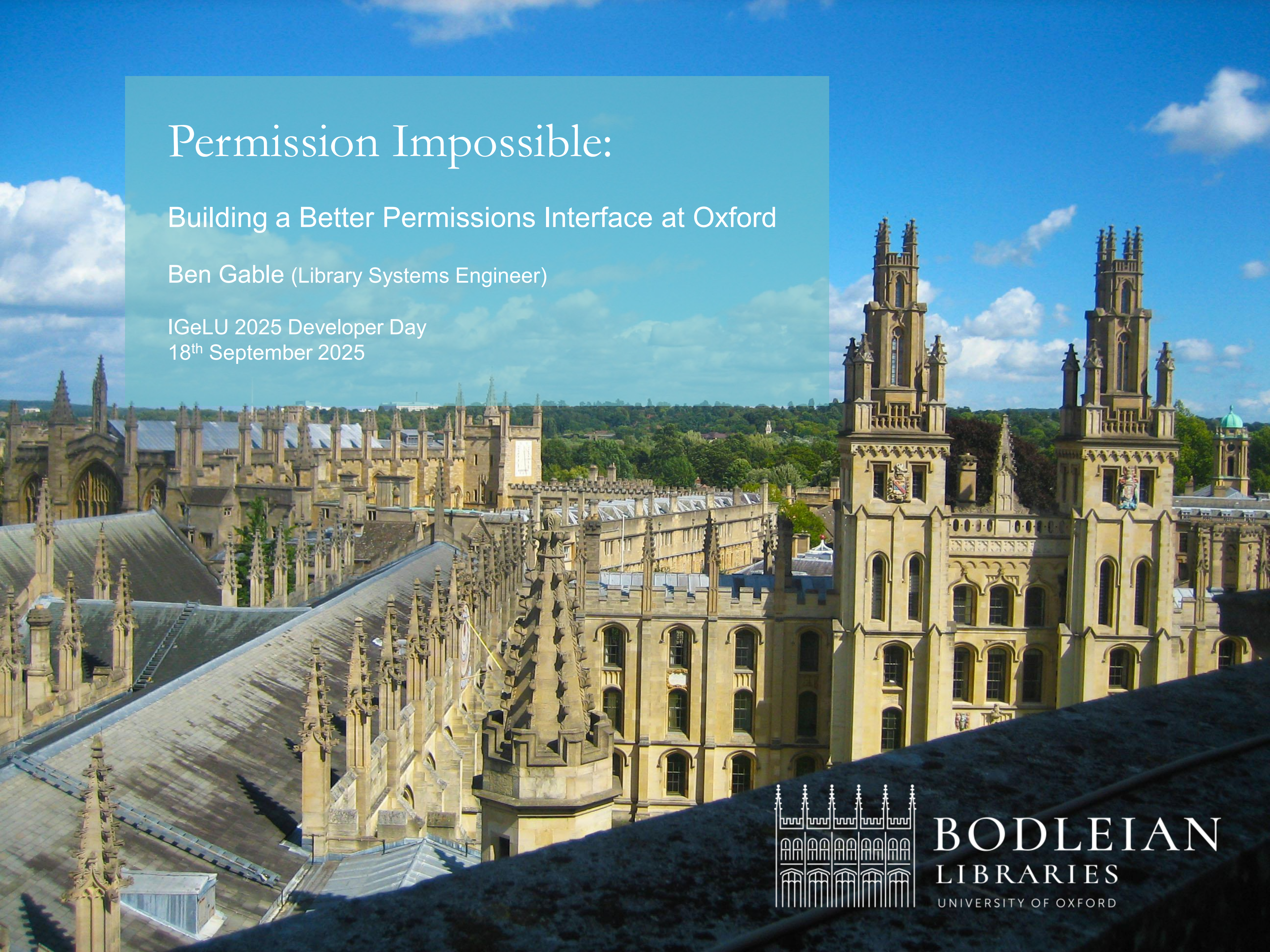

Permission Impossible:

Building a Better Permissions Interface at Oxford

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IGeLU 2025 Developer Day
18th September 2025

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The Plan

- Overview of Oxford libraries
- Permission levels at Oxford
- The challenges of permissions management in the Alma UI
- Building better role templates
- Building a better UI
- The Kitchen Sink: reporting, bulk operations, and more
- Some annoyances
- What’s next?

Oxford libraries – an overview

- Federated model comprising nearly 100 libraries. 25 Bodleian Libraries (university), 42 colleges, rest are departments or affiliated institutions.
- Over 13 million printed items, of which ~11 million are stored offsite
- Colleges have their own circulation policies and handle acquisitions locally, but bibliographic records and discovery are shared.
- We make full use of Alma’s ‘Library Independence’ functionality to protect the privacy and security of college library data.
- Live on Alma since August 2023.

