Usability for high code software to help improve contributions

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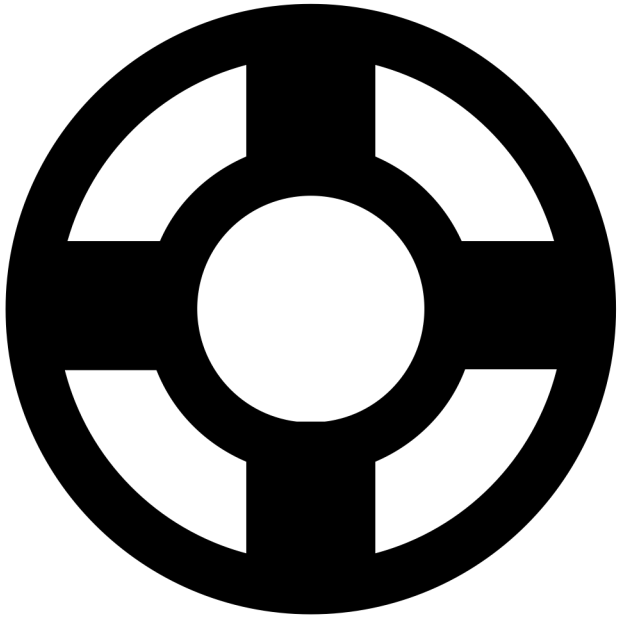
Do hi-code users need usability?



Agenda

- User Experience based on perception
- Thinking through a usability study
- The Who
- Goals of the study
- Study set up
- Task demo
- Findings
- Next steps

Agenda

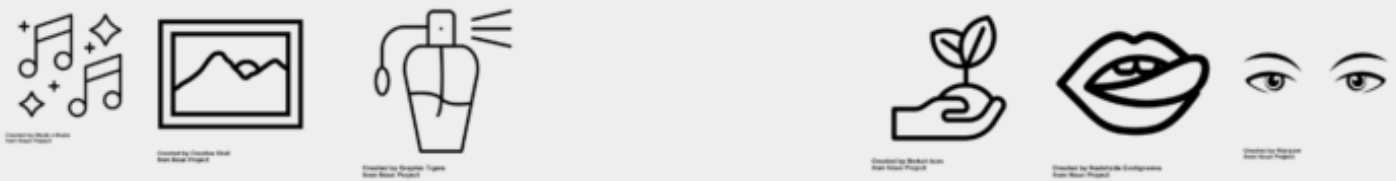
- User Experience based on perception

So from a UX perspective, what is UX?

The user experience is how a user interacts with and experiences a product, system or service. It includes a person's perceptions of utility, ease of use, and efficiency

The Perceptual Process

SENSATION & PERCEPTION



SENSORY STIMULI → SENSORY RECEPTORS

EXPOSURE → ATTENTION → INTERPRETATION → ADAPTATION

Popular perception: Open source software is less usable

- Open source developer-user who both uses the software and contributes to its development
- User-centered design movement attempts to bridge the gap between programmers and users through specific techniques (usability engineering, participatory design, ethnography etc.)

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Usability studies

Observational methodology to uncover problems and opportunities in designs

Potential to address other use cases

How to Think Through the Study

- The user is important
- Think through user flow

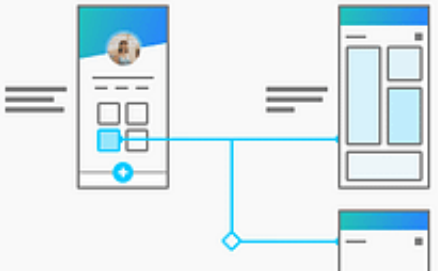
User Flow Design

1.
User goal
Goal or story level

2.
Task flow
Action level

3.
Wireflow
Component level

4.
User Flow
Interaction level



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Four User Type by Role

Validated in 2023 Q1 OpenSearch User Survey

INFRA ADMIN PRODUCER CONSUMER

Baseline for Admins

Baseline for Admins for future improvements to UX

In this year’s OpenSearch Project Q1 community survey, 48.8% of community members self-identified as being in an administrative role (Admin) in OpenSearch3.

The Admin, is responsible for asset and user management in OpenSearch, and has a critical role in determining the quality of experience and usability of users downstream, such as Producers and Consumers.

In the study, we presented 20 participants with seven tasks from the Admin panel workflow.

The seven tasks cover the most common data management functionalities, such as managing and creating indexes and index lifecycles, in OpenSearch.

