

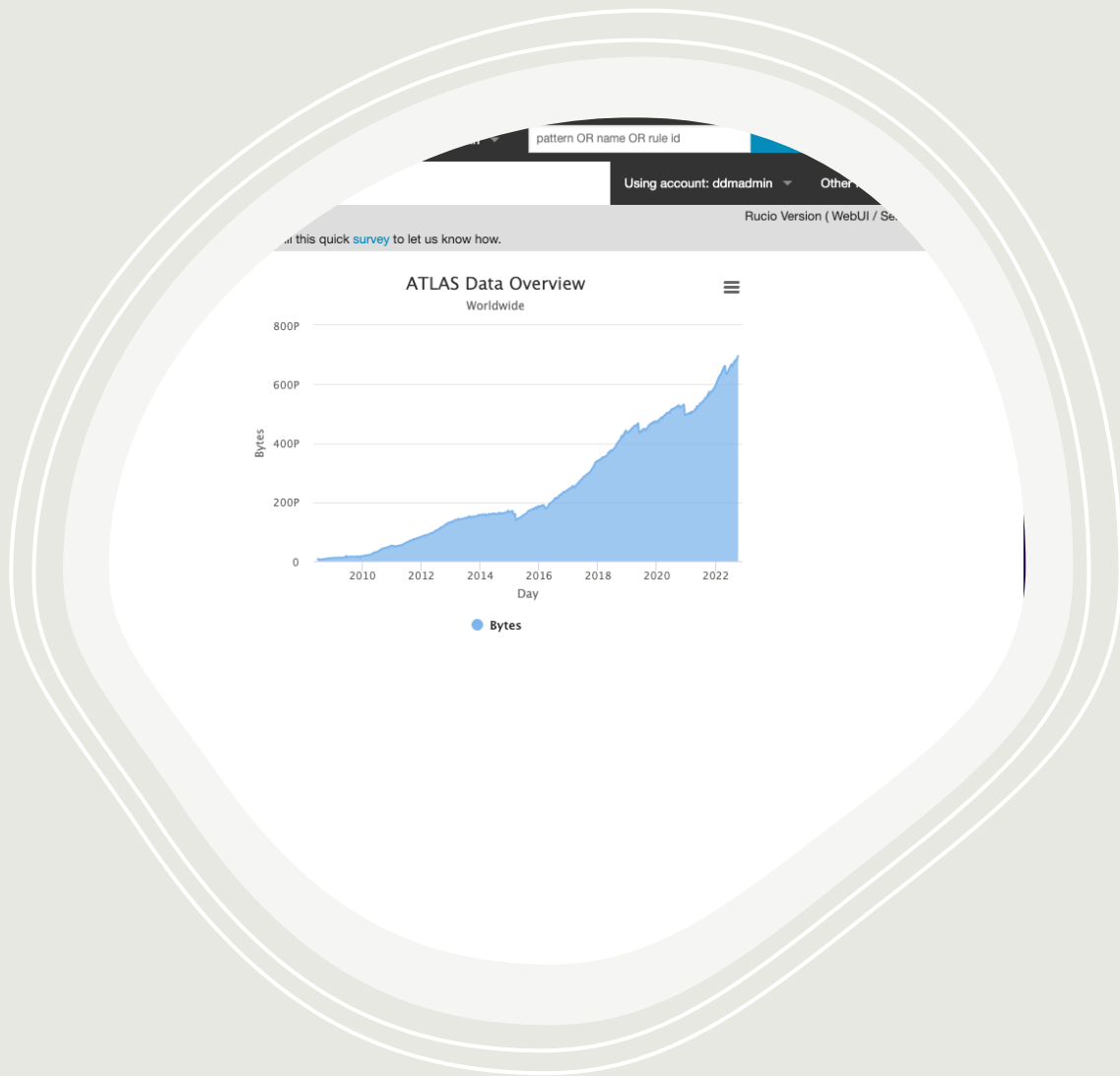


The new Rucio WebUI

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Rucio Component Lead

WebUI, Testing, Traces, Monitoring&Logging



Rucio WebUI (The Present)

Rucio WebUI (The Present)

- 
- Flask based proxy layer (ported from web.py)
 - Direct Database Dependency
 - Complex Authentication Workflows
 - Custom Cookie management

Rucio WebUI (The Present)

Jinja2 Templates, JQuery and JavaScript

No frontend web frameworks

Flask Proxy/ Middleman to
communicate with Rucio Server (
Authentication, Direct DB Access)

Rucio WebUI (The Present)

Lots of Legacy
Code (8+ years)

Lack of any testing
frameworks at
UI/UX Level

Breaking changes
often go
undetected

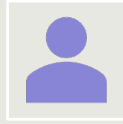
The New Rucio WebUI (Functionality)



No Proxy Layer (Complete RESTful architecture)



Removed direct database dependency



Simpler Authentication Workflows



Direct Data Streaming (Performance)