Alma permissions at Oxford

- ~15 permission levels, divided into Fulfilment, Cataloguing, Acquisitions, Serials, ILL (AKA Resource Sharing).
- Usually ‘Basic’, ‘Standard’ and ‘Manager’ levels.
- Acquisitions presents a unique challenge due to library independence – several variations on Standard and Manager levels for Partner/Bodleian site library/Bodleian technical services staff.
- E.g. Acq Basic:
  - Purchasing operator
  - Invoice operator
  - Receiving operator
  - Library Level Analytics consumer
- Acq Standard adds ‘Extended’ roles (deletion) and ‘Fund Ledger Viewer’ (but only for Partner libraries)

Challenges using the Alma UI

- Adding roles individually is a slow and click intensive process, and error prone.
- Profiles are meant to solve this issue, but they don’t scale
- 15 × 100 = 1500 profiles to create and manage! Not viable.
- Additional busywork: setting expiries, adding a user note referencing the permission request ticket.
- Very difficult to tell at a glance what permission levels someone has, especially if they have permissions at a lot of libraries.
- Reporting on the permissions assigned within a library via Analytics is useless – managers think in terms of levels not roles.

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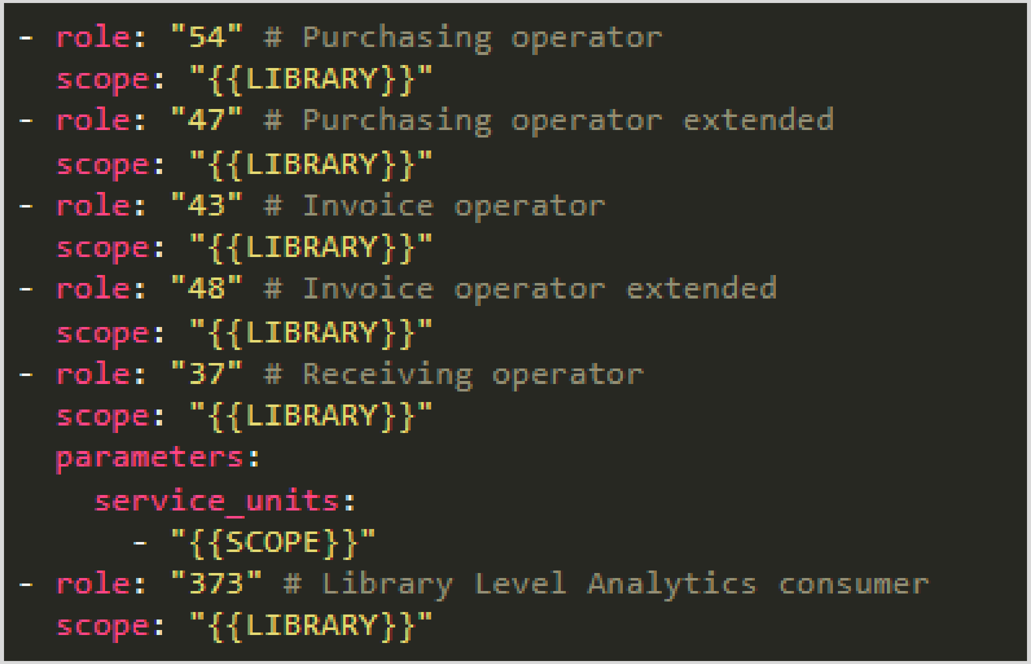
Building better templates: baby steps

- Initial requirement: templates able to take one or more libraries and apply the same set of roles for each, across a spreadsheet

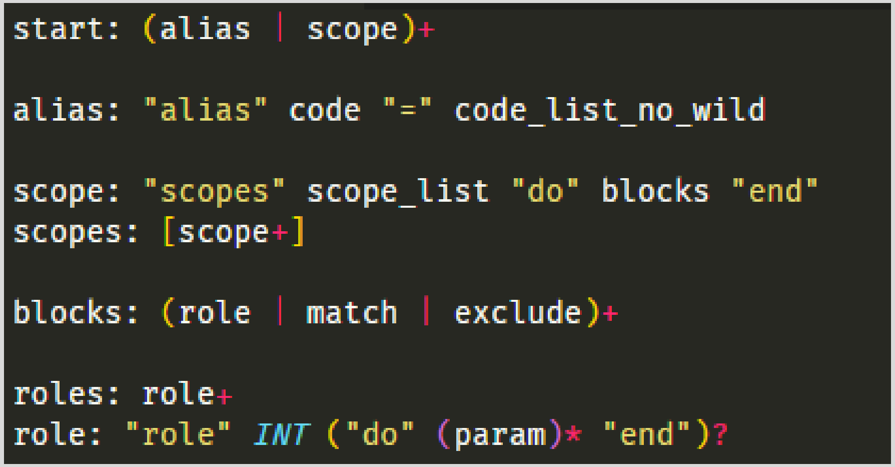
- Python script to process spreadsheets and apply simple YAML templates



```yaml
- role: "54" # Purchasing operator
  scope: "{{LIBRARY}}"
- role: "47" # Purchasing operator extended
  scope: "{{LIBRARY}}"
- role: "43" # Invoice operator
  scope: "{{LIBRARY}}"
- role: "48" # Invoice operator extended
  scope: "{{LIBRARY}}"
- role: "37" # Receiving operator
  scope: "{{LIBRARY}}"
  parameters:
    service_units:
      - "{{SCOPE}}"
- role: "373" # Library Level Analytics consumer
  scope: "{{LIBRARY}}"
```

Building better templates: getting fancy

- YAML isn’t very nice to work with and has a lot of weird quirks.[1]
- A perfect excuse for an ~~overengineered solution~~ simple, readable and concise DSL (domain-specific language).
- Lark is a modern parsing library for Python that makes writing a DSL (fairly) simple.

