KU LEUVEN

ManGO Portal feature updates, including extension points and workflows

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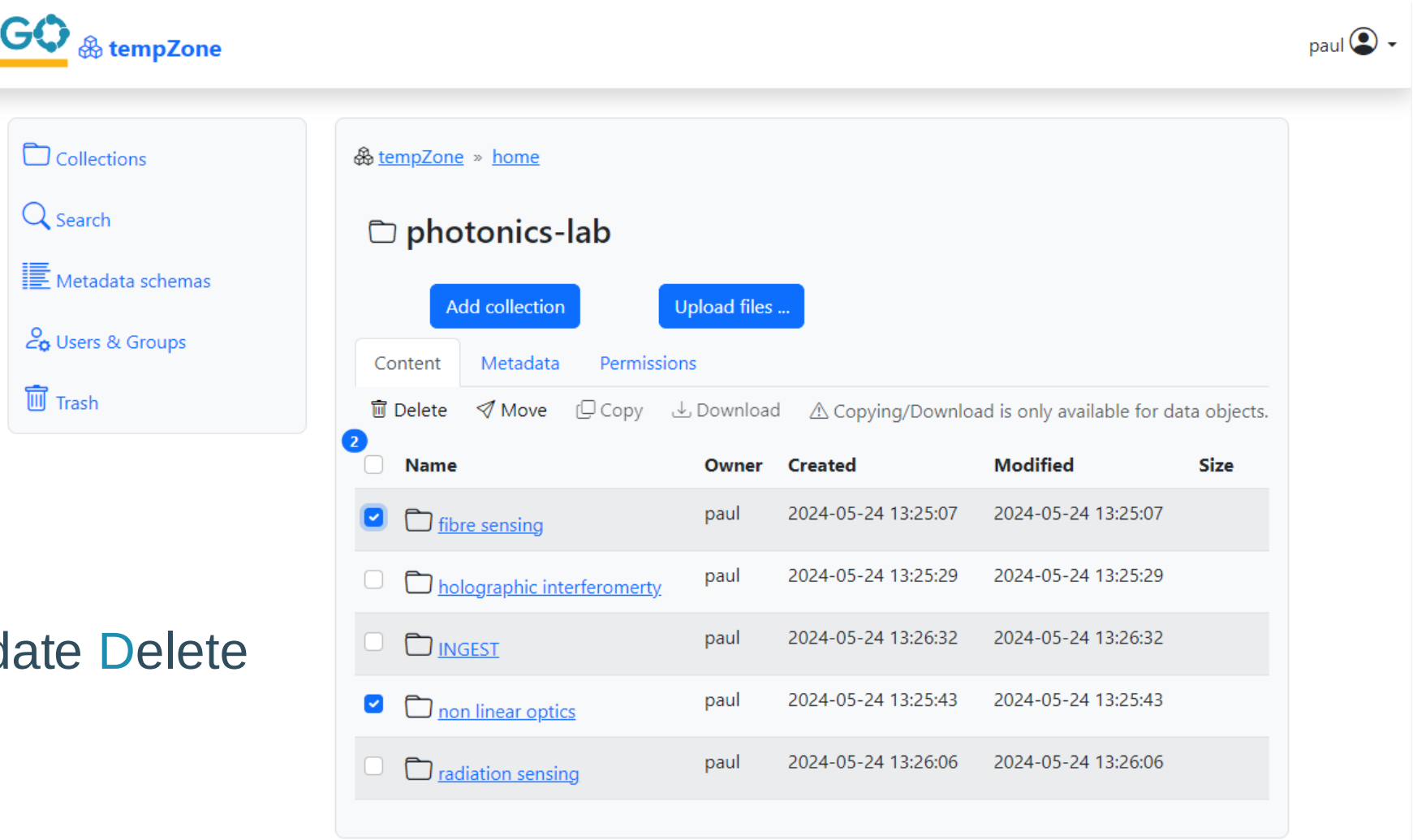
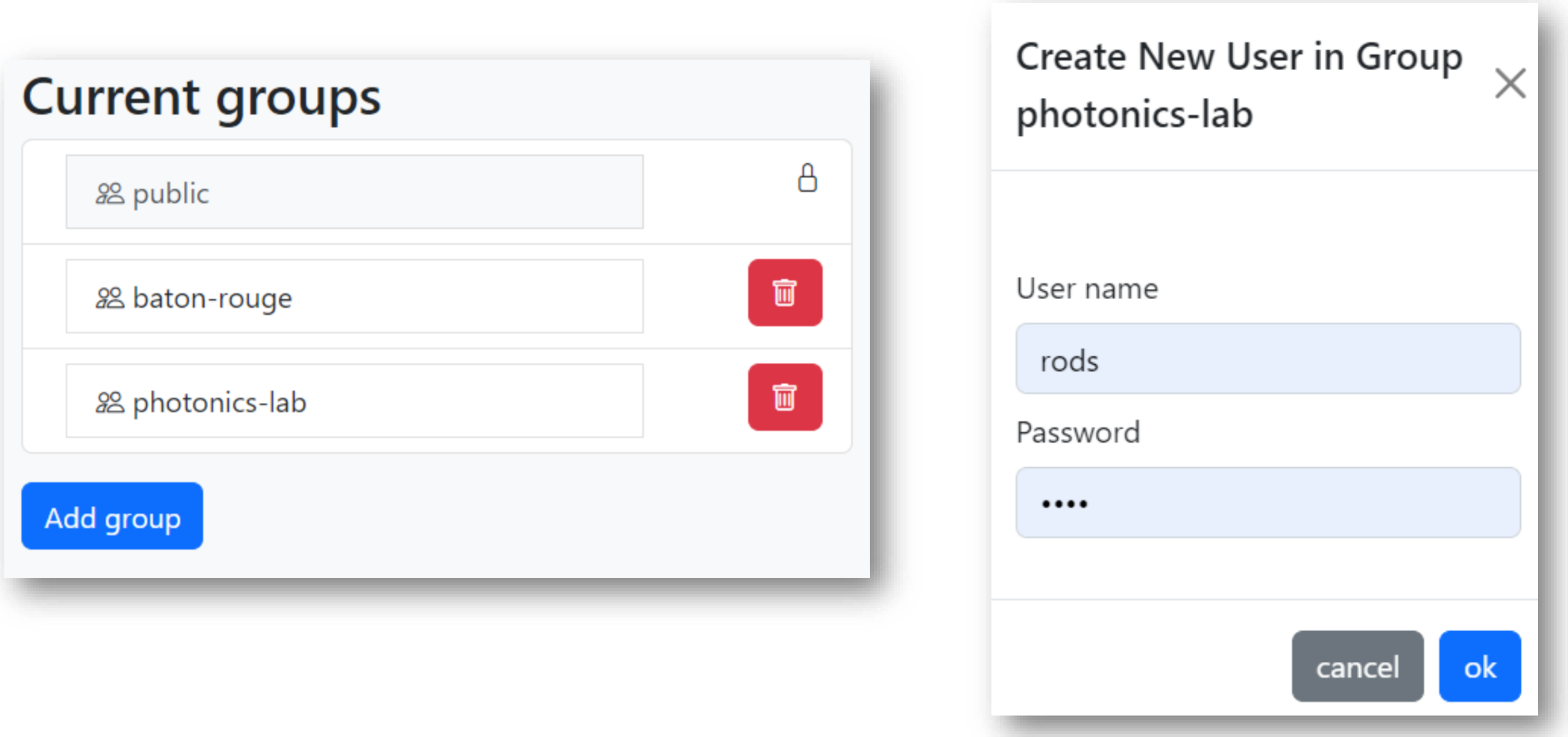
ManGO