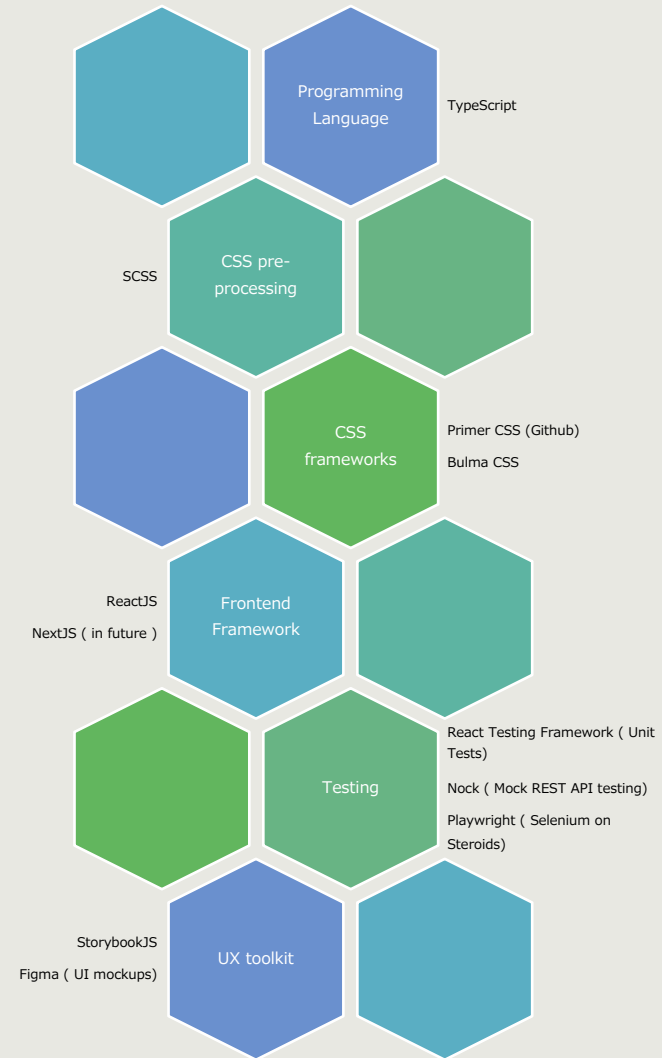


Fully Responsive



A11y compliance

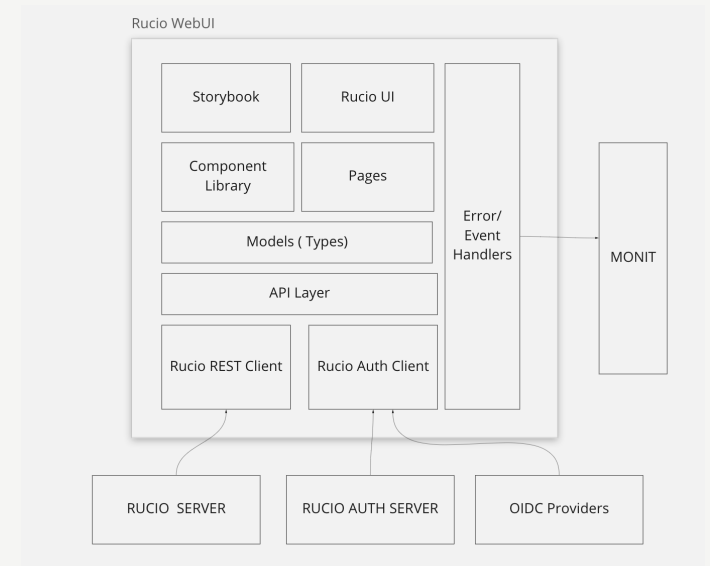
The New Rucio WebUI (Frameworks)



The New Rucio WebUI (Architecture)



Models: Data received from the API
is parsed into TypeScript types.



The New Rucio WebUI (Architecture)

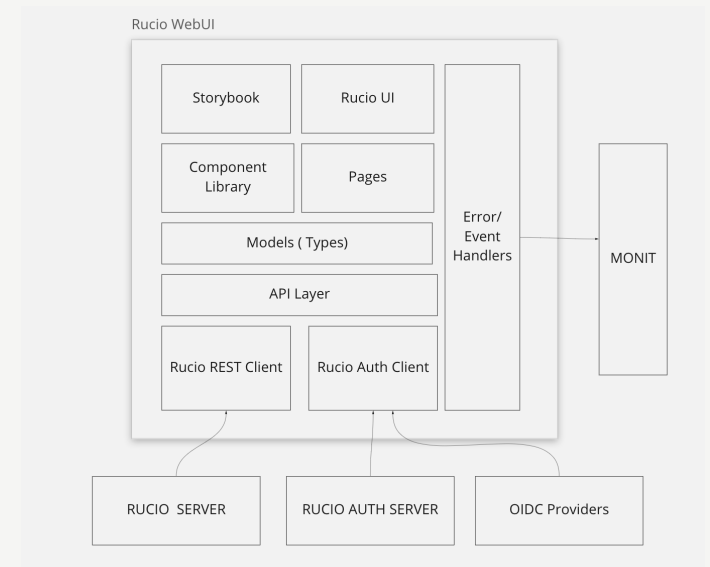
Models: Data received from the API is parsed into TypeScript types.