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Goals of the Study

- Baseline for Admins for future improvements to UX
- In this year's OpenSearch Project Q1 community survey, 48.8% of community members self-identified as being in an administrative role (Admin) in OpenSearch3.
- The Admin, is responsible for asset and user management in OpenSearch, and has a critical role in determining the quality of experience and usability of users downstream, such as Producers and Consumers.

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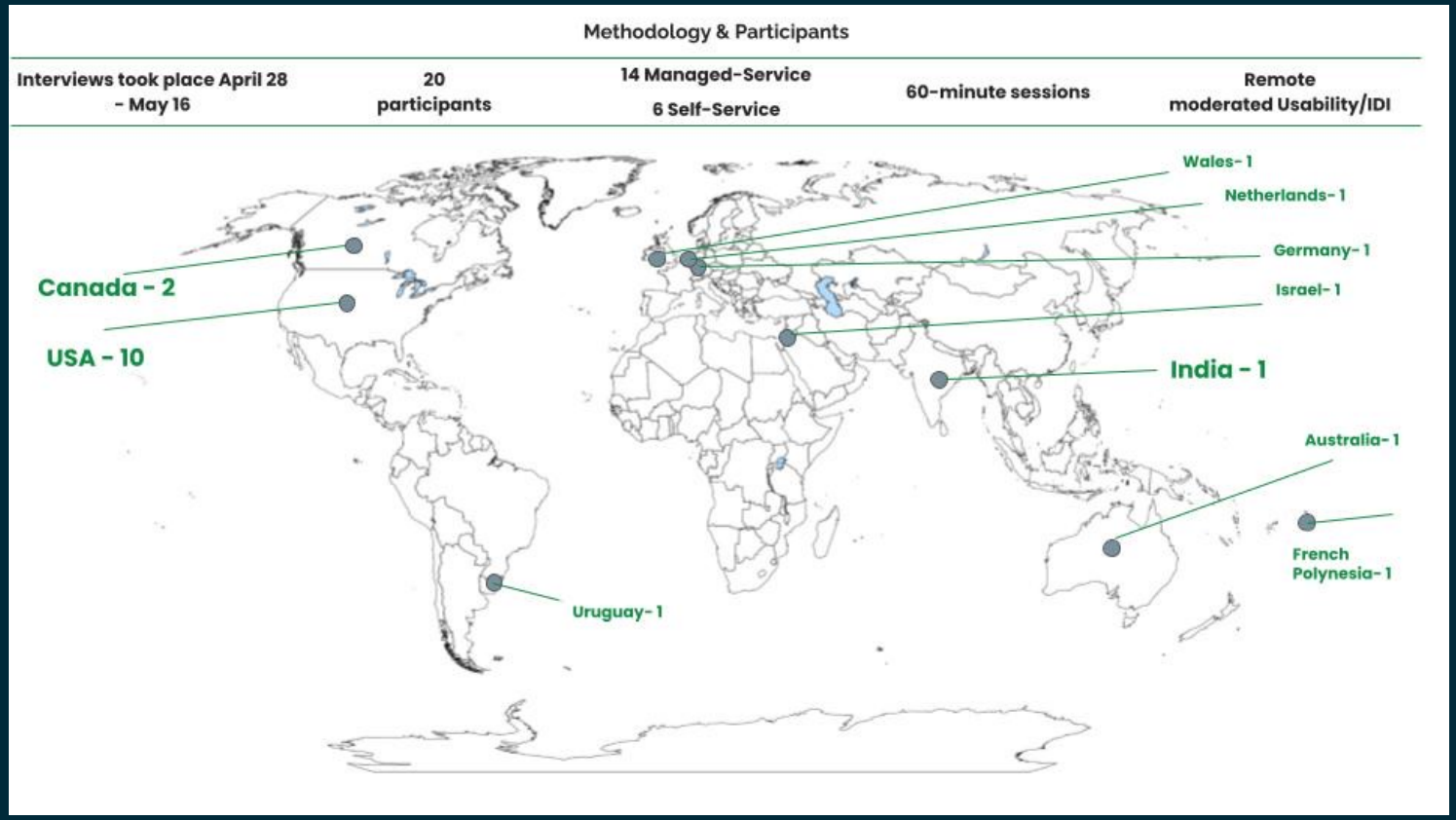
Participants

- 18 hi-code admin users
- The seven tasks cover the most common data management functionalities, such as managing and creating indexes and index lifecycles, in OpenSearch