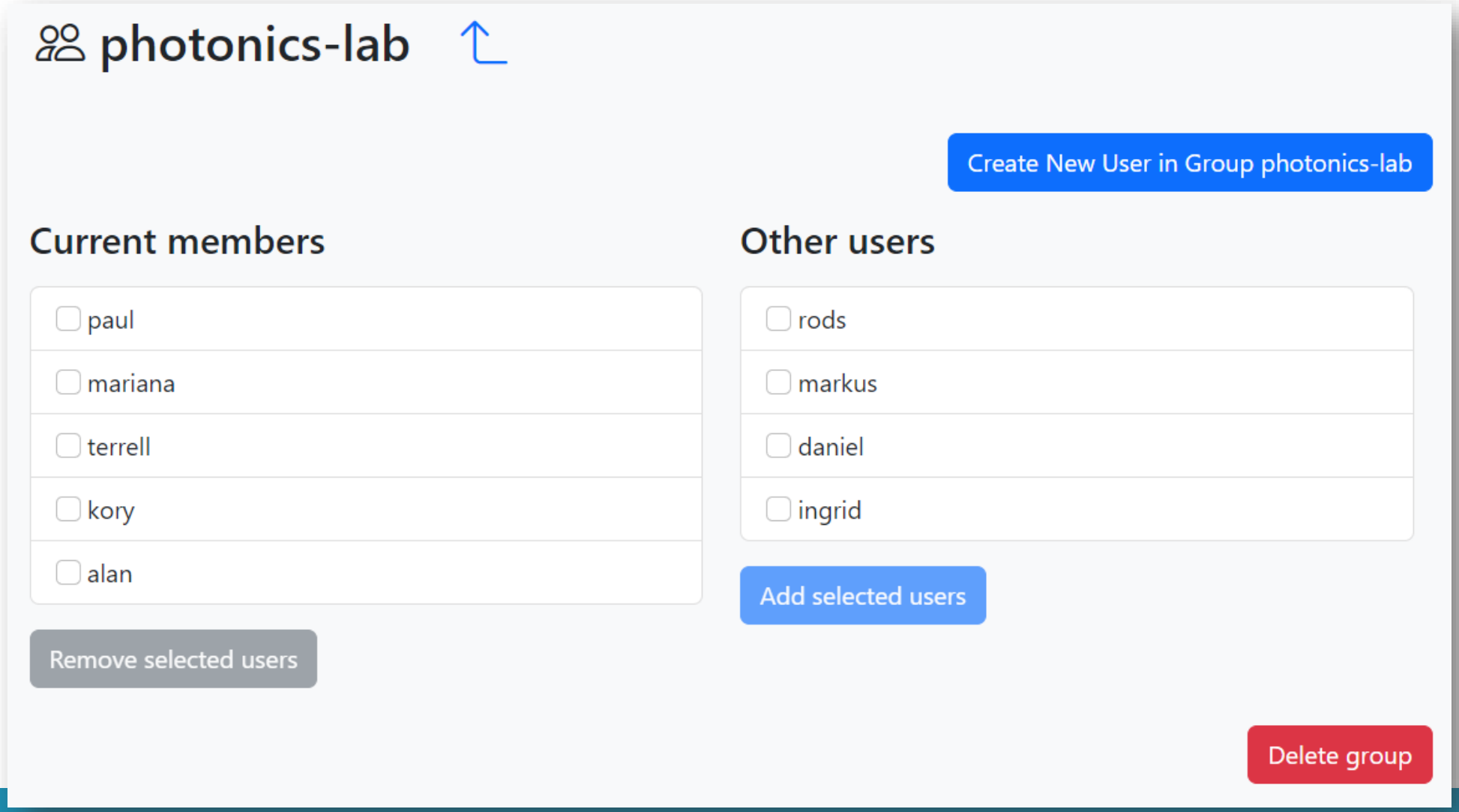
- iRODS PRC
- Flask
- Data and Metadata
  - Create Read Update Delete
  - Bulk operations