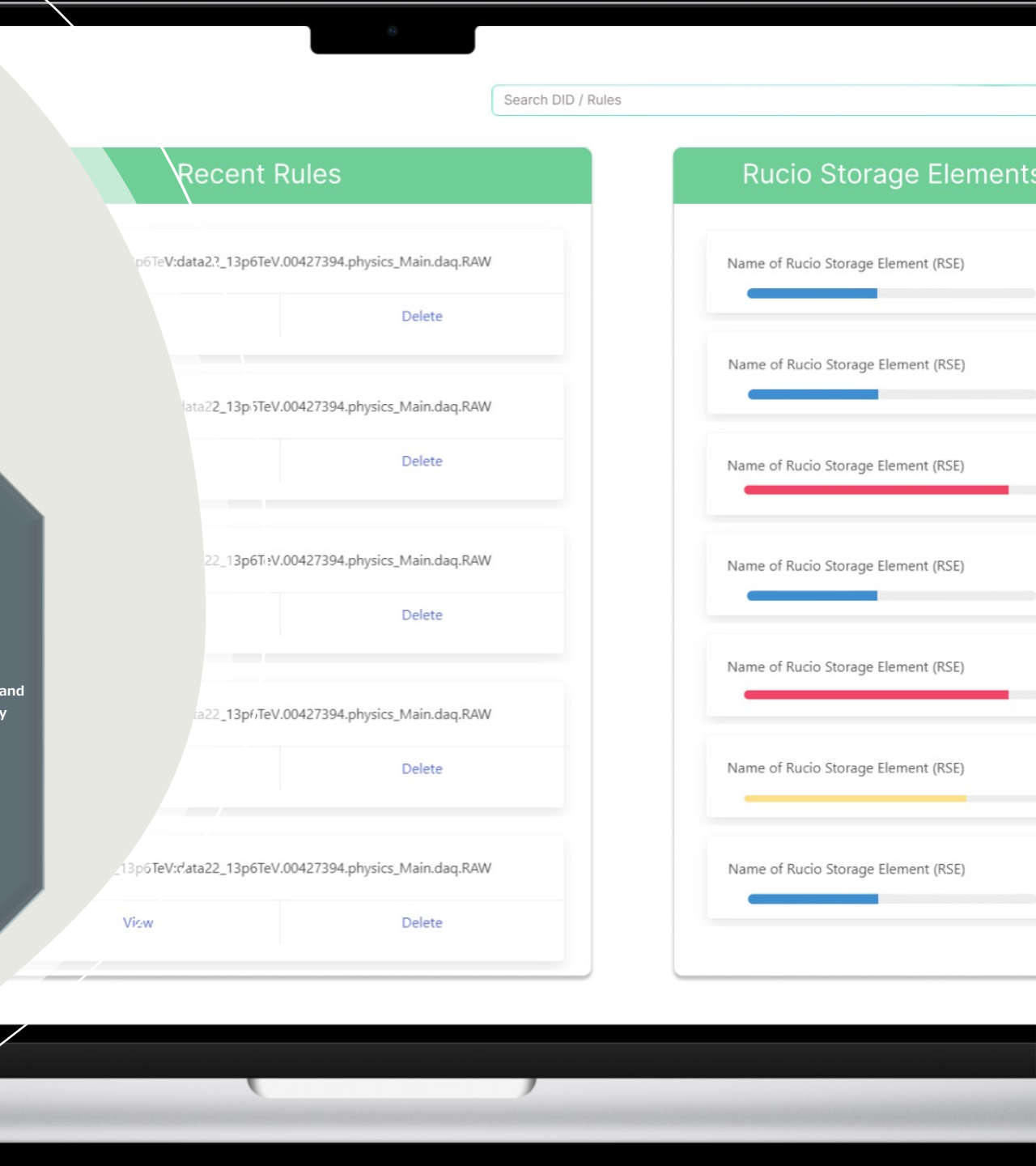
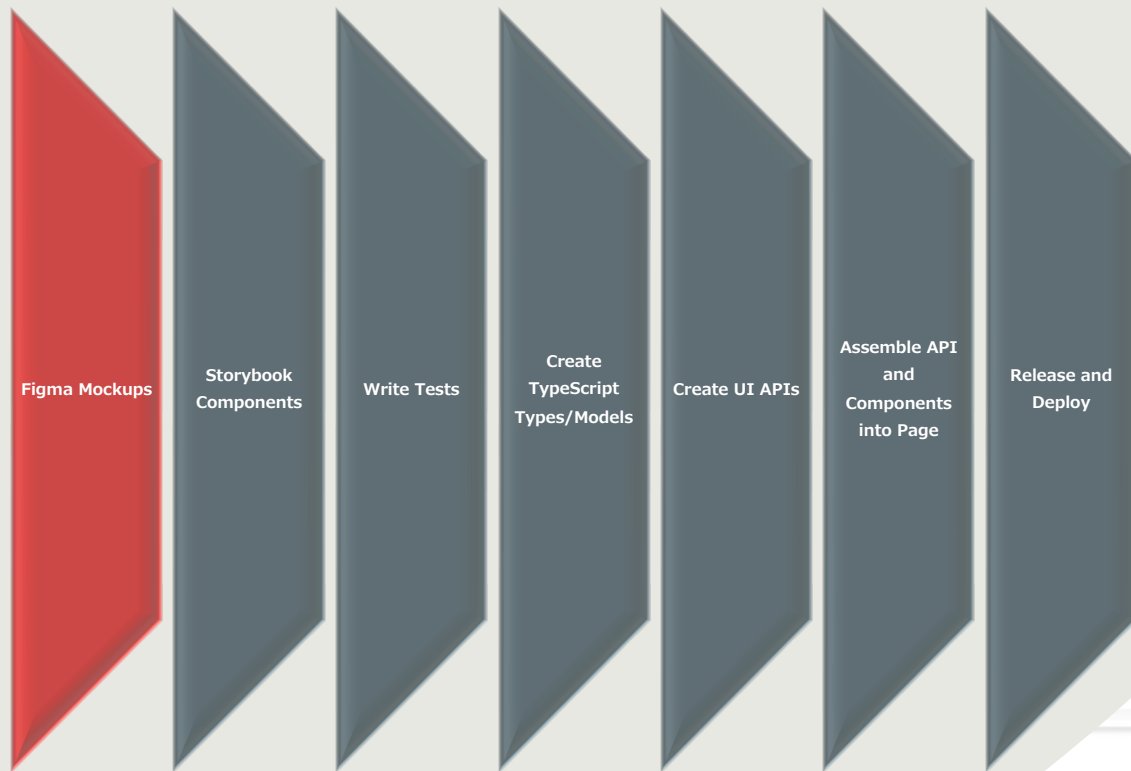
Component Library/Pages: React Components with state/props set via model instances



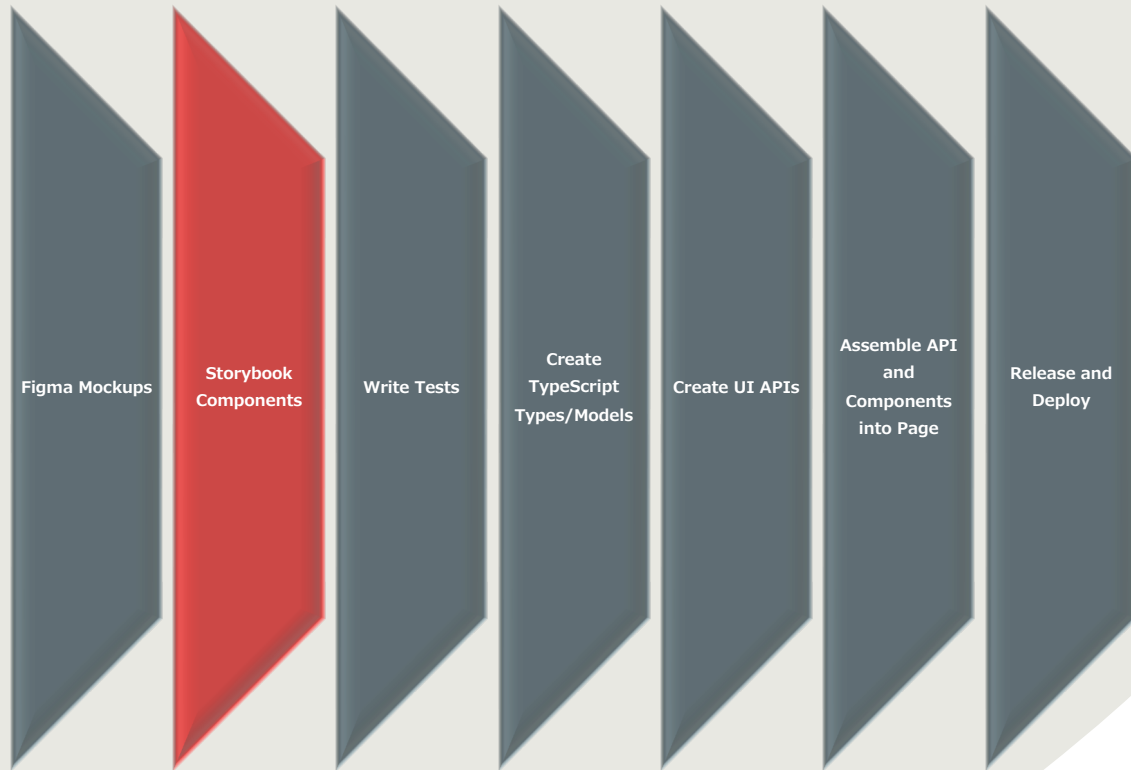
Storybook/Rucio UI: The web apps that render the final end-user pages.