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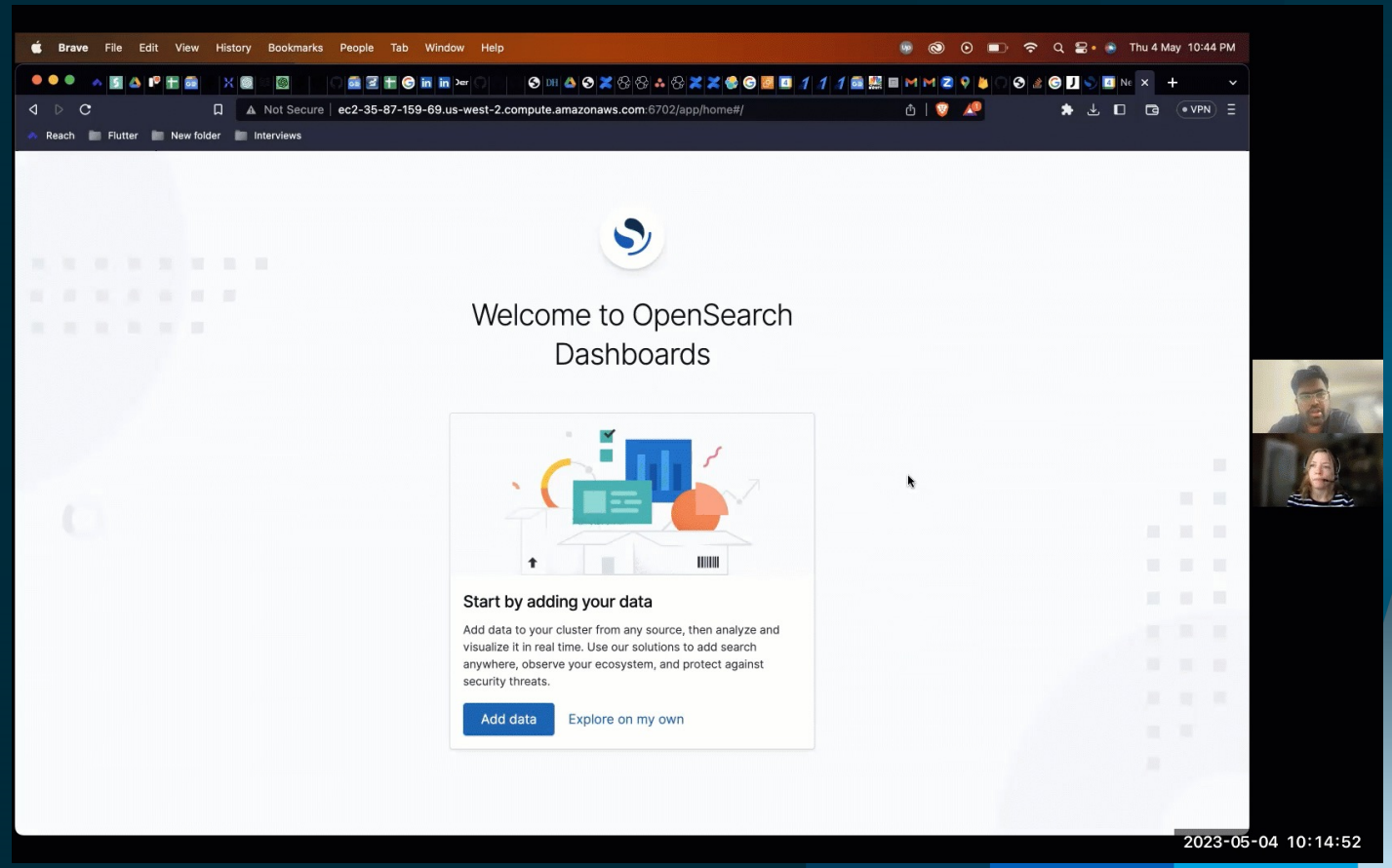
Demo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VPN
Reach Flutter New folder Interviews
Welcome to OpenSearch Dashboards
Start by adding your data
Add data to your cluster from any source, then analyze and visualize it in real time. Use our solutions to add search anywhere, observe your ecosystem, and protect against security threats.
Add data
Explore on my own
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Task Level Findings