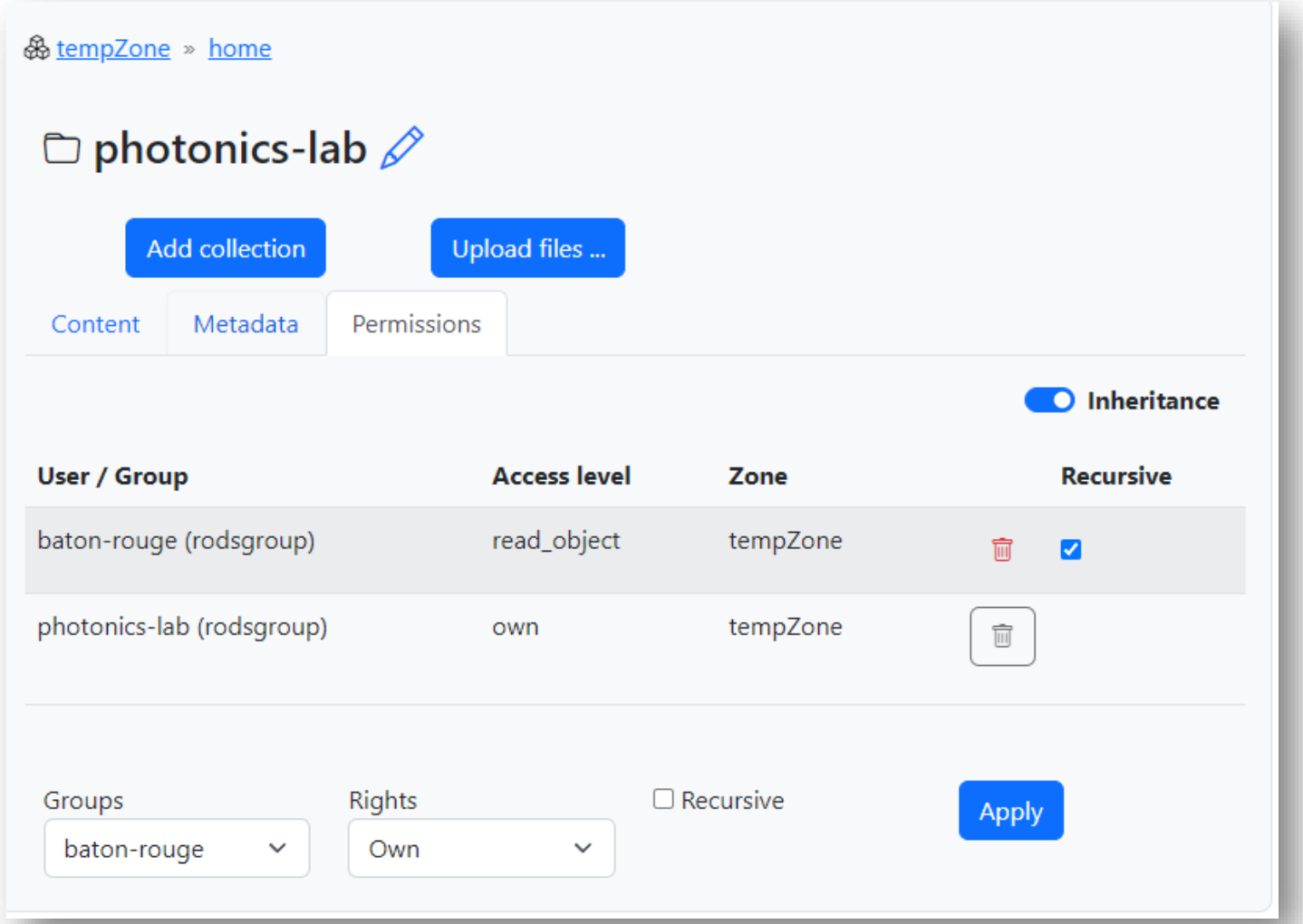
MaNGO user and group management



MaNGO user and group management

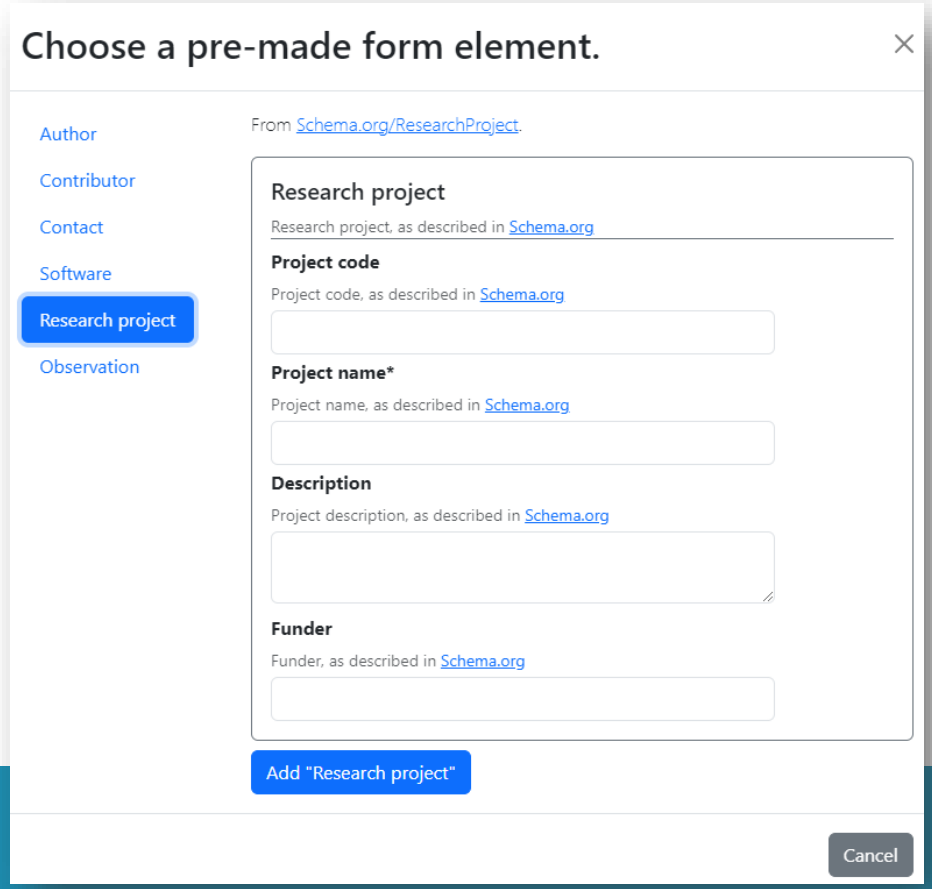


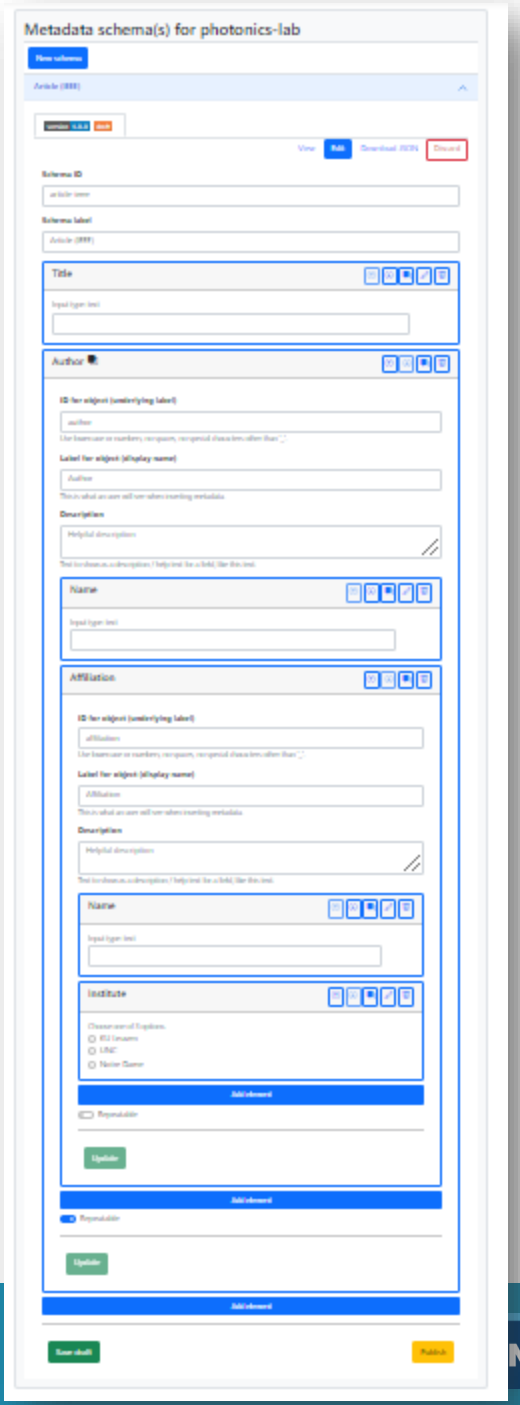
ManGO ACL's


tempZone » home
photonics-lab
Add collection
Upload files ...
Content
Metadata
Permissions
Inheritance
User / Group
Access level
Zone
Recursive
baton-rouge (rodsgroup)
read_object
tempZone
photonics-lab (rodsgroup)
own
tempZone
Groups
baton-rouge
Rights
Own
Recursive
Apply

Metadata Schemas

- Enriched metadata types
- Nested, repeatable composite fields
- JSON import/export
- Component library





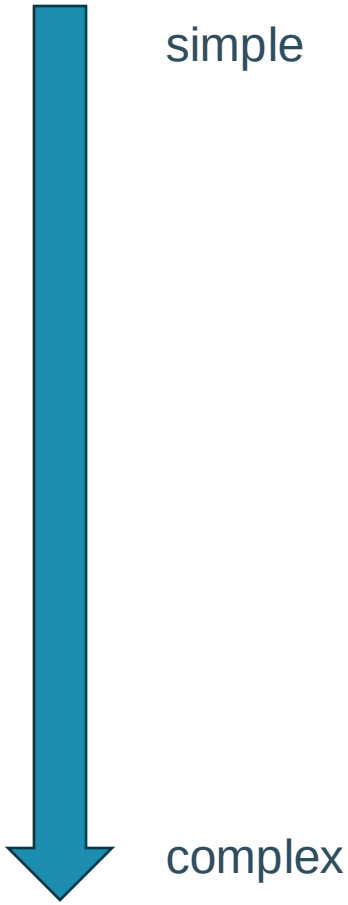
Extension points / customizations

Starting from ManGO portal generic version

Photo by Michele Bitetto on Unsplash

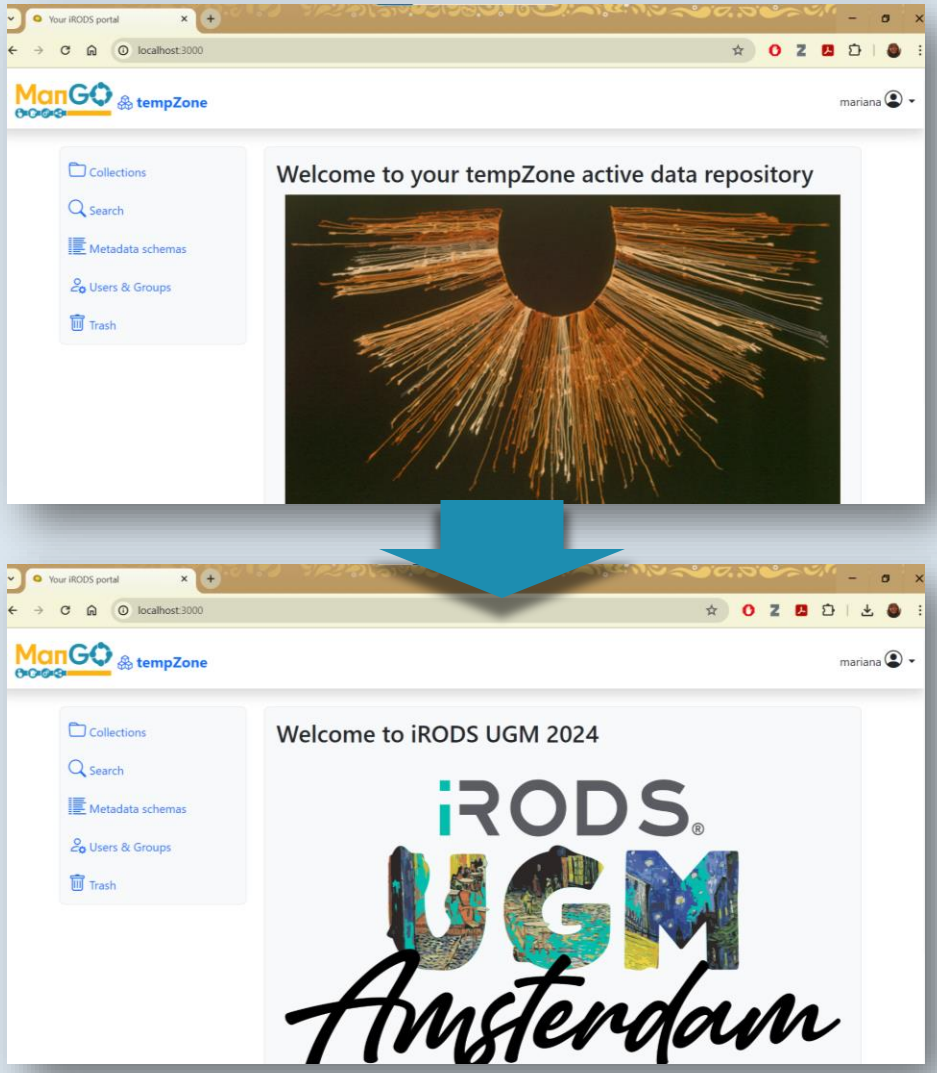
The gist for extending MaNGO portal

- Configuration directives
- Template overrides (Flask/Jinja2)
- Core class overrides
  - Config
  - Code
- Flask blueprints
  - All of the above
  - Extend / Override anything
- Workflows



Change landing page: template override

```
view_template = get_template_override_manager(
    g.irods_session.zone
).get_template_for_catalog_item(
    g.irods_session.collections.get(f"/{g.irods_session.zone}"),
    "index.html.j2"
)
```



Override a template

index.html.j2

src > templates > index.html.j2

```
1  {% extends "base.html.j2" %}
2  {% block body %}
3  ...
4     <h2>Welcome to your {{ g.irods_session.zone }} active data repository</h2>
```

index_ugm.html.j2

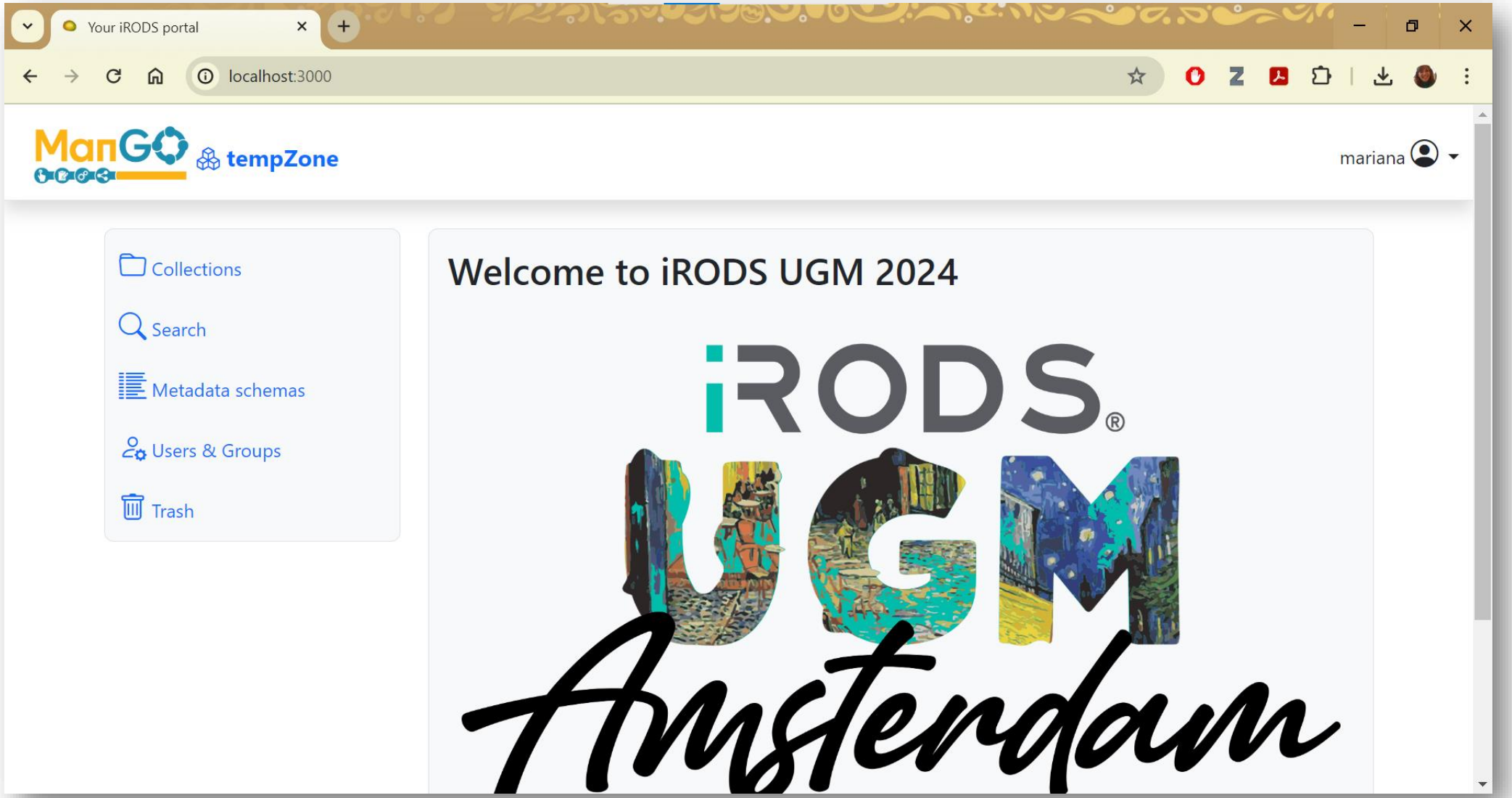
src > templates > index_ugm.html.j2

```
1  {% extends "base.html.j2" %}
2  {% block body %}
3  ...
4     <h2>Welcome to iRODS UGM 2024</h2>
```