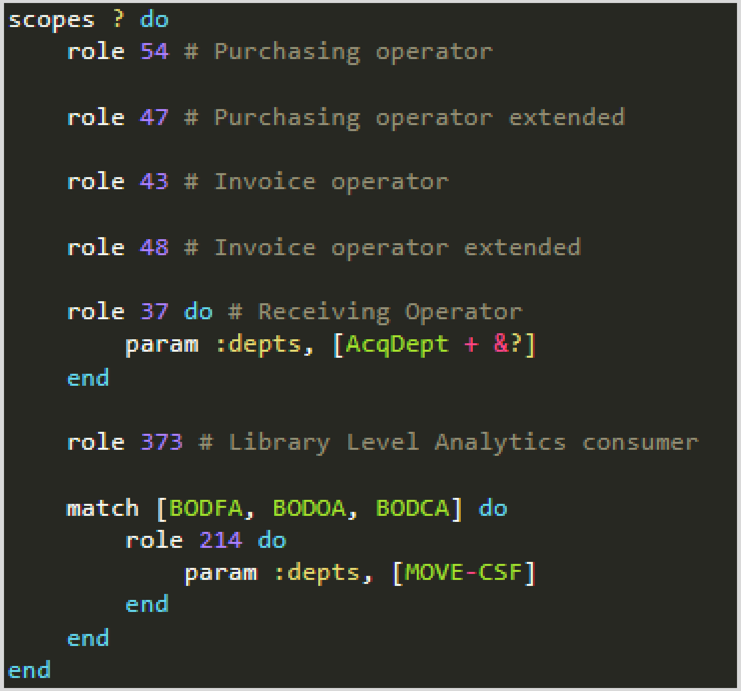


```
start: (alias | scope)+

alias: "alias" code "=" code_list_no_wild

scope: "scopes" scope_list "do" blocks "end"
scopes: [scope+]

blocks: (role | match | exclude)+

roles: role+
role: "role" INT ("do" (param)* "end")?
```

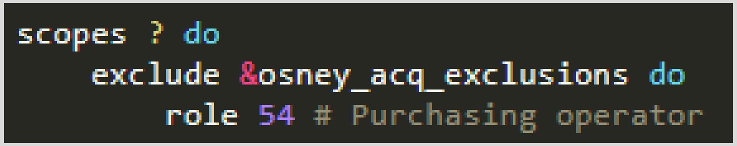
1. https://noyaml.com/

Building better templates: fanciness achieved

- Ruby/Elixir-inspired syntax
- Clear and concise expression of simple cases (fixed and wildcard scopes)
- Derived strings for wildcard scopes (for department codes)
- Conditional logic based on library codes
- Aliases for common groups of libraries
- Exclusions (apply roles for any wildcard scopes except those listed)



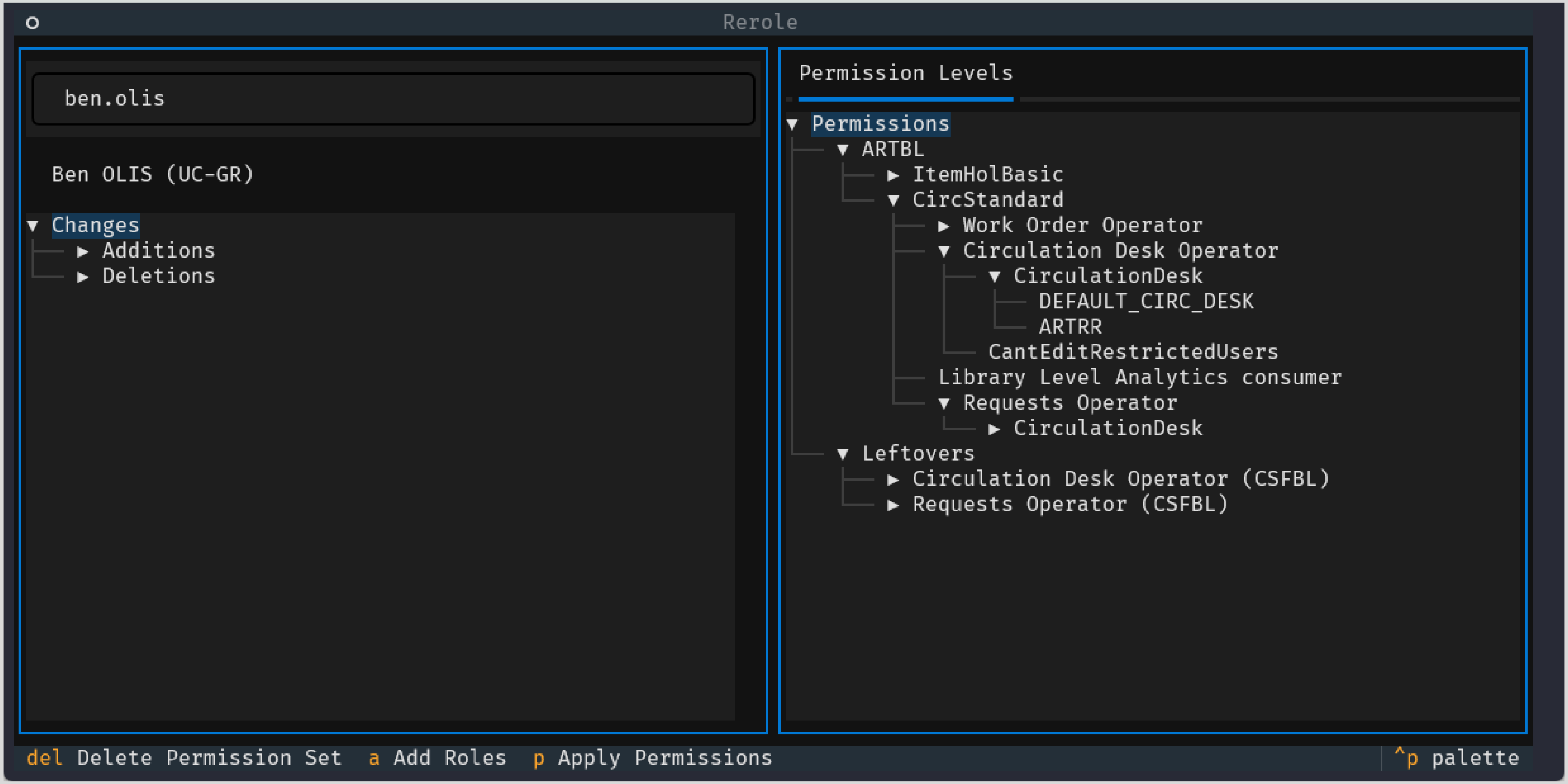
```
scopes ? do
    role 54 # Purchasing operator

    role 47 # Purchasing operator extended

    role 43 # Invoice operator

    role 48 # Invoice operator extended

    role 37 do # Receiving Operator
        param :depts, [AcqDept + &?]
    end

    role 373 # Library Level Analytics consumer

    match [BODFA, BODOA, BODCA] do
        role 214 do
            param :depts, [MOVE-CSF]
        end
    end
end
```