Task #	Task Description	Instructions	Success Path	#Succeed	#Fail	#Succeed with Assistance Hint/s
1	Create an index template.	Create an index template named “flight_data_template”. Include any indexes that start with the name flight_log. For index configuration, include the following 2 configurations: 1) Settings: Set primary shards to 2. Use default for everything else. 2) Mappings: Two new fields: "timestamp" and "flight_id".	1. Index management > Templates > Create Template 2. Fill in name > Specify pattern/wildcard > specify alias > Index Mapping	17	2	1 Hint: Index pattern is flight_log*
2	Create an index with the settings that inherits from the template you just created.	Create an index with a name that matches the wildcard from the template you have defined.	1. Index management > Indices > Create Index 2. Fill in a name matching Task 1’s wildcard (User gets feedback when matches wildcard)	13	3	4 Hint: If user is stuck on naming, direct them to name the index flight_log_jan23 If user failed to create an index template in Task 1, tell them to create flight_log_jan23 with settings: 2 primary shards; default everything else and mappings: 2 new fields: timestamp and flight_id
3	Find the information of that index such as alias, settings, mappings.	Look for index settings, mapping, and aliases.	1. Click appropriate index, scroll to bottom	20	0	0 No hint
4	Delete any flight log indexes once they are older than 21 days. To automate this, create a state management policy using the visual editor.	Create a policy named "reduce_indexes". It will include any indexes matching the index pattern flight_log*. Configure the following 2 states: 1) Check if current indexes are older than 21 days, transition the indexes into the delete state. 2) Perform delete action.	1. Index management > state management policies > create policy > visual editor 2. Specify policy name 3. Specify index pattern 4. Add state > Name destination state ‘current’ or similar > add transition > set condition Minimum Index Age to 21d > set destination state	4	13	3 If users are stuck/facing errors, remind them to create 2 states: one named ‘current’ to check the index age, and one named ‘delete’ to perform the delete action, If the indexes are older than 21 days, transition them to the delete state
5	Make major configuration changes to an existing index by reindexing an existing index to a new index.	Reindex from the index "flight_log_jan23". Create a new index named "flight_log_jan23_updated". The new index will need 4 primary shards.		16	4	0 No hint
6	Take a daily snapshot of any flight log indexes.	Create a policy named “daily_snapshots". It will include any indexes matching the index pattern flight_log*		17	3	0 No hint
7	Restore data from an existing snapshot.	Restore all indexes from a snapshot "flight_info_snapshot_12282022"		20	0	0 No hint