template_override_rules_basic.yml

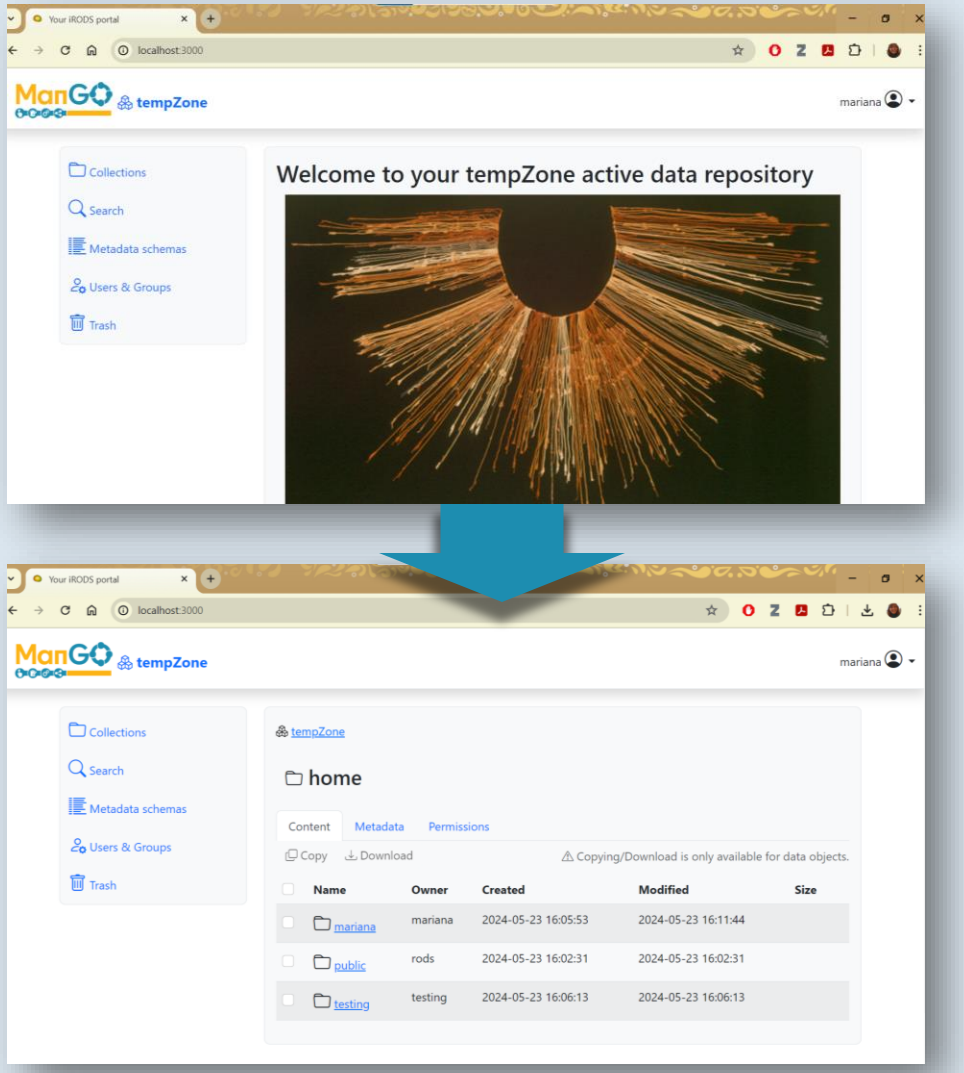
src config > template_override_rules_basic.yml

```
17  view_new_landing:
18     source: index.html.j2
19     target: index_ugm.html.j2
20     matches: always
```


Your iRODS portal
localhost:3000
ManGO
tempZone
mariana
Collections
Search
Metadata schemas
Users & Groups
Trash
Welcome to iRODS UGM 2024
iRODS
UGM
Amsterdam

Change landing page: route

```
@app.route("/")
def index():
```



Change landing route

config_basic.py

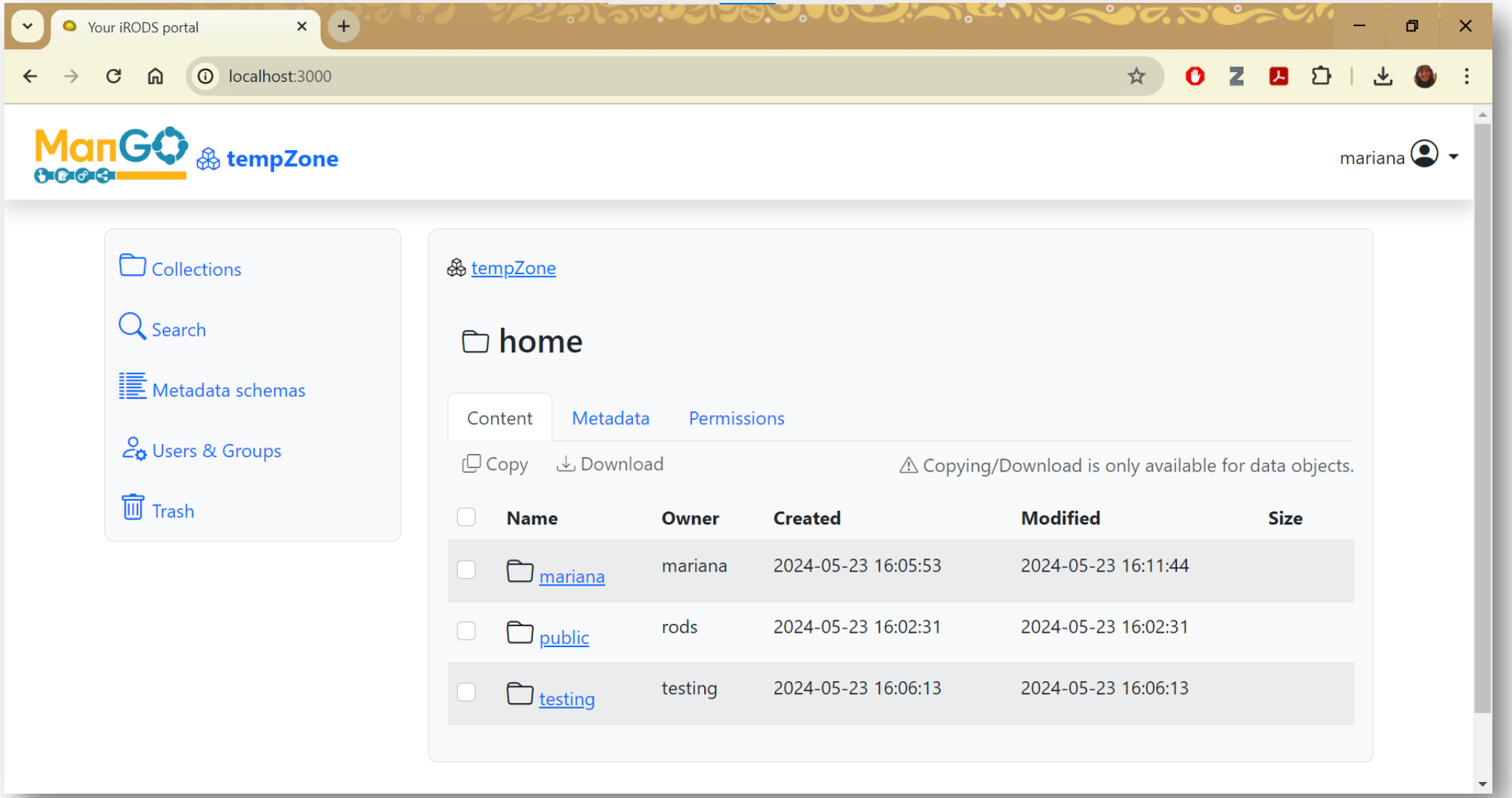
src > config_basic.py

```
45
46    MANGO_MAIN_LANDING_ROUTE = {"module": "kernel.common.browse", "function": "index"}
47
```