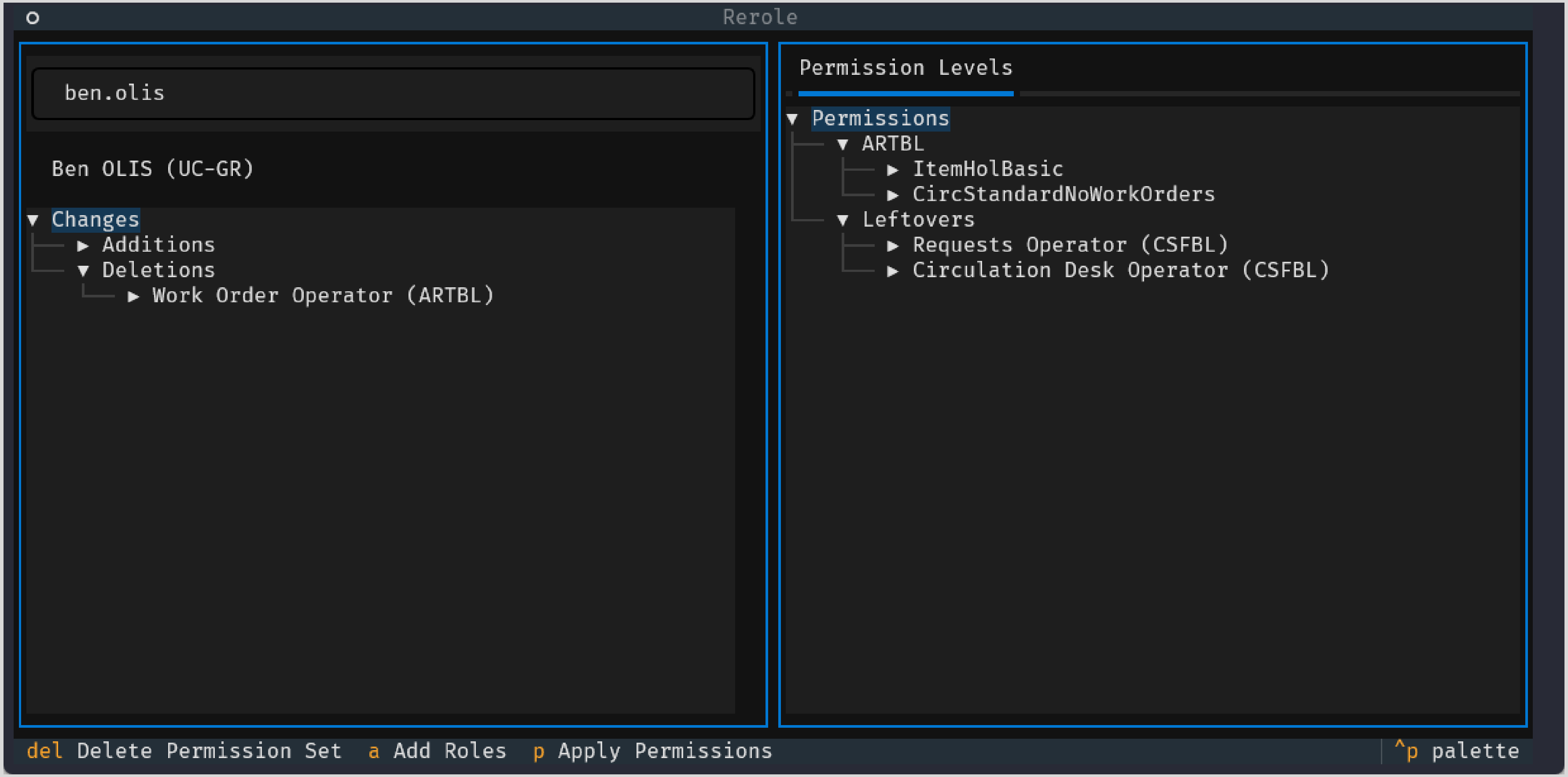
```
scopes ? do
    exclude &osney_acq_exclusions do
        role 54 # Purchasing operator
```