Development LifeCycle



Development LifeCycle



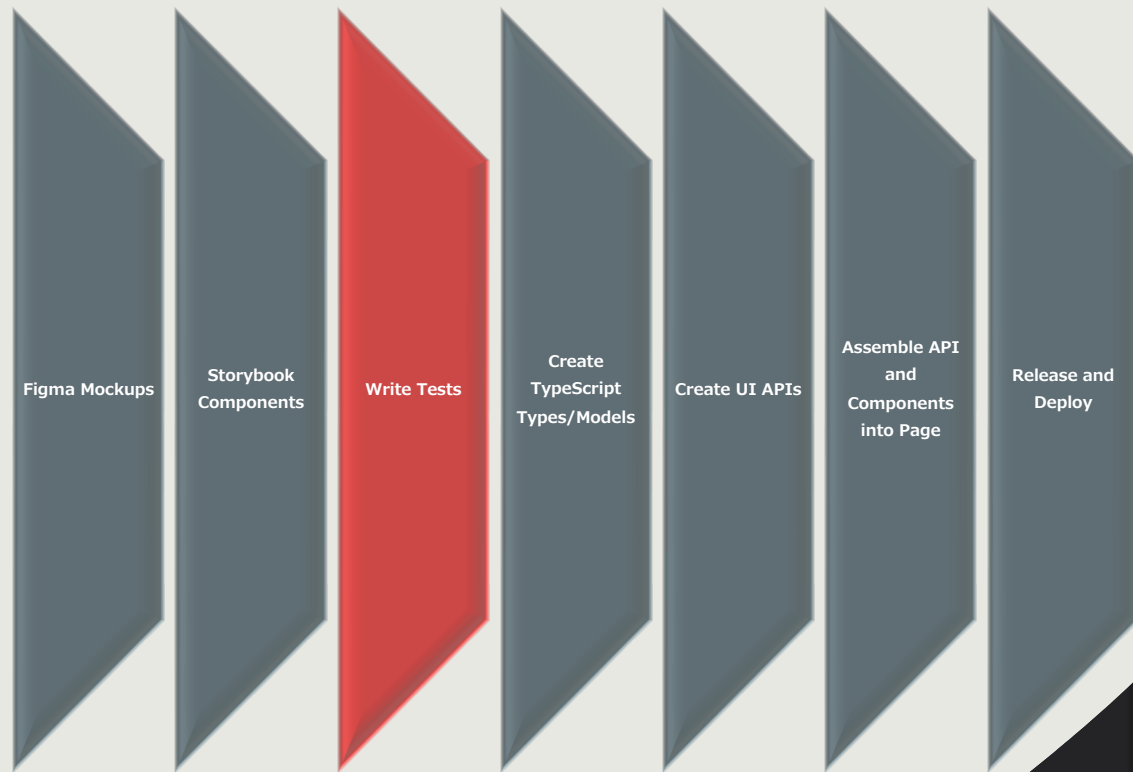
Modal title



Lorem Ipsum

No inputs found for this component. [Read the docs >](#)

Development LifeCycle



```
14 test('Login page render', () => {
15   render(renderComponent)
16   const loginPrimaryText = screen.getByText('Rucio Login')
17   expect(loginPrimaryText).toBeInTheDocument()
18
19   const loginSecondaryText = screen.getByText('Welcome to Rucio!')
20   expect(loginSecondaryText).toBeInTheDocument()
21
22   const x509PassAuthText = screen.getByText('x509 Certificate')
23   expect(x509PassAuthText).toBeInTheDocument()
24
25   const userPassAuthText = screen.getByText('Username / Password')
26   expect(userPassAuthText).toBeInTheDocument()
27 }
```

```
test('Userpass auth flow', () => {
  render(renderComponent)
  const userPassButton = screen.getByText('Username / Password')

  act(() => {
    userPassButton.click()
  })
})
```

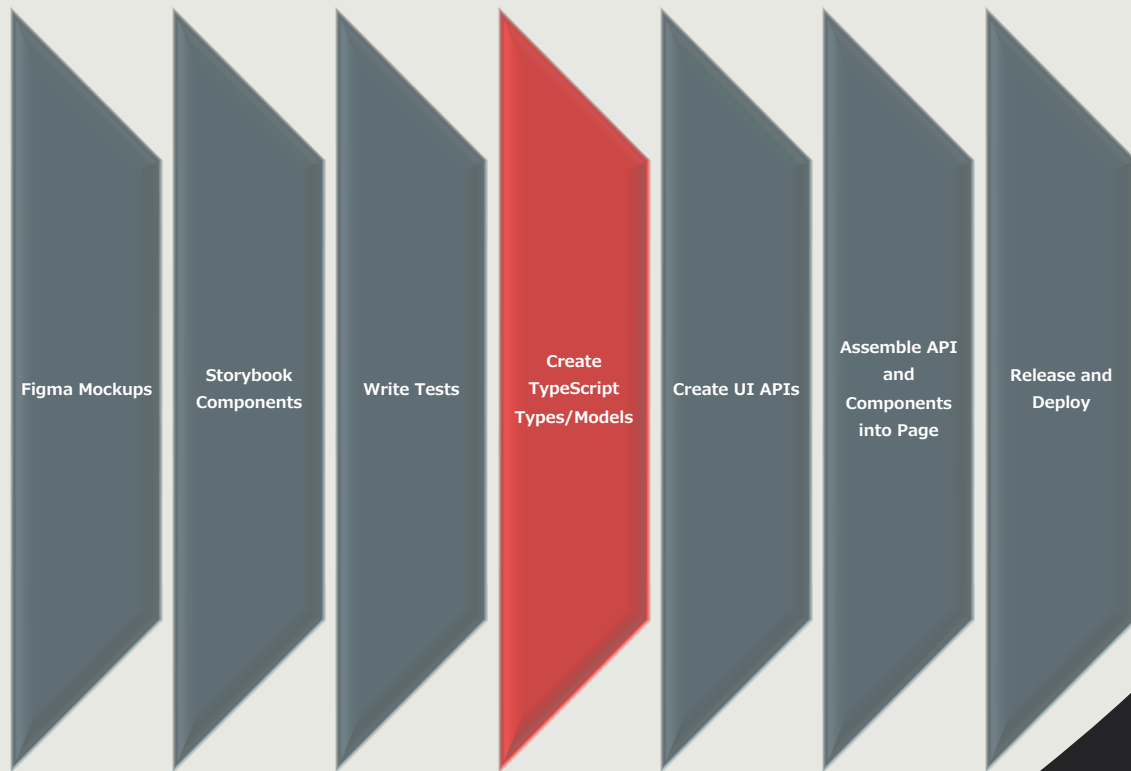
```
const userPassUsernameInput = screen.getByPlaceholderText('Enter Username')
expect(userPassUsernameInput).toBeInTheDocument()
expect(userPassUsernameInput.innerHTML.length).toEqual(0)
```

```
const userPassPasswordInput = screen.getByPlaceholderText('Enter Password')
expect(userPassPasswordInput).toBeInTheDocument()
expect(userPassPasswordInput.innerHTML.length).toEqual(0)
```

```
const userPassSignInButton = screen.getByText('Sign In')
expect(userPassSignInButton).toBeInTheDocument()
expect(userPassSignInButton.getAttribute('type')).toEqual('button')
expect(userPassSignInButton.getAttribute('aria-disabled')).toEqual('true')
```