config_basic.py

src > config_basic.py

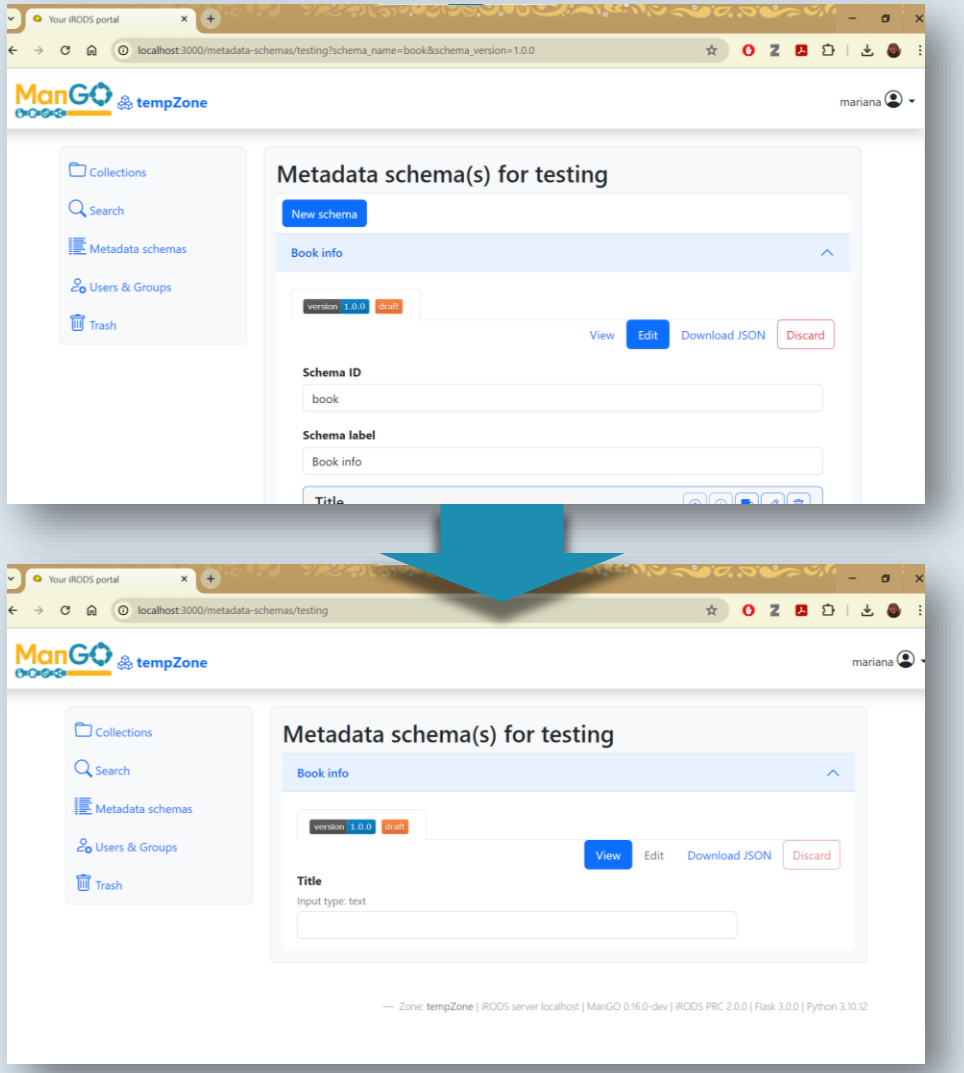
```
45
46    MANGO_MAIN_LANDING_ROUTE = {"module": "kernel.common.browse", "function": "collection_browse"}
47
```

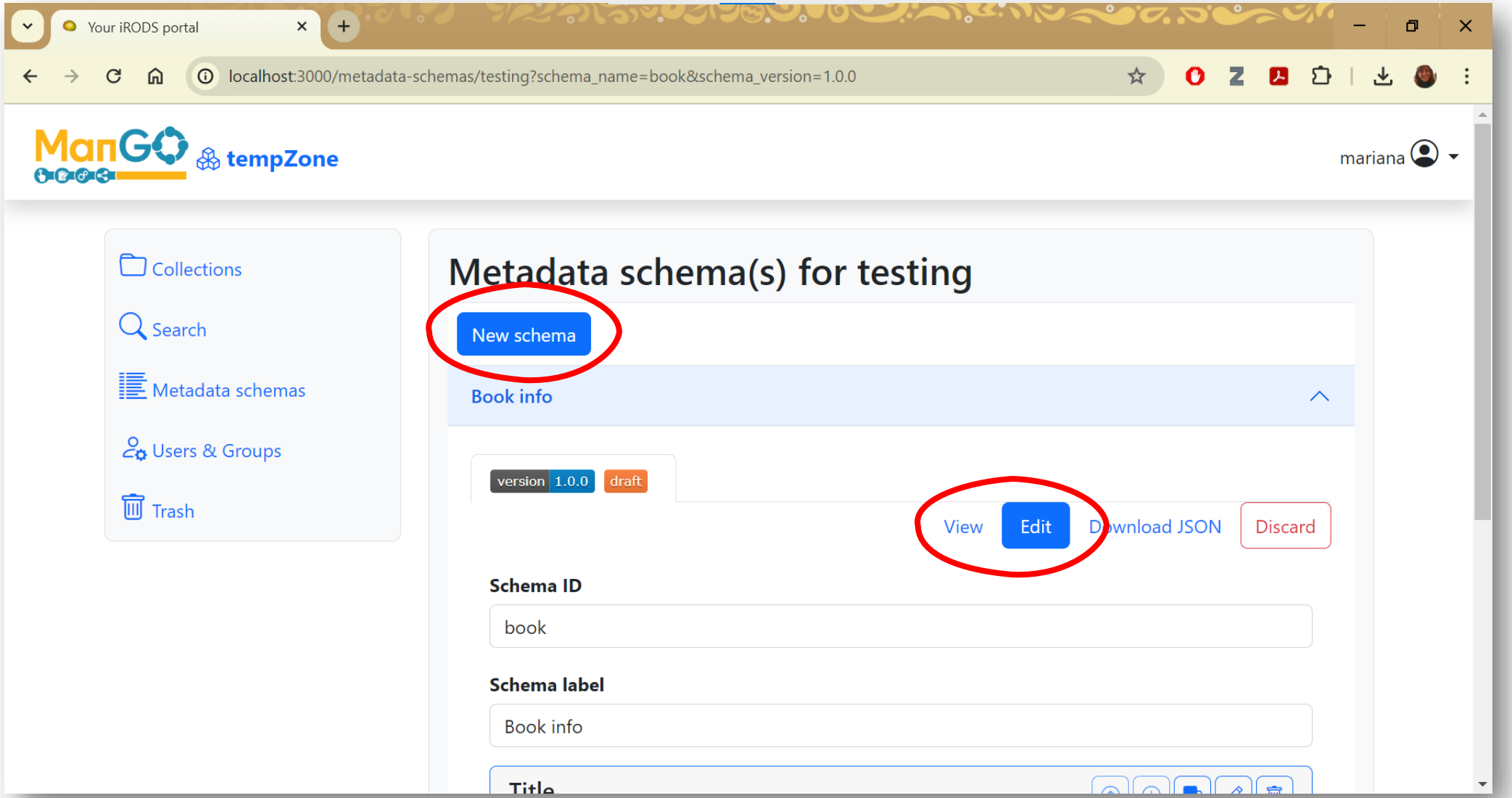

Your iRODS portal
localhost:3000
ManGO
tempZone
mariana
Collections
Search
Metadata schemas
Users & Groups
Trash
tempZone
home
Content
Metadata
Permissions
Copy
Download
Copying/Download is only available for data objects.
Name
Owner
Created
Modified
Size
mariana
mariana
2024-05-23 16:05:53
2024-05-23 16:11:44
public
rods
2024-05-23 16:02:31
2024-05-23 16:02:31
testing
testing
2024-05-23 16:06:13
2024-05-23 16:06:13

Change behaviour: class overrides

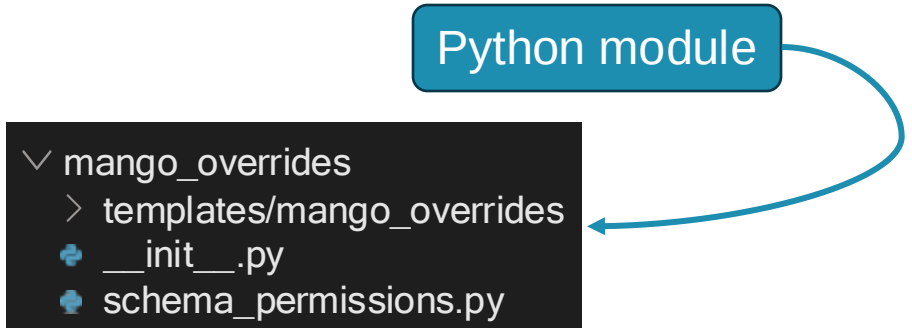
Change authorization rules for the metadata schema manager

```
class GroupBasedSchemaPermissions(BaseSchemaPermissionsManager):
    def __init__(self, zone: str, realm: str):
```