Building a better UI

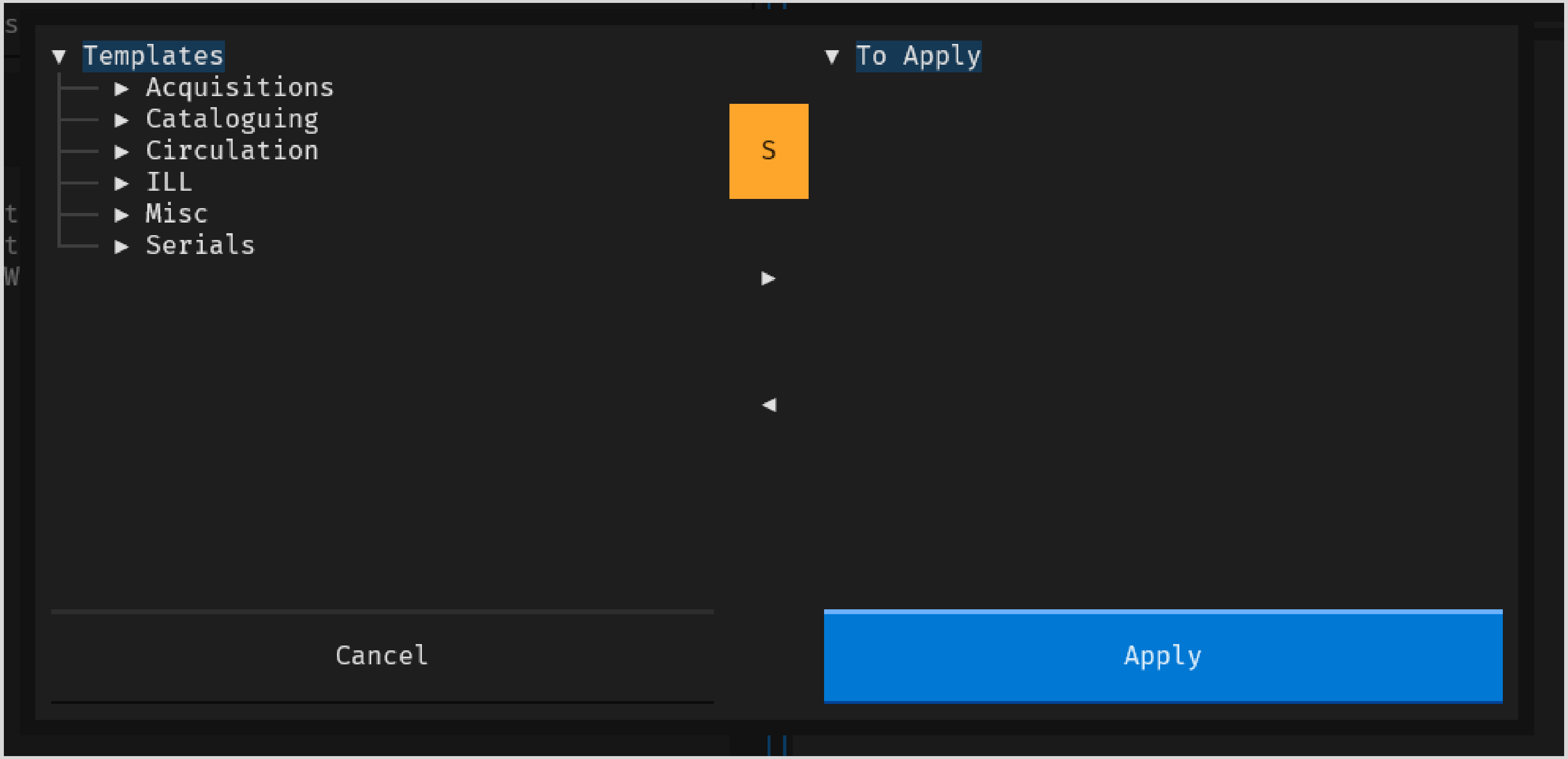
- Priorities: speed (development and responsiveness), ease of deployment
- TUI built using Textual: ‘a rapid application development framework for Python’
- Addition of roles only via templates (individual roles very rarely needed)