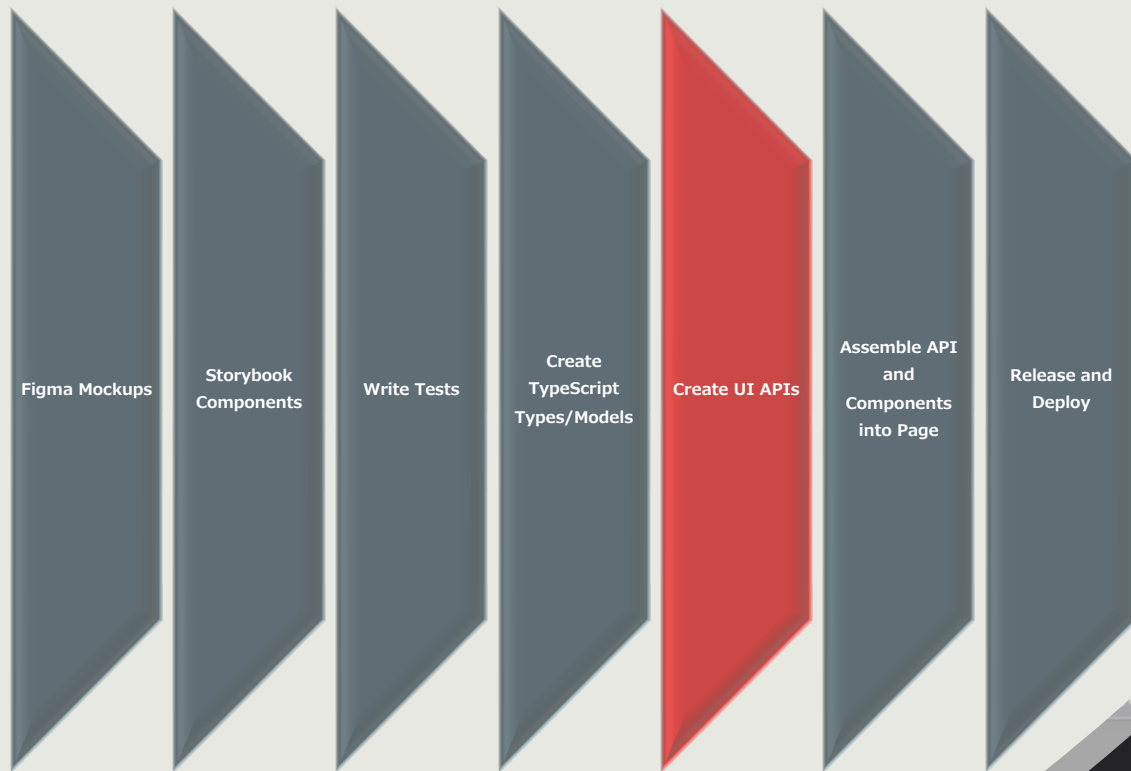
```
fireEvent.change(userPassUsernameInput, { target: { value: 'ddmlab' } })
fireEvent.change(userPassPasswordInput, { target: { value: 'secret' } })
```

Development LifeCycle



```
src > utils > TS models.ts > ...
24
25 export class RuleModel implements RuleType {
26     rule_id!: string
27     locks!: any[]
28     history!: any[]
29     scope_name!: string
30     analysis!: object
31     constructor(
32         rule_id: string,
33         locks?: any[],
34         history?: any[],
35         scope_name?: string,
36         analysis?: object,
37     ) {
38         this.rule_id = rule_id ?? ''
39         this.locks = locks ?? []
40         this.history = history ?? []
41         this.scope_name = scope_name ?? ''
42         this.analysis = analysis ?? {}
43     }
44 }
45
46 export class DIDModel implements DidType {
47     id!: string
48     constructor(id: string) {
49         this.id = id ?? ''
50     }
51 }
52
53 export class RSEModel implements RSEType {
54     rse: string
55     remaining_quota: string
56     total_quota: string
57     constructor(rse: string, remaining_quota: string, total_quota: string) {
58         this.rse = rse ?? ''
59         this.remaining_quota = remaining_quota ?? ''
60         this.total_quota = total_quota ?? ''
61     }
62 }
63
64 export class AccountLimitModel implements AccountLimitType {}
65 export class AuthModel implements AuthType {}
66
```

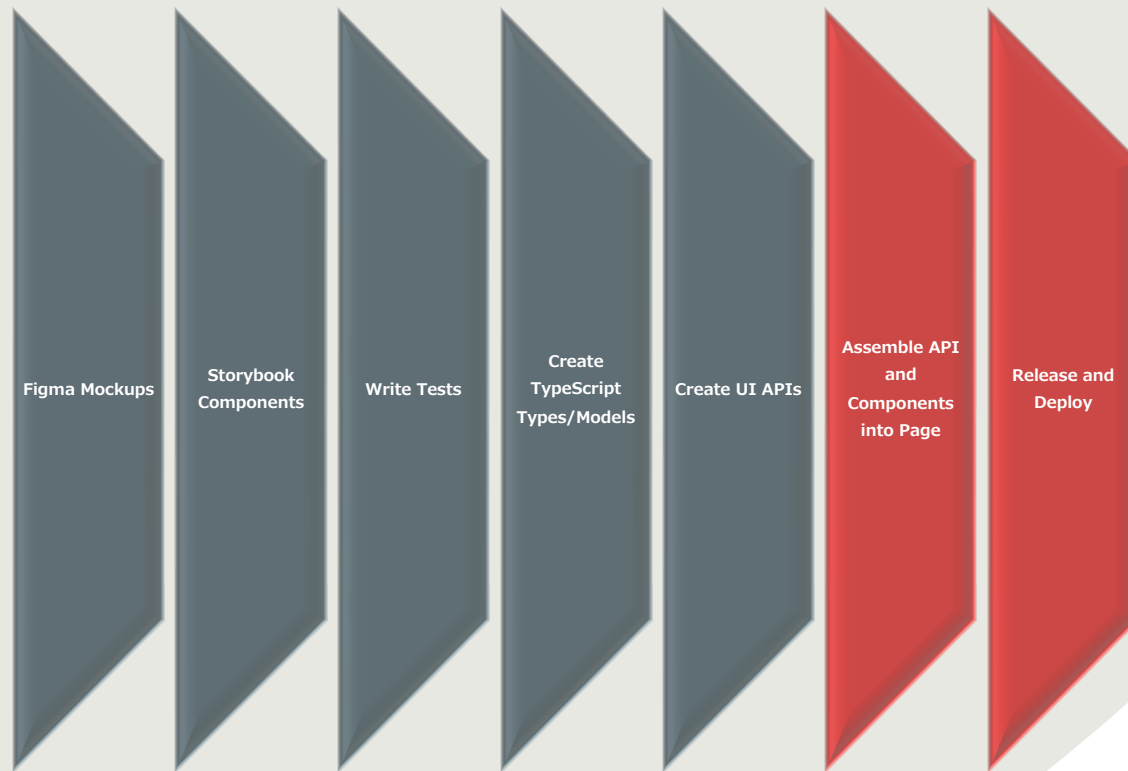
Development LifeCycle



```
src > client > TS rses.ts > ...
1  import { RSEConfig } from '../utils/config'
2  import { RSEModel } from '../utils/models'
3  import { streamData } from '../utils/restApiWrapper'
4
5  class RSE extends RSEModel {
6      public static listRses(
7          expression?: any,
8          onSuccess?: (args?: unknown) => void,
9          onError?: (args?: unknown) => void,
10         ) {
11         let url = RSEConfig.endpoints.rses
12         if (expression) {
13             url += '?expression=' + expression
14         }
15         streamData(url)
16             .then((data: any) => {
17                 onSuccess?.(data)
18             })
19             .catch((error: any) => {
20                 onError?.(error)
21             })
22         }
23     }
24
25     export { RSE }
26
```