Your iRODS portal
localhost:3000/metadata-schemas/testing?schema_name=book&schema_version=1.0.0
ManGO
tempZone
mariana
Collections
Search
Metadata schemas
Users & Groups
Trash
Metadata schema(s) for testing
New schema
Book info
version 1.0.0
draft
View
Edit
Download JSON
Discard
Schema ID
book
Schema label
Book info
Title

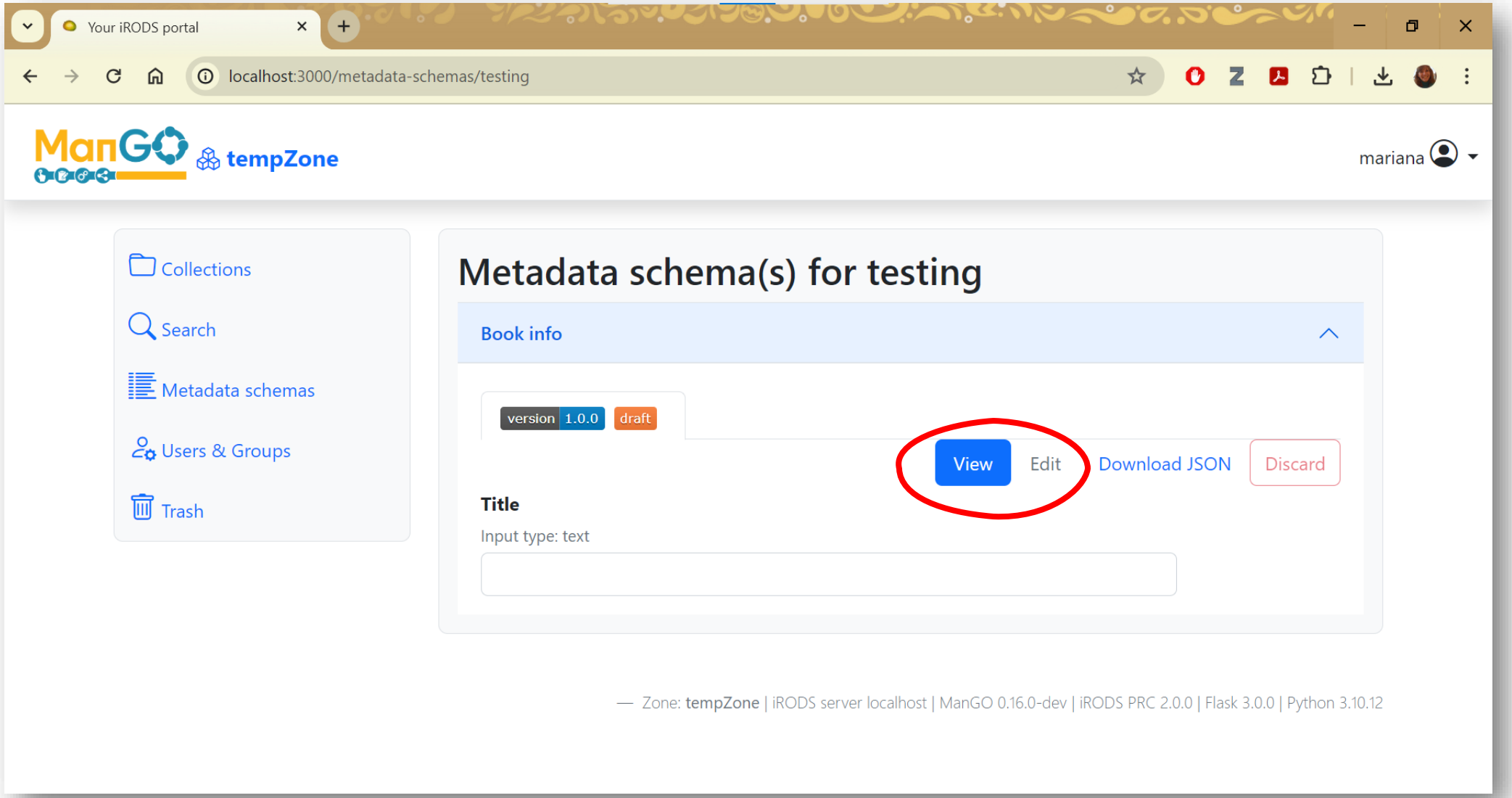
Change behavior with a plugin



config_basic.py

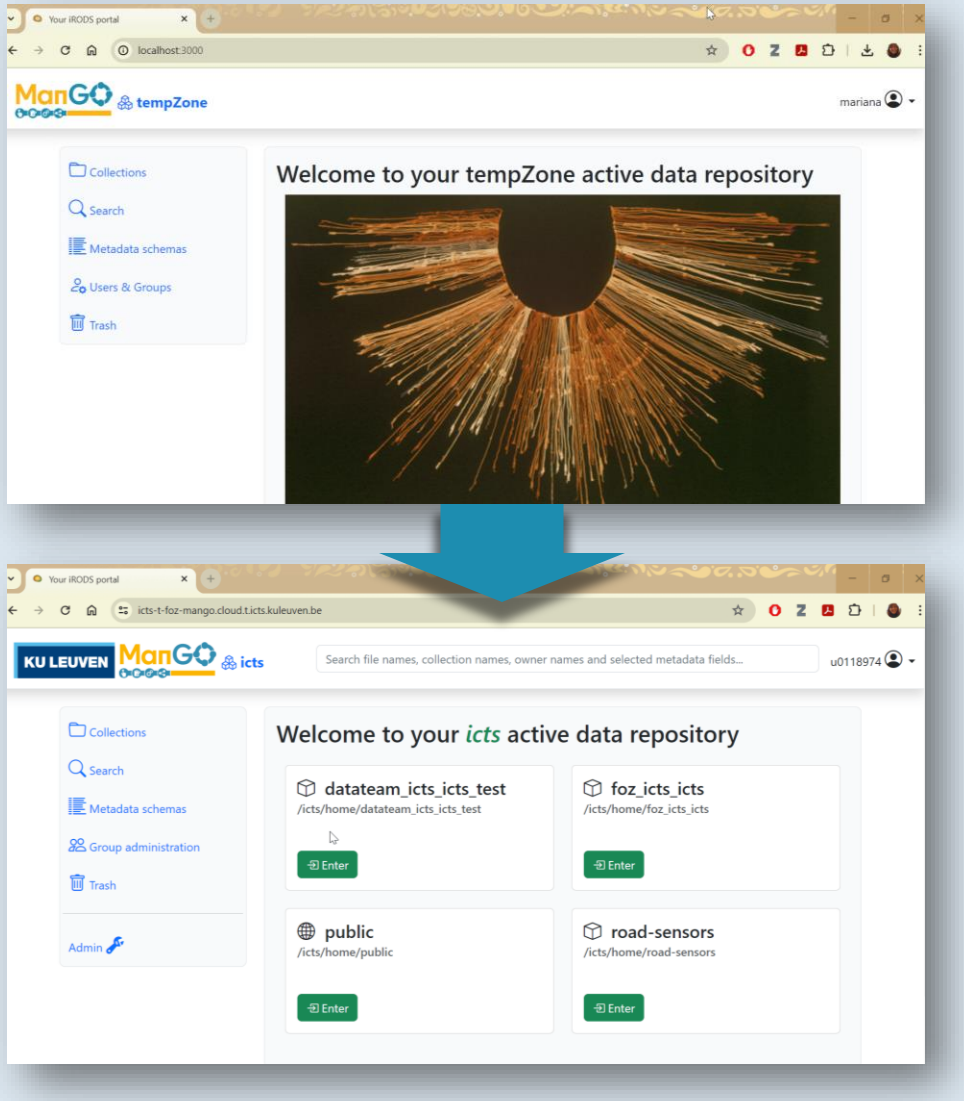
src > config_basic.py

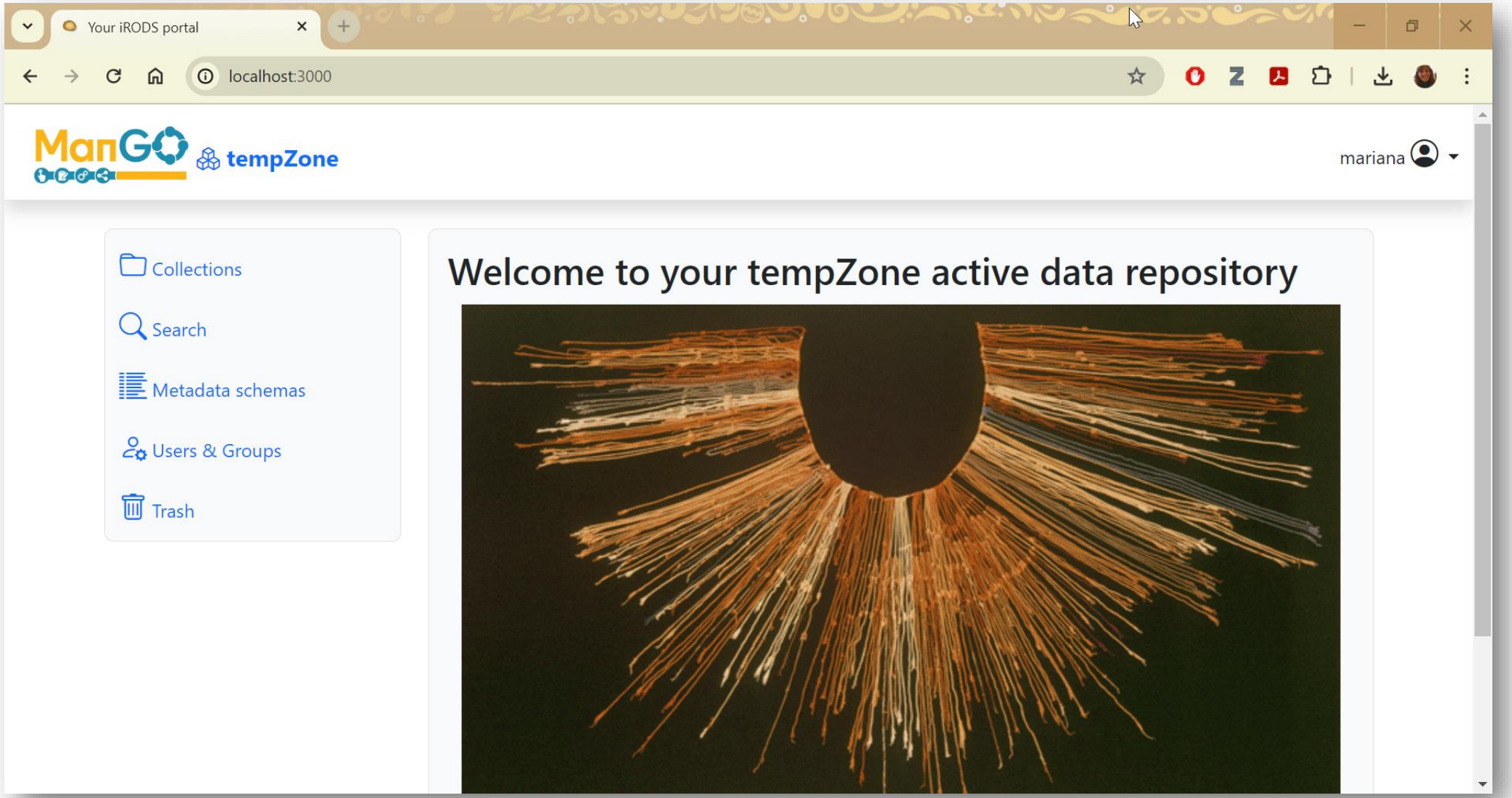
```
54  MANGO_SCHEMA_PERMISSIONS_MANAGER_CLASS = {
55      "module": "plugins.mango_overrides.schema_permissions",
56      "class": "GroupBasedSchemaPermissions",
57  }
```


Your iRODS portal
localhost:3000/metadata-schemas/testing
ManGO
tempZone
mariana
Collections
Search
Metadata schemas
Users & Groups
Trash
Metadata schema(s) for testing
Book info
version 1.0.0
draft
View
Edit
Download JSON
Discard
Title
Input type: text
— Zone: tempZone | iRODS server localhost | ManGO 0.16.0-dev | iRODS PRC 2.0.0 | Flask 3.0.0 | Python 3.10.12

Bring everything together

KU Leuven project-based setup in ManGO




Your iRODS portal
localhost:3000
ManGO
tempZone
mariana
Collections
Search
Metadata schemas