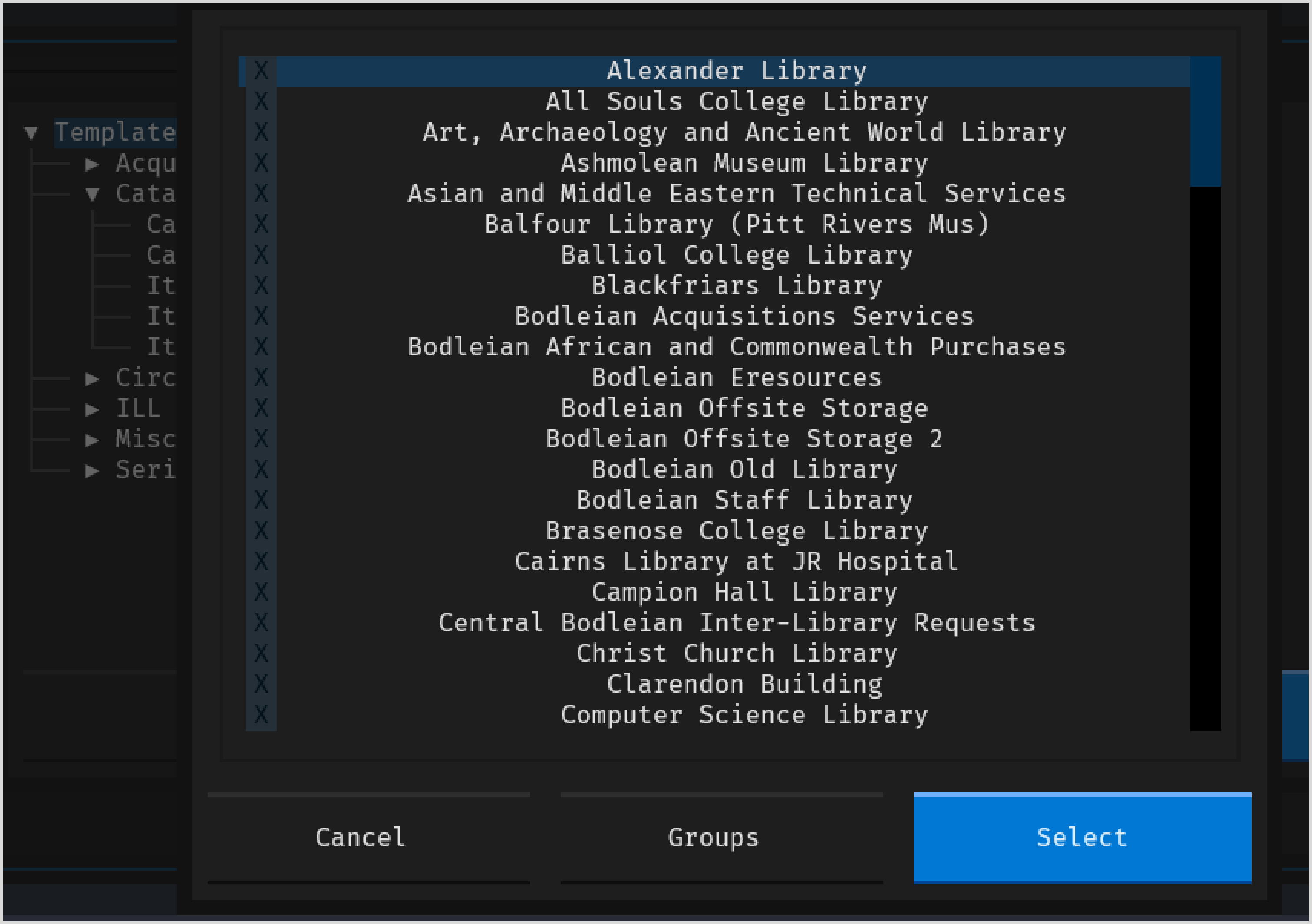


```
○                                   Rerole
 ┌──────────────────────────────────┐ ┌───────────────────────────────────────────────┐
 │ ben.olis                         │ │ Permission Levels                             │
 │                                  │ │ ▼ Permissions                                 │
 │ Ben OLIS (UC-GR)                 │ │ ├── ▼ ARTBL                                   │
 │                                  │ │ │   ├── ▶ ItemHolBasic                         │
 │ ▼ Changes                        │ │ │   └── ▼ CircStandard                         │
 │ ├── ▶ Additions                  │ │ │       ├── ▶ Work Order Operator              │
 │ └── ▶ Deletions                  │ │ │       ├── ▼ Circulation Desk Operator        │
 │                                  │ │ │       │   ├── ▼ CirculationDesk              │
 │                                  │ │ │       │   │   ├── DEFAULT_CIRC_DESK          │
 │                                  │ │ │       │   │   └── ARTRR                      │
 │                                  │ │ │       │   └── CantEditRestrictedUsers        │
 │                                  │ │ │       ├── Library Level Analytics consumer   │
 │                                  │ │ │       └── ▼ Requests Operator                │
 │                                  │ │ │           └── ▶ CirculationDesk              │
 │                                  │ │ └── ▼ Leftovers                               │
 │                                  │ │     ├── ▶ Circulation Desk Operator (CSFBL)   │
 │                                  │ │     └── ▶ Requests Operator (CSFBL)           │
 └──────────────────────────────────┘ └───────────────────────────────────────────────┘
 del Delete Permission Set  a Add Roles  p Apply Permissions              │ ^p palette
```