	Task 1 Create an index template	**Task 2** Create an index that inherits a template	**Task 3** Review an index	**Task 4** Create an index management policy	**Task 5** Reindex an existing index	**Task 6** Create a snapshot policy	**Task 7** Restore an existing snapshot
Success Rate	**17 / 20**	**13 / 20**	**20 / 20**	**4 / 20**	**16 / 20**	**17 / 20**	**20 / 20**
P1	**Fail** (User did not use wildcard)	**Success** (Expected a dropdown of templates to choose from)	**Success**	**Success** (Confused about a destination state that does not exist yet)	**Success** (wanted to see a progress indicator)	**Success**	**Success** (clicked hyperlink first vs checkbox)
P2	**Success**	**Success** (Wanted to know which template it inherited)	**Success**	**Success** (transition is unintuitive)	**Success**	**Success**	**Success**
P3	**Success**	**SWA** (Expected dropdown of templates to choose from and ability to create index from template)	**Success**	**Fail** (missed index pattern, filled in action and transition within one state, transition is unintuitive, minimum index age error)	**Fail** (did not understand reindex)	**Success**	**Success** (clicked hyperlink first vs checkbox)
P4	**Success**	**Fail** (Incorrectly named index, expected ability to create index from template)	**Success**	**Fail** (uncertain about ISM and skipped wildcard, expand carrot to double check input)	**Success** (wanted to see a progress indicator)	**Success**	**Success** (clicked hyperlink first vs checkbox)
P5	**Success**	**Success** (Initially scrolled and missed the template confirmation)	**Success**	**Success**	**Success**	**Success**	**Success**
P6	**Success**	**Success** (Override concerns)	**Success**	**Success** (Assumed there would be a default state, wanted ability to drag action/transition to reorder)	**Success**	**Success**	**Success**
P7	**Success**	**SWA** (needed help with index name; expected ability to create index from template; did not expect a template confirmation)	**Success**	**Fail** (filled in action and transition within one state, transition is unintuitive, minimum index age error)	**Fail** (missed final creation button because of notification)	**Success**	**Success**
P8	**Fail** (User missed index pattern entirely b/c he thinks the mapping would be enough)	**Fail** (Incorrectly named index, expected ability to create index from template)	**Success**	**Fail** (skipped index pattern, filled in action and transition within one state, transition is unintuitive minimum index age error)	**Fail** (did not understand reindex)	**Fail** (index pattern error)	**Success**
P9	**Success**	**Success**	**Success**	**Fail** (filled in action and transition within one state, transition is unintuitive	**Success**	**Success**	**Success** (clicked hyperlink first vs checkbox; did not see Restore Activities at first)
P10	**Success** (Uncertain about wildcard)	**Success** (Wanted to know which template it inherited, override concerns)	**Success**	Fail (index pattern error, filled in action and transition within one state, transition is unintuitive, minimum index age error)	**Success** (struggled with creating an index)	**Success**	**Success**
P11	**Success**	**Success** (Expected dropdown of templates to choose from and ability to create index from template, Wanted to know which template it inherited)	**Success**	**Fail** (filled in action and transition within one state, transition is unintuitive, minimum index age error, wanted relational visuals between the two states)	**Success**	**Success**	**Success**
P12	**Success**	**Success**	**Success**	**SWA** (filled in action and transition within one state)	**Success**	**Fail** (index pattern error)	**Success**
P13	**Success** (Uncertain about wildcard)	**SWA** (Needed help with index name, expected dropdown of templates to choose from and ability to create index from template)	**Success**	**Fail** (filled in action and transition within one state, transition is unintuitive)	**Success**	**Success**	**Success** (clicked hyperlink first vs checkbox)
P14	**Success**	**Success** (Initially scrolled and missed the template confirmation, overriding concerns)	**Success**	**Fail** (transition is unintuitive, wanted relational visuals between the two states)	**Success** (struggled with creating an index)	**Success**	**Success**
P15	**Success**	**Success**	**Success**	**Fail** (skipped index pattern, transition is unintuitive)	**Success** (wanted to see a progress indicator)	**Success**	**Success** (clicked hyperlink first vs checkbox)
P16	**Success** (Uncertain about wildcard)	**Success**	**Success**	**SWA** (initially skipped ISM, transition is unintuitive	**Success** (struggled with creating an index)	**Success**	**Success** (did not see Restore Activities at first)
P17	**Success**	**Success** (initially struggled with index name, initially scrolled and missed the template confirmation)	Success	**SWA** (filled in action and transition within one state)	**Fail**	**Success**	**Success**
P18	**Success** (Uncertain about wildcard)	**Success** (initially scrolled and missed the template confirmation, override concerns)	**Success**	**Fail** (Missed index pattern, filled in action and transition within one state, transition is unintuitive, minimum index age error)	**Success** (Success (struggled with creating an index)	**Success**	**Success** (clicks hyperlink first vs checkbox, did not see Restore Activities at first)
P19	**SWA** (Needed more index pattern guidance)	**Fail** (Expected dropdown of templates to choose from and ability to create index from template)	**Success**	**Fail** (Missed index pattern, struggled despite given hints)	**Success**	**Fail** (index pattern error)	**Success**
P20	**Success** (Uncertain about wildcard)	**SWA** (Expected dropdown of templates to choose from and ability to create index from template, override concerns)	**Success**	**Fail** (filled in action and transition within one state, transition is unintuitive)	**Success**	**Success**	**Success**

Finding

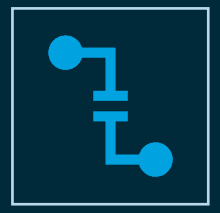
Relatively high level of success with the interface

Of 140 total task attempts, there were 107 successes (~76%); 25 failures (~18%); and 8 successes with assistance (~6%)

Self service users on average succeeded on 90% of tasks in comparison to Managed service users who succeeded only on 78.6% of tasks

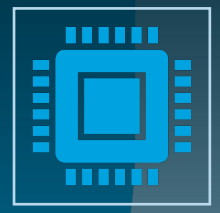
Task Without an Interface

In the study we further explored how Admins undertake four tasks that do not have a user interface: cluster configuration, monitoring, data replication, and data ingestion management.



Participants fear data loss and downtime and do what they can to protect themselves and/or the clients that they manage from loss.

Participants also shared that they cared about OpenSearch itself does not go down, so they monitored OpenSearch and create a disaster recovery plan.



Ultimately, users need seamless integration with external software to conduct the tasks listed above and to back up their systems.

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Opportunities for Improvement and Future Research

Simplify complex tasks with interface modifications

Implement interface guidance

Find more unified solutions to prevent loss of data and/or downtime, focusing on migrating, security, and monitoring

Consider implementing behaviors and placement of notifications that are consistent in order to improve the overall user experience

Thank you

OpenSearch