Users & Groups
Trash
Welcome to your tempZone active data repository

user_tantra plugin

Python module

config_basic.py

src > config_basic.py

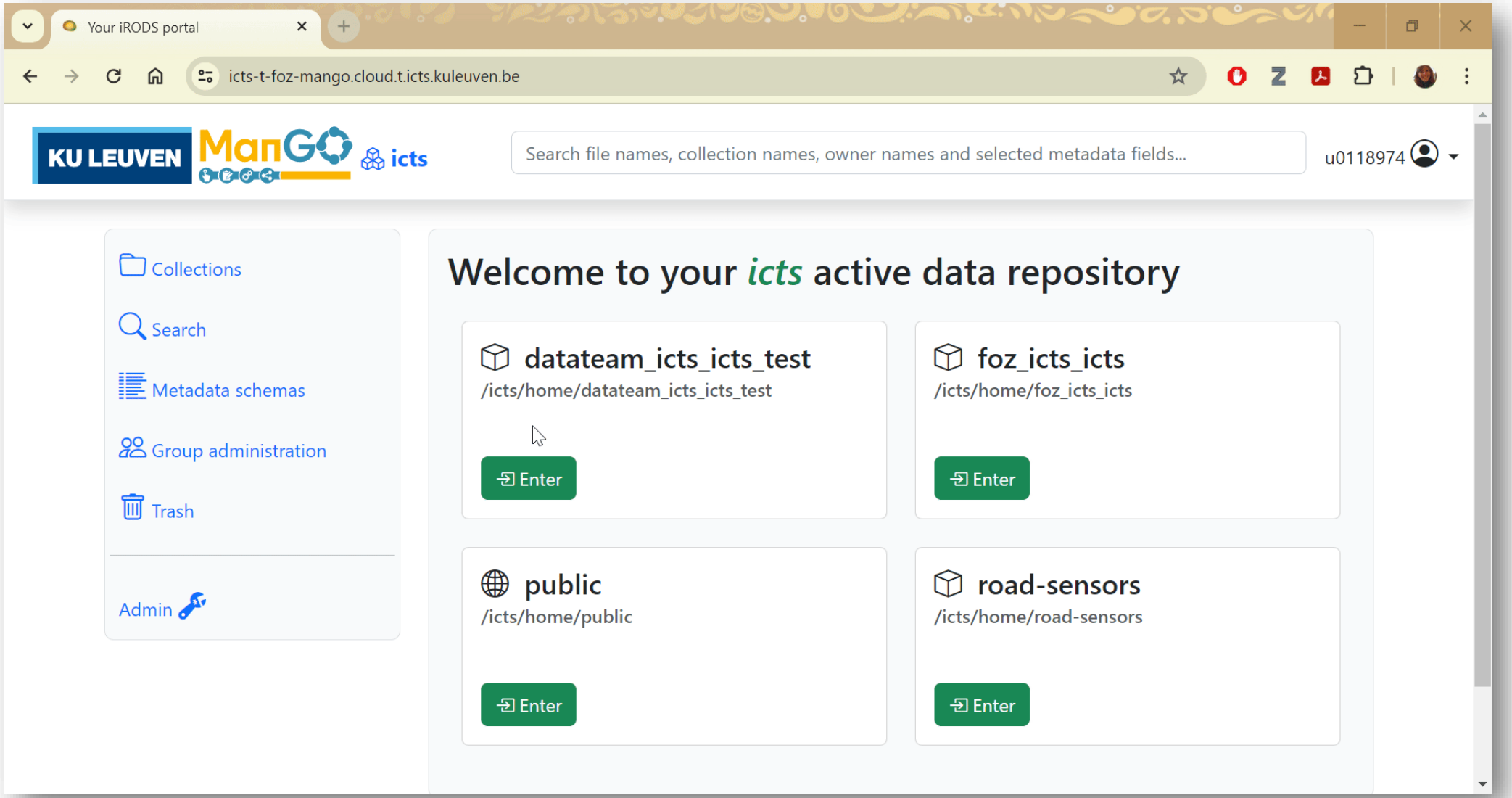
```
20    MANGO_PLUGIN_BLUEPRINTS = [
21      {
22        "module": "plugins.user_tantra.realm",
23        "blueprint": "user_tantra_realm_bp",
24      }
25    ]
...
45    MANGO_MAIN_LANDING_ROUTE = {
46      "module": "plugins.user_tantra.realm",
47      "function": "index",
48    }
```

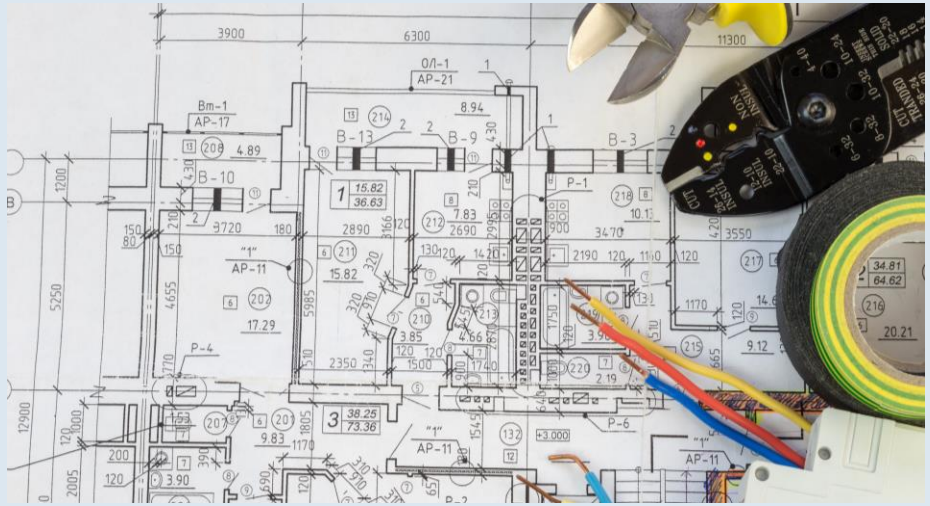
Template override

template_override_rules_basic.yml

src > config > template_override_rules_basic.yml

```
17  realm_powered_sidebar:
18      source: sidebar.html.j2
19      target: user_tantra/sidebar.html.j2
20      matches: always
```


Your iRODS portal
icts-t-foz-mango.cloud.t.icts.kuleuven.be
KU LEUVEN
ManGO
icts
Search file names, collection names, owner names and selected metadata fields...
u0118974
Collections
Search
Metadata schemas
Group administration
Trash
Admin
Welcome to your icts active data repository
datateam_icts_icts_test
/icts/home/datateam_icts_icts_test
Enter
foz_icts_icts
/icts/home/foz_icts_icts
Enter
public
/icts/home/public
Enter
road-sensors
/icts/home/road-sensors
Enter