objects/webui/src/client/index.ts

Development LifeCycle



The screenshot shows a web interface with a progress bar at the top indicating four steps: 1. DIDs (selected), 2. RSEs, 3. Options, and 4. Summary. Below the progress bar, there are instructions and a search form.

DIDs
Select Data Identifiers

RSEs
Select Rucio Storage Elements

Options
Select additional options

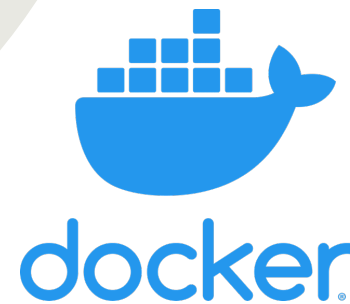
Summary
Submit request

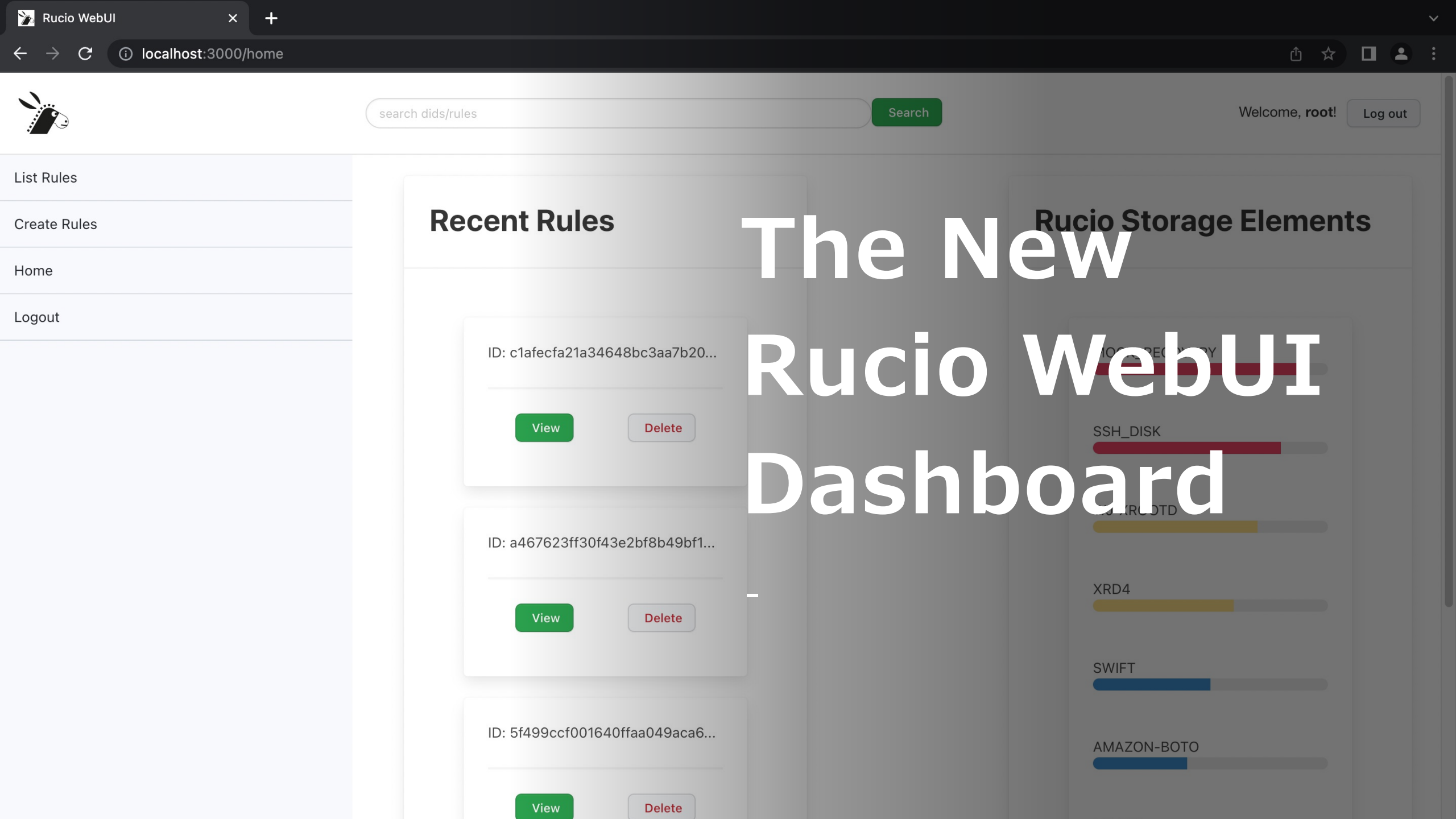
△ Please start by entering a DID or DID wildcard and search for either containers or datasets. Then select the requested DIDs. Do not use a trailing '/' for containers.
△ To learn more about DIDs, [click here](#).

[DID Search Pattern](#) [List of DIDs](#)

Data Pattern

[Next >](#)





The New Rucio WebUI Login



Rucio Login

Welcome to Rucio!