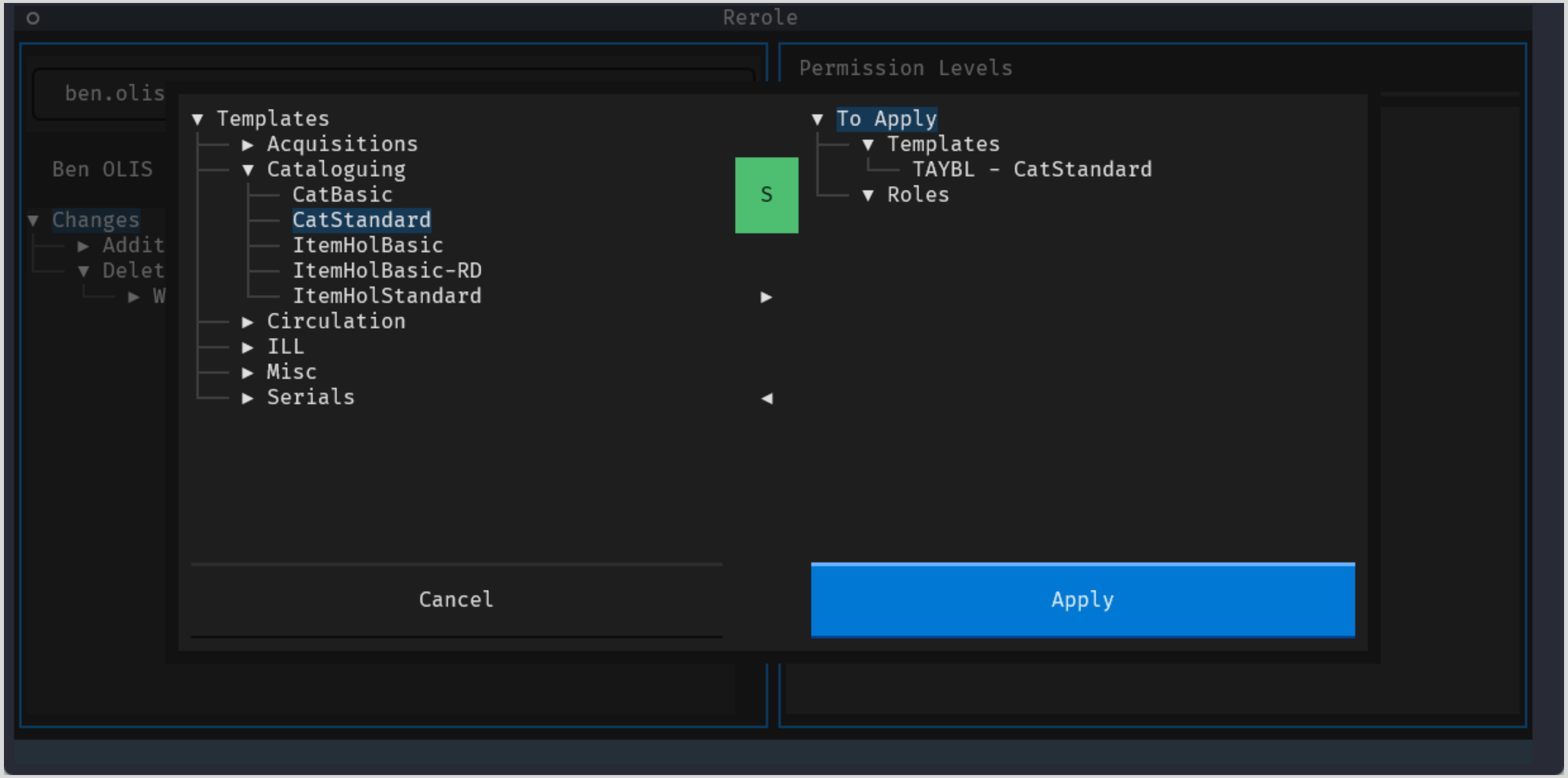


```
○                                   Rerole
ben.olis                                    Permission Levels

Ben OLIS (UC-GR)                            ▼ Permissions
                                            ├── ▼ ARTBL
▼ Changes                                   │   ├── ▶ ItemHolBasic
├── ▶ Additions                             │   └── ▶ CircStandardNoWorkOrders
└── ▼ Deletions                             └── ▼ Leftovers
    └── ▶ Work Order Operator (ARTBL)           ├── ▶ Requests Operator (CSFBL)
                                                └── ▶ Circulation Desk Operator (CSFBL)

del Delete Permission Set  a Add Roles  p Apply Permissions                   ^p palette
```


▼ Templates
▶ Acquisitions
▶ Cataloguing
▶ Circulation
▶ ILL
▶ Misc
▶ Serials
S
▶
◀
▼ To Apply
Cancel
Apply



```
X  Alexander Library
X  All Souls College Library
X  Art, Archaeology and Ancient World Library
X  Ashmolean Museum Library
X  Asian and Middle Eastern Technical Services
X  Balfour Library (Pitt Rivers Mus)
X  Balliol College Library
X  Blackfriars Library
X  Bodleian Acquisitions Services
X  Bodleian African and Commonwealth Purchases
X  Bodleian Eresources
X  Bodleian Offsite Storage
X  Bodleian Offsite Storage 2
X  Bodleian Old Library
X  Bodleian Staff Library
X  Brasenose College Library
X  Cairns Library at JR Hospital
X  Campion Hall Library
X  Central Bodleian Inter-Library Requests
X  Christ Church Library
X  Clarendon Building
X  Computer Science Library
```


Rerole
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▼ Changes
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▶ Acquisitions
▼ Cataloguing
CatBasic
CatStandard
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ItemHolStandard
▶ Circulation
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◀
▼ To Apply
▼ Templates
TAYBL - CatStandard
▼ Roles
Cancel
Apply