ManGO Flow

Asynchronous actions, initiated from anywhere

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Technical

- Python Celery based

- (Chained) action(s) aka flows
- Different workers
  - Typical iRODS operations
  - Domain specific
  - Scalability
    - Eg metadata extraction from multi GB files
    - HPC for complex/long calculations
- Broker
  - Apache Kafka + …

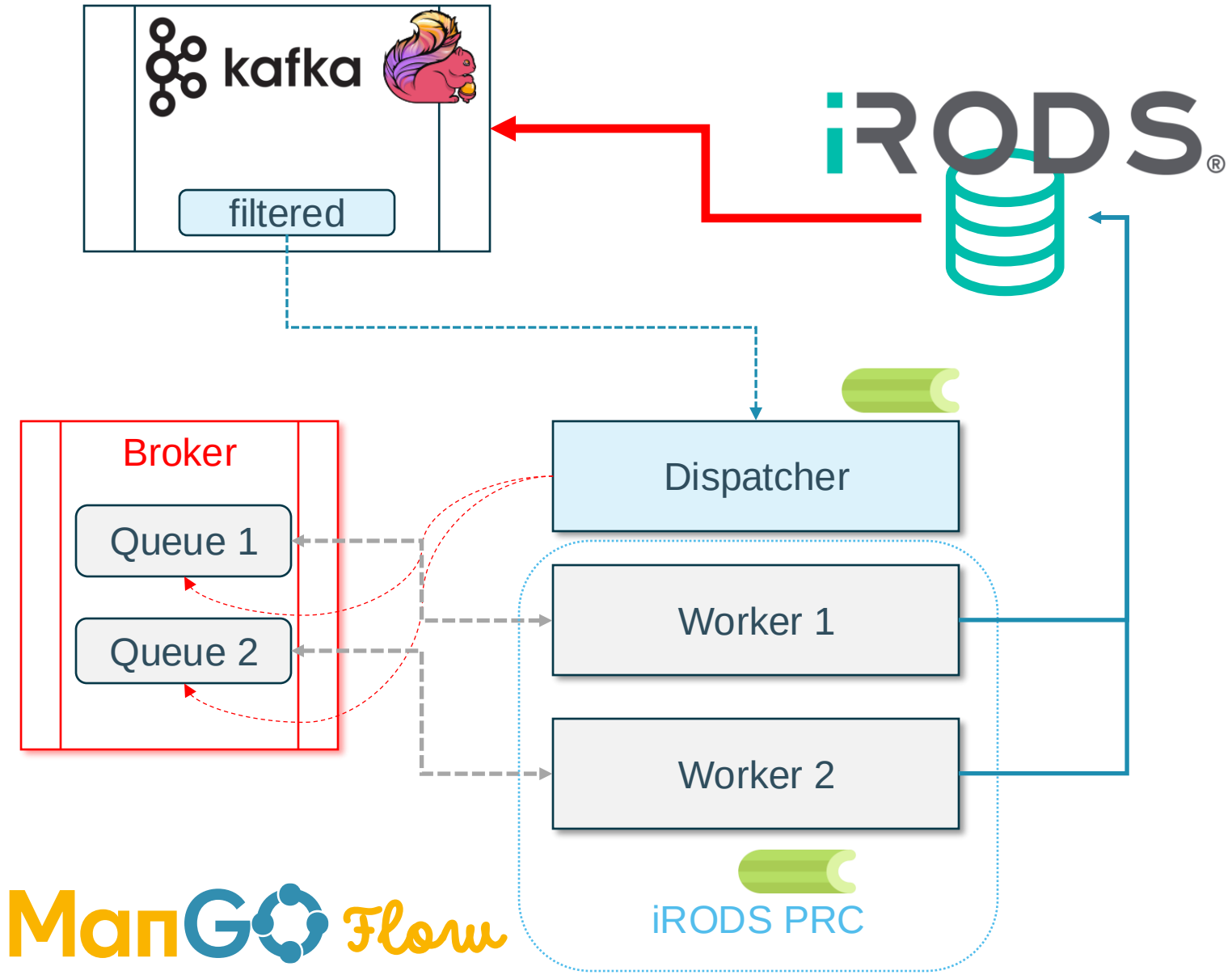
Drivers

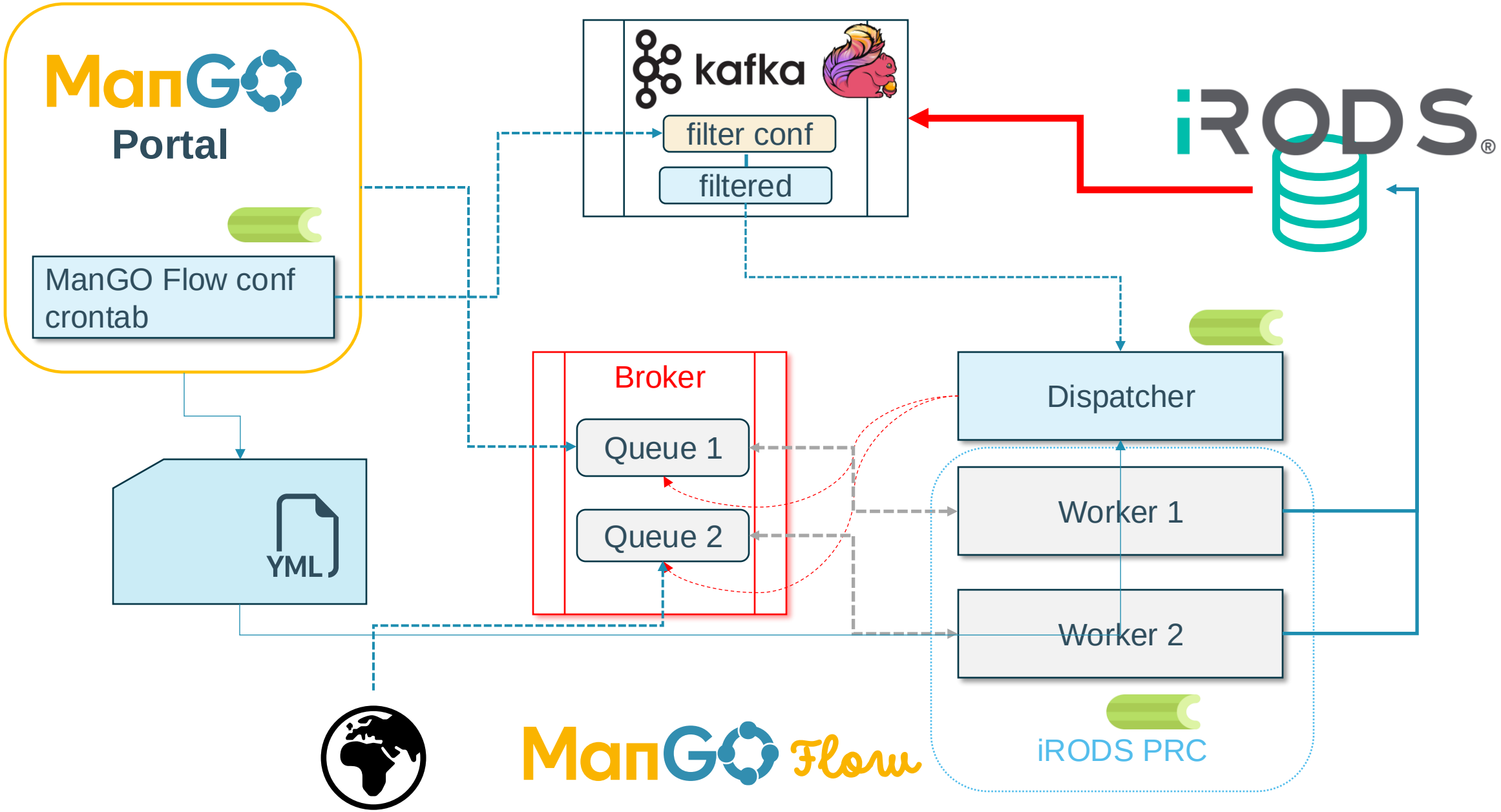
- ManGO portal actions
  - User initiated workflow actions
- Cronjobs
  - Celery implementation
- Any other client
  - Apache Airflow
  - Custom apps

iRODS

- iRODS filtered event listener (via Apache Kafka)
- Dispatcher based on configuration

Listen to selected iRODS changes




ManGO
Portal
ManGO Flow conf
crontab
YML
kafka
filter conf
filtered
Broker
Queue 1
Queue 2
Dispatcher
Worker 1
Worker 2
iRODS PRC
iRODS
ManGO Flow

Flows

- Initial filter:
  - Subtree path*
  - Metadata
- Input path elements
  - Fine grained filtering
  - Potential variables
- Flow types
  - Ingestion / movement
  - Metadata extraction
    - From path
    - Text header
    - Tika
  - …

```
ingest_u0123318:
  match:
    subtree: /set/home/u0123318
    metadata:
      - 'mg.status': 'validated'
  flow:
    actions:
      - 'mango_flow.irods.ingest_move_data_object':
          parameters:
            src:
              path: 'gallery/planet-{{subfolder}}/{{dataobject:.+\.jpg}}'
            dst:
              path: 'images/{{subfolder}}/{{dataobject}}'
```

Thank You!

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ingrid.barcenaroig@kuleuven.be

https://github.com/kuleuven/mango-portal