 Login with OIDC PKCE Provider

x509 Certificate

Username

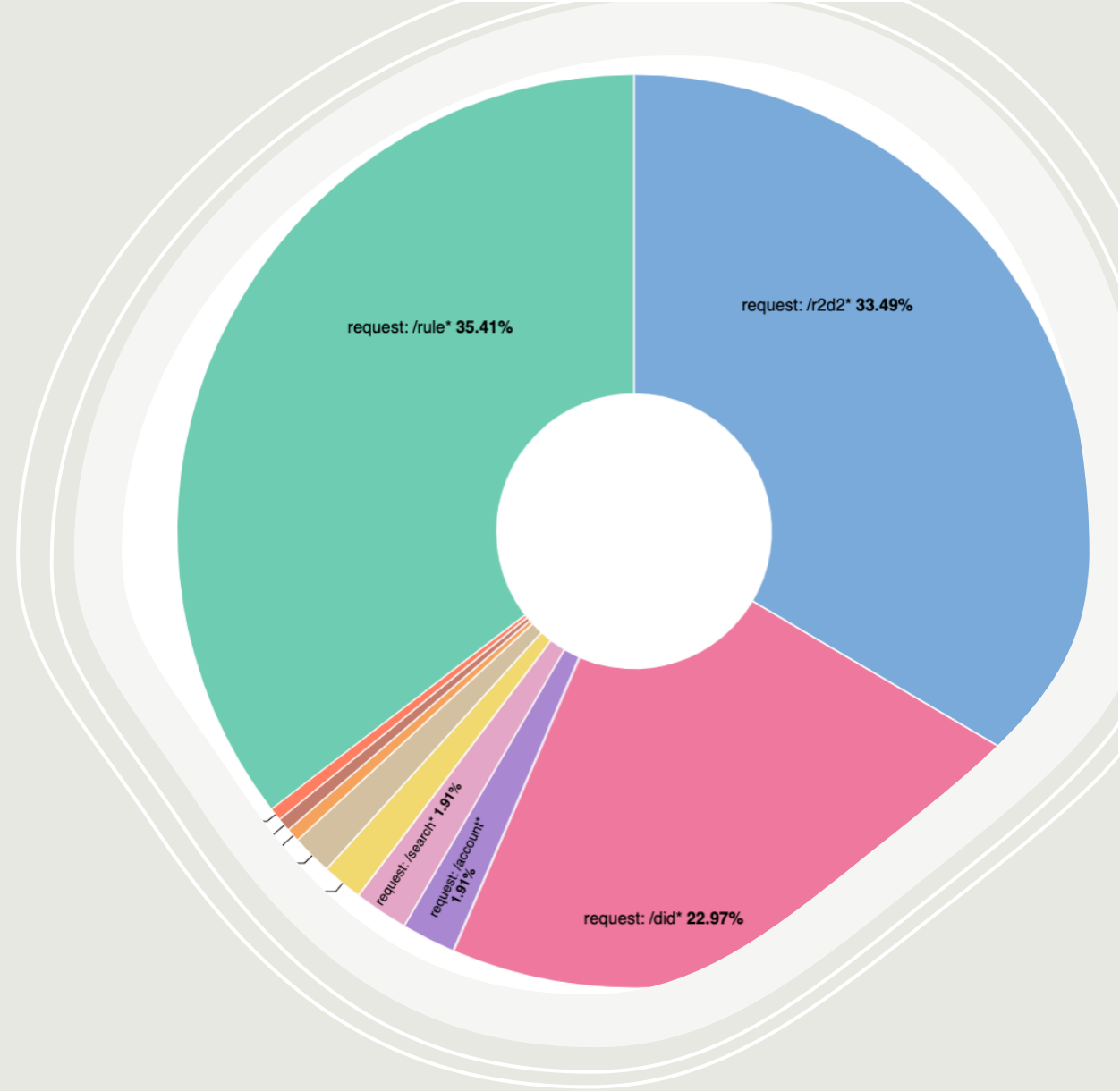
Password

Account Name (Optional)

Sign In

The New Rucio WebUI (High Priority Pages)

- Request new Rule
- List my Rules
- Rule View
- DID View



Rucio WebUI

localhost:3000/ruledef

search dids/rules

Search

Welcome, root!

Log out

1. DIDs

Select Data Identifiers

2. RSEs

Select Rucio Storage Elements

3. Options

Select additional options

4. Summary

Summary of rule

Please start by entering a DID or DID wildcard and search for either containers or datasets. Then select the requested DIDs. Do not use a trailing '/' for containers.

To learn more about DIDs, [click here](#).

DID Search Pattern

List of DIDs

Filter

Filter

Show ▼

Level of Granularity ▼

Data Pattern

test:container

Search

☒ container

More info

Next >

Request New Rule Workflow



search dids/rules

Search

- ✓

1. DIDs

Select Data Identifiers
- ✓

2. RSEs

Select Rucio Storage Elements
3. Options

Select additional options
- 4

4. Summary

Submit request

⚠ Please select/enter your wanted options and then submit your rule request.

⚠ To learn more about Options, [click here](#).

Expiration date

dd/mm/yyyy

📅

Create Sample

1

Turn on Notifications?

Advanced Options

Grouping ▼

Asynchronous Mode

Copies

1

Test



Request New Rule Workflow



Welcome, **root**!

Log out



4. Summary

Submit request

⚠ Everything that will be added to them after you created the rule will also be transferred to the selected RSE.

Request New Rule

the selected RSE.

Size	Requested Size
41943040	41943040

Workflow

⚠ The rule will replicate to the following RSE:

	RSE	Remaining Quota	Total Quota
1	XRD1	Infinity	Infinity
	Name	Remaining Quota	Total Quota

[◀ Back](#)



Search

Welcome, root!

Log out

Rules

New request

Account

RSE

Activity

Interval

State ▼

User Subscriptions

14

Period ▼

	<u>Name</u>	<u>Account</u>	<u>RSE Expression</u>	<u>Creation Date</u>	<u>Remaining Lifetime</u>	<u>State</u>	<u>Locks OK</u>	<u>Locks Replicating</u>	<u>Locks Stuck</u>
1	test:container	root	XRD3	Fri, 21 Oct 2022 03:31:00 UTC	-	REPLICATING	0	4	0
2	test:file4	root	XRD2	Fri, 21 Oct 2022 03:29:28 UTC	-	OK	1	0	0
3	test:file3	root	XRD2	Fri, 21 Oct 2022 03:28:55 UTC	-	OK	1	0	0
4	test:file2	root	XRD1	Fri, 21 Oct 2022 03:25:44 UTC	-	OK	1	0	0
5	test:file1	root	XRD1	Fri, 21 Oct 2022 02:49:53 UTC	-	OK	1	0	0
	<u>Name</u>	<u>Account</u>	<u>RSE Expression</u>	<u>Creation Date</u>	<u>Remaining Lifetime</u>	<u>State</u>	<u>Locks OK</u>	<u>Locks Replicating</u>	<u>Locks Stuck</u>