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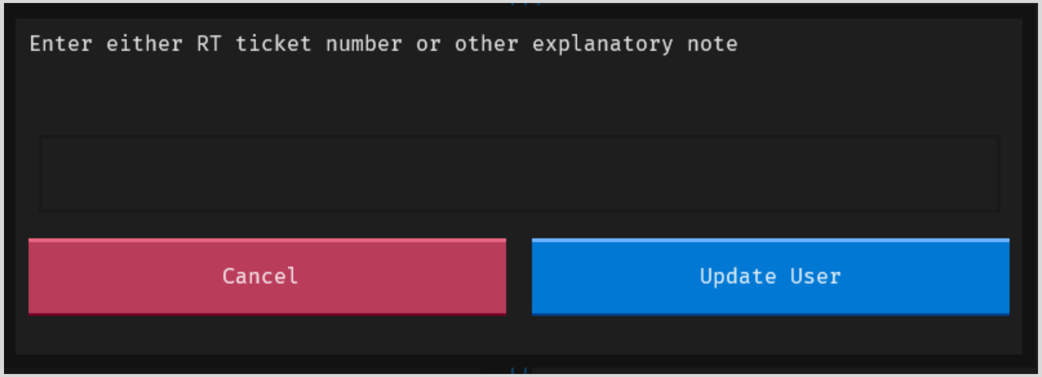
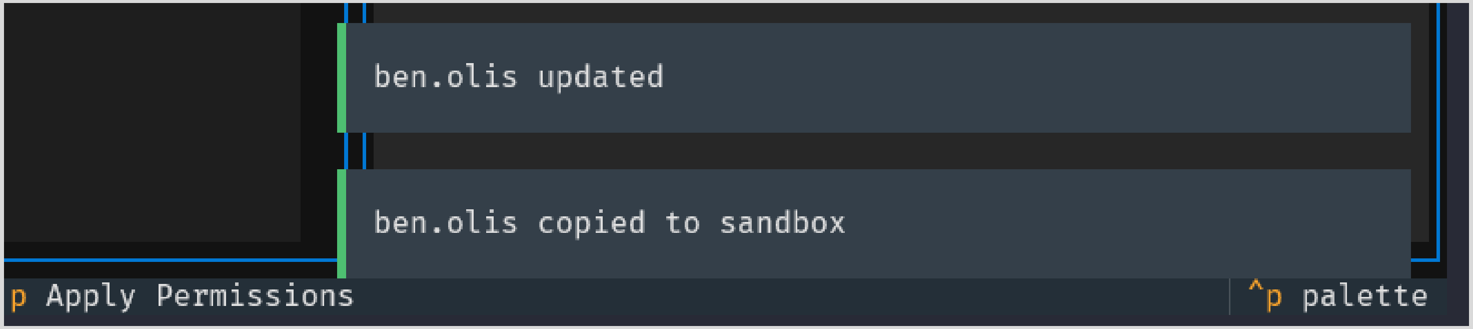
The Kitchen Sink: TUI

- Permission request notes
- Copy to premium sandbox
- Role expiry matching



Enter either RT ticket number or other explanatory note



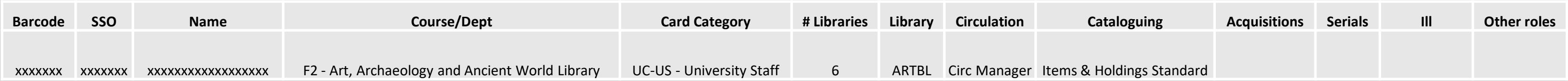
ben.olis updated

ben.olis copied to sandbox

The Kitchen Sink: other handy features

- With staff thinking about permissions in terms of “levels” rather than roles, reporting needs to match – Analytics is inadequate

- Report supports annual permissions review: one per library



Barcode	SSO	Name	Course/Dept	Card Category	# Libraries	Library	Circulation	Cataloguing	Acquisitions	Serials	Ill	Other roles
xxxxxxx	xxxxxxx	xxxxxxxxxxxxxxxxxx	F2 - Art, Archaeology and Ancient World Library	UC-US - University Staff	6	ARTBL	Circ Manager	Items & Holdings Standard				

- Bulk application of permissions using spreadsheet input (same roles to all users)

Some Annoyances

- The Alma roles UI is permissive, but the API is not.
    - Any human editing of permissions can lead to a user record entering an invalid state in which it cannot be updated.
    - Solution: validate (with Pydantic) when user is fetched and discard invalid data
- User history is terrible

Summary

- Powerful and flexible template system covers most scenarios across Oxford libraries, all but eliminating manual tweaks.

- The template system allows libraries to be passed in as parameters, addressing the key weakness of the Alma role profiles system, and adds conditional rules for library-specific permission scenarios.

- Allows staff permissions to be built from and reported on as various “levels” within each functional area.

- TUI application allows for very rapid updating of permissions, turning a 5-minute task into a 30-second one. Saving 100+ hours a year.

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What’s next?

- Structured recording of permission details/sources – improved reporting and automatic removal.
- Move from TUI to web application
- Integrated request form + approvals workflow
- Expiry management for time-limited permissions (temporary/emergency cover)
- Annual manager confirmation/review

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Thank you.

Questions?

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