List My Rules

Select all

Delete Rule



search dids/rules

Search

Rule Metadata

Sl no.	Attribute	Value
1	account	root
2	activity	User Subscriptions
3	copies	1
4	created_at	Fri, 21 Oct 2022 03:31:00 UTC
5	did_type	CONTAINER
6	grouping	DATASET
7	id	c1afecfa21a34648bc3aa7b20cab7d49
8	ignore_account_limit	false
9	ignore_availability	false
10	locked	false
11	locks_ok_cnt	0
12	locks_replicating_cnt	4
13	locks_stuck_cnt	0
14	name	container
15	notification	NO
16	priority	3
17	purge_replicas	false
18	rse_expression	XRD3
19	scope	test
20	split_container	false



Search

DID Metadata

<u>Sl no.</u>	<u>Attribute</u>	<u>Value</u>
1	account	root
2	availability	AVAILABLE
3	created_at	Fri, 21 Oct 2022 03:30:07 UTC
4	did_type	DATASET
5	hidden	false
6	is_new	true
7	is_open	true
8	monotonic	false
9	name	dataset1
10	obsolete	false
11	purge_replicas	true
12	scope	test
13	suppressed	false
14	transient	false
15	updated_at	Fri, 21 Oct 2022 03:30:07 UTC
<u>Sl no.</u>	<u>Attribute</u>	<u>Value</u>

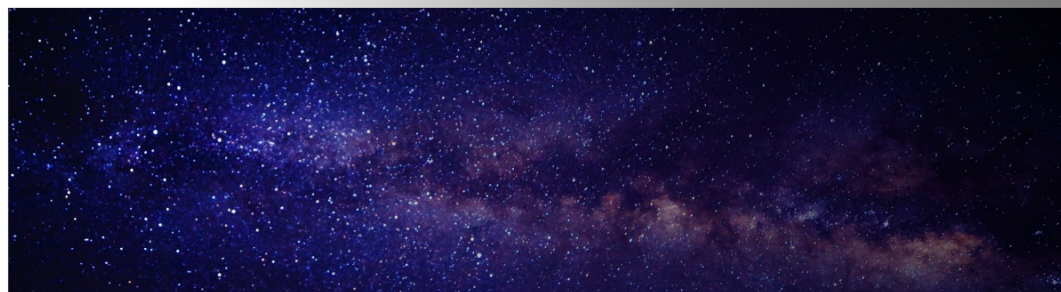
DID View

Search

Search

SI No.	DID	
1	test:container	More info
2	test:dataset1	More info
3	test:dataset2	More info
4	test:dataset3	More info
SI No.	DID	

Global Search



Error Pages

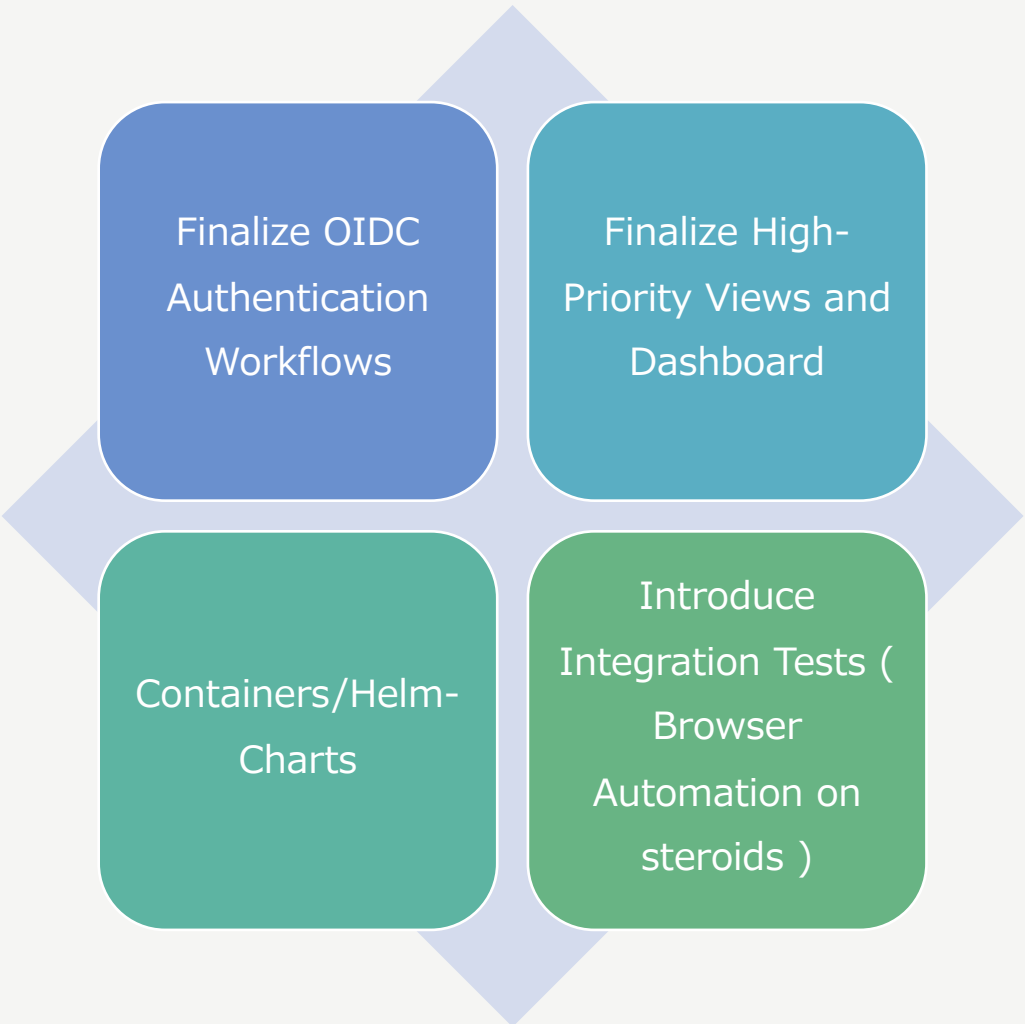
404 - PAGE NOT FOUND

The page you are looking for might have been removed had its name changed or is temporarily unavailable.



So far...

- Adopt best standards and practices
 - *Technologies*
 - Frameworks
 - Architecture
- Lessons from existing WebUI (session management, pre-flight requests, request streams, ...)
 - Create something that is built to last
- Continuous Iterative Development (work together with Users)



Finalize OIDC
Authentication
Workflows

Finalize High-
Priority Views and
Dashboard

Containers/Helm-
Charts

Introduce
Integration Tests (Browser
Automation on
steroids)

**Beta
Release:
End of
November
2022**

Beta Release -> Full Release

Iterative cycles to
improve existing
views

Increase test
coverage

Identify views to
be ported/created

Community
Contributions

Special Mentions, Resources



Nimish Bongale

Google Summer of Code Student



Valentina Dzumane

CERN Technical Student

